UNEP

CMS

CONVENTION ON MIGRATORY SPECIES

Distribution: General

UNEP/CMS/ScC18/Inf.10.8
16 June 2014

Original: English

18th MEETING OF THE SCIENTIFIC COUNCIL
Bonn, Germany, 1-3 July 2014
Agenda Item 10.8

SAKER FALCON *Falco Cherrug* GLOBAL ACTION PLAN (SakerGAP), INCLUDING A MANAGEMENT AND MONITORING SYSTEM, TO CONSERVE THE SPECIES

Summary

Under this cover the third draft of the Saker Falcon Global Action Plan is reproduced. Details of the process through which this draft has been produced are provided in document UNEP/CMS/ScC18/Doc.10.8.

CMS Technical Series No. XX

Saker Falcon *Falco cherrug* Global Action Plan (SakerGAP), including a management and monitoring system, to conserve the species

RAPTORS MOU

CMS UNEP

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

Saker Falcon Task Force

Saker Falcon *Falco cherrug* Global Action Plan (SakerGAP), including a management and monitoring system, to conserve the species

CMS Technical Series No. XX

Prepared with financial contributions from the Environment Agency - Abu Dhabi on behalf of the Government of the United Arab Emirates, the Saudi Wildlife Authority on behalf of the Government of the Kingdom of Saudi Arabia, the European Commission on behalf of the European Union, the CITES Secretariat and CMS Parties.

Third Draft

31 May 2014

Saker Falcon *Falco cherrug* Global Action Plan (SakerGAP), including a management and monitoring system, to conserve the species.

The SakerGAP was commissioned by the Saker Falcon Task Force, under the auspices of the CMS Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia (Raptors MoU).

The preparation of the plan was financially supported by the Environment Agency - Abu Dhabi on behalf of the Government of the United Arab Emirates, the Saudi Wildlife Authority on behalf of the Government of the Kingdom of Saudi Arabia, ENRTP Strategic Cooperation Agreement (SCA) between European Commission - DG Environment and UNEP, the CITES Secretariat and CMS Parties.

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Milestones in the production of the SakerGAP

1st Draft	12 August 2013
Stakeholder workshop:	9-11 September 2013, Abu Dhabi, United Arab Emirates
2nd Draft	25 February 2014
3rd Draft	31 May 2014
4th Draft	[dd] June 2014
Final Version	

Geographical scope
The SakerGAP applies to the whole geographic range of the Saker Falcon, including the following countries (in alphabetical order):

Breeding Range States (25)
Afghanistan, Armenia, Austria, Bulgaria, China, Croatia, Czech Republic, Georgia, Hungary, India, Iran, Iraq, Kazakhstan, Kyrgyzstan, Moldova, Mongolia, Romania, Russian Federation, Serbia, Slovakia, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan.

Winter or passage Range States (55)
Albania, Algeria, Azerbaijan, Bahrain, Bangladesh, Belarus, Bhutan, Bosnia and Herzegovina, Burundi, Cameroon, Chad, Cyprus, Denmark, Djibouti, Egypt, Eritrea, Ethiopia, Finland, France, Germany, Greece, Israel, Italy, Jordan, Kenya, Korea Republic of, Kuwait, Lebanon, Libya, Macedonia the FYR of, Mali, Malta, Mauritania, Montenegro, Morocco, Nepal, Niger, Oman, Pakistan, Palestine, Poland, Qatar, Saudi Arabia, Senegal, Somalia, South Sudan, Spain, Sudan, Sweden, Syria, Tanzania United Republic of, Tunisia, Uganda, United Arab Emirates, Yemen.

International species working group
The work in developing this Global Action Plan has been overseen by the Saker Falcon Task Force (STF), under the auspices of the Coordinating Unit (CU) of the CMS Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia (Raptors MoU). The Report on the 1st Meeting of the STF available at:
http://www.cms.int/raptors/sites/default/files/document/saker_tf_report_072012_2.pdf

Reviews

It is envisaged that the SakerGAP will be implemented over a 10 year period (2015 – 2024), incorporating reports to the triennial CMS Conference of Parties, scheduled to be held in 2017, 2020, and 2023.

The SakerGAP should be reviewed every three years (first review of implementation in 2017) and updated every ten years (first update in 2025). An emergency review will be undertaken if there is a sudden major change liable to affect one of the populations.

Recommended citation

Kovács, A., Williams, N.P. and Galbraith, C. A. (2014) Saker Falcon *Falco cherrug* Global Action Plan (SakerGAP), including a management and monitoring system, to conserve the species. CMS Raptors MoU Coordinating Unit, Abu Dhabi. CMS Technical Series No. XX, Bonn, Germany.

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List of abbreviations

ASEAN	Association of South East Asian Nations
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
GCC	Gulf Cooperation Council
CU	Coordinating Unit
IGO	Inter-governmental Organisation
IUCN	International Union for Conservation of Nature
MEA	Multilateral Environmental Agreement
MoS	Meeting of Signatories
MoU	Memorandum of Understanding
N/A	not applicable
NDFs	Non-detriment findings
NGO	Non-governmental Organisation
Raptors MoU	CMS MoU on the Conservation of Migratory Birds of Prey in Africa and Eurasia
SakerGAP	Saker Falcon Global Action Plan
SPA	Special Protection Area
STF	Saker Falcon Task Force
UAE	United Arab Emirates
UNEP	United Nations Environment Programme
UNDP	United Nations Development Programme

FOREWORD

- ✓ To be added in the next draft of the SakerGAP

The Saker Falcon

The Saker Falcon *Falco cherrug* is a large, powerful falcon, roughly between Gyr Falcon *F. rusticolus* and Peregrine *F. peregrinus* in size. The Saker Falcon has been a favoured bird of prey for falconry for thousands of years, so it has an important traditional, cultural and economic place in many countries, especially in the Gulf States and in Central Asia.
Population monitoring data suggest that if the cumulative effect of threats is not controlled and reduced, the majority of the sub-populations may significantly decrease or become extinct. The wild Saker Falcon may, as a consequence, be lost for future generations. There is, therefore a continuing need for urgent, coordinated action to maintain and restore its conservation status requiring the full engagement of key Stakeholders.

The Saker Falcon Task Force – origin and context

CMS Parties adopted Resolution 10.28 at the 10th Conference of Parties (COP10) held in Bergen, Norway on 25 November 2011. The Resolution acknowledged the listing of the Saker Falcon on CMS Appendix I (with the species being at risk of extinction throughout all or a significant proportion of its range), excluding the population in Mongolia, and decided to establish an immediate Concerted Action supported by all Parties. It also called for the establishment of a Saker Falcon Task Force (STF) under the auspices of the Coordinating Unit (CU) of the UNEP/CMS MoU on the Conservation of Migratory Birds of Prey in Africa and Eurasia (Raptors MoU).

This Global Action Plan is a product of the Saker Task Force. It presents a summary of the biology of the Saker Falcon; highlights the conservation priorities across its range, and proposes a clear management framework (i.e. a sustainable management system recognised by CMS and CITES) for the species.

Conservation status
The Saker Falcon *Falco cherrug* was up-listed to globally Endangered in 2012 by IUCN because a revised population trend analysis indicated that it may have undergone a very rapid decline, involving ca. 50% of the global population in the last 20 years, particularly on the Central Asian breeding grounds.

International legal status
The Saker Falcon is listed in the following Multilateral and Regional Environmental Agreements:

- CITES *Appendix II*
- CMS *Appendix I*
- Bern Convention *Appendix II*
- EU Birds Directive *Annex I*
- The Convention on the Conservation of Wildlife and Natural Habitats in the Countries of the Gulf Cooperation Council (GCC) *Annex III*

'Falconry, a living human heritage' was inscribed on the Representative List of the Intangible Cultural Heritage of Humanity by UNESCO in November 2010.

Population Status and Threats

Geographical distribution

In the Palearctic, the Saker Falcon breeds across continental middle latitudes, with its range spanning over 7,000 km from west to east, and 3,000 north to south, from Central Europe to western China; mainly in wooded steppe, steppe, sub-desert and foothills, often bordering or overlapping forests.

Population size and trend

The historical and present global population size remains subject to considerable uncertainty. The estimated global population in 2013 was ca. 6,100 – 14,900 pairs (median ca. 10,500) based on national data collected via Questionnaires issued by the CMS Raptors MoU.

The key breeding states in Europe are Hungary and Ukraine; in Asia the main strongholds are China, Kazakhstan, Mongolia and Asiatic Russia. The four key Asian breeding states together hold over 90% of the global breeding population.

According to BirdLife International (2013) the overall population trend during the period 1993-2012 equates to a 47% decline (based on median estimates), with a minimum-maximum decline of 2-75%. Given considerable uncertainty over the population estimates used, a precautionary estimate for the species suggests it to have declined by at least 50% over three Saker Falcon generations (19.2 years).

Breeding populations in Bulgaria, Serbia, Kazakhstan, Asiatic Russia and Uzbekistan showed large decline in the last 20 years while in Austria, Czech Republic, Hungary, Slovakia, Ukraine and Mongolia the populations are increasing.

Principal threats affecting the Saker Falcon

A range of threats can cause increased mortality in all age groups of the Saker Falcon, and can cause decreased productivity due to low fecundity and low breeding success.

The main causes of decline are considered to be the electrocution of birds on medium-voltage power-lines, unsustainable trapping/harvest along the migration routes, secondary poisoning, decreased prey availability and collision with man-made structures.

A lack of suitable nest sites may considerably hinder population growth in several breeding range states where suitable nest sites are limited. This factor is thought to be especially important in Central Asia.

Knowledge gaps

Existing extensive knowledge gaps related to the distribution; population sizes and trends; ecology; migration routes and wintering areas; trade effects; and anthropogenic impacts (positive and negative) other than trade of the Saker Falcon remain to be filled as part of the implementation of the SakerGAP. Some of these knowledge gaps presently appear to be preventing consumers and conservationists from being able to manage Saker populations responsibly, hence addressing these issues is an urgent priority for action.

The SakerGAP suggests that a Saker Data Management System (SDMS) should be established to help facilitate the collection and management of large amount of field monitoring, research and socio-economic data.

A Global Action Plan for the Saker Falcon (SakerGAP), including a management and monitoring system

Geographical scope of the Global Action Plan

The geographical scope of the SakerGAP is the global range of the Saker Falcon, including its breeding grounds, migration routes and wintering areas.

Framework for Action

The ***Overall Goal*** of SakerGAP is to re-establish a healthy and self-sustaining wild Saker Falcon population throughout its range, and to ensure that any use is sustainable.

The ***Objectives*** of the SakerGAP are to:

1. Ensure that the impact of electrocution on the Saker Falcon is reduced significantly; enabling a stable or increasing population trend of the Saker Falcon in key breeding range counties of Central Asia and Europe.
2. Ensure that trapping and other forms of taking Sakers from the wild are legal, controlled, and sustainable, thereby allowing population growth and stabilisation.
3. Ensure that other identified mortality factors (e.g. secondary poisoning and collision with man-made objects and infrastructure) do not have significant impact on Saker Falcon subpopulations.
4. Maintain, restore and expand the range of the Saker Falcon by ensuring suitable breeding and foraging habitats and by reinforcing prey populations.
5. Ensure effective Stakeholders' involvement in the implementation of SakerGAP within a Saker Falcon Adaptive Management Framework.

The proposed *in-situ* and *ex-situ conservation actions* are expected to result in:

1. Steady and effective increase in the proportion of bird-friendly medium-voltage electric lines over the whole range of the Saker Falcon, especially in priority range states;
2. Establishment and approval by Range States and by CMS/CITES of an internationally recognised management plan for the sustainable use of the Saker Falcon;
3. Decrease in mortality of the Saker Falcon due to secondary poisoning, collision with man-made objects and infrastructure and other factors;
4. Increase in the global breeding population size and productivity through increased suitable nest sites and available food supply in the range of the Saker Falcon; and,
5. Effective implementation of the SakerGAP through strong Stakeholder collaboration within the Saker Falcon Adaptive Management Framework.

Ex situ conservation measures such as captive breeding, falcon health care and controlled releases/reintroduction may reduce the pressure on wild Saker Falcon populations and thereby play an important role in the recovery of the species.

Saker Falcon Adaptive Management Framework

A programme is proposed, including the outline of a Saker Falcon Adaptive Management Framework that could be applied throughout the range of the species. The framework provides a description of the six key steps in the adaptive management cycle as follows: I. Plan, II. Design, III. Act, IV. Monitor, V. Evaluate and learn and VI. Adjust management.

Integrating principles such as 'learning by doing', evidence-based decision making and the co-operation with, and engagement of, Stakeholders in the conservation of the Saker Falcon, mean that this framework is a key part of the Saker Falcon Global Action Plan (SakerGAP) being one of the fundamental building blocks of effective conservation action.

Sustainable use

In order to shift unregulated illegal harvest towards a controlled legal harvest, the management goal is to allow a reasonable, sustainable harvest of the Saker Falcon while simultaneously: a) decreasing the cumulative impact of global harvest; and, b) exerting minimal impact on decreasing non-target populations.

This goal can be achieved through the application of a carefully designed and managed global harvest quota system; 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.

Based on the demographic modelling by Kenward *et al.* (2013) and on examples of sustainable harvest in other birds of prey a conservative level of maximum of a 5% harvest of fledged juveniles

may be sustainable in stable or increasing Saker Falcon populations which exceed 100 observed breeding pairs.
The SakerGAP includes the introduction of the 'consumer pays' principle to enhance overall responsibility for sustainable use, and to help develop co-operation between 'user' and 'source' Range States along flyways. This system proposes that compensatory conservation measures are taken by consumers, including funding remedial conservation costs associated with the resources they use. Conservation measures that are proved to improve the survival or reproduction success of Saker Falcon populations (e.g. mitigation of electrocution or provision of artificial nests) may increase sustainable harvest quota, thereby encouraging conservation investments.

Stakeholder engagement
The success of conservation action for the Saker Falcon is dependent upon deeply rooted underlying socio-economic needs and on the cultural drivers of key stakeholders. Heightened awareness of, and effective responses to, these drivers is important, and solutions may similarly need to be based in socio-economic and cultural practices.
Rural communities can potentially be involved in many aspects of Saker Falcon conservation management in exchange for funding, employment, information, or permissions. This is an important aspect for the implementation of the work and such an approach is in line with the implementation of Multi-lateral Environmental Agreements including CITES and CMS. For example, the SakerGAP lists opportunities to involve at least six local, including rural, stakeholder groups within a suggested Saker Falcon Stewardship Scheme.

Coordination
The SakerGAP includes a proposal to establish and formalise a coordination structure for its implementation, including the delivery of the management plan in relation to sustainable use. A transparent, co-ordinated structure for implementation is suggested, with key roles for the Coordinating Unit CMS Raptors MoU and for the Saker Falcon Task Force.

Next steps
It is envisaged that the SakerGAP will be implemented over a 10 year period (2015 – 2024), incorporating reports to the triennial CMS Conference of Parties, scheduled to be held in 2017, 2020, 2023 and 2026.
The SakerGAP should be reviewed every three years (first review of implementation in 2017) and updated every ten years (first update in 2025).
Establishing and legitimising a coordination structure are the first steps towards the implementation of SakerGAP.
To gain momentum and for immediate actions, four Flagship Proposals have been elaborated by STF Members and the Coordinating Unit of the CMS Raptors MoU following the STF Stakeholders' Workshop and the subsequent 2nd Meeting of the Saker Falcon Task Force with the following aims:

- To creat a single Saker Falcon Online Information Portal and engage 10 Falcon Hospitals and 10 trappers within a Saker Falcon Network;
- To deploy 100 Satellite Tags on Saker Falcons;
- To erect 1,000 artificial nest platforms for Saker Falcons; and,
- To install or retro-fitting 1,000,000 new or existing 'bird-safe' electricity poles (Phase I).

1 - BIOLOGICAL ASSESSMENT

General information

The Saker Falcon *Falco cherrug* is a large, powerful falcon, roughly between the Gyr Falcon *F. rusticolus* and Peregrine *F. peregrinus* in size. The range of body length is 43-60 cm, wingspan is 104-135 cm (Baumgart, 1980) and 97 – 120 (Noakes, 1990); the tail length is 16-26 cm; weight 730-1150g. It is brown above with paler head and whitish supercilia and streaked below, with a relatively small head on a broad-chested, though long and otherwise slender body, with long wings and long tail (Clark, 1999; Forsman, 1999; Ferguson-Lees & Christie, 2001). Sexes are similar, but females average ca. 15% larger and ca. 40% heavier than males. Sakers within the European range are smaller in size than their Central Asian conspecifics. Its large size for a falcon and widespread use of arid environments have led over centuries to it being used as the foremost bird of prey by Arabian falconers.

