The Coordinating Unit of the Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia (Raptors MOU)

Saker Falcon Task Force

A conceptual governance and management system for the Adaptive Management Framework for the sustainable use of the Saker Falcon *Falco cherrug*

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LIST OF ABBREVIATIONS

AMF - Adaptive Management Framework
AMF DG - Adaptive Management Framework Discussion Group
CBD - Convention on Biological Diversity
CITES - Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS - Convention on the Conservation of Migratory Species of Wild Animals
COP - Conference of Parties
CU - Coordinating Unit
EU - European Union
IAF - International Association for Falconry and Conservation of Birds of Prey
IUCN - International Union for Conservation of Nature
MEA - Multilateral Environmental Agreement
MoS - Meeting of Signatories
MOU - Memorandum of Understanding
NDFs - Non-Detriment Findings
NGO - Non-governmental Organization
Raptors MOU - MOU on the Conservation of Migratory Birds of Prey in Africa and Eurasia
SakerGAP - Saker Falcon Global Action Plan
SDMS - Saker Data Management System
SakerID - Saker Identity Database
SF QMS - Saker Falcon Quota Management System
STF - Saker Falcon Task Force
UAE - United Arab Emirates
UNEP - United Nations Environment Programme

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EXECUTIVE SUMMARY

The scope of this document

- The document's purpose is to conceptualise the overall governance and management of the Adaptive Management Framework (AMF) for the sustainable use of the Saker Falcon and assist stakeholders, especially international and Range State authorities, in designing and establishing an AMF that harmonises alternative policies, legal and wildlife management tools.
- Effective action is required to reduce the severe illegal and unsustainable harvesting, trapping, and trade of wild Saker Falcon populations. Reviewing aspects of international environmental governance regarding the Saker Falcon may facilitate this.
- This document outlines the concept and components of the Governance and Management module of the internationally harmonised AMF for stakeholder consultation. The operational-level management design is beyond this document's scope, and its development will first require the consensus of stakeholders on the present concept's outline. The document also does not detail the complementary eight modules of the AMF.

The Saker Falcon

- The Saker Falcon (*Falco cherrug*) is a large, powerful falcon that breeds across the Palearctic, from the Czech Republic to Western China. Its long-standing use in falconry has given it significant cultural and economic importance, particularly in the Gulf States and Central Asia. It is also recognised as a flagship species for conservation throughout its global range.
- The Saker Falcon was listed as globally Endangered in 2012 by the International Union for Conservation of Nature (IUCN) because a revised population trend analysis indicated that it may have rapidly declined, particularly in the Central Asian breeding grounds.
- Under the Convention on the Conservation of Migratory Species of Wild Animals (CMS), the Saker Falcon is listed in Appendix I, prohibiting taking or harvesting, except for the Mongolian population listed in Appendix II. It is also listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), allowing trade under a Non-detriment Finding (NDF) assessment.

Unsustainable trapping and trade: critical threats to the Saker Falcon

- The Saker Falcon Global Action Plan (SakerGAP), published in 2014, identifies unsustainable trapping as the second leading cause of the species' decline, following electrocution on power lines. Objective 2 of SakerGAP aims to "Ensure that where trapping and other forms of taking Saker Falcons from the wild are legal, they are controlled and sustainable, thereby encouraging population growth and eventual stabilisation".
- The reported continued illegal, unsustainable trapping and trade and the resulting decline of Saker Falcon populations within its breeding range suggest that national and international law enforcement, monitoring, research, conservation and public awareness efforts cannot or only moderately offset the adverse effects of illegal taking and trade.

Current legal use of the Saker Falcon under CMS and CITES

- Currently, Mongolia is the only Range State where CMS allows the legal taking of the Saker Falcon. Implementing an AMF that includes harvesting or taking the Saker Falcon beyond the Mongolian population requires the preceding removal of populations or the entire species from CMS Appendix I. At the same time, taking Saker Falcons in Mongolia should exclude the trapping of falcons from neighbouring states' populations and provide transparent evidentiary control tools.

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- Under CITES, international trade in the Saker Falcon may be authorised only if the relevant authorities of the exporting country are satisfied that the specimens were legally obtained and that trade will not be detrimental to the species' survival in the wild (through an NDF assessment). However, NDFs are done country-by-country, which hinders the comprehensive evaluation of the flyway-level or global impact of trade even if the necessary data is available.

Filling the gap of an internationally harmonised Adaptive Management Framework for the sustainable use of the Saker Falcon

- One of the key aims of the Saker Falcon Task Force (STF) is to develop an AMF that potentially moves the current illegal and presumably unsustainable trapping activity towards a legal, controlled, and sustainable system that conforms to CMS and CITES requirements.
- Currently, an internationally harmonised framework that can effectively manage the sustainable use of transboundary and migratory raptor species, such as the Saker Falcon, along multinational flyways and in wintering areas does not exist in Eurasia. Nevertheless, CMS and CITES recognise that this gap must be addressed as specific threats and conservation considerations apply to these species.
- With the development of the AMF, the STF seeks to find a balance between the benefits of an internationally coordinated sustainable use framework and the inherent risks of taking Saker Falcons from the wild in large numbers.

Modular Adaptive Management Framework

- To develop such a framework, the STF established an Adaptive Management Framework Discussion Group (AMF DG) to conceptualise a modular AMF and to assist stakeholders' decision-making, especially international partners and national authorities, on the sustainable use of the Saker Falcon.
- To mitigate the Saker Falcon AMF's complexity globally and within the Range States, the AMF is subdivided into complementary parts called modules for more straightforward system design and conceptualisation by the STF and more effective implementation by the Range States. Modules can be adapted according to the users' needs, creating various management systems with the same objective. Modules are purpose-specific and built up from components.
- The AMF integrates nine modules: 1. Governance & Management, 2. Policy & Law-making, 3. Law Enforcement, 4. Awareness Raising, 5. Monitoring & Research, 6. Ex-situ Conservation, 7. In-situ Conservation, 8. Cooperation & Networking, 9. Saker Falcon Stewardship.

The application of the Precautionary Principle and pre-defined safeguards for sustainable use

- The Precautionary Principle must be considered when managing a globally threatened species adaptively under considerable scientific uncertainties. However, the lack of complete scientific certainty should not hinder the application of the AMF.
- According to the AMF concept, sustainable use should be used only where the pre-defined safeguards are met and if those are offset illegal and unsustainable harvest, capture and trade. Any decision under the AMF should be evidence-based and be made in the species' best interest.
- Six essential, four desirable and six additional legal, ecological and social safeguards are defined to ensure the sustainability of any use. Any taking would not be allowed if these safeguards were not met.
- If applied, the AMF would be a non-legally binding, voluntary framework operating within a national legal and Multilateral Environmental Agreement context. Range States or political and economic unions would have the sovereign right to decide not to join the AMF if they considered it unreasonable or an inappropriate tool in the fight against illegal trapping and trade.

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Significant knowledge gaps still exist

- Significant knowledge gaps and the lack of resources for surveys and conservation hinder global improvement in the species conservation status and population trajectory and any consequent review of listing of the Saker Falcon on CMS Appendices. Data to understand conservation status and population trajectory, including key population parameters, are essential for a properly functioning AMF and achieving the goals of the SakerGAP and should be provided through an effective programme of research and monitoring.

Saker Data Management System

- In the future, it is essential that available legal and illegal trapping and trade data within and between the Range States and under CMS and CITES are collected and analysed co-ordinately. This will enable an international coordinating body to determine whether global use continues to threaten wild Saker Falcon populations.
- The Saker Data Management System is planned to be a specially developed computer database to capture, organise, store, analyse and synthesise non-sensitive or derived data collected during the implementation of the AMF through a three-level data collection system.

The Saker Falcon Quota Management System

- To mitigate the impacts of illegal trapping and trade and establish a Saker Falcon Quota Management System (SF QMS), it must be set within an Adaptive Management Framework.
- The Quota Management System may create financial incentives to sustainably manage wild Saker Falcon breeding populations in the Range States with limited research, monitoring, and conservation funding. It may bring together governments, regulators, conservation organisations and market players instead of separating them.

'Cap-and-trade' scheme: a possible option to monitor Saker Falcon taking and trade

- Applying pre-defined sustainability safeguards, a 'cap-and-trade' scheme would limit the overall use of wild Saker Falcons and set annual global quotas based on evidence-based Maximum Sustainable Harvest Rate modelling and calculation. Within that sustainability limit, participants would be allowed to voluntarily buy and sell or exchange quotas in a controlled way.
- The global quota would be split into national quotas and given to responsible breeding and non-breeding Range States that can sell credits (or permits) to 'Users' and 'Extractors'. This would allow a concerted opportunity for engaging 'Users' and 'Extractors' in contributing to remedial conservation costs in breeding Range States, along flyways and in wintering areas, at least 50% of which would be invested in concrete conservation actions.

Provisional timeline for introducing a national quota management system

- The present document proposes a four-phase timeline for introducing national quota schemes, where CMS and national regulations allow it (in the case of non-CMS Range States).
- Without previous monitoring and bird protection interventions, the first three phases (Phase I-III) can optimally span seven years. However, if monitoring and conservation measures have already started, legal and conditional sustainable use can be applied from the sixth year of the project's start or even earlier.

Connectivity between Range States - Flyways

- The Saker Falcon has resident, transboundary and migratory populations within its global range. Individual migratory behaviour of falcons may vary even within the same population.
- From a conservation perspective, the dispersal and migration of Saker Falcons connect breeding and non-breeding (winter and passage) Range States, making them equally responsible for the

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species' survival. An AMF can be most effective when breeding, non-breeding and user Range States cooperate and act concertedly along Saker Falcon flyways as members of the same wildlife conservation management framework with a shared goal.

A three-level collaboration between breeding and non-breeding Range States and stakeholders along flyways

- An AMF for the sustainable use of wild Saker Falcons can be effective only if breeding, non-breeding and user Range States act together concertedly along Saker Falcon flyways. It also requires a consensus among the main stakeholders that using specific populations of the Saker Falcon can be sustainable and acceptable.
- A three-level (international, national and local) governance and management hierarchy and reporting system may ensure the collaboration of breeding and non-breeding Range States and stakeholders along flyways.

Updated conservation priority ranking of Range States

- Spatial prioritisation is necessary to allocate limited resources to areas where actions are most urgently needed or where collaboration with influential end-users is most likely to yield effective global conservation outcomes.
- A significant change compared to the method used in 2014 is that the scores of key End-user and Source Range States (exporters) of wild-origin Saker Falcons have been weighted, increasing their priority rankings. The end-user Range States with high interest and strong influence are vital players whose active involvement and support can drive significant positive shifts or breakthroughs. Their commitment and substantial power make them essential partners for achieving impactful outcomes and fostering lasting change. Thus, their full engagement in designing and implementing the AMF is paramount.

Enhancing Range States' responsibility and collaboration within the AMF

- Adequate funding should be mobilised to allow monitoring and research throughout the Saker Falcon's range to track conservation status and trajectory and implement an evidence-based AMF. This should be possible given the high level of interest in the species, its cultural and economic value, and the relative wealth of the consumers.
- Range States, and especially end-users and extractors, must increase their national and global responsibility, including their voluntary financial contribution to implementing the Saker Falcon Adaptive Management Framework initiative.
- The essence of the AMF concept is that collaborative efforts of Range States can reduce the impacts of illegal capture and trade. The more Range States join the AMF, the more effective it can be. Without the possibility of legal use, sustainability safeguards are likely not widely applied, and a global AMF's effectiveness is likely reduced.
- This suggests that without creating the resources to cover the costs of population monitoring, modelling and conservation actions, the *status quo* continues, and the application of an Adaptive Management Framework for the sustainable use of the Saker Falcon will only be feasible to a limited extent in practice without effectively addressing the threat of unsustainable trapping and trade.
- Within the AMF, end user Range States with the highest consumption of wild Saker Falcons (i.e. those with a high 'Saker Falcon footprint') would have a formalised and coordinated opportunity to fund remedial conservation programmes in breeding Range States most impacted by illegal taking and trade. This approach may stabilise declining significant populations to a level where sustainable legal use of the Saker Falcon could be considered.

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1. BACKGROUND

The Saker Falcon

The Saker Falcon *Falco cherrug* is a large, powerful falcon. It adapted to relatively arid, open landscapes and feeds on small and mid-sized birds and mammals. The range of the Saker Falcon spans over 80 countries, spanning over 7,000 km from the Czech Republic in Central Europe to Western China and 3,000 north to south. It breeds in the Palearctic region from Central Europe to East Asia and annually migrates south to wintering areas in Africa, Southern and Eastern Asia. The key breeding states in Europe are Hungary and Ukraine; in Asia, the main strongholds are China, Kazakhstan, Mongolia and the Asian part of Russia. The four critical Asian breeding states hold over 90% of the global breeding population.

Its long-standing use in falconry has given it significant cultural and economic importance, particularly in the Gulf States and Central Asia. It is also recognised as a flagship species for conservation throughout its global range.

In 2011, a Saker Falcon Task Force (STF) was established to bring together Range States and a wide range of interested parties to develop a coordinated Saker Falcon Global Action Plan (SakerGAP), including a management and monitoring system, to conserve the species. The SakerGAP (Kovács et al., 2014) was published by the Coordinating Unit of the Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia (CMS Raptors MOU) and the STF in 2014.

The global conservation status of the Saker Falcon

The Saker Falcon was listed as globally Endangered in 2012 by the International Union for Conservation of Nature (IUCN; BirdLife International, 2021a), which means that the species may face a very high risk of extinction in the wild. A population trend analysis indicates that the Saker Falcon may be undergoing a very rapid decline. This negative trend results from various anthropogenic factors, including electrocution on power lines, unsustainable capture for the falconry trade, habitat degradation, and the impacts of agrochemicals. The rate of decline appears to be particularly severe in the central Asian breeding grounds. This highly uncertain classification may be revised when new information becomes available.

The saker falcon is listed in CITES Appendix II, which permits trade subject to the development of an NDF. Under the Convention on Migratory Species (CMS), the species is listed in Appendix I, meaning that, in CMS Parties, taking or harvesting is generally prohibited (except for the Mongolian population, which is listed in Appendix II).

The global population size is estimated at 6,081 – 14,905 pairs (Kovács et al., 2014), or more recently, at 12,200 - 29,800 mature individuals (BirdLife International, 2024).

Note: BirdLife International adopted SakerGAP's global population estimates as mature individuals instead of pairs. The essential difference is that while the estimated number of pairs does not include non-territorial sexually matured individuals ('floaters') because there is generally no information about them, the term 'mature individuals' includes them.

The global population trend is decreasing.

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The global population trend during the 19 years of 2002-2021 equates to a 44.6% decline (based on median estimates), with a minimum-maximum decline of 12-71%. With a 44.6% population size reduction, the Saker Falcon's global status would fall under Globally Vulnerable (facing a high risk of extinction in the wild). However, given the substantial uncertainty over the estimates used, the population trend is best placed *precautionarily* in the band for a 50-79% decline over three generations (BirdLife International, 2024).

In Europe, the reported decline in the eastern populations resulted in its status being reassessed in the *European Red List of Birds 2021* as Endangered from Vulnerable in 2015 (leronymidou et al., 2015; BirdLife International, 2021b). In Central Europe, Saker Falcon population sizes have changed in some Range States, or better estimates have been available since 2014. The Central European Saker Falcon population has increased over three generations (19.2 years) (Prommer et al., in press; Hohenegger et al., 2023). The effects of the protracted military conflict on the Saker Falcon population in Ukraine, one of the species' strongholds in Europe, are unknown (Prommer et al., in press).

In Asia, new estimates have been available for entire territories or significant regions of top-priority breeding Range States such as China (Sun et al., 2021), Kazakhstan (Karyakin et al., 2023), Mongolia (Mainjargal et al., 2022), and the Russian Federation (Karyakin et al., 2023).

According to these new estimates, the Saker Falcon population has experienced a further large decline in Kazakhstan and the Russian Federation compared to the estimates in SakerGAP (Karyakin et al., 2023). However, no such decline was detected in China and Mongolia.

No significant recent changes at the scale of global range

No extensive Range State-wise field research has taken place since the publication of the SakerGAP (2014), which would significantly change our understanding of the species' global range.

The 2014 SakerGAP and the 2024 BirdLife International global range maps of the Saker Falcon are almost identical *(**Annex 3**)*. There have been only minor changes in the global range, e.g. in wintering sites in Italy and Niger.

Nevertheless, some Range States have experienced changes in national distribution due to increases or decreases in national population sizes. These recent changes are not reflected at the scale of the global distribution map.

Dispersal and migration patterns

The Saker Falcon has resident, transboundary and migratory populations within its global range. Individual migratory behaviour of falcons may vary even within the same population.

In Central Europe, juvenile Saker Falcons establish 1-3 temporary settlement areas (TSAs) before moving to winter areas (Prommer & Bagyura, 2021). They regularly make longer exploratory flights from their TSAs, sometimes covering considerable distances and then returning to the TSAs. The direction and distance of post-fledging dispersal varied greatly. Most tagged juvenile sakers remained in the Pannonian Basin. Some dispersed as far as Spain, the Baltic states or Kazakhstan. Juvenile Saker Falcons are partial migrants (Prommer et al., 2012a). The autumn migration occurs from mid-September to November, and the spring migration from mid-February to April. About half of the Sakers satellite-tagged in Hungary were residents or short-distance migrants. One-third of the tagged Sakers were true (mid- to long-distance) migrants. Most migratory individuals in the first-year cohort satellite-

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tagged in Central Europe showed parallel migration (at 190-200°), uniformly moving to the southwest, regardless of their starting position. Adults are less likely to make long-distance migratory movements than juveniles *(**Annex 9-11**).*

In Central Asia, Saker Falcons are 'partial migrants' (Dixon, 2016; Shobrak, 2015; Prommer et al., 2012a). The autumn migration occurs from mid-September to November, and the spring migration from mid-February to April. The proportion of birds making migratory movements differs across regions and age classes. Birds are more sedentary in the south, and adults are less likely to make long-distance migratory movements than juveniles. Migratory Saker Falcons typically move to more southerly wintering areas within the species' breeding distribution range or to the Middle East and the Indian subcontinent *(**Annex 12**).*

As soon as Saker Falcons leave their natal area, their origin is not identifiable without individual marking or lab analyses. Sakers from distinct populations may occur in the same temporary settlement area simultaneously.

Without the exact knowledge of the origin of a trapped Saker Falcons, both legal and illegal trapping may impact small and decreasing populations, accelerating their depletion. Therefore, the individual marking or lab identification of the origin of Sakers (e.g. genetic ID, stable Hydrogene-Isotop analysis) is critical for an AMF (Kenward, 1999; Kenward, 2008; Franke et al., 2017, ***Annex 14*** Species-specific adaptive harvest management (AHM) scheme examples: European Turtle-dove, Taiga Bean Goose, Pink-footed Goose, Peregrine Falcon).

Connectivity between Range States - Flyways

The Saker Falcon occurs in five overlapping major flyways of migratory land and waterbirds (BirdLife International, 2010; BirdLife International and the HBW, 2023) within its global range *(**Annex 5-6**),* of which migratory Sakers of European populations primarily use the Black Sea/Mediterranean flyway, while Asian Saker Falcons migrate along the East Asian/East African and Central Asian flyways. The dispersal areas and migration routes of individuals from the same Saker Falcon population may vary considerably, and the flyways of different Saker populations may extensively overlap. This significantly complicates the identification of the geographical origin of trapped falcons and, at the same time, increases the importance of individual markings for the AMF and, ultimately, for sustainable use.

From a conservation perspective, the dispersal and migration of Saker Falcons connect breeding and non-breeding (winter and passage) Range States, making them equally responsible for the species' survival. An AMF for the sustainable use of wild Saker Falcons can be most effective when breeding, non-breeding and user Range States cooperate and act concertedly along Saker Falcon flyways as members of the same conservation management framework to achieve the goal of the SakerGAP.

Updated conservation priority ranking of Range States

Spatial prioritisation may be necessary to allocate limited resources to areas where actions are most urgently needed or where collaboration with influential end-users is most likely to yield effective global conservation outcomes.

The conservation status and ecological parameters of wild Saker Falcon populations, as well as the geographical distribution of their legal and illegal use, are critical factors in prioritising Range States *(**Annex 1**, **Annex 2**)*, i.e. for the most efficient allocation of available resources to achieve the objectives of the SakerGAP.

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Based on the methodology developed for the SakerGAP, ***Annex 2*** Priority breeding and user Range States presents re-assessed global and regional conservation priority rankings 1-4 of Range States (for Asia, Europe, the Middle East, and North Africa). The priority ranking is based on the reversed order of the sum score of six parameters (1. Status – breeding, winter, passage, 2. Breeding population size, 3. Population trend, 4. 'Source population' regarding natal dispersal, 5. Source state of wild Saker Falcons and 6. 'End User' state of wild Saker Falcons). Thus, it combines conservation status, population ecological and stakeholder considerations.

Compared to the priority rankings published in the SakerGAP in 2014, the top priority ranks (1) of Mongolia, the Russian Federation (Asian part), Kazakhstan and China have not changed.

Remarkable improvements in national Saker Falcon populations have occurred in Central European breeding Range States such as Austria, Romania and the Republic of Serbia (Prommer *et al.*, in press). This places Romania in a higher rank (from 4 to 3), while the rank of the Republic of Serbia decreased (from 2 to 3) due to its stabilised Saker Falcon population.

According to recent reports (Karyakin et al., 2023), the Saker Falcon breeding population of the European part of the Russian Federation has decreased to near-extinction. This places the European part of Russia in a higher rank (2 from 3).

A significant change compared to the method used in 2014 is that the scores of key End-user and Source Range States (exporters) of wild-origin Saker Falcons have been weighted, increasing their priority rankings.

The end-user Range States with high interest and strong influence are vital players whose active involvement and support can drive significant positive shifts or breakthroughs. Their commitment and substantial power make them essential partners for achieving impactful outcomes and fostering lasting change. Thus, their full engagement in designing and implementing the AMF is paramount (Kovács et al., 2013).

As a result, the priority ranks of end-user states such as Saudi Arabia, the United Arab Emirates, Kuwait, and Qatar have increased notably (to rank 2 from 4 or 5), and exporters such as Kyrgyzstan (rank 3 from 4), Jordan and Morocco were placed in higher ranks (rank 4 from 5).

Note: Essential Safeguard 2 (introduced in Table 5 of the SakerGAP) says that Only *populations or meta-populations exceeding 100 observed or accurately estimated breeding pairs* should be considered potential harvesting sources. Estimations should be based on reliable quantitative or representative data through sampling (e.g. mark-recapture) or interpolation for a given period and area. This limits priority breeding Range States to China, Mongolia, Russian Federation, Kazakhstan, Ukraine, Hungary and Turkmenistan, which, if taking is allowed by MEAs and legislation and all other safeguards, including stakeholder consensus, are met, can potentially be considered for applying the AMF for sustainable use.

Current legal use under CMS and CITES

CMS status: The Saker Falcon is listed in Appendix I, excluding the population in Mongolia (which is listed in Appendix II). Appendix I includes endangered migratory species categorised as being at risk of extinction throughout all or a significant proportion of their range. Parties strive towards strictly protecting such *species, which are excluded from taking, apart from under recognised exceptional circumstances* (Article III.5 of CMS lists a limited number of exceptions).

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CITES status: The Saker Falcon is included in Appendix II. Appendix II lists species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled. *Granting an export permit or re-export certificate may authorise international trade in specimens of Appendix-II species.* These should only be issued if the relevant authorities are satisfied that the specimens were legally obtained and that trade will not be detrimental to the species' survival in the wild (subject to a Non-Detriment Findings assessment).

However, primary scientific data for making NDFs are often missing or insufficient in Range States. These data include the population size, distribution/range, population trends, management plans and protection of the populations from over-harvest, monitoring of the harvest levels and trade patterns, monitoring of population data, and establishment of the feedback loops necessary for adaptive management.

NDFs are done country-by-country, which hinders the comprehensive evaluation of the flyway-level or global impact of trade even if the necessary data is available.

Moreover, through individual marking, reliable knowledge of the exact geographical origin of the falcons and international, flyway-level coordination of legal trade is necessary to avoid the use of declining, endangered populations despite positive CITES' Non-Detriment Findings assessments.

CITES generally does not recommend 'split-listing' based on differences in the conservation status of national or regional populations.

Note: While CMS does not allow taking the Saker Falcon outside Mongolia, CITES conditionally allows it but currently recommends a zero quota for the international trade of wild Saker Falcons. However, moderate legal international trade is ongoing, mainly in captive-bred specimens.

The distribution of the Saker Falcon in CMS and CITES Parties and in non-CMS and non-CITES Range States

According to the population estimates published in the SakerGAP (Kovács et al., 2014), over 45% of the estimated global breeding population of the Saker Falcon is distributed in non-CMS priority breeding Range States *(**Annex 4**)*, such as China (1,000-5,000 bps) and the Russian Federation (1,553-2,094 bps; 1,356-1618 bps; [Karyakin et al., 2023]).

Non-CMS user Range States that are particularly important from the stakeholder engagement point of view include Kuwait and Qatar.

Key, non-CITES breeding Range States that reportedly hold a Saker Falcon population exceeding 100 breeding pairs include Turkmenistan (100-150 bps).

Note: In non-CMS and non-CITES Range States, national legislation must ensure that the management and use of wild Saker Falcons are sustainable to meet, among others, Targets 4, 5, 9, and 20 of the Kunming-Montreal Global Biodiversity Framework on the sustainable use of species (CBD, 2022).

Unsustainable use of wild Saker Falcons

'Sustainable use' means using components of biological diversity in a way and at a rate that does not lead to its long-term decline, thereby maintaining its potential to meet the needs and aspirations of present and future generations (CBD, 1992).

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The SakerGAP (2014) identifies 'unsustainable trapping/harvest on the breeding grounds and along the migration routes' as the second leading cause of the decline of the Saker Falcon following the electrocution of Sakers on medium-voltage power lines as the most significant threat.

Based on the available reports of MEAs, national governments and conservation NGOs, the illegal, unsustainable trade of wild Saker Falcons is ongoing in several Range States on the breeding grounds, migration routes and wintering sites, but the level is largely unknown.

The MEAs and national legislation must ensure that people are encouraged and enabled to make sustainable consumption choices to meet, among others, Target 16 of the Kunming-Montreal Global Biodiversity Framework. The use of wild Saker Falcons is the leading sustainability element of AMF, and it should be considered when assessing the consumers' and end users' natural capital footprint.

Alternative solutions for reducing the illegal taking of wild Saker Falcons

The SakerGAP does not encourage using wild Saker Falcons while the species is globally endangered or in Range States where the Saker Falcon populations are unaffected by domestic or international illegal harvest/trapping and trade. It promotes, however, that harvest sustainability should be ensured where and when MEAs (CMS and CITES), regional legal instruments like the EC Birds Directive (EC, 2009) and national legislation allow the taking of the Saker Falcon. The SakerGAP considers sustainable use a potential conservation tool in mitigating uncontrolled, illegal trapping and trade.

Apart from cautious legislation and effective law enforcement, there are two general alternatives which could potentially contribute to reducing illegal and uncontrolled taking:

1. A ban on commercial trade or zero quotas, in the case of the Saker Falcon (status quo for most Range States or 'no-action' alternative): Current national and international law enforcement, monitoring, research, conservation and public awareness efforts can moderately address illegal taking and trade. 'White market' is not created, or it is insignificant, and wild-origin Saker Falcons have no legal economic value as they are not utilised legally.
   Stakeholders deal with the lack of resources to fight illegal harvest and trade and conserve and improve the species in most of its range. Organised criminal groups remain heavily involved in wildlife crime and play important roles across the trafficking chain, from source to end market. At the same time, corruption continues to hamper regulation and enforcement efforts, and new technologies provide traffickers with better access to global markets (UNODC, 2024).

2. The application of a sustainable use model as a part of an Adaptive Management Framework where legally possible and in those parts of the range where the population is at a level and trajectory that could sustain a limited amount of taking. Carefully tackling its risks, sustainable use may generate income through legal and controlled trade to cover the cost of its adaptive conservation management and help people who live with it.

Note: The applicable conservation management tools may considerably differ in Range States based on preconditions for sustainable use.

Due to the nature of illegal activities, direct data on the level of illegal harvest and trapping are challenging to obtain, so currently, the ban's impact on taking cannot be monitored and assessed correctly. Evidence from seizures, interviews and expert opinion can help build a picture but rarely provides comprehensive quantitative data for integrated population modelling (Schaub & Abadi, 2011; TRAFFIC International, 2024) and impact assessment.
The demand for wild-origin Saker Falcons has likely not diminished significantly since 2011 when CMS Parties decided to ban taking (except for the Mongolian population). The highly sought-after Saker

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Falcon sub-populations or specific phenotypes (e.g. the large-bodied and dark morph Altai Saker or the large blond 'Ashgar Falcon') have continued to decline, and illegal trade with Sakers still happens (Zinevich *et al.*, 2023).

Under the SakerGAP concept, theoretically, illegal trapping and trade can potentially be converted into controlled and sustainable use and contribute to improving the species' conservation status.

However, this would need to be tested, and establishing an Adaptive Management Framework (AMF) may provide this opportunity. The logic may further justify the establishment of the AMF that if a legal framework does not exist or the number of falcons from legally available, sustainable sources can only satisfy a small part of the demands, end-users will not be able to join the legal framework.

Legal possibilities for developing and implementing an AMF under CMS

The legal analysis (CMS Secretariat, April 2022) on the consistency of the development and implementation of an adaptive management framework for the Saker Falcon with the provisions of the CMS concluded that:

"*23. The development of an adaptive management and monitoring framework for the Saker Falcon would not, by itself, contravene any provision of the Convention. However, any implementation of an AMF that includes harvesting or taking of the Saker Falcon beyond the Mongolian population would contravene Article III.5 unless it is limited to populations, or the entire species, previously delisted from Appendix I.*"

The Saker Falcon is currently listed by the IUCN as globally Endangered. Due to significant knowledge gaps and the sharp decline of the species in some regions, it is unlikely that the entire species' Red List category will qualify for downlisting soon.

The legal taking under the AMF could be implemented only for populations not listed on CMS Appendix I. The verifiability of several sustainability safeguards (see in more detail in Chapter 2) requires the legal possibility of use and a concerted international adaptive management framework, which CMS does not currently allow outside Mongolia. However, the more Range States join the AMF, the more effective it can be. Without the possibility of legal use, which is presently limited only to Mongolia, the effectiveness of a global AMF is likely reduced.

This can be demonstrated by the effectiveness of individual marking as a critical monitoring tool for the Saker Falcon Quota Management System *(*SF QMS;

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Figure **1***, Figure 7*). Even if individual Sakers were marked at breeding sites and along flyways, trappers, middlemen, and users may not report illegally trapped marked falcons. This may lead to a systematic error in threat assessment and population modelling, making individual marking less effective as a monitoring and research tool.

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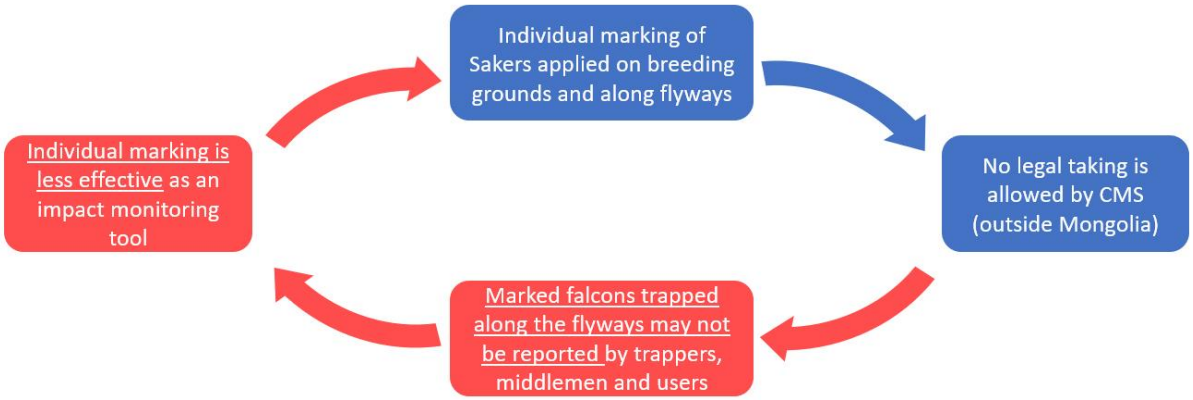
Figure 1 The effectiveness of individual marking when no legal taking is allowed outside Mongolia (see Kenward et al., 2017)



Existing significant knowledge gaps and their consequences for the AMF

Significant gaps in knowledge regarding the use of the global Saker Falcon population persisted.

Insufficient recent information is available about the following:

- population parameters in most Range States, especially in Asia and Africa, such as distribution, abundance, population sizes and trends, breeding success, survival, genetic variation, wintering and dispersal, movement patterns within and between populations and;
- by its unreported nature, the current extent and effects of illegal trapping and trade and specifically:
  - the harvest levels from different Saker populations (Collar et al., 2013);
  - the proportion of trapped age classes in wintering areas;
  - the scale and extent of trapping of wild Saker Falcons in states not holding breeding populations; and
  - the long-term effect of trapping on the dispersal behaviour and breeding performance.

Significant resources are required to fill these crucial knowledge gaps globally. An early priority should be to deliver monitoring and research data on critical parameters needed for population modelling supporting the implementation of the AMF in those breeding populations or population units and their related flyways where safeguards would allow the legal taking of Saker Falcons.

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2. THE ADAPTIVE MANAGEMENT FRAMEWORK FOR THE SUSTAINABLE USE OF THE SAKER FALCON

The overall goal and specific objective of the Saker Falcon AMF

The Saker Falcon AMF is a systematic approach for mitigating/eliminating all leading causes of the decline of the Saker Falcon under substantial uncertainties. It integrates principles such as the precautionary principle, evidence-based decision-making, and adaptive management, where the effects of management decisions are closely monitored, and the results are used to inform management annually and stakeholder cooperation and engagement. It can be applied throughout the range of the species and includes a description of the six key steps in the cycle: plan, design, act, monitor, evaluate and learn, and adjust management.

The underlying principle of conservation management through the sustainable use of wildlife resources requires that there is no detrimental impact on the population being harvested. Any decision under the AMF should be evidence-based and be made in the species' best interest.

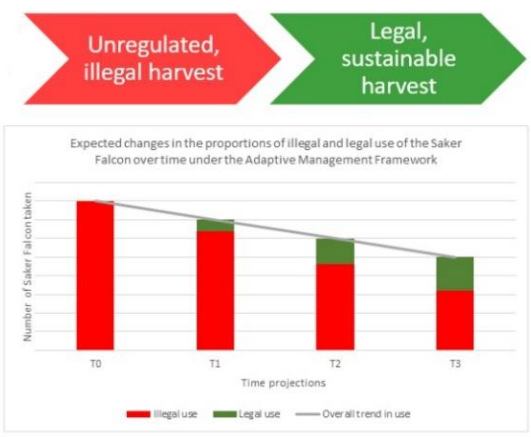
The Addis Ababa Principles and Guidelines, developed by the Convention on Biological Diversity (CBD), make it clear that adaptive management, based on monitoring, assessment and re-adjustment of management practices, is an essential prerequisite for the sustainable use of wildlife resources.

The overall goal of the SakerGAP and the AMF is to re-establish a healthy and self-sustaining wild Saker Falcon population throughout its range and ensure that any use is sustainable (Kovács et al., 2014). This goal can be achieved by applying a carefully designed and managed global harvest quota system underpinned by synergistic international and national legislation and effective enforcement across the full range of the species, on the basis of a compliance-friendly regulatory design, effective control and sanctioning.

Objective 2 of the SakerGAP is to "Ensure that where trapping and other forms of taking Saker Falcons from the wild are legal, they are controlled and sustainable, thereby encouraging population growth and eventual stabilisation".

The aim is to shift the existing unregulated, illegal harvest towards a regulated, legal, sustainable one and set out how a controlled, sustainable harvest of wild Saker Falcons could be undertaken in agreed parts of its range while simultaneously decreasing the overall level of harvest globally thus contributing positively to achieving Objective 2 of the SakerGAP *(Figure 2)*.

Figure 2 Expected changes in the proportion of illegal and legal use of the Saker Falcon under the Adaptive Management Framework (theoretical)



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The AMF also aims to provide an evidence-based decision-making tool for international and national authorities to decide whether or not to harvest/use a wild Saker Falcon population even when the relevant multilateral environmental agreements (CMS and CITES particularly) and scientific data would allow it.

The AMF would be a non-legally binding, voluntary framework operating within a legal and MEA context. In many cases, the current legislative and MEA framework does not allow AMF to be applicable in a Range State. Where it theoretically could be, Range States or political and economic unions (e.g. the European Union) would have the sovereign right to decide not to join the AMF if they considered it unreasonable or an inappropriate tool in the fight against illegal trapping and trade.

The modular AMF approach

The aims of the modular AMF approach are the following:

1. Complete an inventory of all necessary components for implementing the AMF for the sustainable use of the Saker Falcon. AMF is designed to be a support mechanism/tool to assist stakeholders, especially international and Range State authorities.
2. Mitigate the Saker Falcon AMF governance complexity globally and within the Range States.
3. Subdivide the Saker Falcon AMF into smaller, complementary parts called modules for easier system design and conceptualisation by the Saker Falcon Task Force and more effective implementation by the Range States. Modules can be adapted according to the users' needs, creating various management systems with the same objective. Modules are purpose-specific and built up from components.
4. Provide detailed guidance on how each module should be applied to support the implementation of the AMF. Target stakeholders range from international organisations through the Range States to individual users.

The AMF has the following nine modules *(Figure 3)*:

Module 1: Governance and Management
Module 2: Policy and Law-making
Module 3: Law Enforcement
Module 4: Awareness Raising
Module 5: Monitoring & Research
Module 6: Ex-situ Conservation Management
Module 7: In-situ Conservation Management
Module 8: Stakeholder Cooperation & Networking
Module 9: Saker Falcon Stewardship

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Figure 3 The nine modules of the AMF, with their components

The geographical scope of the AMF

The AMF potentially covers the entire range of the Saker Falcon but mainly focuses on priority Range States *(**Annex 1**, **Annex 2**)*. Specific AMF components can be applied in participating Range States according to country-specific features and conditions.