The species is adapted to relatively arid, open landscapes, wooded steppe and foothills in the Palearctic region (from Eastern Europe to western China), where it hunts ground-living mammals supplemented with birds and other prey (Ferguson-Lees & Christie, 2001; BirdLife International, 2013).

In the Western Palearctic, it breeds across continental middle latitudes, spanning over 7,000 km from west to east and 3,000 north to south; mainly in wooded steppe, steppe, sub-desert and foothills, often bordering or overlapping forests.

The Saker Falcon *Falco cherrug* was up-listed to globally Endangered in 2012 (IUCN, 2013) because a revised population trend analysis indicated that it may have undergone a very rapid decline, involving ca. 50% of the global population in the last 20 years, particularly on the Central Asian breeding grounds.

Taxonomy

Phylum: *Chordata*
Class: *Aves*
Order: *Falconiformes*
Family: *Falconidae*
Genus: *Falco*
Species: *Falco cherrug (Gray, 1834)*

The Saker Falcon has been considered to be a polytypic species. The variation is clinal from west to east, as birds tend to become overall paler and the upperparts become increasingly barred (Forsman, 1999). Taxonomists usually recognise two subspecies, the nominate *F. c. cherrug* Gray, 1834 and *F. c. milvipes* Jerdon, 1871 (Vaurie, 1961; del Hoyo *et al.*, 1994; Eastham, 1999; Ferguson-Lees & Christie, 2001; AERC TAC, 2003). Claiming that this approach ignores geographical localisations and great variations in phenotypes, some authors (Dementiev *et al.*, 1950; Baumgart, 1991) distinguish up to a total of thirteen (*cherrug, aralocaspius, cyanopus, danubialis and gurneyi* within the range of 'F. c. Cherrug'; *altaicus, anatolicus, coatsi, hendersoni, lorenzi, milvipes, progressus, saceroides* within the range of 'F. c. Milvipes'), and more recently seven (nominotypical *cherrug*, *progressus*, *milvipes*, *coatsi*, *aralocaspius / korelovi*, *hendersoni* and *anatolicus* subspecies (Karyakin, 2011), although the validity of some of these is still disputed. The taxonomic status of the Altai Saker or Altai Falcon is controversial with some authors (e.g. Ferguson-Lees and Christie, 2001) treating it as a separate

species. Besides the sough-after but disappearing Altai Falcon falconers also favour other rare phenotypes such as the large blond 'Ashgar Falcon' (Eastham *et al.*, 2002).
The Saker Falcon together with Gyr *Falco rusticolus*, Lanner *Falco biarmicus* and Laggar Falcons *Falco jugger* belongs to the Hierofalco complex (Kleinschmidt, 1901; Wink and Sauer-Gürth, 2004; Wink *et al.*, 2004; Nittinger *et al.*, 2005).
In a genetic study analysing 186 samples of unrelated specimens covering a major portion of the range neither the overall pattern of mitochondrial haplotype distribution nor the microsatellite analyses support any sub-specific division, not even the separation of *F. c. cherrug* and *F. c. milvipes* (Nittinger *et al.*, 2007). This suggests that the Saker Falcon is a polymorphic species rather than polytypic.
Saker Falcons interbreed with Gyr Falcon *F. rusticolus* in captivity but this does not seem to happen otherwise as there is no overlapping breeding zones of the two species in the wild (Moseikin & Ellis 2004; Potapov & Sale, 2005). Nittinger *et al.* (2005) suggested that the Saker Falcon and other species within the subgenus *Hierofalco* are genetically not clearly differentiated. This implies that hierofalcons form an evolutionary young group, and the species involved separated less than 34,000 years ago. The oldest dated fossils of F. cherrug are from Ohalo 2, Israel and are 19,400 years old (Simmons and Nadel, 1998).

Bio-geographic populations

The species is Palearctic and, in winter, also Afrotropical and marginally Indomalayan: 56°N to 28°N, wintering to 21°S in India and to 3–4°S in Africa (Udvardy, 1975; Ferguson-Lees & Christie, 2001).
Two main bio-geographic populations of the Saker Falcon are recognised in the Western (Central-Eastern Europe) and in the Eastern Palearctic (Central Asia). There is no evidence of the exchange of breeding individuals between the two populations despite intercontinental dispersial events proved with satellite telemetry and the results of recent genetic studies suggesting that individuals from the two populations are very similar genetically.

Population size and trend

The Saker Falcon breeds across a wide range of the Palearctic region from the Czech Republic and Austria to Eastern China (*Figure 1*; Cramp and Simmons, 1980; Baumgart, 1991; Snow and Perrins, 1998; Dixon, 2007; Dixon, 2009). The subspecies *F. c. cherrug* ranges from central and south-east Europe and Iran eastward to south-central Siberia and it winters in south-east Europe, East Africa east to north-west India; while the subspecies *F. c. milvipes* ranges from south-central Siberia south to west China, east to northeast China and it winters south to Iran, northwest India, central China (Ferguson-Lees & Christie, 2001). The subspecies *F. c. cherrug* is now fragmented and is not adequately replacing itself (CITES, 2004a). Because of the marked decline in population sizes, the historical range has contracted and become fragmented in Europe and in some parts of the Asian range (Nagy & Demeter, 2006; Karyakin *et al.*, 2012; Deinet *et al.*, 2013).

A total population of ca. 6,400-15,400 pairs (median c.10,900) was calculated for 2010 (BirdLife International, 2013), including the most important range states of China (1,000-5,000 pairs, median 3,000 (A. Dixon *in litt.*, 2012), Kazakhstan (800-1,450 in 2011; median 1,125 pairs (A. Dixon and A. Levin *in litt.*, 2012), Mongolia (2,000-5,000 pairs, median 3,500 [Dixon, 2009]) and Russia (1,854-2,542 in 2007, median 2,198 [Karyakin 2008]), and collated estimates for other countries (Haines, 2002; Dixon, 2007, 2009). The species has declined markedly in its European distribution since 1945 (Baumgart, 1998).

Assuming a generation length (the average age of parents of the current cohort, IUCN, 2012) of 6.4 years and that the decline in the species' population had already begun (at least in some areas) prior

to the 1990s, the overall population trend during the 19-year period 1993-2012 equates to a 47% decline (based on median estimates), with a minimum-maximum decline of 2-75%. Given the considerable uncertainty over the population estimates used, the species has been estimated to have declined by at least 50% over three generations (BirdLife International, 2013).

The most recent data set collected for the SakerGAP in 2013 has shown slightly smaller population figures, possibly due to better quality estimations in some Range States (*Table 1*, CMS Raptors MoU, 2013).

A global Saker Falcon breeding population of ca. 6,100 -14,900 pairs (median ca. 10,500) has been calculated, including ca. 640 – 820 pairs (median ca. 730; 7% of the estimated global population) in Europe and ca. 5,440 – 14,080 pairs (median ca. 9760; 93% of the estimated global population) in Asia (CMS Raptors MoU, 2013).

The population trend varies between countries and is increasing in Austria, the Czech Republic, Hungary, Slovakia, and Ukraine, whilst it is decreasing in Bulgaria, China, Iraq, Kazakhstan, Russia, Serbia and Uzbekistan. It is stable in Croatia, Georgia, and Mongolia; and unknown for the rest of the breeding Range States. The large declines documented in Kazakhstan and in Asiatic Russia are particularly concerning.

Data presented in *Table 1* support the conclusion reached by BirdLife International that the overall population trend is negative.

The main strongholds or 'source subpopulations' in Europe are in Hungary and Ukraine; and in Mongolia and probably in China in Asia.

However, the present global population size remains subject to considerable uncertainty. Dixon (2009) classified the data quality of national population figures he assembled for 13 states in Asia into five classes (excellent, good, medium, poor, and guess) and found 1 was medium, 6 were poor and 6 were guesses.
The results of the SakerGAP Questionnaire survey (CMS Raptors MoU, 2013) and those of recent research papers show that the quality of national population figures are good in the case of 9 (35%, Europe: 7, Asia: 2) Range States, medium in 4 (15%, Europe: 2, Asia: 2), poor in 9 (35%, Europe:3, Asia: 6) and unknown in 4 (15%, Europe:1, Asia: 3).
This reflects that a very significant degree of uncertainty and speculation accompanies the population estimates for key range states, especially in Asia (Dixon, 2005; Collar *et al.*, 2013).

Table 1 Saker Falcon breeding population estimates and trends (CMS Raptors MoU, 2013)

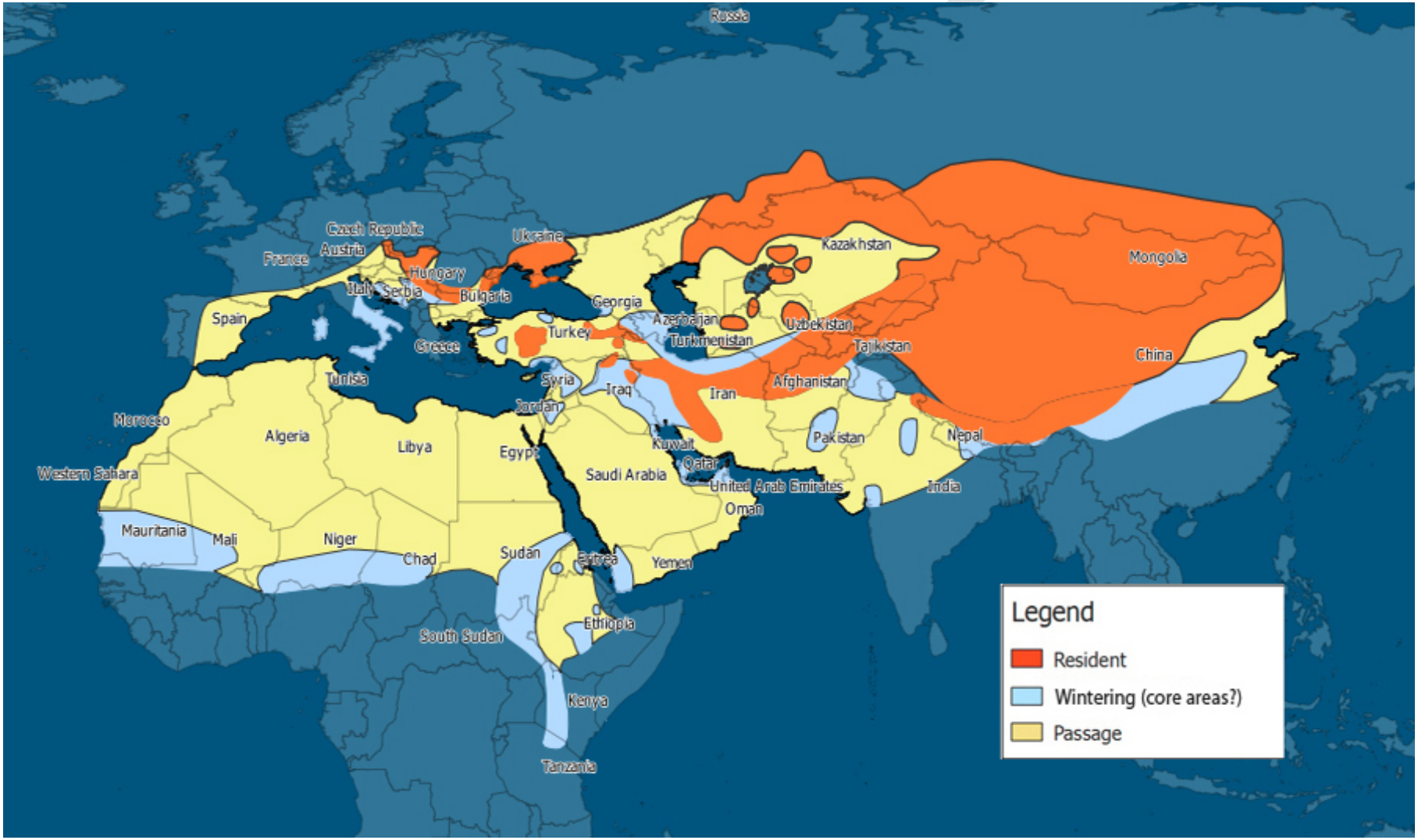
Range States	Pop. Min.	Pop. Max. *(pairs)*	Pop. Med.	Data quality	Year	Breeding population trend	Data quality	Source of information
Austria	25	30	28	GO	2013	Small increase	GO	Gamauf & Dosedel, 2012; Gamauf, 2013; BirdLife Austria, 2013
Bulgaria	0	8	4	ME	2013	Large decline	ME	Gradinarov & Iankov, Ragyov *in litt.*, 2013
Croatia	3	5	4	GE	2011	Stable	ME	Tutiš *et al.*, 2013
Czech Republic	15	20	18	GE	2012	Moderate increase	ME	Beran *et al.*, 2012
Georgia	1	3	2	ME	2013	Stable	ME	Abuladze, 2013
Germany	0	0	0	-	-	-	-	Schall *in litt.*, 2013
Hungary	164	241	203	GO	2012	Large increase	GO	MME, 2013; Schmidt *et al. in litt.*, 2013
Macedonia	1	2	2	P	2013	?	P	Micevski *in litt.*, 2013
Moldova	8	15	12	P	2005	?	?	Dixon, 2007
Poland	0	0	0	-	-	-	-	Sielicki *et al.*, 2009
Romania	0	6	3	GE	2013	?	GE	Miauta *et al.*, 2013
Russian Federation (Europe)	0	5	3	P	2013	Large decline	?	Karyakin, 2004; 2008; Dixon, 2007; Karyakin *et al.*, 2012; Galushin, 2012
Serbia	25	40	33	GE	2013	Large decline	GE	Rajkovic & Tucakov, 2013
Slovakia	45	48	47	GO	2013	Large increase	GO	Deutschová & Chavko *in litt.*, 2013
Ukraine	350	400	375	GE	2010	Small increase	ME	Milibog *et al.*, 2010; Gavrilyuk *in litt.*, 2013
EUROPE	**637**	**823**	**730**					
Afghanistan	10	100	55	P	?	?	?	Dixon, 2009
China	1000	5000	3000	P	2008	Moderate decline	?	Dixon *in litt.*, 2012
India	0	10	5	P	2006	?	P	Naoroji, 2006; Dixon, 2009
Iran	10	100	55	MI	2012	?	MI	Zadegan *et al.*, 2012; Dixon, 2009
Iraq	0	10	5	?	2012	Moderate decline	?	Porter & Salim *et al.* 2012, Al-Sheikhly *et al.*, 2011
Kazakhstan	700	1400	1050	GE-ME	2011-2012	Large decline	GE-ME	Sklyarenko *et al.*, Levin *et al. in litt.*, 2013
Kyrgyzstan	2	3	3	?	2007	?	?	Kulagin *et al.*, 2013
Mongolia	2000	5000	3500	ME	2010	Stable	ME	Galtbalt *in litt.*, 2013; Dixon, 2009

Range States	Pop. Min.	Pop. Max. *(pairs)*	Pop. Med.	Data quality	Year	Breeding population trend	Data quality	Source of information
Pakistan	0	50	25	?	?	?	?	Khan & Khalid *in litt.*, 2013, Dixon, 2009
Russian Federation (Asia)	1553	2089	1821	ME	2011	Large decline	ME	Karyakin, Nikolenko, Barashkova, 2006, 2011; Karyakin & Nikolenko, 2011; Karyakin *et al.*, 2005, 2012; Karyakin, 2004, 2008; Belik, 2008
Tajikistan	10	100	55	P	?	?	?	Dixon, 2009
Turkmenistan	100	150	125	P	?	?	?	Dixon, 2009
Uzbekistan	59	70	65	GO	2011	Large decline	ME	Kashkarov & Lanovenko, 2011
ASIA	**5444**	**14082**	**9763**					
TOTAL	**6081**	**14905**	**10493**			**.**		

Notes (based on BirdLife International, 2008a)**:**

- **Pop. Min.: Estimated breeding population minimum in pairs**
- **Pop. Max.: Estimated breeding population maximum in pairs**
- **Pop. Med.: Estimated breeding population median**
- **Data quality**:
  - **Good Observed (GO)=** *Reliable or representative quantitative data are available through complete counts or comprehensive measurements for the whole period and country.*
  - **Good Estimated (GE)** = *Reliable quantitative or representative data are available through sampling or interpolation for the whole period and country.*
  - **Medium Estimated (ME)** = *Only incomplete quantitative data are available through sampling or interpolation.*
  - **Medium Inferred (MI)** = *Only poor or incomplete quantitative data are available derived from indirect evidence.*
  - **Poor (P)** = *Poorly known with no quantitative data are available and with guesses derived from circumstantial evidence.*
  - **Unknown (U)** = *information on quality not available*.
- **Year:Year of the latest estimate**
- **Breeding Population trend in the last 20 years** *(or three generations – 6.4x3=19.2 years, BirdLife International, 2013).*
  - **Large decline (>=30%), Moderate decline (10-29%), Small decline (0-9%),**
  - **Stable (<10% decline and <10% increase),**
  - **Small increase (0-9%), Moderate increase (10-29%), Large increase (>=30%),**
  - **Unknown (insufficient data).**

Figure 1 The global range of the Saker Falcon compiled using geo-referenced information and expert knowledge (CMS Raptors MoU, 2013, based on BirdLife International, 2013)



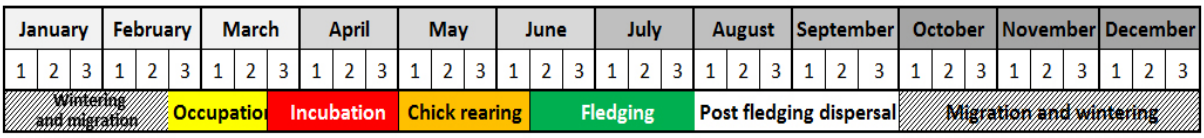
Distribution throughout the annual cycle

As in other raptors, the distribution throughout the annual cycle and the movements of the Saker Falcon are determined by the periodic changes in the abundance of food (Newton, 1979). Areas in the northern segment of the range are often inhospitable for the Saker Falcon in winter whilst central areas may allow year-long residency and southern areas provide winter habitats.

Europe

Adult birds are sedentary (e.g. in Turkey), partial-migrants (e.g. in Central Europe) or fully migratory (e.g. in parts of Russia), largely depending on the extent to which their food supply in breeding areas disappears in winter (Baumgart, 1991; Snow and Perrins, 1998; Ferguson-Lees & Christie, 2001). The results of a satellite-tracking study in Hungary suggest that juveniles show partial autumn migration in their first calendar year starting in October–November and return in March-April (Prommer *et al.*, 2012).

Figure 2 Annual cycle of the Saker Falcon on European and Asian breeding grounds (CMS Raptors MoU, 2013)



Regardless of their starting position, migrating juvenile Sakers move southwest (210° on average) (Prommer *et al.*, 2012). In the central Mediterranean it is a regular winter visitor to Italy and winters in south (Corso & Harris, 2012). Sakers regularly winter in north-east Bulgaria (Iankov and Gradinarov, 2012; Prommer *et al.*, 2012). It is also an irregular visitor to Malta. Small numbers cross the Bosporus in autumn and spring (Snow & Perrins, 1998; Shirihai *et al.*, 2000) in August - November. Vagrants are occasionally recorded in Western and Northern Europe from Spain to Sweden and Latvia (Ferguson-Lees & Christie, 2001; De Juana, 2006). Some longer movements along the east-west axis indicated by European juveniles (F. c. cherrug) have been recorded as far east as Pakistan and northwest India (Ferguson-Lees & Christie, 2001). Most migratory individuals in the first-year cohort satellite-tagged in Central Europe showed parallel migration, uniformly moving to the south-west (Prommer *et al.*, 2012).

Asia

In Asia, a large proportion of the population leave their breeding areas in September–October and return in March-April (Ferguson-Lees & Christie, 2001). In Mongolia it can be either migratory (in a south-easterly and south-westerly direction) or stay in the breeding area all year round, depending on the snow cover (Potapov, 2002). Juveniles of the southern parts of Asian Russia, Altai Mountains and Mongolia show a fan-shaped migration from the breeding ground to central and west China (Eastham, 1998; Karyakin *et al.*, 2005a; Sumya *et al.*, 2001; Potapov *et al.*, 2002a; Batbayar *et al.*, 2009). *F. c. milvipes* winter in Iran and possibly in Armenia and the Middle East. Wintering birds occur south down to India (Gujarat), Hong Kong and in South Korea (Ferguson-Lees & Christie, 2001; Prommer *in litt.*, 2014).

Middle East

A passage of Sakers is recorded in the Middle East and in the Arabian Peninsula in mid-September – November peaking in the second half of October, with return in mid-February - April peaking in mid-March (stragglers being recorded as late as mid-May), and many of them are present in wintering areas, mostly October–March (Shirihai *et al.*, 2000; Ferguson-Lees & Christie, 2001; Dixon, 2005). It is likely that many, if not most, of the Saker Falcons that spend the winter in the Middle East and north-

east Africa originate from breeding areas in central Asia (Ferguson-Lees & Christie, 2001). Scarce records at different migration bottlenecks suggest broad-front migration. The Saker Falcon is a winter visitor in small numbers in the lowlands of northern and central Israel and to the Negev Desert (Shirihai, 1996; Shirihai *et al.*, 2000; Dixon, 2005). Small numbers of Sakers overwinter in Saudi Arabia (Shobrak and Pallait, 1998).

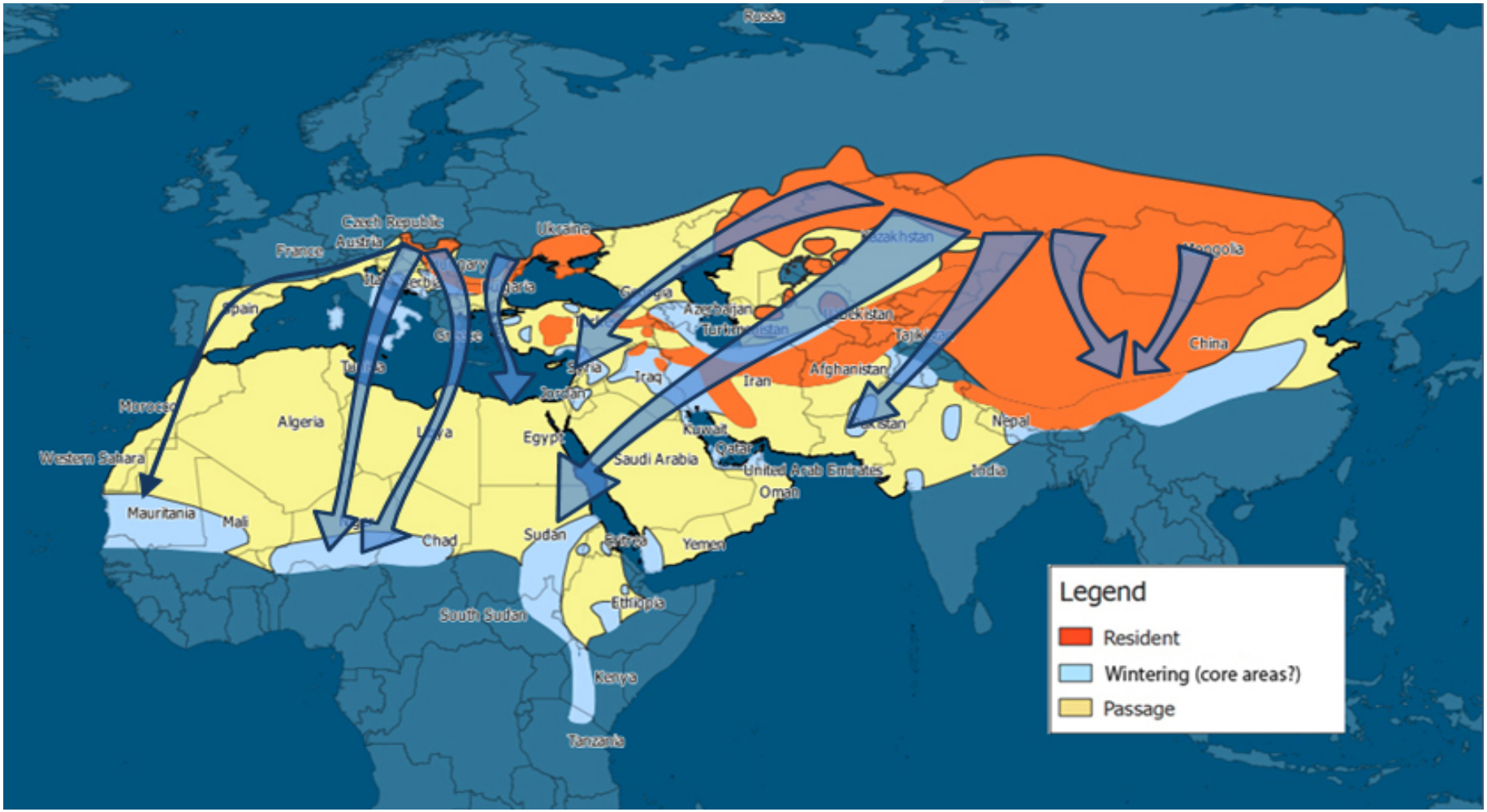
Figure 3 Annual cycle in passage and winter range states of the Middle East and Africa (CMS Raptors MoU, 2013)

January			February			March			April			May			June			July			August			September			October			November			December		
1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Wintering			Return to breeding areas									Absent?												Passage									Wintering			

Africa

The Saker Falcon most likely arrives in Africa through the Arabian Peninsula north and south of Jeddah (Zimmerman *et al.*, 1996; Mohammad Sulayem *in litt.*, 2013; Simon Thomsett *in litt.*, 2013) and also by crossing over the Mediterranean Sea between the Greek Islands, Cyprus or Italy (Sicily) and the North African coasts at Libya and Egypt (Prommer *et al.*, 2012). Hungarian satellite tracking data showed that during juvenile dispersal Sakers occasionally cross the Strait of Gibraltar from Western Europe (Prommer *in litt*., 2014). It occurs from northwest to northeast Africa south to Kenya and northernmost Tanzania (Ferguson-Lees & Christie, 2001). It has been known as a scarce winter migrant to northwest and northern tropical Africa south to Sudan, Ethiopia reaching the Equator in Kenya (Brown *et al.*, 1982). Once in Africa, migrant Saker Falcons appear to spread out across a vast longitudinal area and occur throughout the Sahel region from Senegal to Sudan (Brown and Amadon, 1968; Kemp & Kemp, 1998). Two satellite-tracked Sakers of Hungarian and Slovak origin reached Niger (Issaka & Brouwer, 2012; Niger Bird DataBase, 2013). The core wintering grounds in North East Africa are probably within Sudan, Eritrea and Ethiopia but extend south to Kenya (Cade, 1982; though records are infrequent) and exceptionally as far as northernmost Tanzania (Zimmerman *et al.*, 1996; Dixon, 2005). Central European birds occur mainly in Libya and Tunisia in winter (Bagyura & Szitta, 2009). The Saker Falcon passes through Egypt on a wide front, and has been recorded in the Western Desert, the Eastern Desert, and from the Suez Canal area and on south along the Red Sea (M. D. Megally *in litt.*). It is a regular visitor during migration and wintering in the eastern deserts of Egypt after passing Sinai and Gabal el Zait area (M. Habib *pers. comm*.; Prommer *in litt*., 2014).

Figure 4 Confirmed autumn migration routes of the Saker Falcon (CMS Raptors MoU, 2013; based on field observations, VHF and satellite tracking data by Shirihai *et al.*, 2000; Potapov *et al.*, 2002a; Karyakin *et al.*, 2005; Kenward *et al.*, 2007; Prommer *et al.*, 2012)



Life history

Breeding

As with other falcons, the Saker Falcon does not build a nest but occupies those constructed by other species (e.g. herons, eagles, buzzards or corvids), natural structures such as rocky outcrops, cliff ledges and sometimes nests on the ground, or uses artificial nests on trees, pylons or self-standing platforms. No nest material is added by the falcons. The Saker Falcon exhibits strong nest site fidelity. The same nest can be used for several consecutive years.

It breeds from early March to late June/July in the western part of its range, and from April to August in east.

Birds occasionally start breeding in their second calendar year but the majority of them breed from the third calendar year at 21 months post-fledging (Kenward *et al.*, 2007, Kenward *et al.*, 2013). The Saker Falcon is a prolific species, its clutch usually consists of 3 – 5 eggs, exceptionally 6 eggs; clutch size varies significantly across years with means from 3.2 to 3.9 in different circumstances. It may also breed prolifically in captivity; females can produce more than 100 young in their lifetimes (Nick Fox *pers. comm.*). Egg-laying: in most pairs the clutch is laid between early March - mid-April; incubation: 30-32 days; fledging: 45-50 days; post-fledging: 4-6 week (Baumgart, 1991; Baumgart, 1994; Snow and Perrins, 1998; Ferguson-Lees & Christie, 2001; Potapov *et al.*, 2002).
Nesting density of Saker Falcons in some regions of Mongolia was found to fluctuate dramatically over the years. In a grid containing 5,000 artificial nests across the central steppe of Mongolia, in 20 blocks of 250, breeding density of Sakers varied among grids, ranging from 0.9 to 9.6 breeding pairs/100 km^2 (average 1.8 breeding pairs/100 km^2)(MEFRG, 2013). Barashkova *et al.* (2009) found a density of 11 pair/100 km^2 along a stretch of powerlines in the northern Balkhash area.
Ellis *et al.* (2011) suggested that Sakers may leave one territory, move long distances, and establish a new one, although this has not been confirmed by recent satellite tracking studies. If nomadism exists in Saker populations the most likely explanation for it is the relative instability of food sources (i.e., regional peaks and troughs in the populations of small rodents) (Ellis *et al.*, 2011).

Feeding

The Saker Falcon is physically adapted to hunting close to the ground in open terrain, combining rapid acceleration with high manoeuvrability. Thus it prefers small and mid-sized diurnal terrestrial rodents and lagomorphs as prey, predominantly susliks (*Spermophilus citellus* in Europe*, S. dauricus, S. erythrogenys, S. leptodactylus, S. relictus, S. pygmaeus, S. major, S. fulvus and Urocitellus undulatus in* Asia)*;* hamsters (*Cricetus* cricetus in Europe, *Ellobius talpinus*), voles (*Microtus arvalis* dominating in Europe*, M. brandtii*, *M. gregalis, M. mongolicus* in Asia), gerbils (*Meriones meridianus, M. unguiculatus, Rhombomys opimus*) and hares, as well as pikas (*Ochotona curzoniae, O.daurica, O.melanostomata*) and marmots (*Marmota sibirica, M. bobak*) in mountain areas, and mice (*Apodemus sylvaticus*), rats, jerboas (*Alactaga sibirica*) and lemmings (*Lagurus lagurus*). The proportion of mammalian prey, though normally the main component of diet everywhere, depends on availability and thus varies both annually and regionally.

Birds are normally subordinate in diet but can, rarely, form 30–60% in breeding season: ranging in size from small and medium-sized passerines to herons and bustards, but mostly medium-sized species are taken, with a high proportion of ground-nesting species such as sandgrouse (e.g. *Syrrhaptes paradoxus*), game birds (especially *Perdix perdix robusta, Alectoris chukar, Coturnix coturnix* and *Phasianus colchicus*), larks (e.g. *Melanocorypha calandra, Alauda arvensis, Eremophila*

alpestris), as well as doves and pigeons (e.g. *Columba livia*), corvids (*Pica pica, Corvus frugilegus*) and starlings (e.g. *Sturnus vulgaris and S. roseus*).

In wetlands, particularly in winter, some individuals switch to catching birds including waders and wildfowl. In parts of Europe (e.g. in Hungary), Sakers regularly take feral and domestic pigeons instead of rodents, even hunting and roosting in busy urban environments where large flocks of pigeons provide relatively easy prey (Balázs, 2008; Papp & Balázs, 2010). Pigeons formed 62% of the food base of Sakers in Slovakia between 2000 and 2010) (Chavko & Deutschová, 2012). Sakers also take some reptiles, insects (beetles), and rarely amphibians, especially in wintering areas (Baumgart, 1991; Baumgart, 1994; Snow and Perrins, 1998; Watson & Clarke, 2000; Bragin, 2001; Ferguson-Lees & Christie, 2001; Gombobaatar *et al.*, 2001, 2006).

Kleptoparasitism seems to be a frequent feeding habit of the Saker Falcon that may play an important role in its ecology (Pfeffer, 1994; Braun and Lederer, 1996, Puzovic, 2008). Puzovic (2008) recorded Sakers regularly kleptoparasitising other species of birds that occasionally or constantly spend much time in the vicinity of falcon nest sites, e.g. along powerlines. Victim species included Common Buzzard *Buteo buteo*, Western Marsh Harrier *Circus aeruginosus*, Common Kestrel *Falco tinnunculus*, Eurasian Hobby *Falco subbuteo*, Hooded Crow *Corvus corone*, Jackdaw *Corvus monedula*, and Common Raven *Corvus corax*. The Hen Harrier *Circus cyaneus*, Montagu's Harrier *Circus pygargus* and Merlin *Falco columbarius* are also kleptoparatised by Sakers (Prommer *in litt*., 2014).

Survival and productivity

The estimated generation length of the Saker Falcon is 6.4 years (BirdLife International, 2013). Generation length is the average age of parents of the current cohort (i.e. newly hatched individuals in the population). It therefore reflects the turnover rate of breeding individuals in a population (IUCN, 2012).