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3. AMF Module 1: Governance and Management

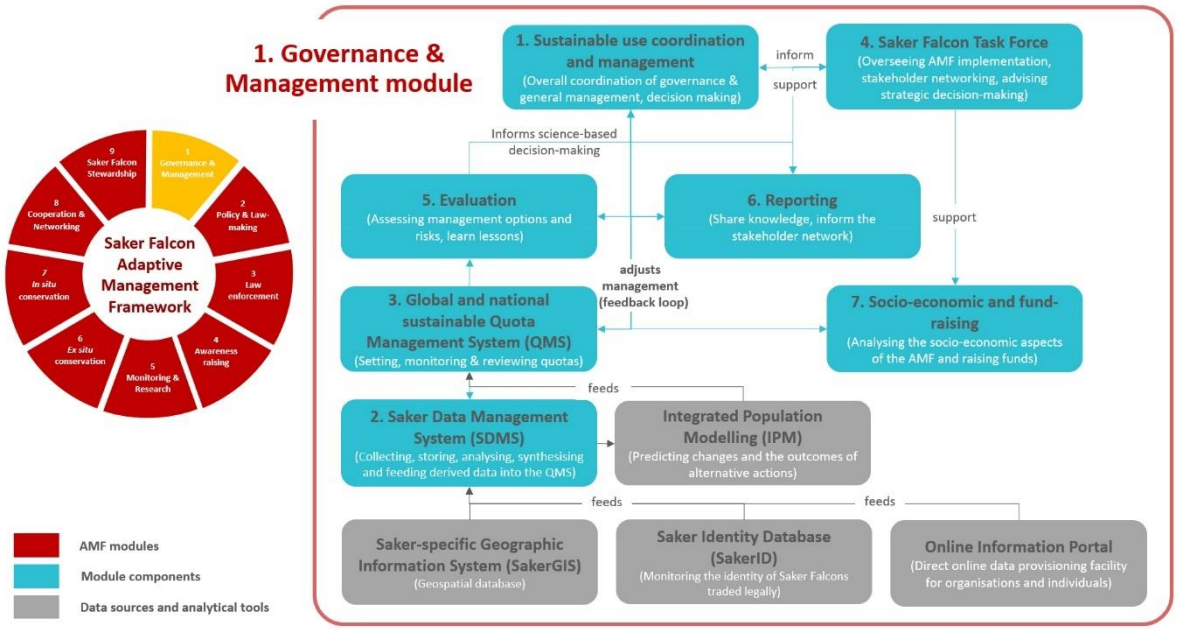
The purpose of Module 1 is to conceptualise the overall governance and management of the Adaptive Management Framework (AMF) for the sustainable use of the Saker Falcon. It also aims to assist stakeholders, especially international and Range State authorities, with the legal, controlled, and sustainable use (harvest/capture/trade/keeping) of the Saker Falcon in parts of its range. At the same time, it aims to decrease the overall level of harvest globally and exert minimal adverse impact on decreasing non-target populations.

The module consists of seven components as follows:

1. Sustainable use coordination and management component
2. Saker Data Management System component
3. Global and national sustainable quota management system component
4. Evaluation component
5. Reporting component
6. Socio-economic and fund-raising components
7. Saker Falcon Task Force component

Figure 4 below shows the components and data sources of the Governance and management module, as well as their function, relationship, and hierarchy.

Figure 4 Components and data sources of the Governance and Management module, their function, relationship, and hierarchy



Sustainable use coordination and management component

Conceptual base

The success of the AMF in the sustainable use of the Saker Falcon and the survival of decreasing Saker populations depends on the firm collaboration and concerted actions of stakeholders, breeding and non-breeding Range States, and Multilateral Environmental Agreements at the flyway level.

This requires continuous trust-building in partnership, engaging the most interested and powerful stakeholder group, the end-users, in the AMF, and changing their commitment and attitude to use legal, controlled, and sustainable ways to obtain wild Saker Falcons while contributing to conservation efforts targeting their populations.

An internationally harmonised framework under MEAs that can effectively manage the sustainable use of transboundary and migratory species, such as the Saker Falcon, along its flyways does not exist. Nevertheless, CMS and CITES recognise that this gap must be addressed as specific threats and conservation considerations apply to these species. CITES has recently developed a series of guidance, including Non-detriment Findings (NDFs) for migratory species and transboundary populations, adaptive management strategies and the incorporation of local and traditional knowledge and participatory species monitoring in NDF making (CITES, 2024a).

Proposed guiding principles

No set of abstract principles can ensure successful governance. However, the principles listed in *Table 1* below may guide the decisions and behaviour towards success during the AMF's design, implementation, and review.

Table 1 Guiding principles for coordination and management (based on The World Bank, 2022)

Sustainability	Meeting the needs of the present without compromising the ability of future generations to meet their own needs.
Participation	Active and informed involvement of all affected or interested stakeholders in a decision-making process, whether directly or through representatives, and facilitated through formal and informal procedures such as consultations, hearings, surveys, and meetings.
Transparency	Information on matters of conservation concern, including decision-making and implementation processes, is disclosed and made accessible to the public or affected stakeholders in appropriate formats, sometimes subject to a right or guarantee of access to information.
Accountability	Accountability implies answerability or responsibility for an action or outcome. Accountable parties, such as government institutions or officials, are answerable for the consequences of their decisions, whether politically or within the organisational hierarchy they form part of.
Rule of Law	The Rule of Law requires that the government act within the limits of its powers as prescribed by law, through the impartial exercise of legislative, executive and judicial authority, respectful of individual

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	and collective rights, within the boundaries of clear, determinate, and stable laws and a rule-based process.
Effectiveness and Efficiency	Institutions, processes, and actors involved in governance have the capacity to meet society's needs while making the best use of the resources at their disposal, ensuring the timely delivery of public services through a professionalised bureaucracy, and avoiding unnecessary administrative costs.
Equity and Fairness	Equity and fairness require that distributional impacts, especially on the most vulnerable, be considered during governance. This ensures that everyone has a stake in the outcome and that no one feels alienated.

Proposed decision-making processes for the Range States on the sustainable use of wild Saker Falcons

Figures 5 and 6 below introduce proposed decision-making processes in breeding and non-breeding Range States if the application of the AMF is planned.

When a Range State intends to use the Saker Falcon legally and sustainably, it must first meet international and national legal requirements and then a series of pre-defined safeguards. The AMF suggests that the Range States consider proposing the downlisting of a specific wild Saker Falcon population from CMS Appendix 1 only if all the relevant safeguards are met.

Data on key parameters from the population or population unit concerned would feed into integrated population modelling, which would be used to assess the effect of different management scenarios.

Once an evidence-based decision was taken about the appropriate management scenario for that year, quotas would be decided, and the effect of the management would be monitored and fed back into decision-making for the following year.

Note: The set of safeguards differs in breeding and non-breeding Range States.

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Figure 5 A proposed decision-making process for breeding Range States

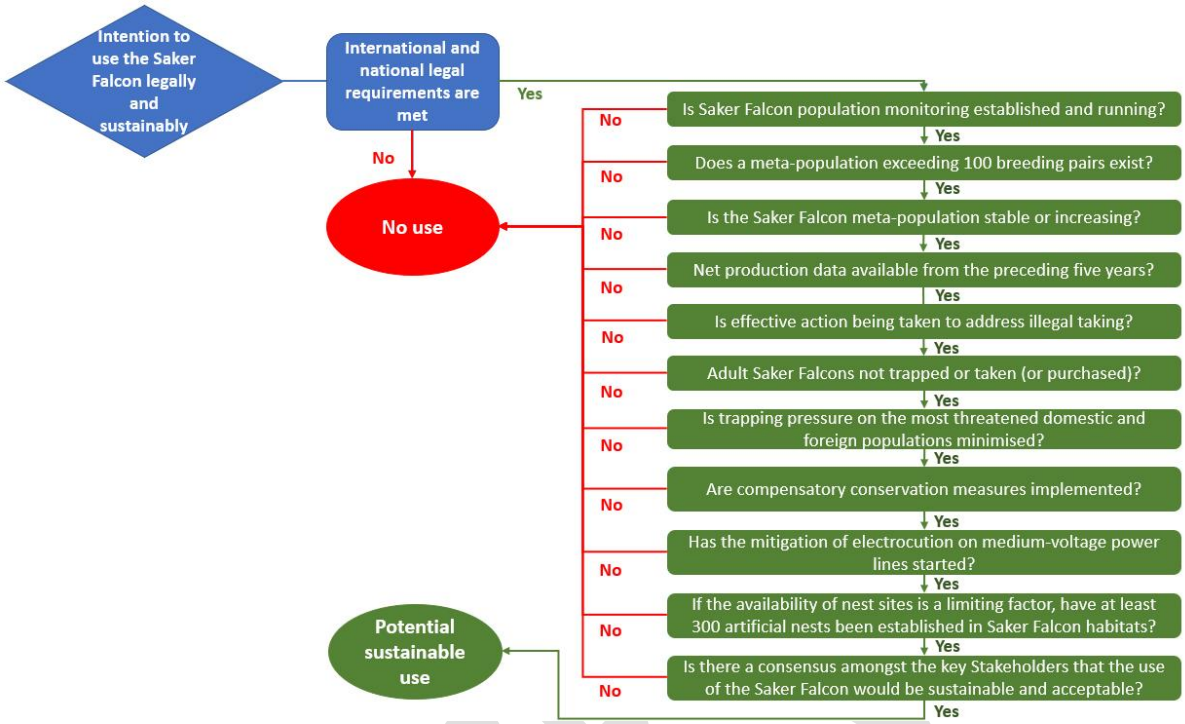
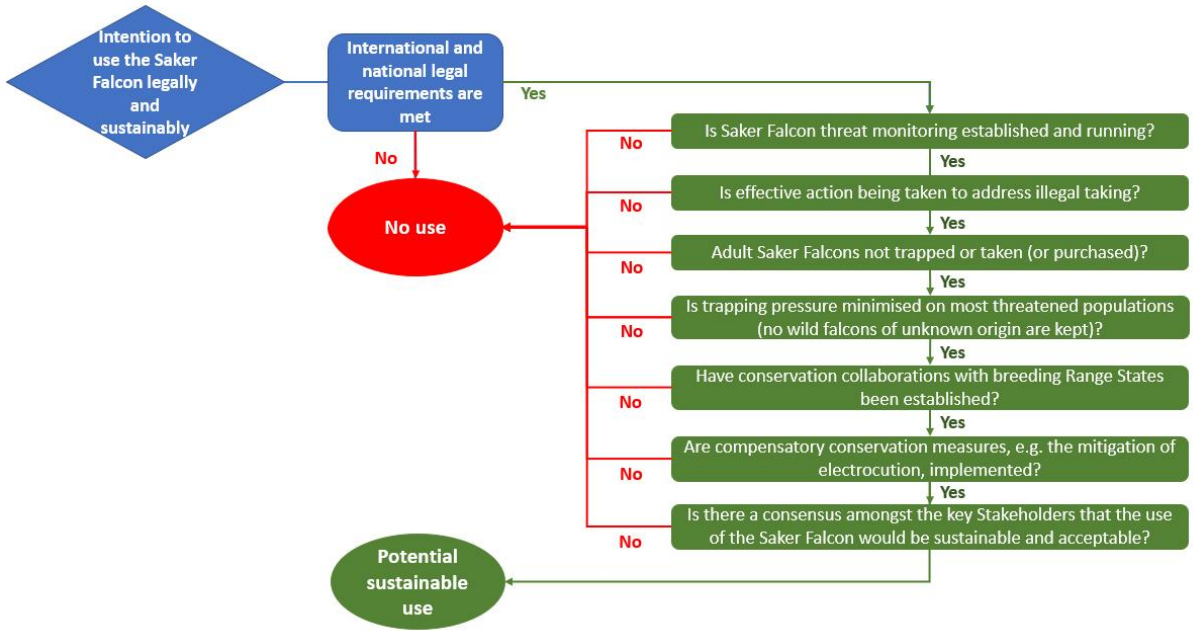


Figure 6 A proposed decision-making process for non-breeding (passage and winter) Range States



Saker Data Management System component

A proposed Saker Falcon global Data Management System

The Saker Data Management System is planned to be a specially developed computer database to capture, organise, store, analyse and synthesise non-sensitive or derived data collected during the implementation of the AMF (monitoring data, geospatial data, SakerID, data from the online information portal, etc.).

Figure 7 presents a visual summary of the proposed global Data Management System, which includes three levels with data collectors and providers. Data are collected from the bottom up, starting at Level 3 (local level), through Level 2 (national level), and finally, Level 1 (international level) through standardised data forms.

Local people (Level 3) may be involved in collecting raw field data under the supervision of a national Monitoring and Research Hub (Level 2) and within a Saker Falcon Stewardship programme (Module 9 of the AMF). The Monitoring and Research Hub would then process and validate data and provide only derived, non-sensitive data to the National Information Hubs (still at Level 2).

At the top or international level (Level 1), a Global Information Centre would

- Collect and analyse derived data provided by National Information Hubs (Level 2) and
- Feed global Quota Management System with processed data and modelled scenarios.

The bottom line is that sensitive data, such as the exact locations of natural nest sites, would not be shared with National Information Hubs or the Global Information Centre, as protecting natural nest site data is of the utmost importance in the fight against illegal trapping and trade.

Figure 7 A proposed Saker Falcon global Data Management System

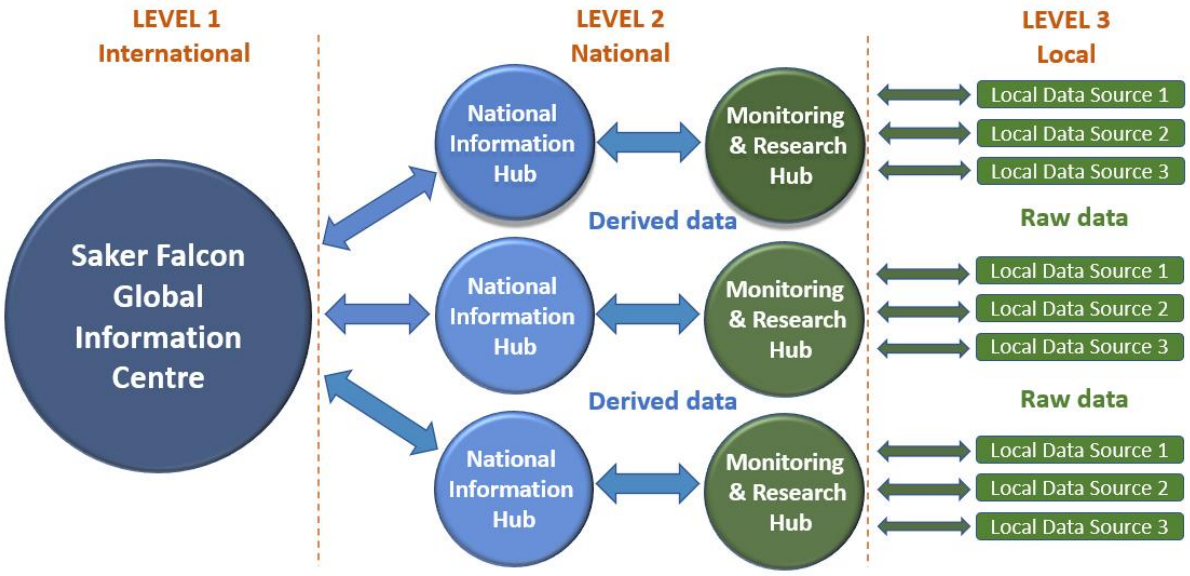


Table 2 below shows key actors' proposed data collection and management functions at different levels with examples. Note that the colours correspond to the levels shown in *Figure 7*.

Table 2 Key actors' proposed data collection and management functions

LEVEL	ACTOR	FUNCTION	EXAMPLE(S)
LEVEL 1	Saker Falcon Global Information Centre + independent external research groups or researchers	• **Collects and analyses derived data** provided by National Information Hubs • Feeds derived data into integrated population models and assesses the effects of different management scenarios • Takes account of safeguards and decides on evidence-based management scenarios annually, as well as the overall level of sustainable offtake • Set and manage quotas in a global Quota Management System	Multilateral Environmental Agreements (CMS, CITES), independent integrated population modelling research groups, experts
LEVEL 2	National Information Hubs	• **Collect derived data** from Monitoring & Research Hubs • Provide legal, accounting and other advisory services	National Ministries for the Environment
	Monitoring & Research Hubs	• Collect, validate and analyse **raw field data** • Provide monitoring schemes and technical advice for field data collectors • **Convert raw data to a derived data set** and provide National Information Hubs with **it**	Governmental organisations, universities, research groups, think tanks, environmental NGOs
LEVEL 3	Local Data Sources	• **Collect raw field data** • Provide falcon market intelligence, such as price and transaction data	Governmental organisations, environmental NGOs, species specialists, members of the local community, volunteers

Global and national sustainable quota management system component

- **For range states where the Saker Falcon population is at a level where sustainable use may be legally and ecologically possible and acceptable by the MEA framework**

Note: While a coordinated Saker Falcon Quota Management System (SF QMS) element forms a part of the AMF, it does not yet have a legal framework. Responsibility for species management lies nationally for both CMS and CITES.

Concept purpose

As a component of the AMF (see ***Figure 4*** Components and data sources of the Governance and Management module, their function, relationship, and hierarchy), the sustainable Saker Falcon Quota Management System (SF QMS) aims to mitigate unsustainable trapping/harvest and trade of wild Saker Falcons, which are considered among the leading causes of species decline.

Potential role models for a Saker Falcon Quota Management System

International concepts (examples)

- Biodiversity Credits (The Biodiversity Consultancy, 2022).
- EU Emission Trading System (European Parliament & European Council, 2003).
- Total Allowable Catch (TAC) and their traditional share (European Parliament & European Council, 2017).

Species-specific adaptive harvest management schemes (examples)

- The Mongolian Saker Falcon conservation programme *(**Annex 13**).*
- Turtle Dove Adaptive Harvest Management Programme (European Commission, 2019*; **Annex 14*** Species-specific adaptive harvest management (AHM) scheme examples: European Turtle-dove, Taiga Bean Goose, Pink-footed Goose, Peregrine Falcon*).*
- Adaptive Harvest Management Program for Taiga Bean Geese *(AEWA, European Goose Management Platform, 2016; **Annex 14*** Species-specific adaptive harvest management (AHM) scheme examples: European Turtle-dove, Taiga Bean Goose, Pink-footed Goose, Peregrine Falcon*).*
- Harvest of wild Peregrine Falcons in the USA (Millsap & Allen, 2006*; **Annex 14*** Species-specific adaptive harvest management (AHM) scheme examples: European Turtle-dove, Taiga Bean Goose, Pink-footed Goose, Peregrine Falcon*).*

How would the Saker Falcon Quota Management System operate?

The SF QMS could come into play after the availability of safeguards has been checked, monitoring and research have delivered key parameters into population modelling, the risks and impacts of different management options have been assessed with the identified knowledge gaps and uncertainties, and the most optimal management option has been selected for sustainability.

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The agreed overall level of offtake is then fed into the SF QMS and managed as quotas, distributed among Range States based on quota applications and their use and potential effects are monitored. Conservation management practices should be re-adjusted as needed based on monitoring and modelling results. For example, if population monitoring shows a decrease above annual fluctuations, the SF QMS can be suspended.

To ensure sustainability, the Saker Falcon Quota Management System must be set within an Adaptive Management Framework based on monitoring, assessment and re-adjustment of management practices.

'Cap-and-trade' scheme: a possible option to monitor Saker Falcon taking and trade

A case-specific application of the 'cap-and-trade' principle is one possible option to establish a controlled and sustainable wild Saker Falcon market in Range States where the population is at a level that could sustain a limited amount of taking.

Applying pre-defined sustainability safeguards, a 'cap-and-trade' scheme would limit the overall use of wild Saker Falcons and set annual global quotas based on evidence-based Maximum Sustainable Harvest Rate modelling and calculation. Within that sustainability limit, participants would be allowed to voluntarily buy and sell or exchange quotas in a controlled way *(Figure 8)*.

The global quota would be split into national quotas and given to responsible breeding and non-breeding Range States that can sell credits (or permits) to 'Users' and 'Extractors'. This would allow a concerted opportunity for engaging 'Users' and 'Extractors' in contributing to remedial conservation costs in breeding Range States, along flyways and in wintering areas, at least 50% of which would be invested in concrete conservation actions.

The cap would be reviewed regularly based on the most up-to-date quantitative monitoring data and population modelling (-> Adaptive Management Framework).