As a relatively prolific species, the Saker Falcon is adapted to a relatively high annual mortality rate. Survival rates of different age classes and breeding rates for population stability were estimated for productivities observed in Europe and Asia by Kenward *et al.* (2013, *Table 2*). Minimum estimates of 50%, 65% and 80% of natural survival of Saker Falcons for months 0-9, 10-21 and >21 post-fledging, respectively, seem likely to be conservative.

Table 2 Survival rates of different age classes and breeding rates for stability without harvest of juveniles (Kenward *et al.*, 2013)

Population parameters	**Kazakhstan**	**European Plausible Survival**	**Asian Plausible Survival**
Survival rate to 9 months	23%	*50%*	*50%*
Survival rate 10-21 months	82%	*65%*	*65%*
Survival rate 3+ year	82%	80%	80%
Expected breeding rate for single adult	65%	57%	42%
Young produced per pair that lay eggs	3.10	2.20	3.00
Harvest rate of juveniles	0%	0%	0%

Breeding success of the Saker Falcon varies between years and between different populations (especially in areas where rodent population levels are cyclical). Based on data from previous studies Kenward *et al.* (2013) calculated the average brood size, nest success and productivity for Europe (Bulgaria, Czech Republic, Hungary, Romania, Serbia, Slovakia and Ukraine) and for Central Asia (Kazakhstan and Mongolia). The extensive data on breeding productivity in Europe and Asia appear to differ (*Table 3*). The average sizes of successful broods did not exceed 3.25 in 7 European countries with a mean value of 2.59, while in Central Asia the average in 3 studies was above 3.5 with a mean value of 3.61. Similarly, the proportion of nests with eggs that fledged at least one did not exceed 72% in Europe (with a mean value of 64%) and was more than 86% in Central Asia (with a mean value of 85%). Russian (Altai) breeding data were reduced appreciably by trapping of breeding adults and were therefore excluded from the estimates.

Table 3 Average brood size, nest success and productivity in studies of Saker Falcons. Data are presented fully in Kenward *et al.*, 2013.

Study area	**Years**	**Nests**	**Average brood size** (nestlings/ fledged brood)	**Nest success** (proportion of clutches that fledged young)	**Productivity** (nestlings per clutch)
Europe	1976-2013	3562	2.59	0.64	2.21
Central Asia	1993-2010	462	3.61	0.85	3.04

Habitat preference

The Saker Falcon prefers open, steppe-like habitats from sea-level up to 4,700m (mostly above 2,600m) in Central and East Asia. It breeds from the lowlands up to 2,000 m depending on the presence of its prey. It especially favours forest-steppes, steppes, sub-deserts, grasslands, agricultural areas, plains, hills or open mountain ranges with low precipitation and often with grazed habitats. In Hungary and Slovakia the habitat preference of the breeding populations changed in the mid-1990s and the populations gradually moved from mountains to lowlands. Today the majority of pairs breed in artificial nest boxes on high-voltage electric pylons in different, primarily agricultural, habitatsagrocoenoses (Bagyura *et al.*, 2012; Chavko, 2010; Chavko and Deutschová, 2012). The Saker Falcon breeds also on seaside cliffs (in Ukrain for example, Prommer *in litt*., 2014) and in forested areas but always bordering or close to open areas for hunting. It hunts over a wide range of open habitats including grasslands, wetlands, and cultivated lands with low vegetation extending to coasts and deserts. In the Asian part of the range they give preference to remote hilly areas or foothills, and even to higher bare slopes, upland plateaux and mountains with cliffs and canyons (Baumgart, 1991; Baumgart, 1994; Snow and Perrins, 1998; Ferguson-Lees & Christie, 2001).

Home range and habitat use

'Home range' is the area that embraces all the activities of a bird or pair over a given time period (Newton, 1979). In the case of a breeding pair, the home range includes the nesting territory and any hunting areas, whether defended or not. In Hungary, adjacent Saker Falcon pairs are usually well separated. Breeding male Sakers respect neighbouring territories (Mátyás Prommer, pers. comm., 2014). It seems that Sakers most often avoid human settlements but busy roads, railways, farms and high-voltage power lines do not form any obstacle in habitat use (Váczi and Prommer, 2010). Potapov *et al.* (2000) found in Central Mongolia that the home ranges of radio-tracked Saker Falcons

showed a significant (70-98%) overlap between each other. Home ranges of females measured by minimum convex polygons varied from 78 to 103 km^2, and for males was 215 km^2. The Daily Minimum Convex Polygon (DMCP) area used was 60 km^2 for males and 13-27 km^2 for females. Home ranges of more than a dozen territorial males and three territorial females showed large differences (between about 50 km^2 and 700 km^2) in Hungary depending on habitat quality and the prey abundance (Prommer *in litt.*, 2014).

2 - THREATS

General overview of threats
Threats are those natural events and human activities that have caused, are causing or may cause the destruction, degradation and/or impairment of biodiversity and natural processes.

This section reviews the threats identified as affecting the Saker Falcon in its global range including migratory routes and wintering areas. It provides an overview of the threats and their causal relationship (see *Figures 5* and *6* below for the draft problem trees).

The following prioritised key threats are considered as being of highest importance in relation to the conservation of the Saker Falcon.

Threats potentially causing increased mortality or loss to different age groups (eggs, chicks, juveniles, immatures and adults)

2.1. Electrocution on medium-voltage electric lines

Estimated impact:	*Europe: high, Asia: critical (medium in healthy populations), Middle East: medium, Africa: high*
Intermediate causes:	*Existing poles of dangerous design and are not retrofitted;* *New lines with dangerous poles are still constructed;* *Improper routing of power lines in terms of Saker Falcon habitats.*
Root causes:	*Legislation and bird safety standards for power lines are missing or poorly implemented in some countries; high cost of retrofitting; impact assessments are of poor quality; grassland and semi arid habitats are not protected effectively; Saker Falcon territories are not fully mapped or information is not available for planners.*

Electrocution is one of the major known mortality factors for many bird species over the world and has been proved to cause the death of hundreds of thousands of birds annually (Ollendorf *et al.*, 1980; Harness, 1997; Bevanger, 1998, Haas & Nipkow, 2006; Prinsen *et al.*, 2011).
Electrocution of birds at electricity distribution lines may take place when a bird touches two energized phase conductors or one conductor and an earthed device simultaneously, especially when their feathers are wet (Bevanger, 1998). There is consensus that the risk posed to birds depends on the technical construction type and detailed design of power facilities, so bird-friendly pole designs can significantly reduce or even eliminate electrocution. In particular, electrocution risk is high with “badly engineered” medium voltage (1kV to 60 kV, most often between 10 and 35 kV) power poles. The most dangerous “killer poles” are the strain poles, phase-crossing poles, junction poles or transformer units (Demeter *et al.*, 2004, BirdLife International, 2007). Birds of prey (*Falconiformes*), including the Saker Falcon, are frequently affected by electrocution (Bevanger, 1998) especially in areas where other perches are rare, e.g. grasslands, wetlands, and the abundance of the prey is high (Haas *et al.*, 2005; Lehman *et al.*, 2007).
Saker Falcons are relatively frequently reported as victims of electrocution on medium voltage power lines, although, the vast majority of the casualties can remain undetected due to lack of capacity for the regular monitoring of power lines in Range States. Five out of 71 satellite-tagged Saker Falcons were electrocuted between 2007 and 2010 in Hungary (Prommer, 2011). This gives 7% proved mortality and since tag losses for unknown reasons were excluded from the calculation, the real numbers of electrocuted birds could have been even higher. In the mid-2000s Nagy and Demeter

(2006) estimated that without electrocution adult and juvenile survival rate would have been about 10% higher in Hungary.
Electrocution of the Saker Falcon was reported from different parts of Russia (Karyakin, 2005, 2008; Medzhidov *et al.*, 2005; Smelansky, 2005). Sixty eight Saker Falcons were found electrocuted under a 95 km and a 400 km long electric lines in the Zaysan depression, Eastern Kazakhstan, between 1990 and 1993 (Starikov, 2007). One of two radio-tagged Sakers that attempted to over-winter in southern Kazakhstan was found dead (in otherwise good condition) under a power-line, and that two of the nine deaths recorded for birds for satellite tracking were caused by electrocution (Kenward *et al.* 2013). Lasch *et al.* (2010) carried out five surveys along three different 15-km long transects of medium voltage power lines with upright insulators, in North Central Kazakhstan between May and August 2006 and found two electrocuted Saker Falcons. Electrocutions were responsible for 54% of Saker Falcon carcasses found (0.74 birds/km, n=64) in central Mongolia between 1998 and 2004 (Gombobaatar *et al.*, 2004; Harness and Gombobaatar, 2008; Harness *et al.*, 2008). Dixon (2011) found 41 electrocuted birds of prey including seven Saker Falcons during a single survey along a 56 km-long electric line in Central Mongolia. Dixon *et al.* (2013) reported a large number of electrocuted raptors including Sakers on recently erected electricity distribution lines in the open landscapes of the Mongolian steppe and Qinghai-Tibetan plateau, China. For example 235 electrocuted Sakers were collected along a 15-km long electric line section in Eastern Mongolia during 149 survey days between March and August 2013. Power-lines seem to be an appreciable mortality factor for Saker Falcons (Dixon *et al.* in press) and more data are needed to indicate whether losses caused by this threat are, impacting at the population level at least locally, unsustainable. The network of power distribution lines with poles dangerous to birds will continue to grow rapidly, especially in Asia and Africa (Dixon, 2011) and this represents a major opportunity for positive intervention by promoting the installation of bird-friendly pole designs.
In several European range states successful long-term partnerships have been established between nature conservation organisations and electric utility companies in order to mitigate bird electrocution in priority areas (BirdLife International, 2008b).
An international conference on 'Power lines and bird mortality in Europe' took place in Budapest in 2011. This conference brought together governments, the European Commission, representatives of the energy sector and conservation groups. It identified several action points on power lines and bird safety, which was adopted in the form of the Budapest Declaration (MME, 2011).

2.2. Unsustainable trapping of wild Saker Falcons including the overharvest of females

Estimated impact: *Europe: high, Asia: critical, Middle East: medium, Africa: high*
Intermediate causes: *Illegal trapping and trade for falconry or for collections.*
Root causes: *Cultural traditions; poverty in rural areas; market pressure for wild Sakers; ineffective law enforcement (international and national); corruption and organized smuggler networks; low stakeholder awareness.*

Saker Falcons from wild sources are highly prized for use in Arab falconry, which has an important traditional and cultural place in many countries, especially in the Gulf States (ERWDA, 2003). Wild-caught falcons, especially females and specific phenotypes such as 'Altai' and 'Ashgar' falcons, are still considered by some to be superior to falcons produced by captive breeding. In the late '90s and early 2000s in Bahrain, Kuwait, Qatar and Saudi Arabia and the United Arab Emirates, most Sakers were wild-caught (ERWDA, 2003).
Little information is available about the current extent of trapping; the proportion of trapped age-classes in wintering areas; the long-term effect of trapping on the dispersal behaviour and breeding performance; the scale and extent of trapping of wild Sakers in states not holding breeding populations and on the harvest levels from different Saker populations (Collar *et al.*, 2013).

The majority of Saker Falcons were traditionally trapped during the autumn migration of juveniles and extensive post-breeding movements of adults. However, in recent times, trappers are believed to have extended their illegal activities both temporally and geographically, including into regions hosting Saker breeding populations, thus trapping became unsustainable in vast areas. Trappers are often local people or at least cooperate with them. It has been reported in some instances that male Saker Falcons that are worthless in commercial terms are killed, sometimes with un-retrieved noosed pigeons used to attract falcons, that risks causing further falcon mortality (Nick Fox *in litt.*, 2013). Many trapped falcons die in the process of illegal trapping, keeping and transport (Alexei Vaisman *pers. comm.*, 2009).

In 1994 Riddle and Remple determined which countries were major providers of birds using information gained from trappers. Saker Falcons may have been trapped in large numbers in Central Asia where trapping is considered to be a significant threat, and on migration routes, especially in the Middle East, Pakistan and North Africa for use in falconry, (CITES, 2004a; BirdLife International, 2013). Large providers of birds were Iran, Pakistan, China and Mongolia. Afghanistan, Egypt (Gabal el Zait area, M. Habib *pers. comm.*), Syria and Libya; all providing falcons to the Middle East. Iraq and Morocco provided small numbers; Saudi Arabia trapped unknown numbers within the Kingdom and few were trapped within Gulf Countries. However, the use of the Saker Falcon for falconry in Eastern Africa is probably negligible with only one record of a Saker Falcon being captured and used for falconry in Kenya in the last 46 years (Simon Thomsett *in litt.*, 2013).

Based on falcon hospitals' data, the estimated number of Saker Falcons trapped in 2004 was 6825 – 8400 individuals, with the vast majority being juvenile females (e.g. 68.7% in Dubai, UAE; Barton, 2000; ERWDA, 2003), while over 90% of the Sakers seen in the Gulf States were females. Therefore, one of the central issues in the Saker trapping and trade, legal or illegal, is the reported preference of consumers for females. Populations experiencing an excess of unpaired adult males would appear to be suffering from excessive trapping of females (Collar *et al.*, 2013).

Based on the responses of 37 falconers and trappers in a questionnaire survey designed by Monif Al Rashidi following a previous successful survey (Al Rashidi, 2004), the internal trapping for trade within the Southern Red Sea coast of Saudi Arabia, which is probably mainly of Sakers from North Central Asia, has continued at a level of 25–40 falcons annually for the last two decades without apparent change in effort (Kenward *et al.*, 2013). Overall, of the birds kept, 52% had been taken from the wild and 8 per cent were hybrids. On average birds were kept for four years and then sold, and a high percentage had been micro-chipped by falcon hospitals.

Mark-recapture techniques have estimated an off-take of 8–20% of juveniles (Kenward *et al.*, 2001); a level which lay within sustainable yield estimates for those populations (Kenward *et al.*, 2013).

High trapping pressure was reported from source countries such as Afghanistan, Iran, Kyrgyzstan, Pakistan, Turkey and Turkmenistan (Andrew Dixon *in litt*., 2006; Collar *et al.*, 2013). There is little opportunity for passage trapping in European Russia although it takes place in Asian Russia and in Siberia (Fox *et al.,* 2003; Galushin, 2003; Karyakin, 2005).

Illegal trapping has been claimed as the primary cause of decline in Asiatic Russia (especially in the Altai -Sayan region), China, Kazakhstan, Kyrgyzstan, Turkmenistan and Uzbekistan (Li *et al.*, 2000; Nikolenko, 2007; Ma & Chen, 2007; Levin, 2011; Nikolenko & Karyakin, 2013; Collar *et al.*, 2013). Some illegal trapping may take place in Europe, including by pigeon breeders/racers who consider Saker Falcons a threat to their activities, especially in Ukraine (V. Vetrov, J. Milobog *pers. comm.*), Bulgaria (Ruskov, 1998b), Georgia, Romania, Serbia and Turkey (Nagy & Demeter, 2006; Anon., 2011; M. Tucakov *pers. comm.*). Hungarian and Ukrainian ringing and satellite tracking data suggest that trapping of juvenile Sakers in Lybia most likely impacts on Central and Eastern European populations (Prommer *in litt.*, 2014)

It is important to note that capture and flying of wild Sakers within a state is not subject to CITES restrictions on international trade, and has therefore remained legal as long as it is permitted by national laws (Kovács *et al.*, 2013).
In the 1990s, falcon mortality in captivity was high in the Middle East because of the lack of veterinary support. Thanks to the increase in awareness of husbandry techniques amongst falconers, aided and prompted by specially constructed falcon hospitals since the early 2000s, falcons now survive several seasons. Routine examinations and much improved medical treatment methods can considerably increase the lifespan of captive wild-origin Sakers, thereby reducing the demand to replace falcons each year (ERWDA, 2003; Muller, 2009).
Official falcon release schemes, such as the Sheikh Zayed Falcon Release Program (SZFRP), present positive examples of treatment given to wild-origin falconry birds before and during their release back to wild populations. Within the framework of the SZFRP, 726 donated, confiscated or rehabilitated Saker Falcons (95% females) have been released in Iran, Kazakhstan, Kyrgyzstan and Pakistan between 1995 and 2013. However, in spite of the extensive satellite tagging involving ca.10% of the released individuals, none were proved to establish a territory and be recruited into the wild breeding population (Muller, 2013). Future release programs should be supported by conservation research regarding the identification of geographical origin of falcons to be released.