Figure 8 A potential Saker Falcon Quota Management System

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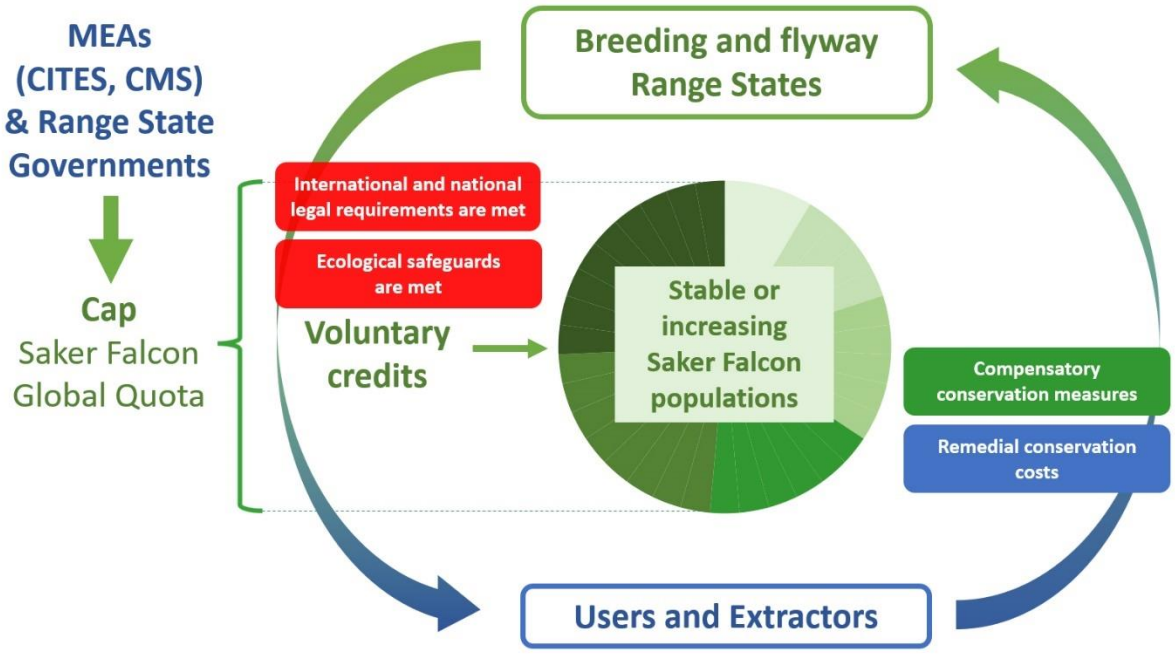
MEAs
(CITES, CMS)
& Range State
Governments
Cap
Saker Falcon
Global Quota
Breeding and flyway
Range States
International and national
legal requirements are met
Ecological safeguards
are met
Voluntary
credits
Stable or
increasing
Saker Falcon
populations
Compensatory
conservation measures
Remedial conservation
costs
Users and Extractors

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Viable population management units and national quotas

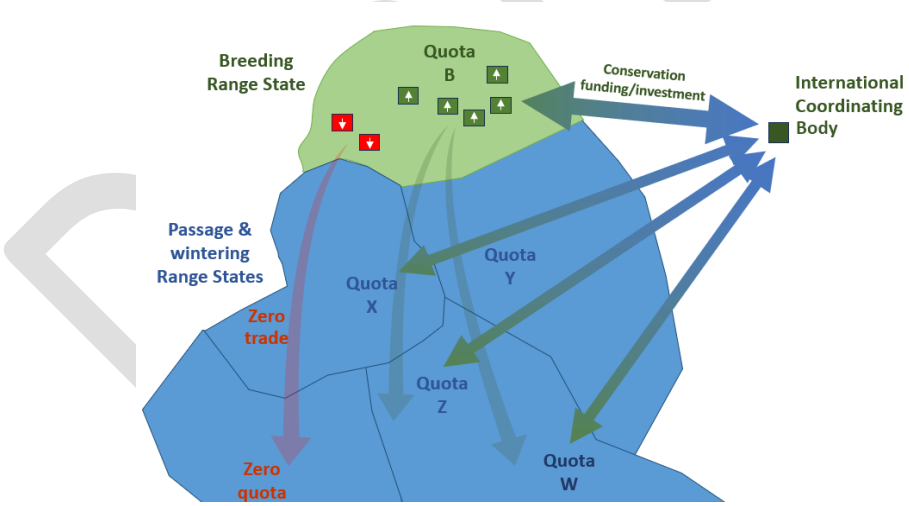
Global conservation improvement and any consequent re-listing of the Saker Falcon at the species level are unlikely in the medium term due to significant knowledge gaps, the lack of resources for surveys and conservation, and the justified application of the precautionary principle.

Nevertheless, viable population management units (stable or increasing and exceeding 100 breeding pairs) could potentially be identified within national populations even if the status of the whole national Saker Falcon population is data deficient. Population modelling could then determine if the specific population concerned could support take and, if so, at what level.

Simultaneously with introducing the nine AMF modules, any sustainable use of viable Saker Falcon population management units would include annual monitoring of population parameters on the breeding grounds, individual marking, identification of the geographical origin of trapped falcons, and the implication of an adaptive management/quota system fed by evidence-based population modelling.

Integrated population modelling (Schaub & Abadi, 2011) may address the lack of critical data by combining diverse datasets, handling missing information, correcting for biases, and quantifying uncertainty. This approach enables more accurate and comprehensive population assessments, even when specific data are sparse or incomplete, and may allow better-informed decisions about applying sustainable use.

Figure 9 A potentially effective AMF through a collaboration of breeding and non-breeding (passage and winter Range States)



Within the international Quota Management System, the total flyway-level quota ('cap') would be added up from the breeding, passage and wintering Range State quotas that include falcons both taken from the wild or imported *(Figure 9)*:

$$Flyway - level\ Quota = \sum_{i=1}^{n} Quota_i$$

Where:

- n is the number of different types of quotas (in this model, breeding B, passage X, passage Y, passage Z, and wintering).
- $Quota_i$ represents each type of quota (breeding, passage X, Y, Z, or wintering W).

Quotas can be set only if taking and trade are legal and the sustainability safeguards are met in breeding and non-breeding Range States. Zero quotas would be set for falcons from depleted or decreasing populations.

Note: If taking and trade are legal only in the breeding Range State, then the effectiveness of the AMF would assumingly be limited because, in the non-breeding Range States, illegal trapping and trade will continue uncontrolled and without domestic conservation investments. Non-breeding (passage and wintering) Range States could obtain quotas from breeding Range States through conservation collaboration or by applying conservation actions (e.g. introducing bird-safe medium-voltage powerlines) in their territory where Sakers occur regularly. Having quotas, non-breeding Range States would be allowed to import falcons from certified breeding Range States or keep only individually marked birds captured in their territories.

An international Quota Management System must guarantee that the viable population units are improved and not overexploited or lose their source population potential.

Proposed global Quota Management System

Figure 10 proposes closely linked international and national governance structures.

At the *International level*, the coordinating body is proposed to be split into a management authority and a scientific authority, where

- an International/central management authority ensures the management integrity of the global Quota Management System by advising national authorities on the establishment and operation of the quota management system while
- an International/central scientific authority ensures that the Quota Management System is independent, science- and monitoring-based, and sustainable by reviewing the operation of the global quota system scientifically and applying the most appropriate available analytical methods in scenario testing.

At the *National level*, governance is also split into a management authority and a scientific authority, where

- a national management authority (Governmental Organisation - GO)
  - oversee the national operation of the quota system, including managing national quota applications,
  - issues permits in consultation with the international management authority.
- a national scientific/conservation authority ensures that the quota system is based on annual monitoring data and is sustainable (GO or NGO or their task force), sets conservation projects and feeds the Saker Falcon Adaptive Management Framework with data (GO or NGO or their task force).

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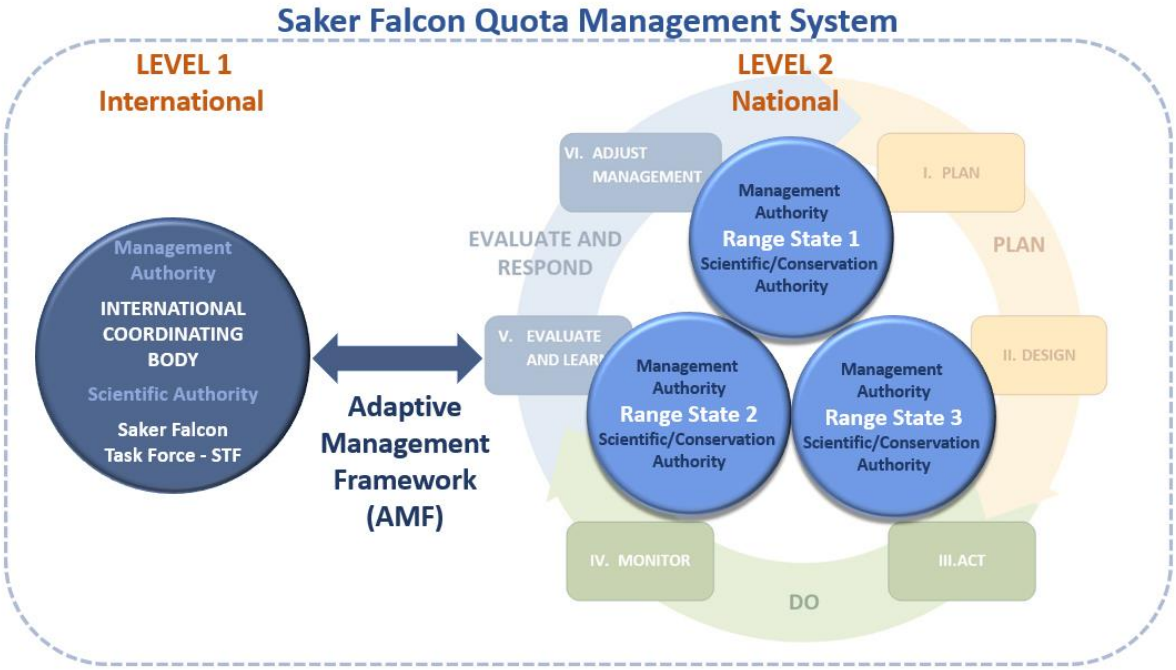
Figure 10 A potential global Quota Management System



Potential governance functions in the Saker Falcon Quota Management System

Table 3 Potential governance functions in the Saker Falcon Quota Management System (based on The World Bank, 2022)

Phase	Governance context	Governance function
ESTABLISHMENT	Political and Legal Process	Stakeholder Engagement and Consensus Building
		Creating a Robust Legal Basis
		Regulatory Impact Assessment
	Institutional and Regulatory Framework	Defining Institutional Functions and Responsibilities
		Deciding the Level of Formality and Centralization
		Embedding in the Broader Legal Framework
	Technical and Administrative Capacity	Capacity Needs of Public Authorities

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		Capacity Needs of Regulated Entities and Other Stakeholders
OPERATION	Implementation Oversight	Oversight of the implementation of the SakerGAP
	Compliance Oversight	Oversight of the Adaptive Management Framework (MRV* and Enforcement)
	Trade Oversight	Oversight of Market Actors and Activities
	Transparency	Disclosure of SF Use and Trade Data, Information on Revenue Use
	Conflict Resolution	Resolution of Judicial Disputes or Mediation
REVIEW	Performance Review	Assessing the Performance of the AMF against the objectives of the SakerGAP and the Need for Modification
	System Change	Managing Modifications to the AMF, including recalibrations, system changes, linking the SF QMS to other conservation activities, or terminating the SF QMS if the stakeholders agree.

Potential PUBLIC and PRIVATE actors in the governance of the Saker Falcon Quota Management System (SF QMS)

The effectiveness of the SF QMS depends on the active involvement and successful collaboration of public and private stakeholders.

Tables 4, 5, and 6 show public and private actors' potential functions and collaborations in the SF QMS.

Table 4 Potential PUBLIC actors in Saker Falcon Quota Management System (SF QMS) Governance (based on The World Bank, 2022)

Actor	Function	Example(s)
Executive bodies of regional political, economic and environmental unions	Policy making, regional establishment, and oversight of the SF QMS operation.	Regional unions (e.g. ASEAN, European Union, Gulf Cooperation Council, League of Arab States)
Multilateral Environmental Agreements and Networks	International coordination includes applying an Adaptive Management Framework,	Multilateral Environmental Agreements (e.g. CITES, CMS

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	technical assistance to the National Administrator, cooperation, and thought leadership.	Raptors MoU, Saker Falcon Task Force)
SF QMS National Administrator	Overall national management of the SF QMS, credit and permit administration	National ministries for the environment
Lead Executive Agency (where different from SF QMS Administrator)	Political oversight and coordination, executive rulemaking	National ministries for the environment
Other Executive Agencies	Offer guidance, support and scientific input on selected issues	National environmental agencies
Legislature	Adopt formal SF QMS legislation	National Parliaments
Judiciary	Resolve conflicts and decide judicial disputes	International courts, national High Courts, regional courts
Delegated Support Entity	Support on delegated tasks	Regional environmental initiative
Other Professional Services	Provide various services, including captive breeding of wild origin falcons, veterinary care, tourism and educational programs.	Falcon hospitals, rehabilitation and breeding centres

Table 5 Potential PRIVATE actors in Saker Falcon Quota Management System (SF QMS) Governance

Actor	**Function**	**Example(s)**
Project Developers	Originate and develop crediting projects.	Conservation project owners, consultancies, specialist service providers, environmental NGOs
Professional Services	Provide legal, accounting and other advisory services	Consultancies, law firms, accounting firms, environmental NGOs
Analysts	Provide falcon market intelligence, such as price and transaction data	Financial analysts, strategic research providers, market data aggregators, environmental NGOs
Interest Groups	Aggregate and articulate member interests	Trade associations, environmental NGOs
Research and Academia	Participate in foundational research and education	Universities, research groups, think tanks, environmental NGOs
Media	Report on policy and trade developments	Print media, broadcast news, trade publications

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Table 6 Potential Public-Private Partnerships (PPPs) actors in Saker Falcon Quota Management System (SF QMS) Governance (based on The World Bank, 2022)

Actor	Function	Example(s)
Accredited Verifiers	Audit and verify falcon utilisation reports	Accredited accounting, auditing and certification firms
Standardisation Bodies	Develop and administer standards and guidance (e.g. for MRV**, credits, permits)	Permit administrators
Exchanges	Offer platform for trading of Saker Falcon credits, sometimes also clearing and auctioning services	International exchange platforms
Dealers/mediators	Facilitating transactions in Saker Falcon credits; aggregating transactions.	Trading firms, specialised dealers, breeders

** PPP = Public-Private Partnership ** MRV = Monitoring, Reporting & Verification*

Provisional timeline for introducing a national SF QMS where CMS and national regulations allow it (in the case of non-CMS Range States)

Figure ***11*** Shows a proposed timeline for introducing a national SF QMS.

It has four phases:

Phase 1 is a one-year preparatory phase (PLAN). This phase establishes and legitimises a coordinating and decision-making structure, develops the network of stakeholders, and designs the Range State-specific implementation.

Phase 2 is an initial five-year investment phase (ACT) when monitoring the Saker Falcon population should occur, key parameters should be fed into integrated population modelling, the outcome of different management options should be assessed, and the pre-defined safeguards should be met through conservation investments/actions.

Phase 3 is a one-year evaluation phase (EVALUATE), during which the preparatory phase's results are evaluated, and the merits of different management options are assessed. Where the legislative framework allows, the pre-defined safeguards are met, and population modelling indicates it would produce an outcome in line with the goal of the SakerGAP, the review of CMS listing may be conducted and delisting a specific population from CMS Appendix I could potentially be proposed.

Phase 4 is the conditional sustainable use phase (ADJUST MANAGEMENT), provided the specific wild Saker Falcon population is delisted from CMS Appendix I, and the safeguards are still in place. Once set up, the quotas must be reviewed regularly (ideally annually), including population modelling.

Without previous monitoring and bird protection interventions, the first three phases (Phase I-III) can optimally span seven years. However, if monitoring and conservation measures have already started, legal and conditional sustainable use can be applied from the sixth year of the project's start or even earlier.

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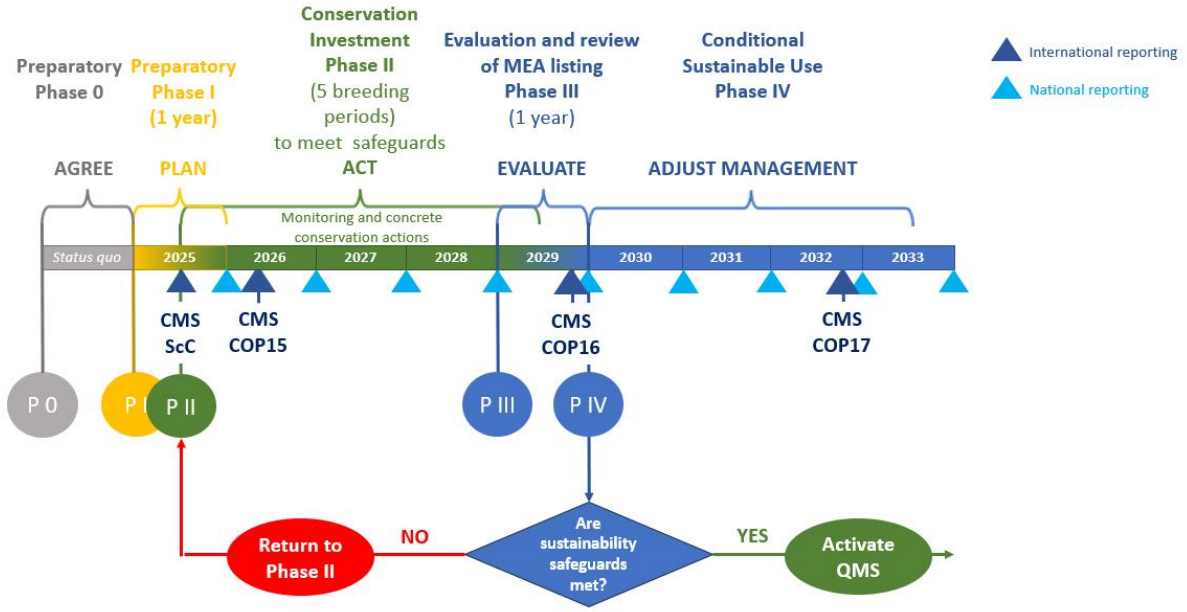
Figure 11 A provisional timeline for introducing a national SF QMS if the implementation starts in 2025 (please see the description of phases in the next section)



Case Study 1 *A summary of the results of the Mongolian artificial nest system*

- In Mongolia, there are vast areas within the breeding range of the Saker Falcon where the number of available nest sites is a limiting factor to the population.
- From 1993 to 1999, 16 revealed attempts were made to smuggle 69 falcons from Mongolia, primarily by foreign nationals (Badam, 2001). However, there was no way to measure the actual level of illegal trade (Wingard & Zahler, 2006).
- In a pilot artificial nest study between 2007 and 2009, artificial nests produced an average of 3.2 fledglings compared to 2.3 at natural nest sites Rahman *et al.*, 2014.
- In 2010, Mongolia legally exported 237 Saker Falcon at US$11,760 per permit, generating an income of US$2.79 million for Mongolia *(*Dixon et al., 2011*).*
- 2010: A grid of 5,000 artificial nests, 250 nests each at 1.5 km intervals, was established in 20 Mongolian districts.
- 2010-2014: The Saker Falcon breeding pairs increased, averaging 3.2 (± 0.3) fledglings per nesting attempt compared to 2.3 at natural nest sites *(*Rahman *et al.*, 2014*)*.
- The provision of 5,000 artificial nests created an average annual saker population of 602 (SE ± 59) breeding pairs, producing an estimated 1,735 (SE ± 272) fledglings per annum over the period 2013–2015 (Zhang *et al.*, 2024).
- 2014: 2,500 fledglings were produced in the artificial nest system Rahman *et al.*, 2014.
- With a 5% maximum sustainable harvest rate, 125 Saker Falcon fledglings could have been harvested in 2014, theoretically generating US$1.47 million.

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Description of the phases of introducing the SF QMS

Phase 0 - CONSENSUS PROCESS - Agree on implementing the concept

- Before everything starts: Reach Stakeholders' consensus on the conditions needed to begin the process of AMF implementation
- Prioritise and negotiate with a volunteer Range State about testing the concept
- Raise funds for establishing and operating the Adaptive Management Framework, including an SF QMS, where it is allowed.

Phase I - PLAN - Project preparation (1 year)

A) Establish and legitimise a coordination and decision-making structure and develop the network of Stakeholders

Establish a transparent system of coordination related to the overall management of the AMF. Nominate a core team for coordination. Renew the remit of the Saker Falcon Task Force to oversee the implementation of the AMF and recruit a Coordinator as soon as funding is available. Establish a Saker Falcon Network.

B) Plan the Range-State-specific AMF

- Make an inventory, define/refine the problem and threats and analyse the situation. Check the baseline status of the pre-defined safeguards.
- Establish Range-State-specific goals and objectives, including targets and indicators, and set priorities.

C) Design the Range-State-specific implementation

- Design actions (answer the *what/where/when/how, and who?* Questions) for all AMF modules and their components based on priorities. Establish a Saker Data Management System (SDMS). Develop a Work Plan, timeline and budget for implementing all AMF modules.

Phase II - ACT - Conservation Investment

A) Take actions to improve the conservation status of the Saker Falcon in a priority breeding Range State

- Take effective measures to address the shortcomings of the components of the AMF modules, document progress, and note and justify deviations from the plan.

  a. Take effective legal, policy, and law enforcement steps, as well as steps to foster Stakeholder cooperation, awareness-raising and engagement, and Saker Falcon stewardship, to create a supportive environment for implementing conservation management actions.

  b. Draw on widely accepted good practices and implement priority *ex-situ* and *in-situ* conservation management actions towards the favourable conservation status of Saker Falcon populations:

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i. Reduce the impact of electrocution on medium-voltage electric poles by applying bird-safe designs in new lines, retrofitting existing electricity infrastructure and encouraging sensitive routing;

ii. Increase suitable available nest sites where nest sites are a limiting factor by establishing an artificial nest box system;

iii. Increase productivity by improving habitats for prey and reducing environmental hazards, such as poisoning;

iv. Reduce the impact of infrastructure developments (collision with artificial structures and habitat fragmentation);

v. Prepare good practice guidance on keeping, captive breeding, health care, and controlled release/reintroduction of wild-origin Saker Falcons;

vi. Network with falconry hospitals and breeding/rehabilitation centres and propose a Code of Conduct for the sustainable use of the Saker Falcon.

B) Monitor to fill critical knowledge gaps and to track the progress of implementation

- Develop and implement a multistakeholder monitoring plan to assess effectiveness, document progress, and note deviations from the plan (applied options depend mainly on the monitoring area's parameters and the monitoring organisations' capacities).

a. Monitor the progress and effectiveness of implementation (= action monitoring).

b. Monitor the environmental parameters. Measure environmental conditions (e.g. habitat availability/quality/composition; prey availability/dynamics; effects of climate change/extreme weather).

c. Monitor population parameters. Conduct and repeat population surveys in sample areas (e.g. on distribution, abundance, population size, population trend, breeding success, survival, causes of death, age structure, genetic variation, migration, wintering and dispersal) or structured observations without quantitative design or intention (e.g. nest cameras). Collect and analyse biological materials, such as egg remains, feathers, falcon carcasses, food, and pellet remains, to reveal potential causes of increased mortality and low fertility.

d. Monitor the impact of threats:

i. Monitor the impact of electrocution (surveys along medium-voltage electric lines),

ii. Monitor legal and illegal capture, trade and use.

iii. Monitor the impact of other mortality factors than electrocution and illegal use, such as poisoning and collision with artificial objects and infrastructure.

iv. Monitor the change in key habitat types.

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Phase III – EVALUATE AND LEARN – Evaluation and Conditional Re-listing

A) Process, store, validate, analyse, synthesise and evaluate data collected through monitoring and stored in the Saker Data Management System (SDMS). Feed updated data into integrated population modelling and assess management options and risks according to model outputs.

B) Share knowledge, communicate current understanding with stakeholders and learn lessons (document and share learning through networking)

C) Prepare a summary evaluation report for decision-making.

D) Propose the evidence-based decision for the forthcoming period, including reviewing the CMS listing of the species if all sustainability safeguards are met.

Phase IV – ADJUST MANAGEMENT – Conditional Sustainable Use or Return to Phase II

A) Adapt strategic plan.

B) Adjust management. If the sustainability safeguards are unmet, apply a zero quota and return to Phase II - ACT - Conservation investments. If all safeguards are in place and population modelling indicates they can be sustained while still on track to achieving the goal of the SakerGAP, activate the Quota Management System and start a sustainable harvest.

Safeguards to ensure a sustainable harvest through a Quota Management System

The Precautionary Principle must be considered when managing a globally threatened species adaptively under considerable scientific uncertainties. However, the lack of full scientific certainty should not hinder the application of the AMF.

The SakerGAP identifies six essential and four desirable safeguards towards ensuring harvest sustainability through quotas calculated using up-to-date ecological data fed into population modelling. Six additional safeguards were formulated during the elaboration of the AMF concept.

Essential safeguards

1 Quota calculations should be based on the *observed or accurately estimated* number of breeding pairs. They should also consider the level of taking of the Saker Falcon along entire flyways, i.e. on breeding grounds, migration and in wintering areas.

Insert: The 'level of taking' should consider all available data on legal and illegal capture and trade as a total offtake from wild Saker Falcon populations.

2 Only *populations or meta-populations exceeding 100 observed or accurately estimated breeding pairs* should be considered potential harvesting sources. Estimations should be based on reliable quantitative or representative data through sampling (e.g. mark-recapture) or interpolation for a given period and area.

Insert: The classic definition of meta-populations is provided by Levins (1969), who introduced the concept: "A metapopulation consists of a set of local populations that are linked by occasional dispersal events, where the long-term persistence of the entire metapopulation is possible even though individual populations may go extinct." In the SakerGAP context, local populations are considered to be those that are connected by dispersal, allowing for gene flow, recolonisation and demographic support.

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3 Only *stable or increasing* populations should be considered for harvesting. This requires the monitoring of populations through repeated population surveys. Five per cent is recommended as the *maximum* harvest rate of fledged juveniles, and this level should not be seen as a target to reach but rather as a limit on the total numbers that could be taken. Only the harvesting of 1st year (up to nine months old post-fledging individual) Saker Falcons should be considered for falconry purposes. If the figure is based on the observed number of fledged juveniles, then 5% is considered conservative and follows the precautionary principle. Based on productivity data from European and Central Asian Saker Falcon meta-populations (Kenward *et al.*, 2013), this means a theoretical maximum of 10 harvested juveniles/160 territorial pairs in Europe and ten harvested juveniles/120 territorial pairs in Asia. When assessing the conservation status of the populations targeted by harvest, a combined assessment of range, population, suitable habitat, and future prospects should be made.

Insert: The 5% maximum harvest rate, an approximate upper limit of cumulative taking, should include all legal and illegal taking along entire flyways. However, note that data on the actual level of illegal taking are generally unavailable. Integrated modelling fed by the latest information on meta-population parameters should be applied to clarify more accurate and specific sustainable quotas. Population modelling must be applied to give more accurate figures for the offtake a specific population could potentially sustain without compromising the goal of the SakerGAP.

4 *Net production* (fledged juveniles) is calculated annually based on known breeding pairs' rolling mean annual net production in the preceding five years. This approach would smooth out any fluctuations in the annual number of fledged juveniles and, at the same time, enable the application of the principle of adaptive management.

5 *No adult wild Saker Falcons* will be trapped, taken or purchased. The cumulative loss of adults, whether trapping, electrocution, or other factors, severely threatens Saker Falcon populations. In effect, it draws on the 'capital' rather than the 'interest' of the population (Kenward *et al.*, 2007).

6 *Trapping pressure should be minimised on the most threatened, non-target populations* on breeding grounds and along their entire flyways.

Desirable safeguards

7 The legal harvest and trade within non-breeding (passage and winter) States should be allowed only if these States fund remedial conservation programmes (e.g. large-scale modification of medium-voltage electric lines or support an artificial nest programme) in their territory or a breeding Range State within the same flyway. This safeguard is to prevent harvesting Saker Falcons without compensatory conservation measures taking place.

8 Mitigation of electrocution on medium-voltage power lines has started in Saker Falcon habitats.

9 At least 300 artificial nests within pilot projects have been established in Saker Falcon habitats to check whether the lack of suitable nest sites is a limiting factor.

10 The above factors would need to be implemented, and there would, in effect, need to be a consensus amongst the key Stakeholders that the series of actions, working in combination, would be acceptable.

Additional safeguards

11 Range States, CMS, and CITES endorse AMF-based sustainable use schemes for the Saker Falcon. Governments establish national stakeholder platforms.

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12 Legal protection of the Saker Falcon is in place in all Range States and effectively enforced. National laws ensure sustainable use through an AMF.

13 Any taking of wild Saker Falcons must be traceable. The source population of trapped falcons must be identifiable through individual marking and/or genetic ID.

14 Wild falcons can be taken only through a clearly defined licensing process, including the licensing of breeding and rehabilitation centres.

15 National governments implement habitat conservation and management activities per the SakerGAP.

16 Local communities are involved in implementing the Adaptive Management Framework for the conservation and sustainable use of the Saker Falcon.

Quota calculation

Quota Calculation Units

- Observed or accurately estimated 100+ breeding pairs
- In natural and/or artificial nest sites/breeding boxes
- Only 1st-year birds (up to nine months old), no adult Saker Falcons are trapped or taken

Maximum Sustainable Harvest Rate (by Kenward *et al.* 2013)

- A maximum of 5% of the observed number of fledged juveniles
- E.g. in Asia: 8.33 harvested juveniles/100 breeding pairs (10 juv./120 bps)

Note: The maximum sustainable harvest rate is a theoretical maximum. While defining harvest quotas, context-specific, data-based thresholds must be set using integrated population modelling and the precautionary principle.

How could the Saker Falcon Quota Management System ensure international and stakeholder collaboration?

With proper governance, the controlled global trade may require cooperation between Breeding and User Range States.

Under the controlled Quota Management System, breeding Range States can trade Saker Falcon quota credits with user Range States within the sustainable quota. Breeding and non-breeding Range States can sell their wild Saker Falcon credits to user Range States within and between flyways *(**Annex 5-8**).*

The quota system may create financial incentives to manage wild Saker Falcon breeding populations sustainably, and with careful system design and adaptive management, unwanted effects and incentives can be avoided.

The Breeding Range States can increase the sustainable quota by increasing the number of breeding pairs or by mitigating key mortality factors, such as electrocution on medium-voltage electric poles.

Users may buy credits through critical conservation investments, such as the artificial nest system in areas where nest sites are scarce or by funding electrocution mitigation projects in breeding and passage/winter Range States where the regular presence of the Saker Falcon is confirmed.

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One option could be for Range States to exchange credits through a transparent system managed by the international coordinating body of the global Quota Management System. With the international coordinating body, Range States would be responsible for ensuring that the national quotas are not exceeded.

The Saker Falcon Quota Management System may unite governments, regulators, conservation organisations, and market players by working toward a shared goal instead of separating them.

Risk undermining sustainable use

While designing the AMF, the Saker Falcon Task Force seeks to find a balance between the benefits of an internationally coordinated sustainable use framework and the inherent risks of taking Saker Falcons from the wild in large numbers.

There is a genuine risk that poorly designed biodiversity credit schemes with inadequate or inappropriate ecological, social and financial safeguards could lead to adverse outcomes and unintended consequences for biodiversity, people, and business (The Biodiversity Consultancy, 2022).

The Adaptive Management Framework for the sustainable use of the saker Falcon may fail if

- key stakeholders are not engaged successfully or lack the expertise needed for successful adaptive management,
- key stakeholders oppose the use of the Saker Falcon based on existing knowledge gaps and the application of the precautionary principle,
- a mutual no-win situation develops between the main stakeholders instead of cooperation,
- non-context-specific legal regulations (e.g. general, species-level ban on use) reduce the broader application of the AMF, even if ecological safeguards would allow it,
- knowledge gaps and uncertainties continue to exist in the population status of the Saker Falcon and the level of actual use,
- low-quality population ecological baseline data does not allow sustainability assessment or allow erroneous quota calculations,
- law enforcement mechanisms and deterrents of illegal use are ineffective,
- a ‘falcon leakage’ occurs due to corruption, and in the Range States, where regulations and law enforcement are more relaxed,
- ’Cheaters’ and legal loopholes exist, and wild-origin falcons are laundered through the legal trade,
- The AMF does not align with socio-economic processes; thus, it causes adverse social impacts.

Key challenges at the flyway level

Scaling up a Saker Falcon Quota Management System to an international or flyway level may raise specific questions as follows:

1. How can the effective monitoring of wild Saker Falcon populations and their trade (legal/illegal) be ensured?
2. How do we fill the significant ecological and market/economy knowledge gaps at the level of flyways?

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3. How can cumulative trapping and trade along the flyways be built into the Quota Management System?
4. How can we ensure that sought-after severely depleted sub-populations are not overharvested?
5. How can we build trust and consensus among key stakeholders regarding the sustainable use of wild Saker Falcons?

Can the Saker Falcon legal trade work sustainably?

From an economic perspective, the legal global trade in wild Saker Falcons will likely efficiently reduce illegal harvest, trapping and trade only if it costs end users as much or less than the illegal market.

The success of the fight against illegal falcon trapping and trade depends on the net costs and benefits of supporting conservation rather than illegal trapping and trade.

The legal global trade of wild Saker Falcons must show a high level of harmonisation regarding the legal trading system and prices. Range State governments and MEAs must set harmonised rules to control legal trade, adjust law enforcement, and introduce stricter deterrents.

Range States that are not MEA parties may join the initiative through their national legislation. End-users must be aware of their responsibilities for sustainable falconry.

Evaluation component

The Adaptive Management Framework relies on monitoring, conservation actions and evaluation.

Management should be adjusted based on the results of the performance reviews/evaluations. This must include terminating harvest if it is unsustainable or setting zero quotas in some years in some populations.

Performance review - Evaluation of the AMF

(based on The World Bank, 2022)

Regular, annual performance reviews are needed to assess the performance of the AMF and the Quota Management System according to the following:

- Function: Assessing the performance of the Saker Falcon Adaptive Management Framework and the global Quota Management System compared to good practice in adaptive harvest management
- Actors: MEAs, Saker Falcon Task Force, National Authorities, policymakers, scientific and law enforcement bodies, contributing stakeholders, NGOs such as conservation organisations and falconers associations.
- Tools: Surveys & Modelling
- Criteria: Defined based on alignment with achieving the Saker GAP goal, alignment with best practice in adaptive harvest management for threatened species and complying with sustainability safeguards
- Processes: Evaluation process, Stakeholder engagement

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System change - Adjust management

(based on The World Bank, 2022)

The AMF should be adjusted based on the performance reviews/evaluations. This must include terminating harvest if it is unsustainable.

- Function: Managing modifications to the AMF and SF QMS, including termination if unsustainable
- Actors: MEAs, Saker Falcon Task Force, National Authorities, policymakers, scientific and law enforcement bodies, contributing stakeholders, NGOs such as conservation organisations and falconers associations.
- Tools: Legislation and policymaking, management guidelines, existing best practices in adaptive harvest management, including for threatened species
- Processes: Legislative & policymaking procedures & consultations

Reporting component

Range States joining the AMF would be requested to prepare and submit annual and triennial reports to the international coordinating body in a bottom-up reporting process.

Annual reports

At local or regional Level 3, individual data sources, conservation organisations and falconry associations would submit primary (raw) data or annual reports to national Monitoring and Research Hubs about key Saker Falcon population parameters, legal and illegal trapping and trade and conservation measures.

At national Level 2, Monitoring and Research Hubs collect and process raw data and report on derived data to national Management and Scientific Authorities. National Management and Scientific Authorities send a national summary report to the international coordinating body.

At international Level 3, the international coordinating body informs participating Range States annually about summarised Saker Falcon population, trapping and trade data, and decisions about quota allocations, if applicable.

Triennial reports

At Level 2, National Management and Scientific Authorities would be requested to report to the international coordinating body every three years on legislative, regulatory and administrative measures taken to implement the AMF system in their countries and on the major achievements, significant developments, problems, and possible solutions when implementing the nine modules of the AMF.

At Level 3, the international coordinating body reports to CMS and CITES on the implementation of the AMF.

Reporting cycles

Table 7 shows a proposal for the reporting process. From the bottom up, the three reporting levels are local, national, and international.

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The table also shows the potential actors who prepare the reports and those who receive, validate and collate them for the next level.

The reporting intervals may be annual at the local and national levels, and the whole system should be reported to the CMS Conference of Parties every three years.

Table 7 Proposed reporting cycles

LEVEL	ACTOR	REPORTS TO WHOM?	REPORTING INTERVALS
LEVEL 1	International coordinating body	• Multilateral Environmental Agreements (CITES, CMS) • Range States	Triennial reports Annual Reports
LEVEL 2	National Management & Scientific Authorities National Monitoring & Research Hub	• International coordinating body • National Management & Scientific Authority	Triennial reports Annual reports Annual reports
LEVEL 3	Local Data Sources, Conservation Organisations, Users & Extractors	• National Management & Scientific Authorities	Annual reports

Socio-economic and fund-raising components

Social requirements of the Saker Falcon AMF and a SF QMS

(based on The Biodiversity Consultancy, 2022)

- Co-designed with local stakeholders through a rights-based approach to conservation,
- Produce locally meaningful benefits that address and respect diverse local uses of nature,
- Promote the equitable distribution of benefits among local stakeholders,
- Strong safeguards are included to prevent adverse social impacts.

Economic requirements of the Saker Falcon AMF and an SF QMS

(based on The Biodiversity Consultancy, 2022)

- Enable the sustained funding of credited conservation actions,
- Ensure transparent reporting of project impacts to manage the risk to credit buyers.

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Adequate funding should be mobilised to allow monitoring and research throughout the Saker Falcon's range to track conservation status and trajectory and implement an evidence-based Adaptive Management Framework. This should be possible given the high level of interest in the species, its cultural and economic value, and the relative wealth of the consumers. It would require an increased engagement and voluntary contribution of end users to the costs of implementing the AMF modules and, eventually, the implementation of the SakerGAP based on general environmental management principles such as the Precautionary Principle, Principle of Co-operation, Principle of Participation, the Principle of Responsibility and the Consumers and Extractors Pay Principle (UNCED, 1992; Sands & Peel, 2012; Kovács *et al.*, 2014). Nevertheless, end users are likely to contribute more extensively to Saker Falcon conservation management with compensatory conservation funds if a widely accepted international sustainable use framework exists. Without such a framework, those willing to contribute financially to Saker conservation must develop individual financing methods that other stakeholders may question because of their professional foundation and transparency.

Within the AMF, end user Range States with the highest consumption of wild Saker Falcons (i.e. those with a high 'Saker Falcon footprint') would have a formalised and harmonised opportunity to fund remedial conservation programmes in breeding Range States most impacted by illegal taking and trade. This approach may stabilise declining significant populations to a level where sustainable legal use of the Saker Falcon could be considered.

Global and regional conservation priority rankings 1 - 4 of Range States are presented in Annex 1, and the prioritisation map of user Range States with a high level of interest in the Saker Falcon is shown in Annex 2.

Imbalanced availability of conservation funding

Although the available data are incomplete, an imbalanced level of direct conservation funding has been observed in recent decades in European and Asian core populations of the Saker Falcon.

Based on estimations compiled for the SakerGAP, Europe holds approximately 7% of the global breeding population of the Saker Falcon, while 93% of the global population breeds in Asia.