2.3. Unsustainable trade of wild Sakers

Estimated impact: Europe: high, Asia: critical, Middle East: medium, Africa: high
Intermediate causes: *Illegal trade for falconry or for collections.*
Root causes: *Cultural traditions; poverty in rural areas; market pressure; improper law enforcement (international and national); ineffective trade monitoring; corruption and organized smuggler networks; low stakeholder awareness.*

The trade in Saker Falcons closely interconnects with trapping and, ultimately, the long standing cultural tradition of falconry. International trade of wild origin falcons between CITES Signatories is subject to CITES Non-detriment Findings in the countries of origin. In 2005 the CITES Animals Committee categorized trade in Saker Falcons from nine Range States (the Islamic Republic of Iran, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, the Russian Federation, Saudi Arabia, Turkmenistan and Uzbekistan) as being of 'urgent concern' because it was considered detrimental to wild populations, and recommended export permits of *Falco cherrug* were immediately suspended, with which the range States concerned complied (CITES, 2006). However, in the case of Mongolia CITES withdrew the suspension in July 2009 on condition that Mongolia maintained an export quota of no more than 300 birds in 2009 and 2010, whilst establishing a system of sustainable harvesting based on the productivity of the population established by means of artificial nests. Currently, with the exception of Mongolia, international trade in wild-taken Saker Falcons is subject to zero export quotas on the advice of the CITES Animals Committee although trapping within many countries continues (CITES, 2009; Collar *et al.*, 2013; Kovács *et al.*, 2013).
International borders are difficult to secure completely, in part due to corruption and inadequate training of border officials and enforcement officers responsible for implementing CITES controls.
In a Saker Falcon case study, Launay (2008) recommended that Non-detriment Findings (NDFs, see later) were only useful if they were known and available to the importing countries. Export permits are issued by the country of origin, not by the importing country. In most cases the importing country was unaware whether or not a Non-detriment Finding review had been undertaken, and even if completed, the importing country was unsighted of its validity. The study, Launay (2008), reported that on several occasions authorities were made aware of suspicious consignments of falcons and had seized them, including some that had been imported with CITES documents. These documents

were issued by the appropriate authority in the country of origin but the actual birds differed from the individuals declared on the papers. Also, there were examples of birds being declared as captive-bred when no such facilities existed in the country of origin. Saker Falcons have been regularly confiscated in several 'source countries' including China, Kazakhstan, Kyrgyzstan, Mongolia, Russia and Uzbekistan during the last decade, including some shipments involving more than 100 individuals falcons, e.g. 127 confiscated Saker Falcons were reportedly intercepted in a single consignment in Kyrgyzstan in 2004 (TRAFFIC, 2010).

If legal trade of a commodity is banned, it can continue in a clandestine manner and consequently become much harder to detect and monitor (Ma & Chen, 2007; Collar *et al.*, 2013; Kovács *et al.*, 2013). The international market has reportedly been supplied by trappers (including trappers from Pakistan and Syria) who catch falcons on autumn migration and during post-breeding dispersal in, for example, Russia, Kazakhstan, China and Mongolia (Li *et al.,* 2000; Nagy & Demeter 2006; Ma Ming & Chen, 2007). Additionally, uncontrolled smuggling risks transmitting diseases such as Avian Flu, Avian Pox, Avian Tuberculosis (Dixon, 2012b; Nick Fox *in litt.*, 2013). Adequate information is not currently available for the effects of international trade on populations of the Saker Falcon to be quantified (Collar *et al.*, 2013).

2.4. Unintentional (secondary) poisoning with pesticides or other chemicals and with shotgun lead pellets

Estimated impact: *Europe: high, Asia: medium, Middle East: medium, Africa: medium*

Intermediate causes: *Inappropriate use of chemicals to control/eradicate rodents and other prey species;*
Organized campaigns for agricultural pest control;
Improper disposal of poisoned animals.

Root causes: *Poor impact and risk assessment of chemical use; demands for more effective crop production and higher profit; market pressure for technical crop (non-food, bio-fuel); week control on pesticide use; law environmental awareness of farmers and regulators.*

Besides reducing prey availability, pesticide use may adversely affect Saker Falcons through the accumulation in the food chain (Nagy & Demeter, 2006). Poisoning can result in decreased productivity of pairs or even in the death of individuals. It is documented that DDT had adverse effects on the Saker in the past (Bécsy and Keve, 1977; Beaman and Porter, 1985). However, there is few data available from the European range states due to lack of research, although some information is available from the Czech Republic and Slovakia (Mrlík, 1997). Chemicals and their impact on Saker Falcon populations are still a real cause of concern.

In 2003, large scale poisoning occurred in Mongolia when an attempt was made to control populations of Brandt's Voles on steppe pastureland by spreading grain laced with chemicals such as *Warfarin* and *Bromadiolone*. Later it turned out that *Bromadiolone* did not prevent outbreaks of rodents and was ineffective in terms of maintaining pasture quality but killed large numbers of protected species, including the Saker Falcon, and was even hazardous to humans. A report by Fox (2004) suggested that the widespread use of this poison killed large numbers of Saker Falcons in 2002. Saker Falcon poisoning accounted for 2.69% of the total adult Saker Falcon mortality in 2002 - 2003 (Gombobaatar *et al.*, 2003). Gombobaatar *et al.* found (2004) that the percentage of adult Saker Falcon mortality caused by the poisoning incident was 7% of the total adult Saker Falcon mortality in Central Mongolia in 2002 – 2004). There has been a ban on *Bromadiolone* in Mongolia since 2005 (WCS, 2013; Laurie *et al.,* 2010).

Saker Falcon as other raptors, can be exposed to shotgun lead pellets when their prey (usually birds) are killed or injured by a shot gun. 16% of 85 captive falcons, including Saker Falcons, treated in the

Al Warsan Falcon Hospital, Abu Dhabi, had severe symptoms of lead poisoning between 1999 and 2000 (Molnar, 2004).

2.5. Collision with man-made structures (e.g. overhead cables and wind turbines)

Estimated impact: *Europe: unknown, Asia: medium, Middle East: unknown, Africa: high*
Intermediate causes: *Inappropriate spatial planning;*
Overhead cables are not equipped with bird diverters.
Root causes: *Urbanisation of formerly remote areas; growing industrial needs; accelerated development of renewable energy projects; poor Environmental Impact Assessment.*

Electric power lines (both high- and medium-voltage), transmission towers, wind turbines and other man-made structures pose a risk of collision to flying birds, especially when hunting. Collisions usually lead to instant death or cause severe injuries to birds with no hope for survival. Also, wires in vineyards can be dangerous for the Saker Falcon as it was reported from the Czech Republic. The effect of windfarms on the habitat use of the Saker Falcon can be studied through radio tagging. Windfarms may pose a significant threat to the Saker Falcon in small and decreasing populations as well as along migration routes (Dereliev and Ruskov, 2005). In contrast to the Eurasian Kestrel *Falco tinnunculus* and the Common Buzzard *Buteo buteo* Saker Falcons do not seem to use wind turbines for roosting but they use nearby electric pylons. A breeding adult Saker Falcon satellite-tagged in Hungary mostly avoided these structures, while this avoidance was not detected in the case of a juvenile bird (Váczi, 2010). No casualties of radio tagged Sakers were reported due to collision with windfarms in Hungary in spite of the existing risk (Prommer *in litt.*, 2014).

2.6. Nest robbing, illegal harvest of eggs and chicks of wild Saker Falcons

Estimated impact: *Europe: medium, Asia: high, Middle East: n/a, Africa: n/a*
Intermediate causes: *Illegal trade for collections, pets or falconry.*
Root causes: *Cultural traditions; poverty in rural areas; market pressure; ineffective law enforcement (international and national); ineffective trade monitoring; corruption and organized smuggler networks; low stakeholder awareness.*

Robbing of Saker nests used to be a critical threat in the western part of the range (i.e. in the Czech Republic, Slovakia and Hungary) where its importance has decreased drastically since the 1980s, partly due to nest guarding activities. Nest robbing is likely to have greatly contributed to the species' rapid decline in Bulgaria. It is suspected that during the 1990s almost all known nests were regularly robbed there (Ruskov, 1995, 1998a, 1998b). It has been reported that nests were robbed in the mid-2000s in Ukraine (V. Vetrov, J. Milobog *pers. comm.*), Russia (Karyakin, 2005) and Turkey, as well as in Kazakhstan (Karyakin *et al.* 2004b). They were also occasionally robbed in Austria (A Ranner *in litt.* 2006).
It is probable that most eggs or chicks are stolen by locals under the misapprehension that they have a high value when traded illegally.
Saker population models developed as part of the feasibility study for Saker re-introduction to Bulgaria (Ragyov *et al.*, 2009) showed that harvesting juveniles at a safe rate from an increasing donor population (for reintroduction in Bulgaria) does not have a strong impact on population size and dynamics. However, the impact is not the same for a decreasing population, with a growth rate below zero, when low juvenile survival rate and a small number of offspring per breeding pair have been assumed. In those cases, harvesting could cause further decrease in population size (Kenward *et al.*, 2013).

2.7. Disturbance during the nesting period

Estimated impact: *Europe: medium, Asia: unknown, Middle East: n/a, Africa: n/a*
Intermediate causes: *Land use activities (agriculture, forestry, mining and infrastructure development and maintenance); bird watching tourism and bird photography).*
Root causes: *Increased market demands for watching and photographing rare birds; improper spatial planning; poor impact assessments; poor law enforcement and control on activities; low stakeholder awareness.*

Intentional or accidental disturbance at nest sites during sensitive parts of the breeding period can lead to failure of the breeding attempt. If the adults are scared from the nest, eggs or small chicks can be exposed to cold or hot weather or to predators. Disturbance can occur from agricultural or forestry activities, hunting, uncontrolled tourism, cliff climbing, road construction, bird watching, photography, etc. Disturbance seems to be a significant threat throughout the Saker's European range.

On average 26% of breeding attempts are unsuccessful in Hungary and most failures can be related to human disturbance (Bagyura *et al.*, 2003). In Slovakia human disturbance was blamed to cause 21 nesting failures out of 98 in total between 1976 and 2010 (Chavko and Deutschová, 2012). After 1990, the Morava floodplain forests were opened to the general public. Human activities (fishing, hunting and illegal use of motor vehicles) led to a marked reduction of natural nests (Chavko, 2010).

Forestry activities, rock climbing and bird watching tours were also reported as actual and potential causes of breeding failures from Romania (Beran *et al.*, 2012).

2.8. Shooting

Estimated impact: *Europe: unknown, Asia: unknown, Middle East: unknown, Africa: unknown*
Intermediate causes: *Shooting for trophy and taxidermy; predator control.*
Root causes: *Cultural traditions; market pressure; missing policies and legislation; ineffective law enforcement; low stakeholder awareness.*

The Saker falcon is legally protected in most countries across its range. Therefore, if shooting of Sakers occurs it is usually illegal. This threat has probably been significantly reduced in the western part of the range such as the Czech Republic, Slovakia and Hungary over the last three decades, although isolated cases still occur there. Little is known about the extent of the problem in Romania, Ukraine and Russia where the problem may still be severe (Nagy & Demeter, 2006). In Bulgaria the threat could be less apparent due to the current rarity of the species (Ruskov, 1998). However, some other raptor species are still shot there. Also, little is known about the problem in passage and wintering countries (e.g. in Italy, Georgia, Turkey, and the other coastal states of the Mediterranean Sea), where the threat is possibly higher. This threat is likely to affect the migratory eastern populations more than the Central European one where adults are more sedentary.

2.9. Poisoning (primary) by chemicals

Estimated impact: *Europe: unknown, Asia: unknown, Middle East: unknown, Africa: unknown*
Intermediate causes: *Reduced loss of game populations and livestock through predator control.*
Root causes: *Missing policies and legislation; ineffective law enforcement; low stakeholder awareness.*

Poisoning with pigeon baits can be an invasive form of direct persecution of Sakers in breeding areas (Ragyov *et al.*, 2011). Casual poisoning of Saker Falcon may occur when non-selective poison is used

for eradicating pests including raptors and it may partly be connected with the kleptoparasitic behaviour of Sakers. In 2009 four Saker Falcons were found poisoned in a single incident killing a total of 22 birds of prey in Slovakia in 2009 (Raptor Protection Slovakia, *in litt.*). Between 2006 and 2013 a total of 16 Saker Falcons were found poisoned in Hungary mainly due to illegal non-selective poisoning of pests (M. Horváth *in litt.*, 2014).

2.10. Destruction of nests

Estimated impact: *Europe: unknown, Asia: unknown, Middle East: unknown, Africa: unknown*
Intermediate causes: *Predator control; maintenance of infrastructure.*
Root causes: *Missing policies and legislation; ineffective law enforcement; low stakeholder awareness.*

Game keepers may occasionally destroy nests in order to prevent the breeding of birds of prey, including the Saker Falcon, which they consider to be a threat to small game. This threat was reported to occur from the Czech Republic and Hungary. In some range states electric utility companies removed all natural nests regardless their occupancy while maintaining and cleaning pylons. This may cause the loss of Saker Falcon eggs or chicks as it was reported by Gombobaatar *et al.* from Mongolia (2004) where this activity caused egg deaths in 10,1% (n=16) of all cases. It is reported that this also happened in Dobrogea, East Romania, in 2013 (Prommer *in litt.,* 2014)

Threats potentially causing increased natural mortality

2.11. Extreme weather, increased vulnerability to natural factors (stochastic)

Estimated impact: *Europe: medium, Asia: unknown, Middle East: unknown, Africa: unknown*
Intermediate causes: *Nests are exposed to precipitation and strong wind.*
Root causes: *Decreased optimal nest site availability.*

Strong winds and storms can destroy nests in trees, including by felling the entire tree. Cold or rainy weather in the period of hatching can lead to death of embryos or small chicks. Large amounts of rain can flood thick nests and especially breeding niches on cliffs leading to the death of either eggs or chicks. In Western Mongolia the main chick mortality factor was overcooling caused by low air temperatures and cold rain in mountainous areas between 1998 and 1999. In Central Mongolia in early spring and summer very strong northwest winds blew chicks away from nests placed on artificial substrates (Gombobaatar *et al.,* 2004).
Extreme amount of precipitation can cause breeding failure in a significant proportion of the breeding pairs of a population. The threat is largely unpredictable and usually causes only population fluctuations but it may be more severe in declining populations.

2.12. Predation

Estimated impact: *Europe: unknown, Asia: unknown, Middle East: unknown, Africa: unknown*
Intermediate causes: *Nests are easily accessible for predators;*
Limited safe perches around nests;
High densities of predators.
Root causes: *Decreased optimal nest site availability.*

Predation itself is a natural mortality factor. The Eurasian Goshawk *Accipiter gentilis,* the Eagle Owl *Bubo bubo,* the Raven *Corvus corax*, the Hooded Crow C*orvus corone*, the Rook *Corvus frugilegus*,

and the European Pine Martens *Martes martes* can all take eggs or small chicks from Saker Falcon nests (Molnar, 2000). Eagle Owls and Goshawks may take fledged juveniles or even adults on cliffs where the two species occur together. Casualties from most of these species usually happen to inexperienced Saker breeding pairs. However, in the case of experienced breeding pairs, predation of the clutch is usually the secondary consequence of human disturbance (Nagy & Demeter, 2006). Inexperienced freshly fledged Saker Falcons often fall into high natural vegetation or crop under nest sites and can be easy prey for other raptors and predators such as Red Foxes *Vulpes vulpes* and feral dogs. High densities of the Eagle Owl (and the Golden Eagle *Aquila chrysaetos*) were presumed to be the cause for low densities of Saker Falcons in some parts of Kazakhstan (Karyakin *et al.*, 2005; Karyakin and Nikolenko, 2008). Gombobaatar *et al.* (2004) found that Eagle Own predation constituted 16.2% of all natural causes of chick mortality in Central Mongolia and that it had increased since 2000.

2.13. Poor quality of nests

Estimated impact: *Europe: unknown, Asia: unknown, Middle East: unknown, Africa: unknown*
Intermediate causes: *The Saker Falcon occupies old nests of other bird species;*
Limited availability of suitable natural nests.
Root causes: *Decreasing populations of nest builders.*

The Saker Falcon does not build a nest and may occupy weak nests of ravens or crows or old, unstable nests of other birds of prey such as buzzards and eagles (Baumgart, 1991; Baumgart, 1994). These nests may not hold up until the end of the nestling period, collapsing and usually causing the failure of the breeding attempt (Nagy & Demeter, 2006). For example during 1980-2002, 14% of all breeding attempts in Hungary (n=1065) failed due to the collapse of natural nests (Nagy, *unpubl.*). In parts of its range, the Saker is limited by good-quality nest sites. Provision of artificial nests has been proven as the fastest way to increase the number of successfully breeding Saker pairs and so it can be an effective way to increase Saker populations in areas where abundant food is available. Population modelling supports this observation and suggests that, although higher egg and chick mortality caused by collapsing nests is a natural phenomenon, addressing this issue can effectively compensate for higher adult and juvenile mortality caused by other threats, within certain limits (Nagy, *unpubl.*).