In contrast, as Case study 2 below shows, nature conservation funding aimed at protecting the Saker Falcon, for example, in the European Union, significantly exceeds the level of support for the same purpose in Asian priority Range States.

Case study 2 An example of imbalanced availability of conservation funding in Europe and Central Asia

Europe (no sustainable use proposed)
c. 7% of the Saker Falcon global population

Hungary

- 175 SF bps in 2022 (Bagyura et al., 2023)

Asia (limited legal use of the species with sustained illegal taking)
c. 93% of the Saker Falcon global population

Mongolia

- 2,000-5,000 SF bps in 2013 (Galtbalt in litt., 2013; Dixon, 2009)
- Artificial nest programme 2010-2015

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• Six LIFE Nature projects dedicated to the conservation of the Saker Falcon between 2006 and 2026 • With EU financial support of over 10 million EUR (EC, 2024) • + c. 2.98 million USD for making 5,218 mv electric poles bird-safe in 2015	Total financial support: unknown • MBZRCF support of 1 million USD for making 35,000 mv electric poles bird-safe in 2019-2022

Saker Falcon Task Force component

The Saker Falcon Global Action Plan (SakerGAP) was adopted by CMS Parties in 2014, and a Saker Falcon Task Force (STF) was established to oversee implementation. One of the key aims of the STF is to develop an Adaptive Management Framework (AMF) that moves the current illegal and presumably unsustainable trapping activity towards a legal, controlled, and sustainable system. Such a system must be carefully developed, implemented, monitored, and conform to CMS and CITES requirements. To develop such a framework, the STF established an Adaptive Management Framework Discussion Group (AMF DG) in 2020 to conceptualise a modular AMF and to assist stakeholders' decision-making, especially international partners and national authorities, on the sustainable use of the Saker Falcon.

Mandate

UNEP/CMS/Resolution 10.28 (repealed in full by COP12) paragraph 4 included the following text: "Decides that those improvements in the conservation status of the Saker Falcon in any Range State may allow sustainable taking from the wild in that Range State under a management system. In such cases, a Party or Parties may request an exclusion from Appendix I listing to apply in that Range State."

The Saker Falcon Task Force was established by UNEP/CMS COP10 Resolution 10.28 (2011, Rev. COP12).

In *UNEP/CMS/Resolution 11.18 (Rev. COP12), CMS* adopted the ten-year Saker Falcon Global Action Plan (SakerGAP) "as the basis for action on the conservation and management of the Saker Falcon in the coming triennium and beyond, with the overall goal 'to re-establish a healthy and self-sustaining wild Saker Falcon population throughout its range and to ensure that any use is sustainable".

As per the Resolution, the Conference of Parties

"4. Further decides to continue the Saker Falcon Task Force under the auspices of the Coordinating Unit of the CMS Raptors MoU, and instructs the Task Force to:

a) Actively promote the implementation of the SakerGAP, including by continuing to facilitate engagement, communication, cooperation and collaboration between the stakeholders;
b) Further develop, refine and implement an adaptive management and monitoring framework to improve the present conservation status of the Saker Falcon through, among other things, regulated and sustainable use and
c) Keep under review the option to down-list the species."

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Current and potential future roles of the Saker Falcon Task Force (STF)

UNEP/CMS/CMS Resolution 11.18 (Rev. COP14) adopts the Saker Global Action Plan (SakerGAP) and

"4. *Further decides* to continue the Saker Falcon Task Force, and instructs the Task Force, subject to the availability of resources, to:

a) Actively promote the implementation of the SakerGAP including by continuing to facilitate engagement, communication, cooperation and collaboration between the stakeholders; and coordinate its review;

b) Further develop, refine, and implement, where legally possible, and following best practice, an adaptive management and monitoring framework to improve the present conservation status of the Saker Falcon through, inter alia, regulated, and sustainable use;

c) Promote monitoring and research across the range of Saker Falcon, inter alia to fill information gaps on population size and trend, improve knowledge of the genetic structure of Saker Falcon populations, fill knowledge gaps regarding other critical parameters needed for population modelling and contribute new information to any future IUCN global Red List reassessment for the species;

d) Work collaboratively with the CMS Energy Task Force (ETF) to ensure synergies and identify priority areas within the range of the Saker Falcon and promote mitigation measures that could reduce the impact of electrocution from power lines and related energy infrastructure on populations of the Saker Falcon;

e) In collaboration with the CMS ETF and other expert groups, continue to raise awareness of the serious issue of electrocution of Saker Falcon with energy companies and national governments; and

f) Ensure synergies with any relevant work proposed under the CMS Central Asian Flyway Initiative to minimise impacts of energy infrastructure on birds."

A potential future of the STF role may include overseeing the implementation of the SakerGAP and establishing and managing the nine modules of the Saker Falcon Adaptive Management Framework.

Supporting the AMF concept, the STF may provide a non-country-specific decision tool on the safeguards of the potential sustainable taking of the Saker Falcon where CMS and, in the case of non-CMS Range States, national regulations allow it. The STF may achieve the broadest consensus amongst the key stakeholders on the criteria and method of controlled sustainable use of the Saker Falcon.

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ANNEXES

Annex 1 *Global and regional conservation priority rankings 1 - 4 of Range States (updated in October 2024; see the full data table in the Supporting documentation)*

GLOBAL

List of Saker Falcon Range States	Priority Ranking 2024	Priority Ranking 2014
Mongolia	1	1
Russian Federation (Asian part)	1	1
Kazakhstan	1	1
China	1	1
Hungary	2	2
Uzbekistan	2	2
Iran	2	2
Saudi Arabia	2	4
United Arab Emirates	2	5
Ukraine	2	2
Turkmenistan	2	2
Afghanistan	2	2
Russian Federation (European part)	2	3
Kuwait	2	4
Qatar	2	4
Tajikistan	3	3
Türkye	3	3
Iraq	3	3
Romania	3	4
Moldova	3	3
Slovakia	3	3
Republic of Serbia	3	2
Austria	3	3
Czech Republic	3	3
Kyrgyzstan	3	4
Pakistan	4	4
Bulgaria	4	4
India	4	4
Croatia	4	4
Georgia	4	4
Macedonia	4	4
Bahrain	4	4
Jordan	4	5
Syrian Arab Republic	4	4
Marocco	4	5

Notes:

Spatial prioritisation may be necessary to allocate limited resources to areas where actions are most urgently needed or where collaboration with influential end-users is most likely to yield effective global conservation outcomes.

The conservation priority ranking of Range States is based on the reversed order of the sum score of the following six parameters:

Status
3 - Breeding Range State
2 - Winter Range State
1 - Passage Range State

Breeding Population Size
4 - the min-max median is 1000< pairs
3 - the min-max median is 100< pairs
2 - the min-max median is 10< pairs
1 - the min-max median is <10 pairs

Population Trend
3 - Large decrease
2 - Moderate decrease
1 - Unknown (50% difference between the min and max estimates)
0 - Stable, Moderate increase, Large increase

'Source population' in terms of natal dispersal
1 - Yes
0 - No

'Source' State of wild Saker Falcons (exported Saker Falcons in the past 5 years)
3 - 100< individuals
2 - 10< individuals
1 - <10 individuals

'End User and Consumer' State of wild Saker Falcons
3 - significant
2 - medium
1 - small

ASIA

List of Saker Falcon Range States	Priority Ranking
Mongolia	1
Russian Federation (Asian part)	1
Kazakhstan	1
China	1
Uzbekistan	2
Turkmenistan	2
Afghanistan	2
Tajikistan	3
Kyrgyzstan	3
Pakistan	4
India	4

EUROPE

List of Saker Falcon Range States	Priority Ranking
Hungary	2
Ukraine	2
Russian Federation (European part)	2
Romania	3
Moldova	3
Slovakia	3
Serbia	3
Austria	3
Czech Republic	3
Bulgaria	4
Croatia	4
Georgia	4
Macedonia	4

MIDDLE EAST AND NORTH AFRICA (MENA)

List of Saker Falcon Range States	Priority Ranking
Iran	2
Saudi Arabia	2
United Arab Emirates	2
Kuwait	2
Qatar	2
Türkye	3
Iraq	3
Bahrain	4
Jordan	4
Syrian Arab Republic	4
Morocco	4

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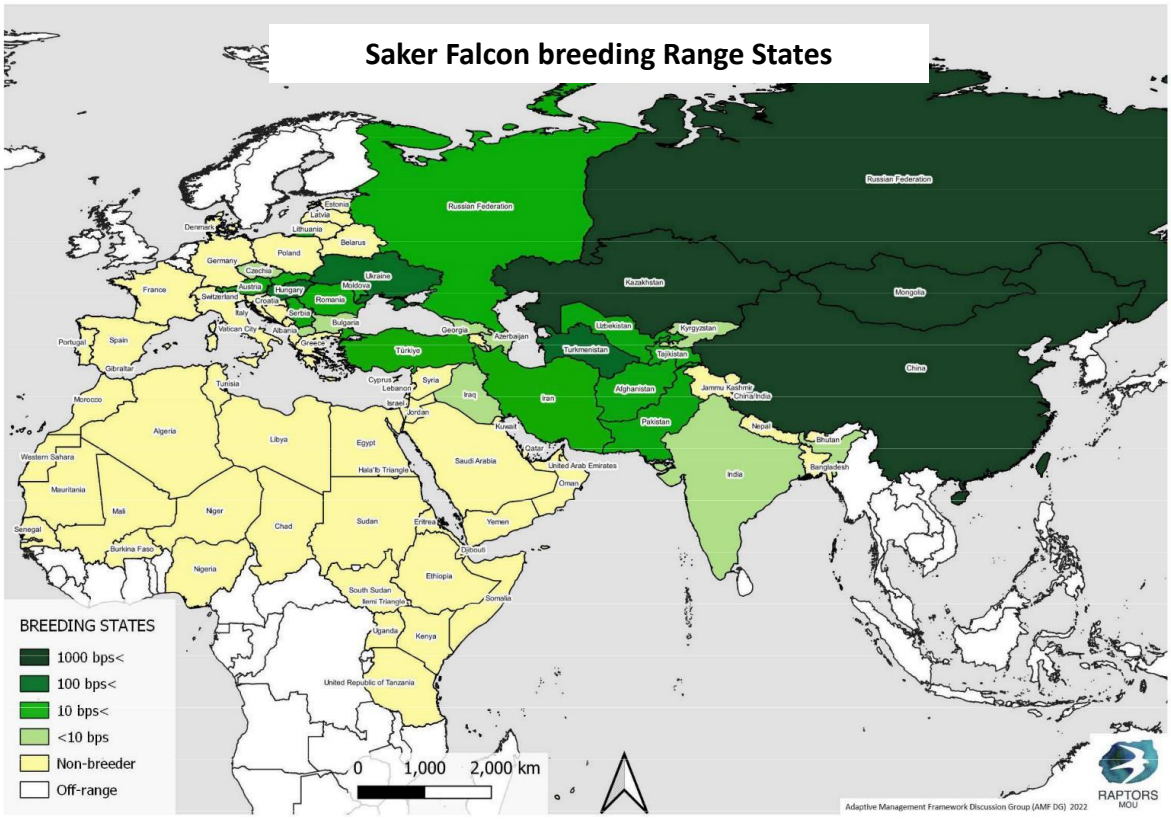
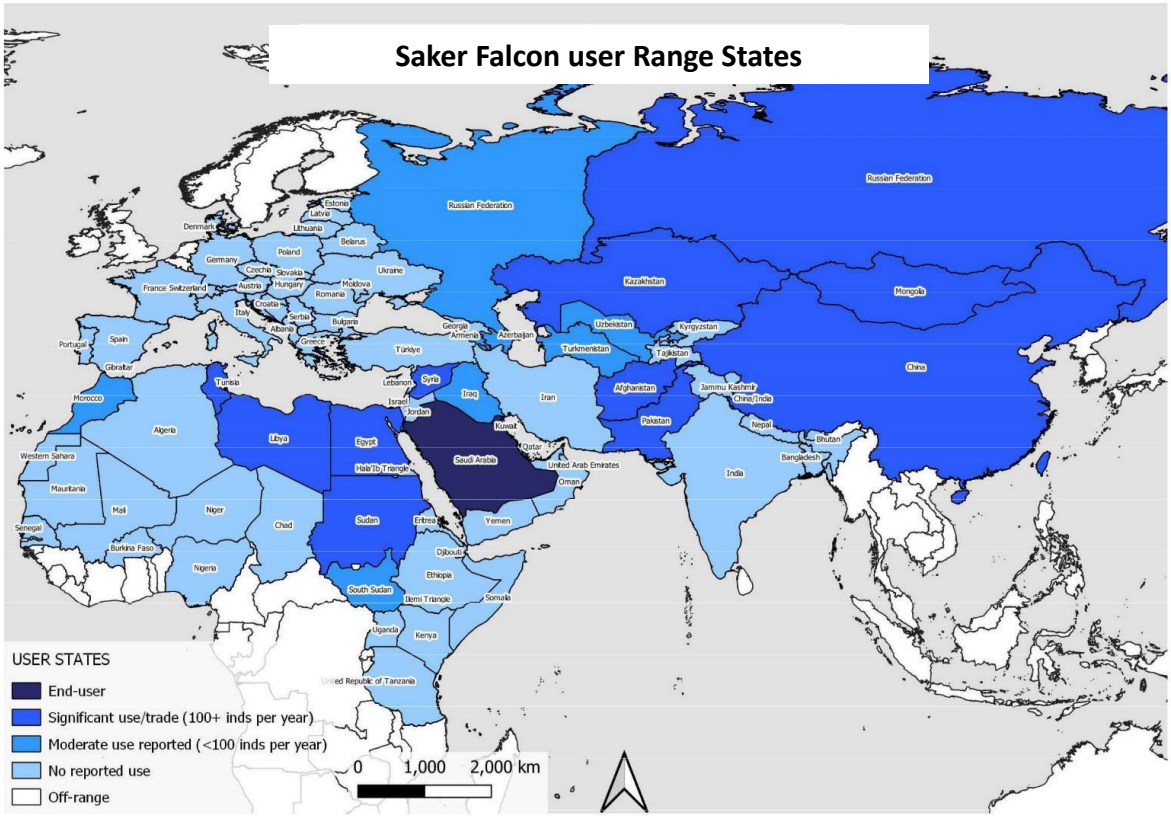
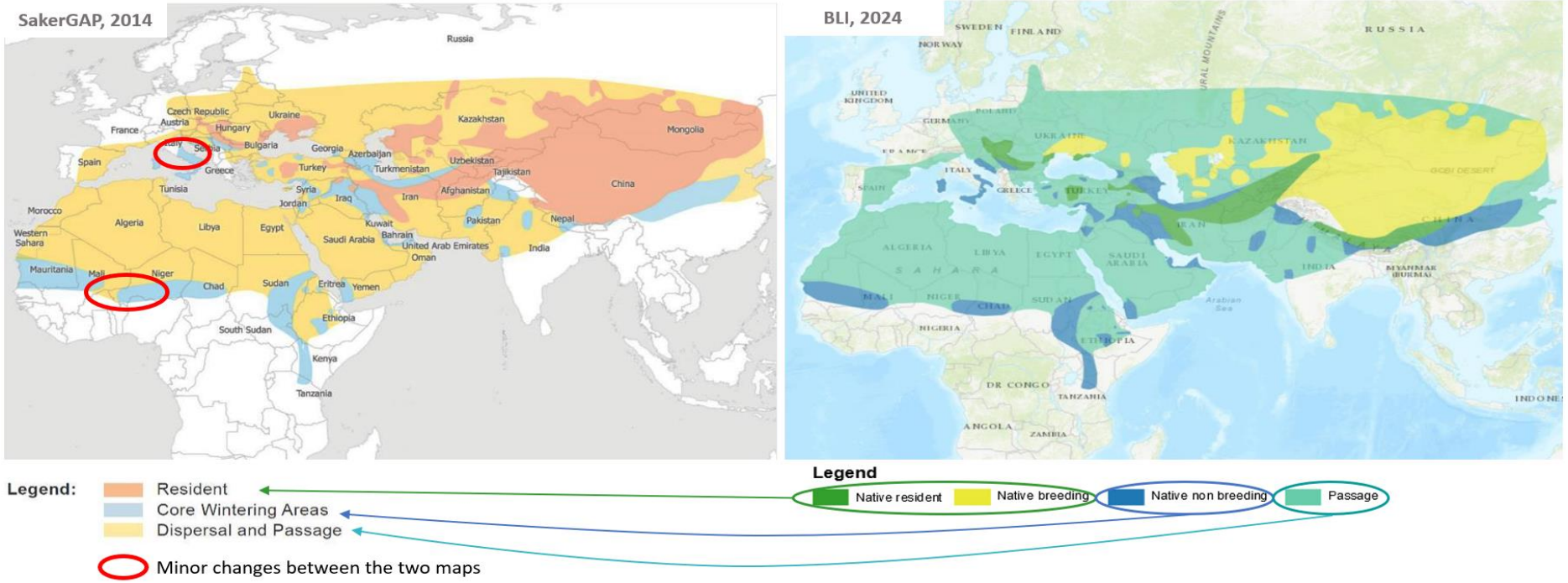
Annex 2 *Priority breeding and user Range States*

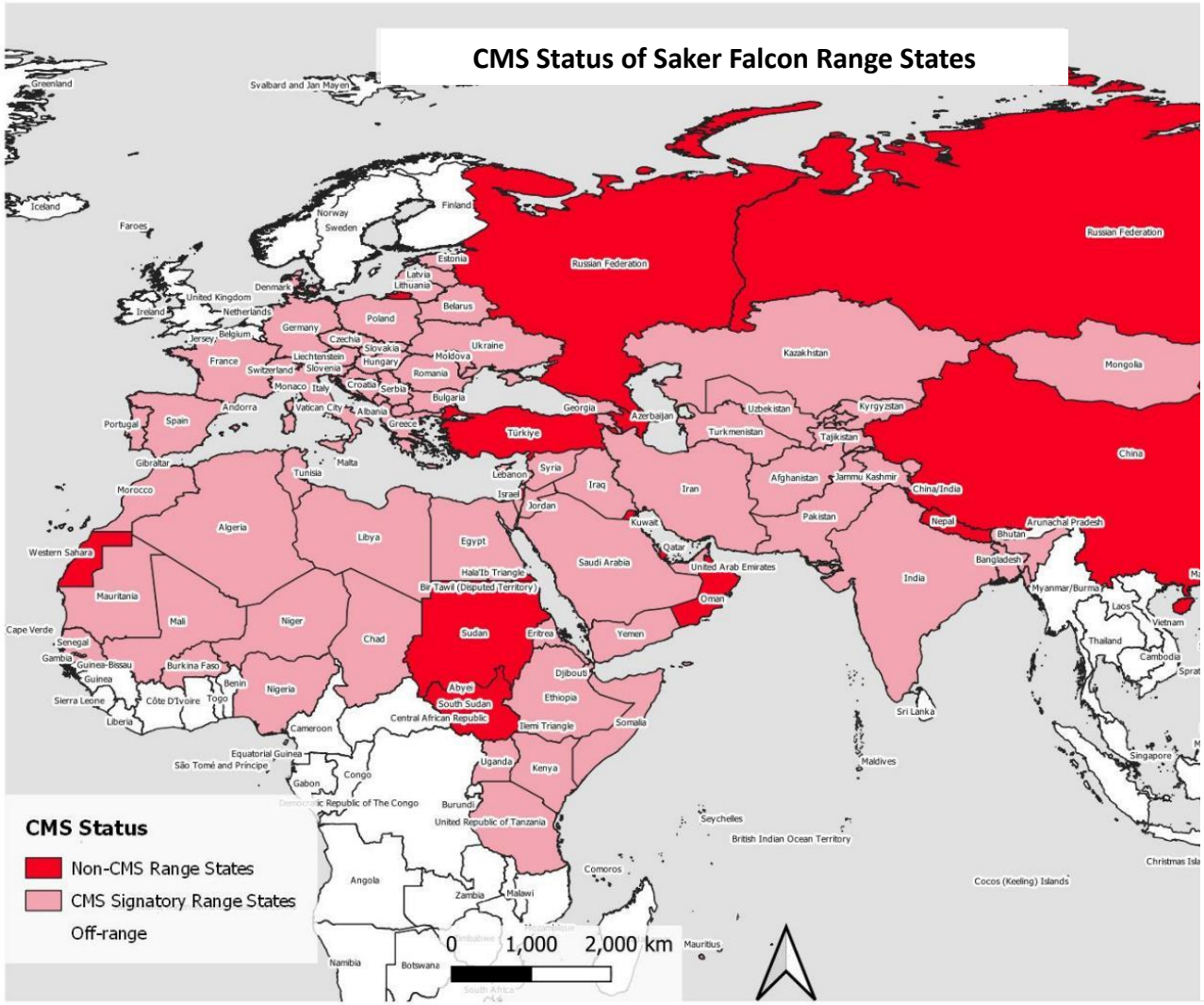




Annex 3 *A comparison of SakerGAP's (2014) and Birdlife International's (2024) global range maps of the Saker Falcon*



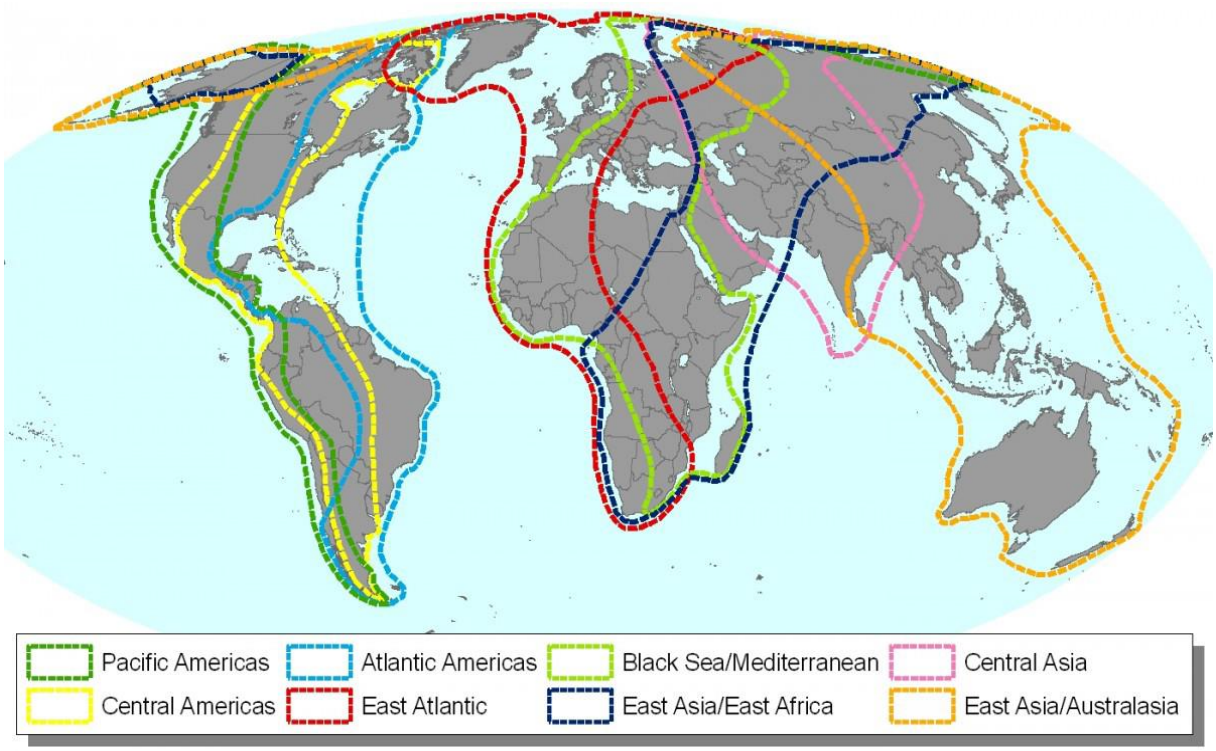
Annex 4 *The CMS, CITES and CMS Raptors MoU status of Saker Falcon Range States (May 2024) (CMS, 2024, CITES, 2024b, CMS Raptors MoU, 2024)*



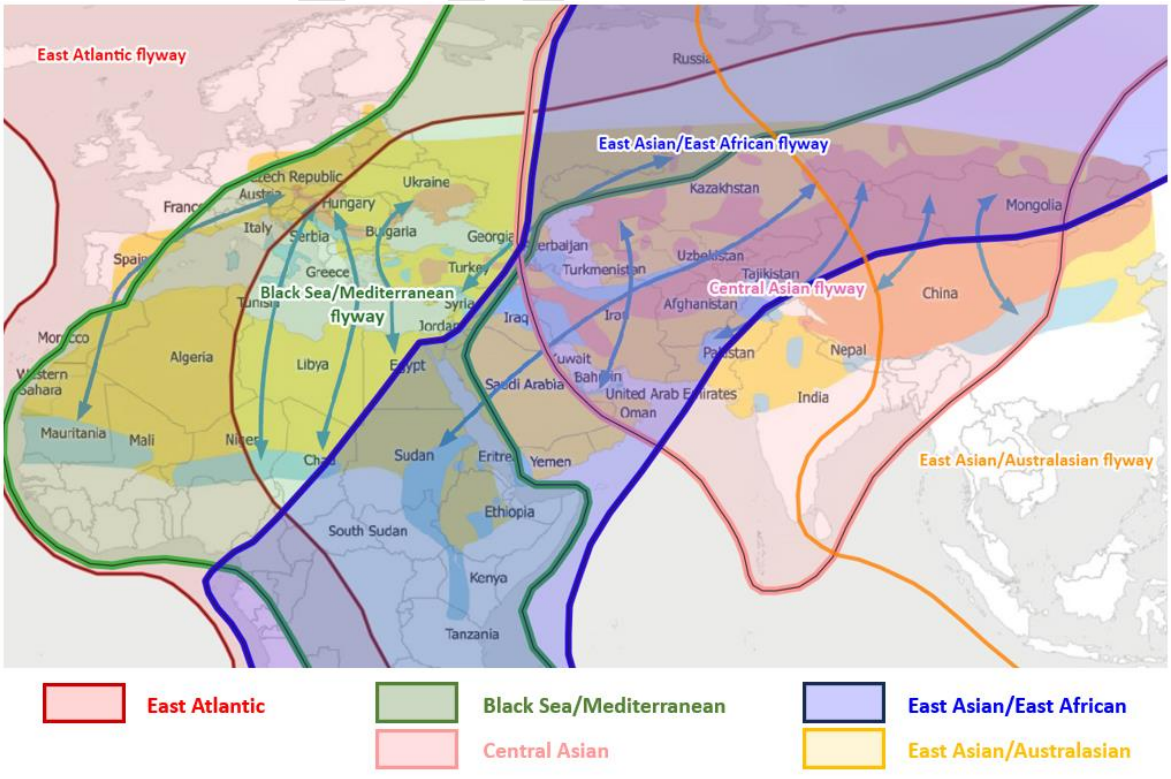
CMS, CITES and Raptors MoU status of Priority 1-4 Range States

List of Saker Falcon Range States	Status Rank	CMS	Raptors MoU	CITES
Mongolia	1	Y	Y	Y
Russian Federation (Asian part)	1			Y
Kazakhstan	1	Y	Y	Y
China	1			Y
Hungary	2	Y	Y	Y
Uzbekistan	2	Y	Y	Y
Iran	2	Y	Y	Y
Saudi Arabia	2	Y	Y	Y
United Arab Emirates	2	Y	Y	Y
Ukraine	2	Y		Y
Turkmenistan	2	Y		
Afghanistan	2	Y		Y
Russian Federation (European part)	2			Y
Kuwait	2			Y
Qatar	2			Y
Tajikistan	3	Y		Y
Turkey	3			Y
Iraq	3	Y		Y
Romania	3	Y	Y	Y
Moldova	3	Y		Y
Slovakia	3	Y	Y	Y
Serbia	3	Y		Y
Austria	3	Y	Y	Y
Czech Republic	3	Y	Y	Y
Kyrgyzstan	3	Y	Y	Y
Pakistan	4	Y	Y	Y
Bulgaria	4	Y	Y	Y
India	4	Y	Y	Y
Croatia	4	Y	Y	Y
Georgia	4	Y	Y	Y
Macedonia	4	Y		Y
Bahrain	4	Y		Y
Jordan	4	Y	Y	Y
Syrian Arab Republic	4	Y	Y	Y
Morocco	4	Y	Y	Y

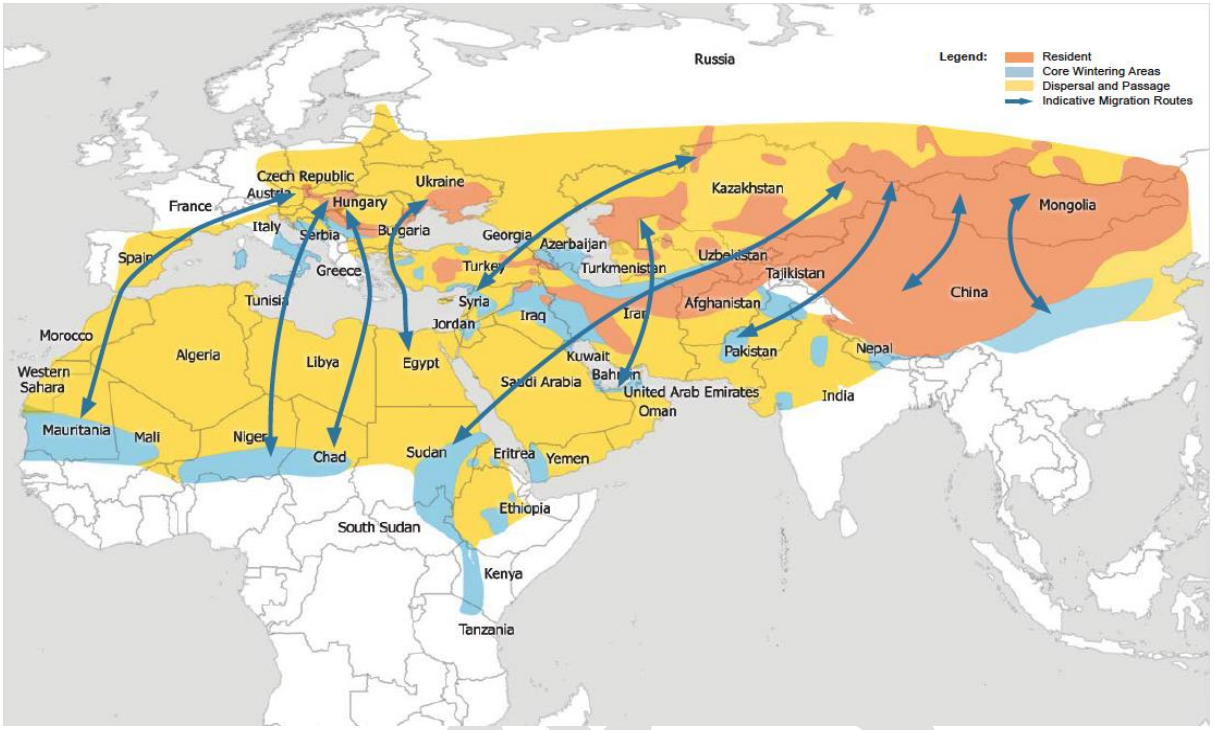
Annex 5 *Major global flyways for migratory land and waterbirds (BirdLife International, 2010)*



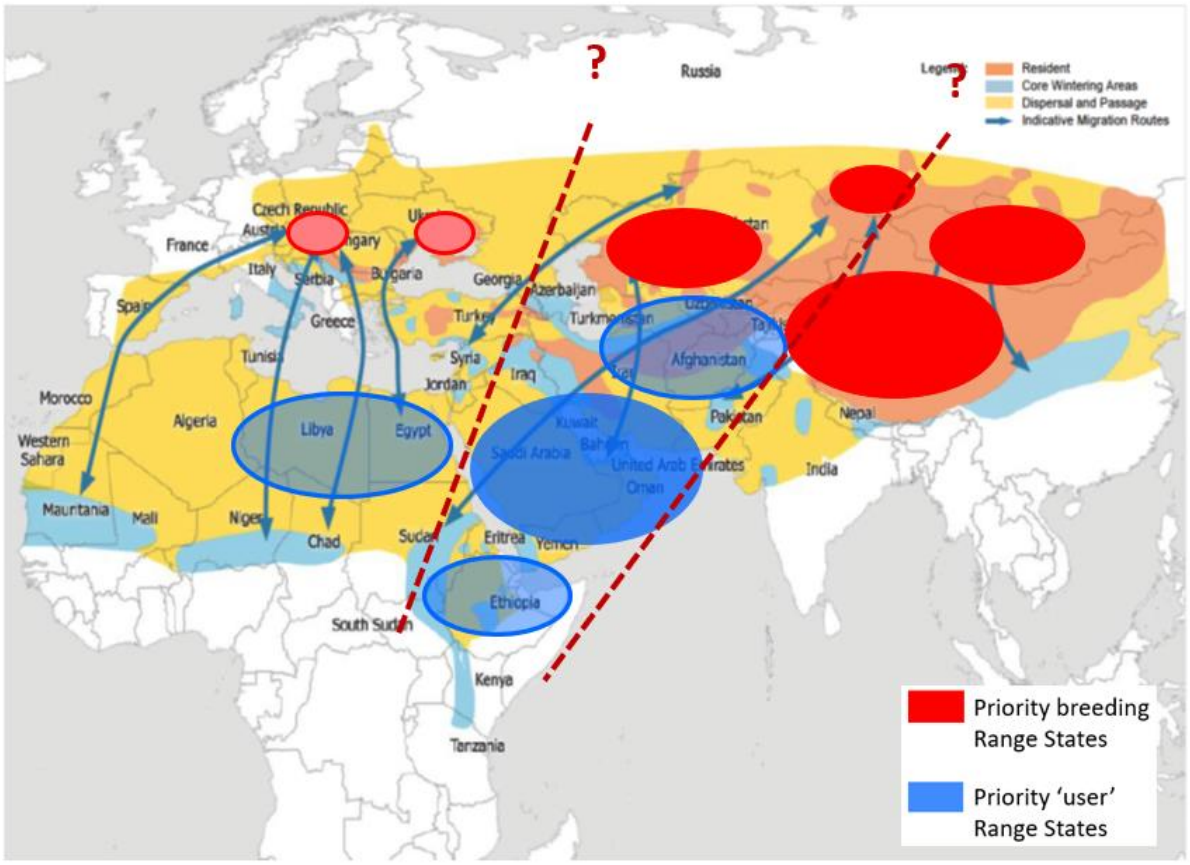
Annex 6 *Major flyways within the global range of the Saker Falcon (based on BirdLife International, 2010; BirdLife International and HBW, 2023).*



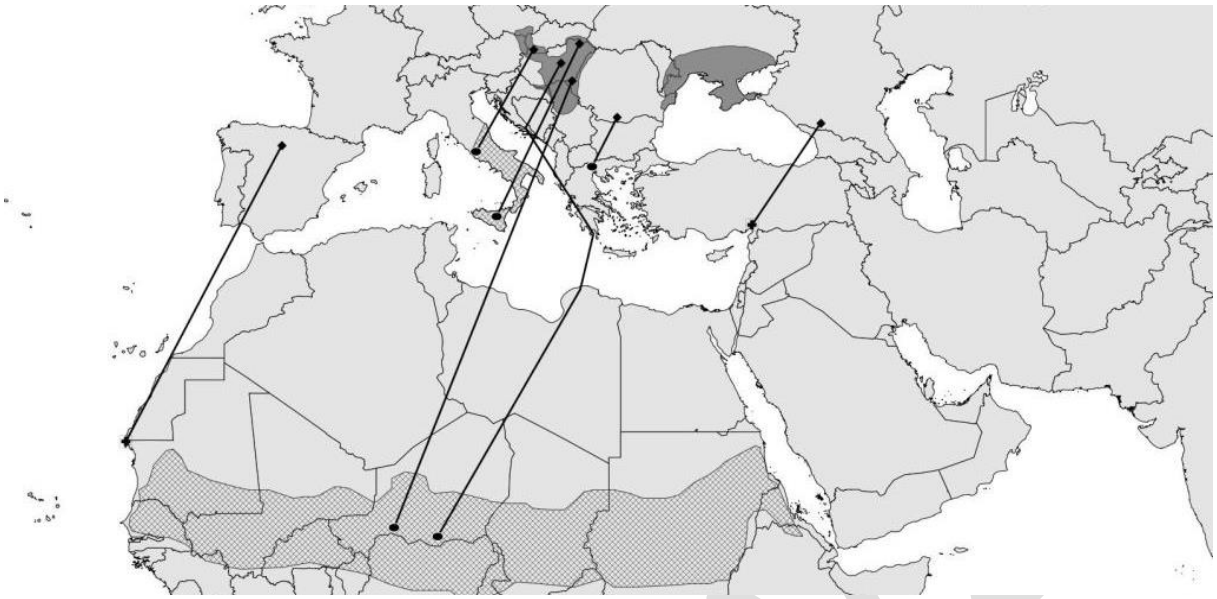
Annex 7 *Indicative Saker Falcon migration routes (SakerGAP, Kovács et al., 2014)*



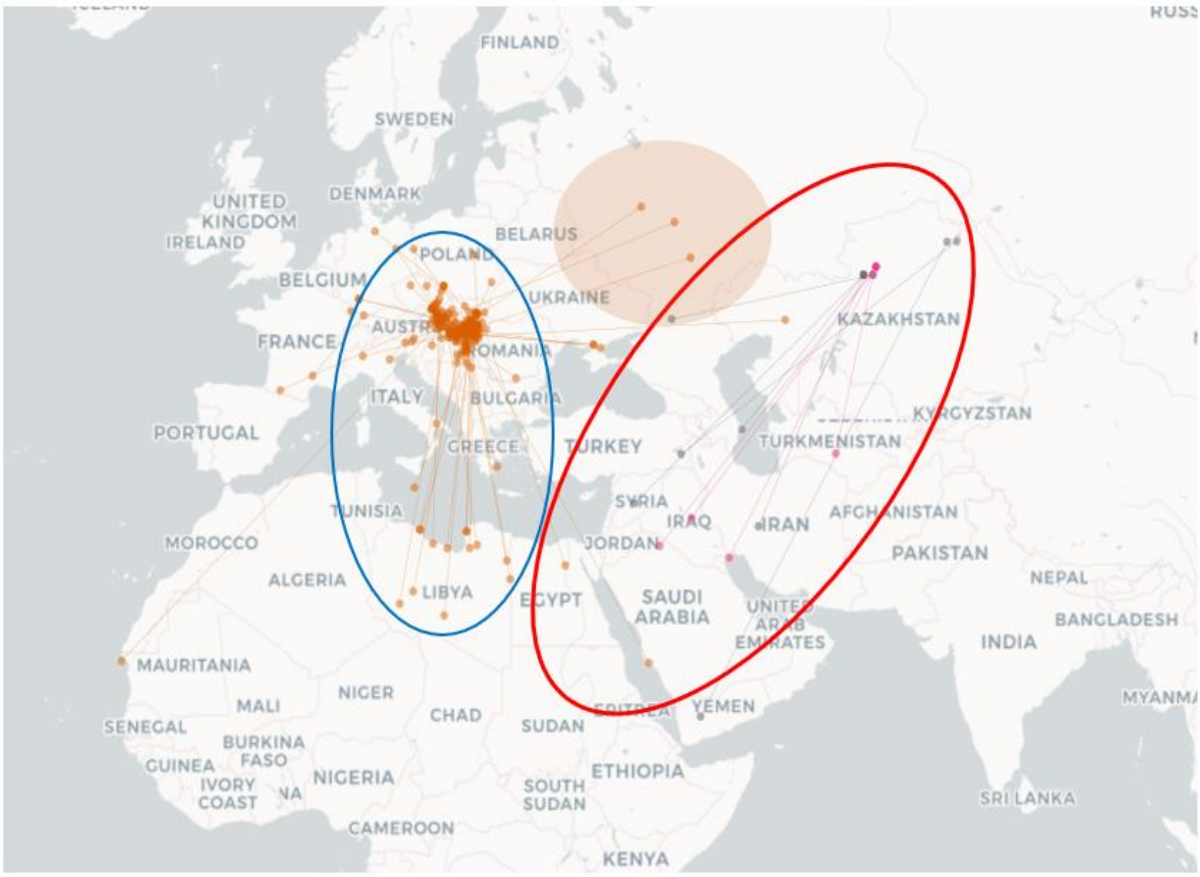
Annex 8 *Hypothetical geographical connectivity of 'breeding' and 'user' Range States*