2.14. Genetic introgression - Hybrid falcons breeding with wild Sakers

Estimated impact: *Europe: unknown, Asia: unknown, Middle East: unknown, Africa: unknown*
Intermediate causes: *Escape, hacking or release of hybrid falcons containing Saker genomes;*

Root causes: *Large market for hybrid falcons; conservation pressure to use hybrids instead of wild-origin Sakers.*

Captive-bred hybrid falcons may escape from aviaries and may also be lost ocasionally whilst being hacked or flown free during training by falconers. They may form pairs with Sakers in the wild, or simply hold territories which can disrupt the breeding cycle of resident breeding pairs, and could influence the genetic integrity of wild Saker populations (Nittinger *et al.*, 2007; BirdLife International, 2008c). However, anthropogenic-induced genetic introgression is not only a risk posed by hybrid birds; many pure falcons bred in captivity may be sub-species (derived from imports) other than the nearest native provenance or they may have a complex lineage comprising different sub-species and provenances (Fleming *et al.*, 2011).

Hybrid falcons are known to have produced offspring with wild Sakers (BirdLife International, 2008a), although, being the heterogametic sex, female hybrids are less fertile than males (Haldane, 1922; Dixon, 2012b). In Slovakia a wild female Saker produced offspring with a Peregrine x Saker hybrid male in 1999 and 2003 (Michal Adamec *in litt.*, 2008). Cross-breeding between wild Sakers and hybrids is believed to have occurred at six sites in Slovakia. Eight out of 30 registered Saker hybrids escaped in Slovakia in 2004 (Jozef Chavko *pers. comm*.), although, all of them were recaptured or found dead later. There has been no further record of an ex-falconry hybrid breeding attempt with a wild Saker for more than a decade (M. Gage *in litt.*). Gyr Falcon x Saker Falcon hybrids can also be fully fertile for at least two to three generations (Heidenreich *et al.,* 1993; Heidenreich, 1997; Potapov & Sale, 2005) and breed in captivity without artificial insemination (Fox and Potapov, 2001), forming what is known to breeders as a 'natural pair'.

Hybridisation also occurs under natural conditions, especially within zones of contact between closely-related species. Instances of natural hybrid pairs have been reported between Saker × Barbary Falcon (Angelov *et al.*, 2006, a case with uncertainties), Saker × Lanner (Boev & Dimitrov, 1995), Saker × Peregrine (McCarthy, 2006).

Nowadays, many falconers, especially in Gulf States, prefer hybrids due to larger sized falcons being bred and enhanced performance due to a phenomenon known as 'hybrid vigour'. Gyrfalcon hybrids have attributes that make them preferable to pure-bred specimens in that they are larger (cf. Peregrine and Saker), more suited to the climate of the Middle East (cf. Gyrfalcon) and can be bred to produce aesthetically pleasing plumage colouration (Dixon, 2012b). Hybrids have been produced and flown by falconers for almost 50 years, but it is unlikely that falcons escaped outside the breeding distribution of the Gyr of the Saker Falcon could be recruited to wild populations.

However, if hybrids join the breeding population of Saker Falcons, there is a potential risk that this may cause introgression of other species genes into the natural populations. However, given the scant evidence from so few hybrid breeding attempts with wild Sakers in the last 15+ years it is apparent that most hybrids that escape do not survive long in the wild and their reproductive success is minimal (Fox, 1995; M. Gage *in litt.*). More information is needed to evaluate the level of risk and potential effects of escaped hybrids on wild falcon populations (Dixon, 2012b).

From a conservation point of view, however, any prohibition on the production and use of hybrid falcons for falconry is likely to significantly reduce the demand for captive-bred falcons in Arabic falconry and, in the current situation with a highly restricted legal CITES regulated trade, will result in an increased demand for wild-sourced illegally traded falcons (Dixon, 2012b).

Since the effects of gene flow from uncontrolled sources into the Saker as a globally threatened species are unpredictable, it seems advisable to take steps to prevent introgression from captive birds into natural populations. This could be achieved either by behavioural imprinting of the hybrid nestlings or by sterilization. Moreover, the deliberate release of hybrids into the breeding grounds of the Saker Falcon should be avoided, in Europe as well as in Central Asia (Nittinger *et al.*, 2007; IAF, 2014). The International Association for Falconry and Conservation of Birds of Prey (IAF) has a simple Code of Conduct that is reducing the risk of genetic introgression: no exotics/hybrids to be released to the wild deliberately, and all to be flown with functioning telemetry. The IAF also runs an online reporting system for any records of wild-living hybrids or exotics, allowing any evidence for threats from introgression to be rapidly and transparently reported (IAF, 2014).

Threats causing decreased productivity through reduced food supply

2.15. Conversion of grasslands into arable land

Estimated impact: Europe: high, Asia: high, Middle East: unknown, Africa: unknown
Intermediate causes: Increased food and non/food crop production.

Root causes: *Increasing human population; low profitability of extensive agriculture; market pressures; adverse incentives promoting agricultural intensification; innapropriate level of agri-environmental subsidies; inefficient law enforcement; low stakeholder awareness.*

Some key prey species for Saker Falcons in the western part of the range, i.e. suslik *Spermophilus citellus*, starling *Sturnus vulgaris* and lapwing *Vanellus vanellus*, are associated with grassland habitats, at least in part of their life cycle. The conversion of grasslands to arable land (or to vineyards in Bulgaria for example) leads to the reduction of prey availability for Saker Falcons (Nagy & Demeter, 2006). In the western part of the range, birds become a more important component of the species' diet due to habitat changes. Sakers successfully adapted to agricultural landscape with scattered grassland mosaics in Central Europe from the early 1990s (Bagyura et al., 2003; Chavko, 2010). It is not yet well understood, however, how this change in foraging behaviour impacts on breeding success. Based on the information from other species, it can be assumed that having suslik colonies within the territories of breeding pairs reduces searching time during the rearing period compared to avian prey. Furthermore, feeding on domestic pigeons can cause a backlash in the form of direct human persecution of the falcons (Iankov *et al.*, 2013).
The main mammal and bird species prey of the Saker live in natural, semi-natural grazed steppes of which large portions (5 million hectares in the 1960s) were turned into arable lands in the middle of 20th century ("upturn of virgin lands"). After the dissolution of the USSR in 1991, however, the intensity of agriculture has reduced in these areas, giving way to a recovery of the natural steppes (Karyakin, 2005; Smelansky, 2005).

2.16. Decrease in grazing animal stock

Estimated impact: *Europe: high, Asia: high, Middle East: unknown, Africa: unknown*
Intermediate causes: *Declined extensive and nomadic livestock keeping;*
Economic collapse of large scale collective livestock farms.
Root causes: *Resettlement and emigration from rural areas to towns; low profitability of extensive animal husbandry compared to intensive farming.*

Without grazing, pasture vegetation becomes taller and denser and thus unfavourable for susliks and other important prey, such as starlings and lapwings. This means also the former are far less available for capture by Saker Falcons. The reduction in the number of grazing animals is a result of lower profitability of animal husbandry, especially in countries that have undergone social and economic transition. The impact of the conversion of pastures to other land use on Saker Falcon populations is greater where the availability of alternative prey is more limited (e.g. in steppic areas). It is possibly a significant threat in Russia (Galushin *et al.*, 2001; Galushin, 2003; Antonchikov & Piskunov, 2003; Chernobay, 2004; Karyakin, 2005; Nagy & Demeter, 2006), Ukraine and Bulgaria, as well as, locally in Romania and Serbia (Ham, 1980).
In Europe the Saker has adapted to take a wide variety of prey species, whilst in its Asian breeding range it feeds mainly on medium-sized rodents or the same sized birds where the former is not that abundant (Watson, 2000). In North East Kazakhstan human depopulation and the end of transhumance resulted in the abandonment of grazing, and consequently grasslands became tall and unsuitable for susliks (Sánchez-Zapata, 2003; Watson, 2000). Since the early '90s, there has been a major decrease in the numbers of grazing animals throughout whole Russia (Smelansky & Tishkov, 2012). Abandoned steppes grow large, tall vegetation that is not suitable for suslik species or the tall grass makes rodents unavailable for raptors (Smelansky, 2005). Recent climate change has probably been an important factor enhancing this (Galushin *et al.*, 2001). Besides losing important suslik

habitat, with the crush of stockbreeding 280,000 km unused electricity distribution network was dismantled in steppe areas, leaving even less nesting opportunities for the Saker in the steppe zone (Karyakin, 2005).

2.17. Overgrazing

Estimated impact: *Europe: high, Asia: high, Middle East: unknown, Africa: unknown*
Intermediate causes: *Increasing number of grazing animals; changes in species composition of the herd; newer, more concentrated grazing methods.*
Root causes: *High profitability of animal husbandry.*

Overgrazing of pastures by domestic livestock decreases the food source for the suslik thus leading to the decrease in their numbers. It is reported as a recent threat from Turkey, Georgia (Nagy & Demeter, 2006), Kazakhstan (Kamp, 2012) and Mongolia (Laurie *et al.,* 2010). The main problems are the increasing number of grazing animals, changes in species composition of the herd, newer grazing methods (more concentrated, than before) and additionally the enhancing effect of recent climate change (Laurie *et al.,* 2010; Liu *et al.*, 2013). Overgrazing is also thought to encourage outbreaks of agricultural pests such as the Brandt's Voles (WCS, 2013). In the former Soviet Union decline in state managed livestock farms has led to local overgrazing around villages. Since independence, livestock has been concentrated around human settlements, leading to local overgrazing, with huge areas of steppe remaining ungrazed (Wilson & MacLeod, 1991). Since around 2000, many of the post-Soviet trends in agriculture have been reversed, with expansion and intensification of agriculture in the steppe zone of Kazakhstan and increases in livestock numbers. Habitat alteration and loss due to expanding and intensifying agriculture and to overgrazing are considered to be the main causes of recent declines in a number of threatened steppe bird species (e. g. Antonchikov, 2005), but quantitative assessments are lacking. Mongolia's national herd (including cattle, sheep, goats, camels, and yaks) has practically doubled since the early 90s and overgrazing is a nationwide nature conservation problem, causing a large scale decline in the quality of pastures. UNDP's recent estimate shows, that around 70% of all pastures of Mongolia is degraded by overgrazing (WCS, 2013; Laurie *et al.,* 2010). The species composition has changed for the worse and is dominated by goats and sheep along with a much lower percentage of cattle than before (WB, 2008). In Mongolia the goat population has grown almost 5-fold between 1988 and 2008 following the international demand for cashmere products (Liu *et al.*, 2013).

2.18. Control of rodents and other prey species

Estimated impact: *Europe: high, Asia: high, Middle East: unknown, Africa: unknown*
Intermediate causes: *Potential competition with livestock;*
Potential crop damages;
Damages in dykes and airstrips;
Organized campaigns for agricultural pest control.
Root causes: *Demands for more effective crop production and higher profit; market pressure for technical crop (non-food, bio-fuel); low environmental awareness of farmers and regulators.*

Susliks and voles were previously considered as pests in areas where, at peaks in their population cycles, they caused damage in crop fields or to dykes or where they were believed by some to be a grazing competitor with livestock (WCS, 2013; Nagy & Demeter, 2006). According to Shagdarsuren (2001), large concentrations of livestock, especially of sheep and goats create overgrazing situations, which are immediately used by Brandt's Vole (*Microtus brandtii*) - the main food of wintering falcons

in Mongolia. In Mongolia there were strong campaigns to eradicate rodents notably the Brandt's Vole with Bromadiolone, which was supported by the government up to 2005. Eradication campaigns have contributed significantly to the decline of the suslik in parts of Russia, Ukraine and Bulgaria (Belik, 1999; Vitaly Vetrov *pers. comm.*; Petar Iankov *pers. comm.*), but were abandoned in the European range of the species recently. In most parts of Russia susliks were widespread agricultural pests and were hunted for their fur until their numbers declined by 50-100 times from peak levels. Now they are included in most regional Red Data Books of Russia as an endangered species (Karyakin, 2005). However, eradication of rodents especially the Brandt's vole because of its habit of "devastating the landscape" by constantly digging new burrows during massive population outbreaks, (Samjaa *et al.*, 2000; Fox *et al.*, 2003), are reported from Asia. The Chinese Government has engaged in several large scale eradication programmes of small mammals that are perceived as being agricultural pests e.g., Brandt's Vole in Inner Mongolia, Great Gerbil in Xinjiang and Plateau Pika in Qinghai. The Plateau Pika, which is blamed as the cause of pasture degradation in the Qinghai-Tibet Plateau, is a keystone species in the region's ecosystem. In areas where poisoning was applied, their respective populations reduced to 5% of the pre-poisoned density. Eradication of the pikas, which are the main source of winter and summer prey for many predators in the region, will have a devastating impact on the Saker Falcons that breed and overwinter on the Plateau (Lai & Smith, 2003). Fan *et al.* (1999) estimate that in Qinghai from 1960 to 1990 ''cumulatively, more than 208,000 km^2 ... was treated with rodenticides... ''. A separate estimate by Drandui (1996) concludes that between 1986 and 1994 insect and 'rodent' control programs were broadcast over an area of 74,628 km^2 – nearly one-fifth of Qinghai's provincial grazing lands.

2.19. Afforestation of steppes and abandoned farmlands

Estimated impact: *Europe: unknown, Asia: unknown, Middle East: unknown, Africa: unknown*
Intermediate causes: *Adverse subsidies promoting afforestation of high priority Saker Falcon habitats (e.g. grasslands).*
Root causes: *Market demand for industrial timber and firewood.*

Large scale afforestation may reduce the availability of open hunting grounds for the Saker. It has an especially adverse impact when it is targeted at grasslands in areas where the availability of this habitat is limited. Afforestation is usually subsidised by governments, especially in the EU Member States through the funds for rural development as a tool to reduce agriculture surpluses (Nagy & Demeter, 2006).
Carbon sequestration attempts in the context of mitigating impacts of climate change are also encouraging the increase of forest cover. However, negative impacts associated with afforestation are the consequence of poor planning and the fact that afforestation aid is often granted without considering the Saker and other open land specialists' requirements. Examples of the impact of afforestation can be found in the Deliblato sand plains (Serbia) with a decreasing Saker breeding population (Ham, 1980; Puzović, 2000).

2.20. Infrastructure development, constructions and urbanisation

Estimated impact: *Europe: unknown, Asia: unknown, Middle East: unknown, Africa: unknown*
Intermediate causes: *Increased demands for the transport of people, goods and energy; for renewable energy production (windfarms and solar parks); urbanization.*
Root causes: *Adverse subsidies; improper spatial planning.*

The construction of roads, motorways, railways, urban and industrial development, wind turbines or tourist facilities may result in the fragmentation of the breeding and feeding habitats of the Saker in

Europe (Nagy & Demeter, 2006). A number of infrastructure facilities including roads, rail and power transmission lines have been developed to support the transport and trade of natural resources such as minerals and energy resources. The development of powerlines and transport infrastructure have been identified as particular threats to Saker Falcons in the Galba Gobi area, both in terms of the disturbance they can cause to breeding birds and the potential to facilitate trapping in remote areas (WSCCM & BI, 2011; Laurie *et al.* 2010). Wind turbines and communication towers may also lead to effective habitat loss, and can be a key threat to very small populations (<5 pairs; e.g. in East Romania and Bulgaria). Laurie *et al.* noted (2010) that in less developed areas of Mongolia there has been a chaotic sprawl of dirt tracks that is widely acknowledged to be another major cause of vegetation loss, soil damage and erosion. Multi-tracking causes long-lasting, sometimes irreversible damage. In 2001 it was estimated that multiple tracking had been responsible for 300,000 hectares of lost pastureland over the previous ten years (ADB, 2004).
Large scale burning of natural vegetation was linked to transport infrastructure in Russia and Mongolia (Karyakin, 2011; WSCCM & BI, 2011).

Threats causing decreased productivity through reduced suitable nest sites

2.21. Tree felling

Estimated impact: *Europe: unknown, Asia: unknown, Middle East: unknown, Africa: unknown*
Intermediate causes: *Use for firewood; logging for commercial purposes.*
Root causes: *Poverty in rural areas; high market demands for industrial and firewood; improper law enforcement; low stakeholder awareness.*

In lowland areas, especially in steppe and pseudo-steppe areas, trees are scarce and might limit the nest availability for Saker locally. This can be made worse by legal or illegal felling of large isolated trees, tree lines, shelterbelts and woodlots. This problem has been exaggerated by the privatisation of agricultural land and declining living standards in Hungary, Slovakia, Romania, Turkey and Georgia. However, it was not reported from Bulgaria, the Ukraine and Russia. Forest fires also present a potential threat. Tree-felling can, however, be counteracted because Saker readily accepts pylons and other artificial nest platforms (Bagyura et. al., 2003, Puzović, 1988, 2003; Nagy & Demeter, 2006; Dixon *et al.*, 2010; Dixon & Batbayar, 2010). In N Kazakhstan and S Siberia timber has been harvested at a large scale both legally and illegally. It especially affects the Saker when tree-cutting occurs in the forest edges which are the main nesting habitats for the Imperial Eagles which give way to Saker Falcons using their abandoned nests. In treeless Mongolia logging and high demand for medicinal and fuel shrubs may pose a threat to Saker Falcons locally as it was reported in the Altai region. Overharvesting threatens Mongolia's remaining forests, especially in the forest-steppe border, which is an important habitat for the Saker Falcon (Laurie *et al.,* 2010). In the Altay Kray Province the logging and extensive fires have affected not less than 10 % of the total area of steppe pine forests (842,000 ha). Despite reports of clear-cuts covering only 2 % of the total area, the territory used by birds for breeding is quickly shrinking (Smelansky, 2005).

2.22. Quarrying, mining

Estimated impact: *Europe: unknown, Asia: unknown, Middle East: unknown, Africa: unknown*
Intermediate causes: *Constructions, urbanisation, energy production.*
Root causes: *Increased market demands for the exploitation of rocks and minerals; improper spatial planning; poor impact assessments.*

Quarrying of rocky hillsides is reported as a problem from the north of Dobrogea, Eastern Romania and results in the disappearance of suitable cliff nest-sites for the Saker Falcon (Nagy & Demeter, 2006). Mining is expected to expand rapidly in the Mongolian Altai and in Galba Gobi, posing environmental threats through pollution, and the loss and fragmentation of habitat (WSCCM & BI, 2011). The proliferation of large, electricity-demanding mining operations in Mongolia is likely to be associated with the problem of bird electrocution (Dixon, 2011).

2.23. Nest sites limited due to environmental factors and human activities

Estimated impact: *Europe: high, Asia: high, Middle East: n/a, Africa: n/a*

Intermediate causes: *Shortage of safe nest sites due to ecological, geographical, climatic features of the breeding habitats; decreasing populations of nest builders.*

There are vast open habitats within the current European and Asian breeding range of the Saker Falcon with abundant prey but very few suitable nest sites. In stable and increasing populations there is an existing non-breeding ('floater') population of sexually mature Saker Falcons in these nest-site limited areas. These floaters can be encouraged to breed by providing artificial nests, so increasing the size and productivity of the breeding population in these areas (Bagyura *et al.*, 2010; Chavko, 2010; Dixon *et al.*, 2008, 2010, 2011; Dixon and Batbayar, 2010; Galtbalt and Batbayar, 2012). As a culmination of seven years of research within a joint project, International Wildlife Consultants (UK) Ltd. and the Wildlife Science and Conservation Centre of Mongolia (WSCCM) established a system of 1km x 1km nest box grids, including the erection of 5,000 artificial nests, in 20 blocks of 250, by 2010. The project was funded by the Environment Agency - Abu Dhabi, within the framework of a Memorandum of Understanding signed between the Governments of Mongolia and the United Arab Emirates (UAE), and International Wildlife Consultants (UK) Ltd. A preliminary result of the project in 2013 was that 574 Saker breeding pairs were observed in the artificial nest boxes and 1,904 fledglings were produced. Besides addressing nest site limitation impacting on the population at a large scale, the project is unique in the sense that real and focussed conservation actions are being carried out as a result of cooperation between breeding and 'consumer' Range States. Also, the efforts to involve local people in the maintenance and monitoring of the nest box grid and to make project activities economically sustainable through different income generating services are key characters of the project, which could be exemplary for other initiatives over the range of the Saker Falcon.

Installing artificial nests to provide safe nesting places for Saker falcons and thereby increase breeding success, has been a crucial element of the Hungarian Saker conservation since the early 1990s (Bagyura *et al.*, 2003). As a result of the artificial nest programme 85.4% of known pairs bred in artificial nests by 2006, out of which 43.5% were on pylons of high-voltage power lines (Bagyura *et al.*, 2009). The proportion of pairs breeding on pylons increased to 75% by 2010 (n=155; Bagyura *et al.*, 2010).

Figure 5 Draft Problem Tree Part I: Threats potentially causing increased mortality/loss in Saker Falcon populations (UNEP/CMS Raptors MoU CU, 2013)

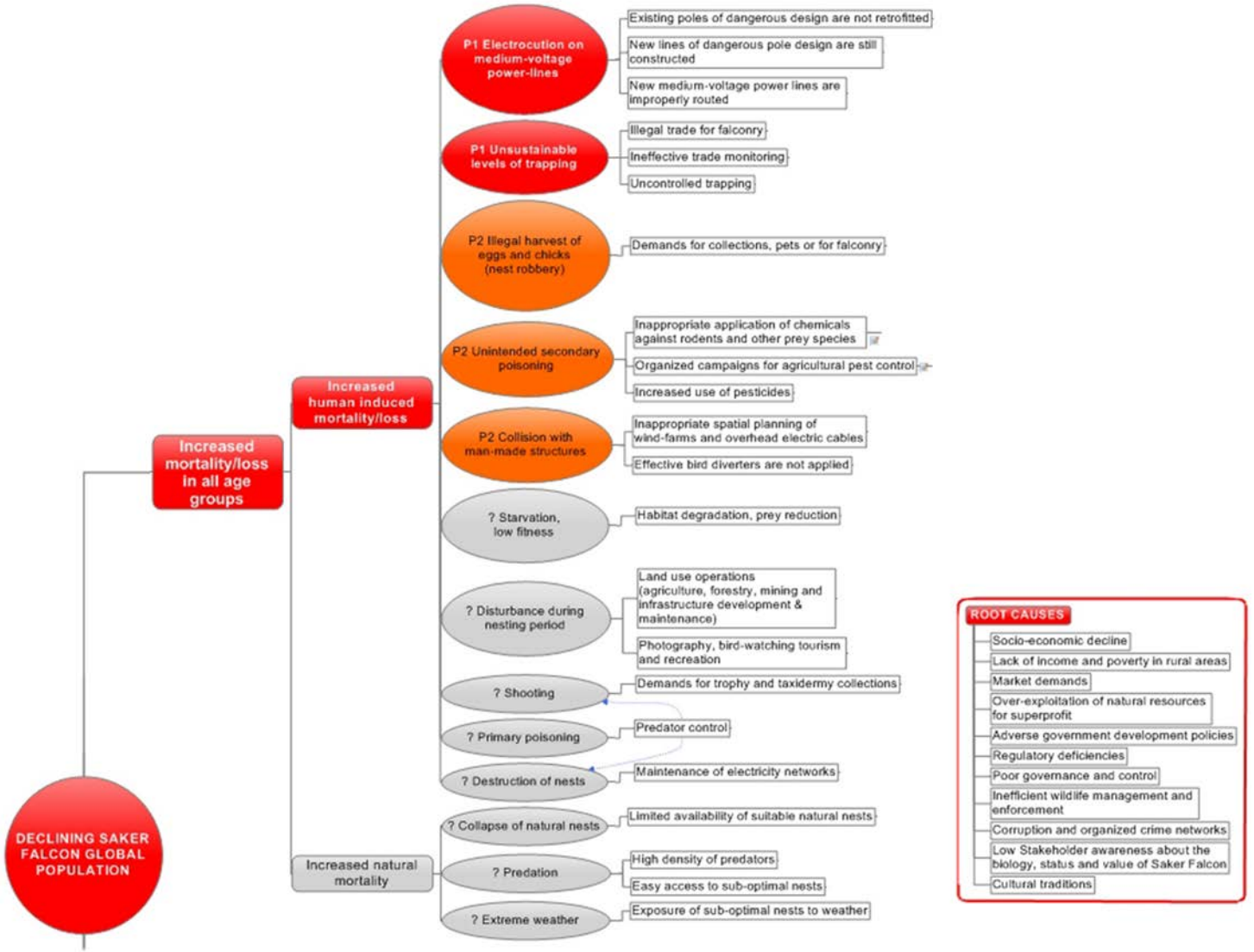
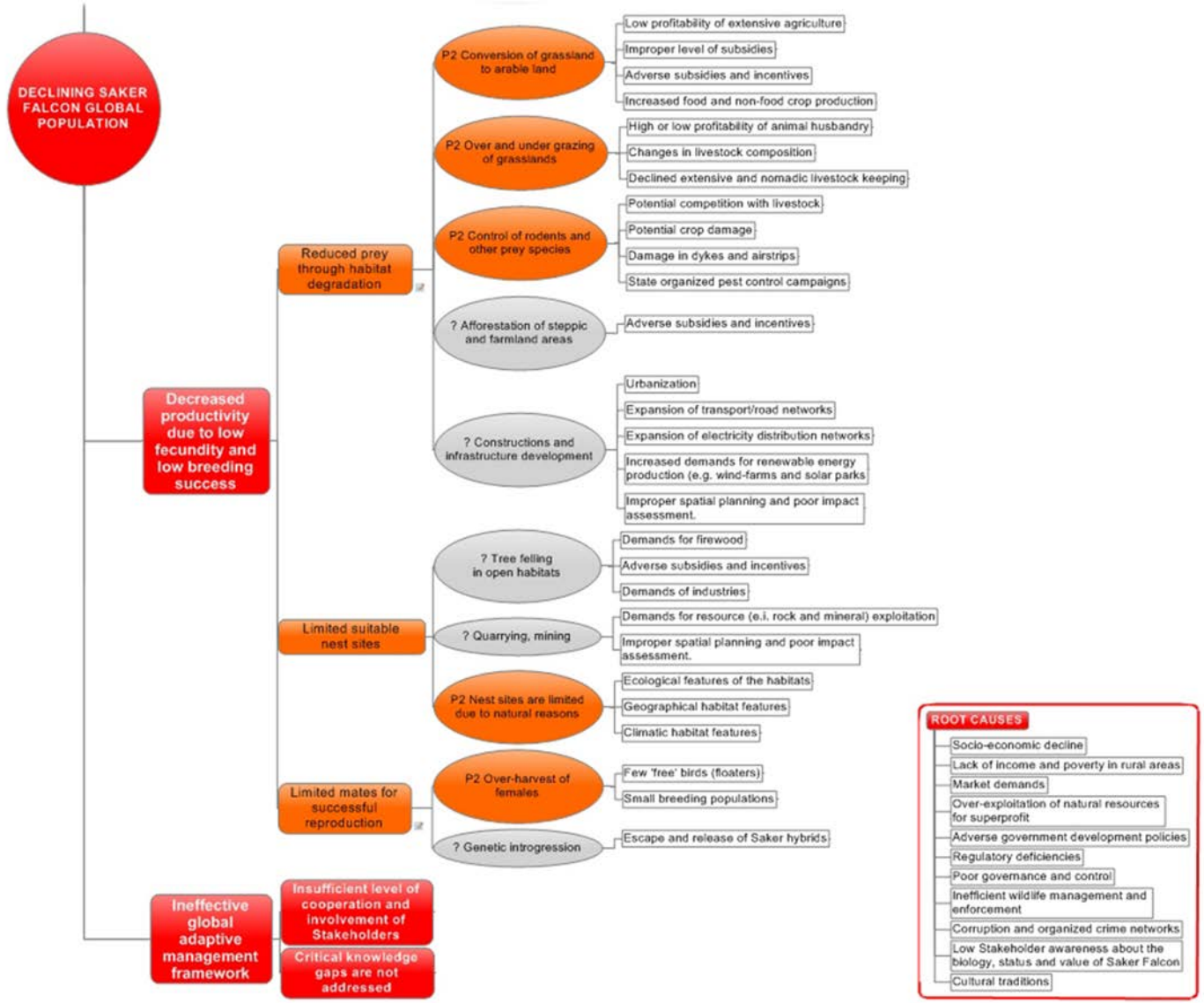


Figure 6 Draft Problem Tree Part II: Threats potentially causing decreased productivity due to low fecundity and low breeding success (UNEP/CMS Raptors MoU CU, 2013)



3 - POLICIES, LEGISLATION AND ONGOING ACTIVITIES RELEVANT FOR MANAGEMENT

International conservation and legal status of the species

The Saker Falcon was up-listed by IUCN to globally Endangered in 2012 (IUCN, 2013) because a revised population trend analysis indicated that it may have undergone a very rapid decline, involving ca. 50% of the global population in the last 20 years, particularly on the Central Asian breeding grounds (BirdLife International, 2013).
The Saker Falcon is listed in Appendix 1 of CMS, Appendix II of CITES and in Annex II of Bern Convention. It is listed in Annex I of the EU Birds Directive and in Annex III of the Convention on the Conservation of Wildlife and Natural Habitats in the Countries of the Gulf Cooperation Council (GCC).
The following section briefly reviews the range states obligations arising from these multilateral and Regional environmental treaties (for a detailed review see Kovács *et al.*, 2013).

International legislation and policies

Convention on Biological Diversity (CBD)

The Convention on Biological Diversity (CBD) entered into force on 29 December 1993. It has 3 main objectives:

1. the conservation of biological diversity,
2. the sustainable use of the components of biological diversity, and
3. the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

The Biodiversity Convention requires Contracting Parties to establish a system of protected areas; promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings; as well as to rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, inter alia, through the development and implementation of plans or other management strategies (CBD, 1992).

Convention on the International Trade in Endangered Species of Wild Flora and Fauna (CITES)

CITES is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival (CITES, 1979).

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. International trade in specimens of Appendix-II species may be authorized by the granting of an export permit or re-export certificate. 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 survival of the species in the wild (CITES, 2004b; CITES, 2013a).

One of the most important guidelines regarding the conservation and international trade in the Saker Falcon is the Checklist to assist in making non-detriment findings (NDF), for CITES Appendix II exports (Rosser and Haywood, 2002).

In accordance with Articles III and IV of CITES (1979), export permits for specimens of species included in Appendices I and II shall be granted only when the Scientific Authority of the State

of export has advised that such export will not be detrimental to the survival of the species (following a determination known as a 'Non-Detriment Finding').

Policies relating to the status, conservation and use of the Saker Falcon have gathered pace since 2002 when CITES imposed a trade ban for Saker Falcons from the United Arab Emirates to affect the unregulated market there. In 2003 the CITES Animals Committee decided to include the Saker Falcon in its Review of Significant Trade process following a request by the United Arab Emirates.

In July 2011 the CITES Animals Committee undertook a review and endorsed the positive management regime for the Saker Falcon established by Mongolia, agreeing to an export quota of 300 live, wild birds. With this step the legal international trade of wild Saker Falcons was exclusively restricted to Mongolia (CITES, 2011).

It is important to note that capture and flying of wild Saker Falcons within a State is not subject to CITES restrictions on international trade, and has therefore remained legal as long as it is permitted by national laws.

Convention on the Conservation of Migratory Species of Wild Animals (CMS)

CMS aims to conserve terrestrial, aquatic and avian migratory species throughout their range. It is an intergovernmental treaty, concluded under the aegis of the United Nations Environment Programme, concerned with the conservation of wildlife and habitats on a global scale (CMS, 2003).

The Saker Falcon is listed in Appendix I. Appendix I includes endangered migratory species categorized as being at risk of extinction throughout all or a significant proportion of their range. Parties strive towards strictly protecting such species, and exclude the taking of them from the wild, apart from under recognised exceptional circumstances.

CMS Parties adopted Resolution 10.28 at their 10th Conference of Parties (COP10) held in Bergen, Norway on 25 November 2011. The Resolution acknowledges the listing of the Saker Falcon on CMS Appendix I (as being at risk of extinction throughout all or a significant proportion of its range), excluding the population in Mongolia, and decided to establish an immediate Concerted Action supported by all Parties. The Resolution also called for the establishment of a Saker Falcon Task Force (STF) under the auspices of the Coordinating Unit (CU) of the UNEP/CMS MoU on the Conservation of Migratory Birds of Prey in Africa and Eurasia (Raptors MoU). The overall aim being to bring together Range States, Partners and interested parties, to develop a coordinated Global Action Plan, including a management and monitoring system, to conserve the Saker Falcon

UNESCO, Intangible Cultural Heritage - Falconry, a living human heritage

Following the nomination made by the United Arab Emirates, Austria, Belgium, the Czech Republic, France, Hungary, the Republic of Korea, Mongolia, Morocco, Qatar, Saudi Arabia, Spain and the Syrian Arab Republic, the Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage, UNESCO, inscribed Falconry, a living human heritage on the Representative List of the Intangible Cultural Heritage of Humanity (UNESCO, 2012).

Relevant Regional Environmental Agreements

Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)

The Bern Convention is a binding international legal instrument in the field of nature conservation, which covers most of the natural heritage of the European continent and extends to some countries in Africa. Its aims are to conserve wild flora and fauna and their natural habitats and to promote European co-operation in that field (CE, 1979).

The Saker Falcon is listed under Annex II. Annex II includes strictly protected fauna species. Species may be neither disturbed nor captured, killed or traded. In this regard, the Bern Convention supplements CITES, which solely governs international trade.