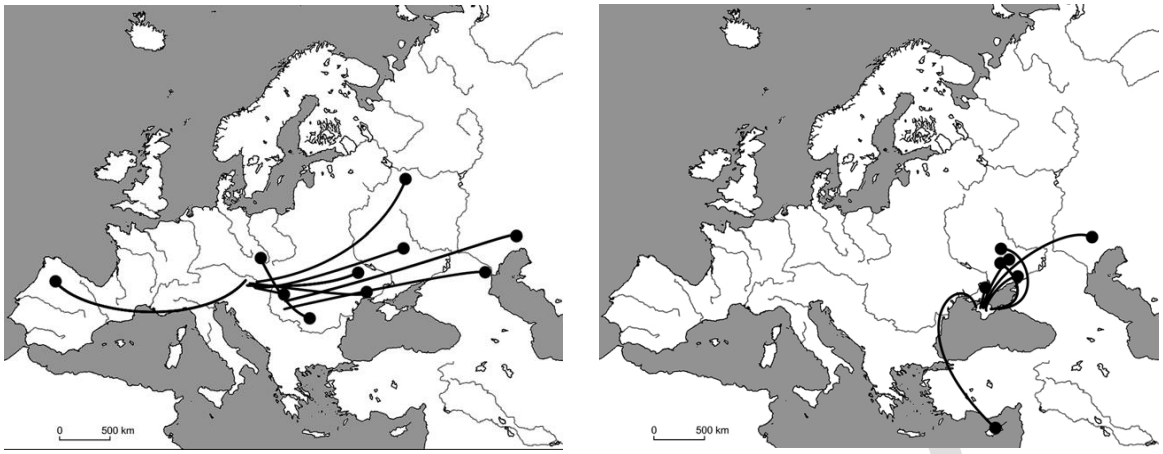
Annex 9 *Main directions of migration routes of satellite-tracked first-year Saker Falcons (Prommer et al., 2012)*



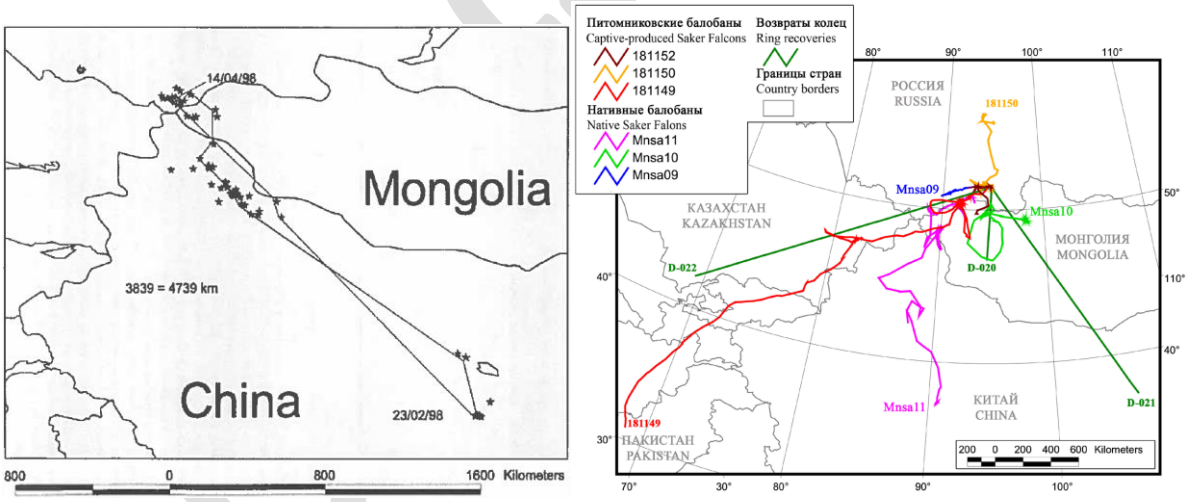
Annex 10 *Geographical connectivity of 'breeding' and 'user' Range States (Franks et al., 2022)*



Annex 11 *Main directions of long-range post-fledging dispersal of Hungarian and Ukrainian satellite-tracked 1cy and 2cy Saker Falcons (Prommer et al., 2012b)*



Annex 12 *A. Movements of two adult female Sakers satellite tagged in the Russian Altai (Eastham et al., 2000), B. Migration routes of Sakers Falcons tagged with transmitters in the Tuva Republic of Russia and data from ring recoveries (Shnayder et al., 2018)*



Annex 13 *A chronology of significant events for the case study of the conservation management of the Saker falcon in Mongolia*

Year	Event
2004	The IUCN revised the Saker Falcon's Red List status from Least Concern to Endangered (globally threatened).
2005 (-2009)	Environmental Agency Abu Dhabi (EAD) started a pilot study in Mongolia to examine the potential of using artificial nests to create readily monitored breeding 'populations' in nest-site-limited habitats.
2006, November	CITES notifies that the 9 Range States have suspended Saker Falcon export permits. However, Mongolia continued to trade in Saker Falcons.
2008, December	Resolution 9.20 on the Saker Falcon was adopted by CMS COP9 (Rome, Italy) after a Croatian proposal to list the Saker Falcon on Appendix I of the CMS was rejected.
2009	A National Saker Falcon Conservation Plan was developed in 2009.
2009, February	CITES Standing Committee recommends that countries suspend trade in Saker Falcons with Mongolia.
2009, April	Mongolia provides the CITES Animals Committee with a document outlining a conservation programme based on artificial nests linked to the development of a system of sustainable use of the Saker Falcon.
2009, July	The CITES Standing Committee withdrew its recommendation to suspend trade in wild Saker Falcons from Mongolia. An annual export quota of 300 wild, live birds was agreed upon for 2009 and 2010.
2010 (2009-)	The establishment of 5,000 artificial nests was completed in Mongolia.
2010, March	BirdLife International's review on the status of the Saker Falcon.
2010, May	IUCN revised the Saker Falcon's Red List status from Endangered (EN) to Vulnerable (VU).
2010, June	Annex 1 to the A-205 Ministerial Order of Nature, Environment and Tourism, Mongolia, defined detailed Rules to follow in actions to harvest, transport, care and export of Saker Falcon in Mongolia.
2011	The monitoring of population parameters in the Mongolian artificial nests project started.
2011, January	BirdLife International's review on Saker Falcon conservation status and research requirements.
2011, July	The CITES Animals Committee reviewed Significant Trade in the Saker Falcon in Mongolia. It endorsed the favourable management regime for the Saker Falcon established by Mongolia, agreeing to an export quota of 300 live wild birds.
2011, November	Following a proposal submitted by the European Union, the Saker Falcon is listed in Appendix I of the CMS at COP10 (Bergen, Norway) (excluding the Mongolian population, which is included in CMS Appendix II).
2012, February	BirdLife International's consultation on revising the Saker Falcon from IUCN Vulnerable to Endangered.
2012, March	Using the precautionary principle, IUCN revised the Saker Falcon's Red List status from Vulnerable (VU) to Endangered (EN).
2012, October	The Saker Falcon was officially designated as the national bird of Mongolia.
2012	The Mongolian government announced implementing a 5-year moratorium on the commercial trade in the Saker Falcon.
2014	The Mongolian artificial nest project produced 2,500 fledglings by 2014.

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2014, August	The CMS Raptors MoU and the Saker Falcon Task Force published the Saker Falcon Global Action Plan (SakerGAP).
2015 (2013-)	The provision of 5,000 artificial nests created an average annual saker population of 602 (SE ± 59) breeding pairs, producing an estimated 1,735 (SE ± 272) fledglings per annum from 2013–2015.
2015	Mongolia endorsed the SakerGAP.
2016, June	The Saker Falcon artificial nest project was discontinued.
2017	The monitoring program of the Mongolian Saker Falcon artificial nest project ended.
2018	Mongolia developed a national powerline standard (NPLS), which included the design of medium-voltage utility poles.
2018	A pilot project started to mitigate the electrocution of the Saker Falcon on medium-voltage utility poles in Mongolia (International Association for Falconry - IAF, Mohamed Bin Zayed Raptor Conservation Fund - MBZRF, energy distribution companies, service providers).
2019 - 2022	Mongolian Saker Falcon Electrocution Remediation Project. This large-scale project to mitigate raptor electrocution started with a budget of 1 million USD, funded by MBZRF and supported by the Mongolian Government. 35,000 MV poles were remediated.
2023 (2015-)	CITES' Trade Database shows controversial data on Saker Falcons of wild origin exported from Mongolia.
2024	The effects of environmental factors (climate, vegetation cover, prey frequency in the Saker's diet) on the reproduction of the managed Saker Falcon population were analysed.

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Annex 14 Species-specific adaptive harvest management (AHM) scheme examples: European Turtle-dove, Taiga Bean Goose, Pink-footed Goose, Peregrine Falcon

Turtle Dove Adaptive Harvest Management (AHM) Programme	**Adaptive Harvest Management (AHM) Program for Taiga Bean Geese and Pink-footed Geese**	**Take of migrant Peregrine Falcons from the wild for use in falconry**
Species: European Turtle-dove (Streptopelia turtur) **Start year:** 2021 **Revision years:** annual, 2022 – First update **Location (countries):** Range countries in the European Union Western flyway countries (France, Spain, Portugal and part of Italy) Central/Eastern Flyway countries (Austria, Bulgaria, Greece, Italy, Malta, Romania, and Cyprus, although part of a different flyway) **Governance:** National authorities International Turtle-Dove Sustainable Harvest Working Group (consisting of national authorities (wildlife management), conservation NGOs, hunting federations/associations, academic institutions/research agencies), European Commission **Reporting by:** National authorities FACE (The European Federation for Hunting and Conservation) ***For further information:*** Task Force on the recovery of birds for the Turtle Dove	**Species:** Taiga Bean Goose (Anser fabilis), Pink-footed Goose (Anser brachyrhynchus) **Start year:** 2016 **Revision years:** annual, Population Status and Assessment Report, Adaptive Harvest Management Reports **Location (countries):** Belarus, Belgium, Denmark, Estonia, Finland, France, Germany, Iceland, Ireland, Latvia, Netherlands, Norway, Sweden, Ukraine, United Kingdom **Governance:** AEWA (African-Eurasian Migratory Waterbird Agreement), European Goose Management Platform **Reporting by:** European Goose Management Platform ***For further information:*** European Goose Management Platform	**Species:** Peregrine Falcon (Falco peregrinus) **Start year:** 2008 **Revision years:** 2017, 2023 Location (countries): USA **Other countries concerned:** Canada, Mexico **Governance:** U.S. Fish and Wildlife Service **Reporting by:** U.S. Fish and Wildlife Service

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Description: The programme is managed at a European level, primarily through collaboration between the European Commission, Member States, and conservation organisations. Its main objective is to ensure that hunting of the Turtle Dove remains sustainable and does not jeopardise the species' survival. The European Commission launched the programme in 2021 in response to declining populations of Turtle Doves, as outlined in the EU International Action Plan for the species. The AHM applies to different flyways (Western and Central/Eastern Europe), resulting in significant harvest reductions. For instance, hunting has been completely halted in the Western flyway, and harvest levels were reduced by around 70% in the Central/Eastern flyway. The programme integrates habitat management and restoration with population monitoring and research, recognising that habitat loss due to agricultural intensification is a major threat to the species. Sustainable hunting quotas are adjusted based on ongoing assessments, ensuring that harvest levels remain compatible with conservation goals. For more detailed management frameworks and outcomes, FACE and the European Commission reports are available. The management structure of the Turtle Dove Adaptive Harvest Management (AHM) Programme is a multi-level framework involving various stakeholders, including the European	**Description:** The Adaptive Harvest Management (AHM) Program for Taiga Bean Geese is overseen by the AEWA European Goose Management Platform (EGMP). The main goal of this program is to support the sustainable use of the Taiga Bean Goose population through adaptive management, integrating harvest regulations and population recovery strategies. The program is structured around key components: - International Coordination: Managed under the AEWA framework, involving cooperation among multiple European countries. - Stakeholder Involvement: Local stakeholders such as hunters, governments, and conservation organisations are involved in decision-making. - Scientific Monitoring: The program uses population models, habitat assessments, and harvest data to inform decisions. - Adaptive Strategy: Based on real-time data, the management plan is regularly adjusted to ensure both the recovery and sustainable use of Taiga Bean Geese. The AEWA Technical Committee and its European Goose Management International Working Group provide technical advice, while AEWA oversees the implementation of the international action plans and strategies. The roles and responsibilities are distributed among various stakeholders to ensure the program's effective and adaptive management.	**Description:** The management structure of the Peregrine Falcon harvest scheme in the U.S. is built on a collaborative framework involving federal, state, and tribal agencies to ensure that the harvesting of Peregrine Falcons is sustainable and compliant with conservation goals. The overview of the structure is the following: **1. U.S. Fish and Wildlife Service (USFWS)** • **Role:** The USFWS plays a central role in overseeing the management and regulation of the Peregrine Falcon harvest. • **Responsibility:** It establishes harvest guidelines, determines annual harvest quotas, and coordinates with other agencies to ensure that the Peregrine Falcon population remains stable. The USFWS also works on monitoring and assessing the species' status in collaboration with state agencies. • **Permit Issuance:** The USFWS issues the necessary federal permits for the take of Peregrine Falcons, particularly for use in falconry. **2. State Wildlife Agencies** • **Role:** State agencies are responsible for implementing the harvest program at the local level. They manage hunting licenses and permits, monitor falcon populations within their respective

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Commission, national governments, scientific experts, and conservation groups. The structure is the following:

1. European Commission

- **Role:** Acts as the central coordinating body, ensuring compliance with the Birds Directive and guiding the overall implementation of the AHM.
- **Responsibility:** Develops policy guidance, sets overall conservation goals, and ensures cooperation among member states. The Commission supports research, data collection, and management measures through specific EU conservation funds.

2. Member States

- **Role:** National governments are responsible for implementing the programme within their borders. This involves creating national action plans, enforcing harvest quotas, and reporting population data to the Commission.
- **Responsibility:** Ensure that hunting regulations align with the conservation goals, manage habitat restoration projects, and adjust quotas to maintain sustainable levels of Turtle Dove hunting.

3. ORNIS Committee

- **Role:** A technical and scientific advisory body that assists the European

1. AEWA (Agreement on the Conservation of African-Eurasian Migratory Waterbirds)

- **Role**: Acts as the overarching authority, coordinating the program under its **European Goose Management Platform (EGMP)**.
- **Responsibility**: Oversees the development and implementation of the AHM for Taiga Bean Geese, ensuring compliance with international conservation agreements and guiding countries toward sustainable harvest levels.

2. European Goose Management International Working Group (EGMIWG)

- **Role**: Provides a forum for range states, stakeholders, and experts to collaborate on the management of migratory goose populations.
- **Responsibility**: Assesses population data, recommends quotas and implements adaptive strategies based on population trends and habitat conditions.

3. National Governments (Range States)

- **Role**: The participating countries, such as Finland, Sweden, Denmark, and Norway, are responsible for implementing the AHM at a national level.
- **Responsibility**: Develop national action plans, adjust harvest quotas based on AEWA recommendations, and monitor goose populations within their territories.

4. Scientific Experts and Researchers

states, and ensure hunters comply with regulations.

- **Responsibility:** State agencies set local harvest quotas based on population data provided by the USFWS, and they often collaborate with biologists and ornithologists to monitor the falcon population at the state level.

3. Tribal Governments

- **Role:** Some tribal governments also participate in the management of the Peregrine Falcon harvest. They coordinate with federal and state agencies to ensure sustainable use of the species within their territories.
- **Responsibility:** Tribal governments may issue permits for falconry harvests, monitor populations, and contribute to conservation efforts.

4. Falconers and Falconry Organizations

- **Role:** Falconers, as key stakeholders, must follow regulations and acquire the necessary permits from state and federal agencies.
- **Responsibility:** They are responsible for reporting falcon harvests and adhering to quotas set by state and federal authorities. Falconry organisations often engage with regulators and conservationists to ensure that

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Commission. The ORNIS committee helps set quotas and provides scientific advice on the best management practices.

- **Responsibility:** Reviews scientific data on population trends, recommends adjustments in harvest levels, and advises on developing guidelines for sustainable hunting.

4. Scientific and Research Bodies

- **Role:** Independent research organisations and universities contribute by collecting data, conducting population assessments, and providing scientific models for adaptive management.
- **Responsibility:** Track Turtle Dove populations, assess the impact of hunting and habitat changes and provide essential data to inform harvest quotas.

5. Conservation Organizations

- **Role:** Non-governmental organisations such as BirdLife International and FACE (Federation of Associations for Hunting and Conservation of the EU) play key roles in balancing conservation with sustainable hunting.
- **Responsibility:** Participate in habitat management, monitor illegal hunting, and provide input into the adaptive

- **Role**: Provide essential data and models for population monitoring and harvest impact assessments.
- **Responsibility**: Gather field data on population sizes, migration routes, and survival rates. This information informs decision-making at the international and national levels.

5. Hunters and Local Communities

- **Role**: Key stakeholders in the program who participate in sustainable hunting practices.
- **Responsibility**: Comply with the adjusted harvest quotas and contribute to population monitoring efforts through reporting and collaboration with conservation groups.

6. AEWA Technical Committee

- **Role**: Provides technical expertise and scientific advice.
- **Responsibility**: Evaluates data and population models to adjust management strategies for sustainability and recovery goals.

This coordinated approach ensures that conservation and sustainable use objectives are met through shared responsibility and adaptive management strategies.

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5. Scientific Monitoring and Reporting

- **Role:** Independent scientists, researchers, and conservation organisations contribute data on Peregrine Falcon populations.
- **Responsibility:** They provide population monitoring, research on breeding success, and migration studies, which inform the decision-making process for annual harvest limits. Monitoring reports help determine the health of the population and guide adjustments to the harvest quotas.

6. Annual Review and Adaptive Management

- **Role:** The harvest scheme follows an adaptive management framework.
- **Responsibility:** Quotas and regulations are reviewed annually based on updated population data, scientific research, and the effectiveness of the previous year's harvest. Adjustments to quotas are made depending on the population status of Peregrine Falcons at the regional and national levels.

This structured and multi-level approach ensures that Peregrine Falcon harvesting in the U.S. is carefully regulated to avoid any negative impact on the population, maintaining a balance

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management strategy. They also engage in public outreach and education to ensure compliance with the AHM plan.

6. Local Stakeholders and Hunters

- **Role:** Hunters, local communities, and regional governments are involved in implementing hunting regulations and habitat restoration efforts at a local level.
- **Responsibility:** Comply with hunting quotas, contribute to monitoring efforts, and engage in conservation practices like habitat restoration and maintenance.

This collaborative structure ensures that both conservation goals and hunting traditions are balanced sustainably, with the programme being adjusted based on ongoing data and assessments.

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