Directive 2009/147/EC of the European Parliament and of the Council on the Conservation of Wild Birds (EU Birds Directive)

The Birds Directive creates a comprehensive scheme of protection for all wild bird species naturally occurring in the European Union. It places great emphasis on the protection of habitats for endangered as well as migratory species (listed in Annex I), especially through the establishment of a coherent network of Special Protection Areas (SPAs) comprising the most suitable territories for these species.

The Saker Falcon is listed under Annex I. Species in Annex I are considered in danger of extinction, rare, vulnerable to specific changes in their habitat or requiring particular attention for reasons of the specific nature of their habitat. These species must not be deliberately killed, caught or disturbed, and their mating, breeding, feeding and roosting habitats must not be destroyed. The taking and destruction of eggs is prohibited as well as keeping of wild-caught birds. Member states must conserve the most suitable territories as SPAs (EC, 2009).

European Community (1992) Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (EU Habitats Directive)

Although the conservation of birds is not the subject directly of this Directive, the Habitats Directive (together with the Birds Directive) forms the cornerstone of Europe's nature conservation policy. It requires special conservation measures concerning the habitats of bird species listed in Annex I of the Birds Directive (including the Saker Falcon) in order to ensure their survival and reproduction in their area of distribution. The Habitats Directive is built around two pillars: the Natura 2000 network of protected sites and the strict system of species protection. All in all the Directive protects over 1,000 animal (excluding bird species) and plant species and over 200 so called "habitat types" (e.g. special types of forests, meadows, wetlands, etc.), which are of European importance (EC, 1992).

Association of South East Asian Nations (ASEAN)

One of the ASEAN's commitments is to ensure that the rich biological diversity is conserved and sustainably managed toward enhancing social, economic and environmental well-being is reflected in the ASEAN Socio-Cultural Community (ASCC) Blueprint (2009 – 2015). Actions for promoting the sustainable management of natural resources and biodiversity include the significant reduction in the current rate of loss of biodiversity through implementing relevant national, regional and international programmes of work; the strengthened control of trans-boundary trade in wild fauna and flora; joint surveys and monitoring of migratory wildlife; and the involvement of local communities to maintain biodiversity conservation and forest health by 2015.

The Convention on the Conservation of Wildlife and Natural Habitats in the Countries of the Gulf Cooperation Council (GCC)

The Saker Falcon is listed under Annex III as an Animal Species Threatened with Extinction.
The Convention adopts measures to verify that any exploitation of such species is done in a rationalized way, ensuring that the survival or existence of any of such species in nature is not threatened.
The Convention is the first legal instrument binding the six member States of the Gulf Cooperation Council (GCC) to coordinate their activities toward the conservation of wildlife and natural habitats (CCASG, 2013).

National legislation and policies

As part of the preparation of the 1st Draft for the Saker Falcon Global Action Plan (SakerGAP), the Coordinating Unit of the Raptors MoU contacted 71 Range States of the Saker Falcon and sought information, concerning national legislation related to the Saker Falcon. Information was sought from Government institutions, partners, stakeholders and other interested parties by means of a SakerGAP National Questionnaire. The Questionnaire was designed on the basis of a template used for previous single species action plans (BirdLife International, 2008a) but was modified for the purpose, and comprised specific questions relating to the Saker Falcon.

Between 17 June and 30 November 2013, the Coordinating Unit received completed Questionnaires from the following 41 Range States: Armenia, Azerbaijan, Bangladesh, Bulgaria, Croatia, Cyprus, Czech Republic, Finland, France, Georgia, Germany, Hungary, India, Iraq, Islamic Republic of Iran, Israel, Italy, Kazakhstan, Kenya, Kyrgyzstan, Macedonia, Mali, Malta, Mongolia, Montenegro, Niger, Pakistan, Poland, Romania, Russian Federation, Saudi Arabia, Serbia, Slovakia, Somalia, Sudan, Syrian Arab Republic, Tunisia, Ukraine, United Arab Emirates and Yemen.

Completed Questionnaires were not received from two key breeding Range States: China and Afghanistan, and three consumer countries: Bahrain, Kuwait and Qatar.

The Saker Falcon is fully protected from taking and killing in all Range States that responded to the questionnaire except Iraq, Macedonia (where the status of the Saker Falcon is uncertain), Georgia, Kenya, Mongolia and Yemen.

The *Saker Falcon is not specifically protected by law* in Iraq, and the information on legal protection is incomplete for Azerbaijan, Georgia, Kenya, Macedonia, Mongolia, Romania, Syrian Arab Republic and Yemen.

There are no penalties for illegal taking, killing or nest destruction in Iraq, Macedonia and Saudi Arabia; and information on penalties is incomplete for Georgia, Kenya, Mongolia and Yemen.

Maximum penalties for these offences range from US$ 152 (Mali) up to US$ 43,000 (Croatia) with the average of US$ 10,800 (n=14).

Imprisonment of offenders is available as a sanction in Bulgaria, Czech Republic, Germany, Hungary, India, Malta, Pakistan, Russia, Sudan and the United Arab Emirates.

Based on the Questionnaires, *taking of wild Sakers occurs* in Armenia, Azerbaijan, Bulgaria, Iraq, Iran, Kazakhstan, Kirgizstan, Pakistan, Russia, Saudi Arabia, Somalia, Sudan, Syria; it is suspected in Serbia and information is incomplete for Georgia, Macedonia, Mongolia, the United Arab Emirates and Yemen.

The *estimated level of annual taking* of Saker Falcons ranged from 1 (Armenia) to 400 specimens (Kazakhstan).

The *opening and closing months* of taking covers the migration period, starting from September (Middle East) and finishing between March and June (in winter states and on breeding grounds). Taking also occurs on breeding grounds (e.g. in Russia) between July and October.

There is *no quota scheme* in any of the range countries where taking of wild Saker Falcons occurs.

Wild Saker Falcons *can be legally traded* internally in Saudi Arabia. *Domestic illegal trade* was reported from Iraq.

Captive-bred Saker Falcons can be legally traded internally in Bulgaria, Croatia, France, Iran, Kazakhstan, Malta, Poland, Russia, Saudi Arabia, Slovakia, Syria and Ukraine.

Saker Falcon hybrids can be legally traded internally in Bulgaria, France, Iran, Malta, Poland, Russia, Saudi Arabia, Slovakia and Syria.

The use of wild-taken Saker Falcons for falconry is legal in Saudi Arabia and Syria.

The use of captive-bred Saker Falcons or Saker Falcon hybrids for falconry is legal in Croatia, Czech Republic, France, Iran, Kazakhstan, Malta, Poland, Russia, Saudi Arabia, Slovakia, Syria and Ukraine; and was reported as an *illegal* activity in Bulgaria and Iraq.

4 – TOWARDS AN ADAPTIVE MANAGEMENT FRAMEWORK FOR THE CONSERVATION AND SUSTAINABLE USE OF THE SAKER FALCON

Saker Falcon Task Force (STF)

CMS Resolution 10.28 (CMS, 2011) established the Saker Falcon Task Force (STF) and states that the Parties should provide financial and other resources to enable the operation of the Task Force and the implementation of the Concerted Action, in cooperation with the Signatories of the Raptors MoU, Range States and other interested parties.

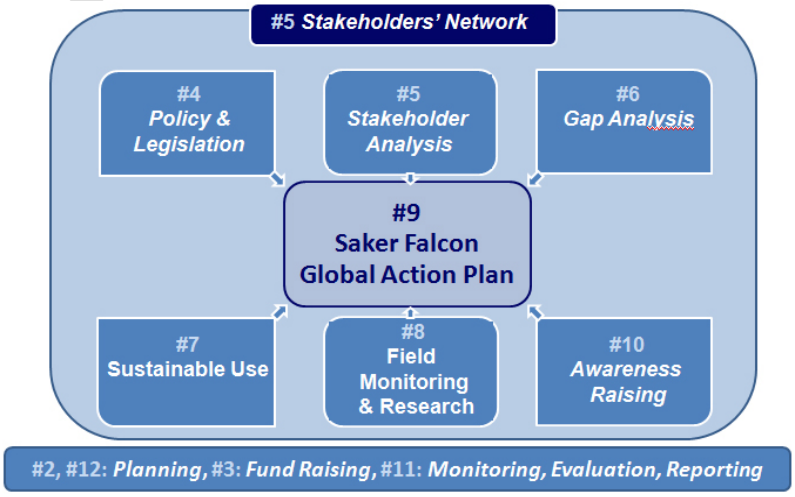
The Task Force has brought together the Range States of the Saker Falcon; co-operating Partners and other stakeholders to develop a coordinated Global Species Action Plan. Importantly, this Action Plan will include a management and monitoring system for the sustainable use of the species.

The Global Action Plan outlines robust monitoring and management mechanisms to help ensure that any use of the Saker Falcon is controlled, sustainable and is set within an adaptive management framework. This approach needs to be acceptable to the Parties of CMS potentially using and trading Saker Falcons, as well as to Parties not using this species but who have a keen interest in the overall implementation of the Convention. The viewpoints of the various stakeholders, including pro-use and conservation organisations, also need to be considered. The approach should, if possible, meet requirements from both CMS and CITES. The work requires clear, scientifically based evidence to underpin any action and demands a degree of practical knowledge to be effective.

The work on the Saker Falcon fits within wider initiatives on the conservation and management of birds of prey, and particularly within the framework of actions initiated under the UNEP/CMS Memorandum of Understanding on the Conservation of Migratory Birds of Prey in African and Eurasia (Raptor MoU).

The 1st meeting of the STF identified a number of key objectives and actions (*Figure 7*) required to develop the management and monitoring plan for the species.

Figure 7 Saker Falcon Task Force objectives and actions for developing the SakerGAP (STF, UNEP/CMS Raptors MoU, 2012)



These actions were primarily envisaged to be delivered by individual members of the Task Force and by the wider range of organisations involved. In addition, four short-term Working Groups were established by the Task Force thereby allowing further focussed discussion and collaboration between STF members, and the adoption of a common view for further review as part of the Global Action Plan Workshop held in September 2013.

The four Working Groups (WGs) were:

Objective 4 Working Group to review relevant international policies and legislation

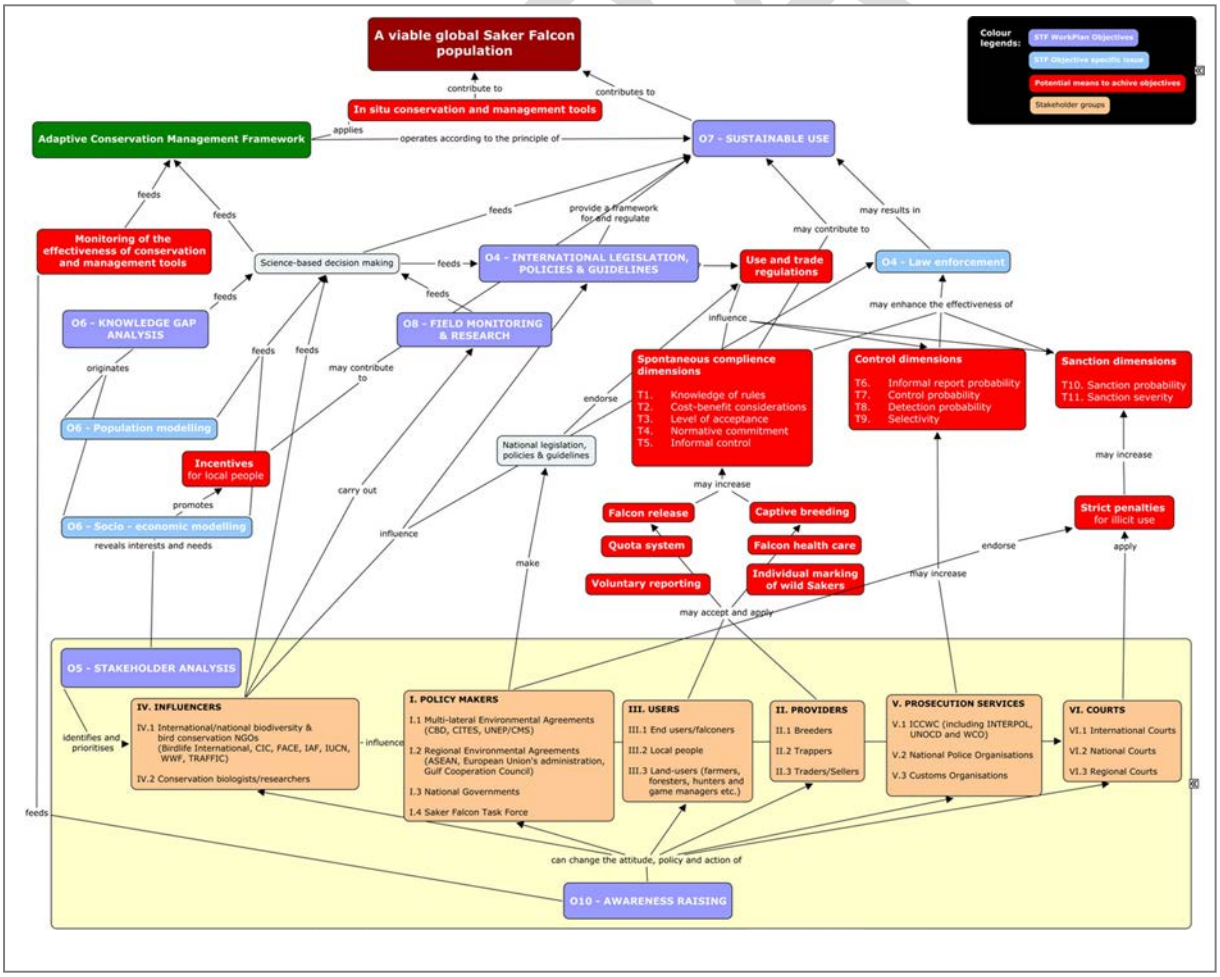
Objective 6 Working Group to conduct a knowledge gap analysis

Objective 7 Working Group to examine the sustainable use of wild origin falcons

Objective 8 Working Group to plan and implement fieldwork

The actions undertaken by the Working Groups were designed to explore the complexity and detail of the issues involved in the conservation and management of the Saker Falcon across the full extent of its range, throughout each of the stages of its annual cycle, including breeding, migration and wintering periods. This complexity and interdependence of issues is summarised in *Figure 8* below.

Figure 8 Key factors of the implementation of SakerGAP (v2, UNEP/CMS Raptors MoU CU, 2013)



A review of international policies & legislation **-** Summary of the STF Objective 4 Working Group Report (Kovács *et al.*, 2013)

Some MEAs (specifically CITES, CBD and CMS) contain provisions that are particularly relevant to the conservation of the Saker Falcon. Most Range States of the species are members of these MEAs and have enacted legislation that allows them to implement these provisions. However, it is already recognised that there could be inconsistencies between MEAs which may hinder the application of potential conservation tools such as the sustainable use.

One of the priority actions of a Saker Falcon Global Action Plan should be to work towards the synergies of existing international and national laws, in order to ensure that the whole range of tools is used for the benefit of the species.

A principal recommendation of the report is to involve international and national policy makers in the development of such a synergistic and pragmatic legal and policy system that can potentially improve the present conservation status of the Saker Falcon in the long term through, inter alia, the controlled, legal and sustainable use of the species.

Reducing omissions and potential contradictions between MEAs and national laws, policies and guidelines, while enhancing synergistic inter-linkages between them, is the way forward towards the reform of international environmental governance regarding the Saker Falcon.

Another priority issue to be addressed is to improve the compliance of regulations through better law enforcement; thereby enabling the implementation of a controlled, legal and sustainable harvest model.

Several determinants of compliance are dependent upon the deeply rooted, underlying socio-economic needs and cultural traditions of key stakeholders. Achieving full compliance of existing laws is unlikely and the actions regarding law enforcement should be designed on the basis of complex socio-economic modelling (Kenward *et al.,* 2013) and the engagement of stakeholders.

According to past experience of action planning for species conservation and management, the success of the Saker Falcon Global Action and Management Plan will be dependent upon three key elements: a) the degree of engagement by the Range States of the species; b) the level of trust and credibility that that is established and maintained among key stakeholders, particularly those with potentially competing interests; and, c) the level of funding support that can be secured to implement the SakerGAP (Kovács *et al.*, 2013a).

The successful implementation of the SakerGAP will need extensive awareness raising and the widest and earliest possible engagement of stakeholders. This is important in order to build mutual trust and a cooperative environment for the adaptive management, including sustainable use, of the Saker Falcon and its habitats, especially healthy steppe lands that support many other unique and important species.

A review of identified key knowledge gaps **-** Summary of the STF Objective 6 Working Group Report (Collar *et al.*, 2013)

The CMS Saker Falcon Task Force is committed to producing and implementing a Global Action Plan for the species. Among the issues the plan must address are the knowledge gaps that prevent consumers and conservationists from being able to manage Saker populations.

Despite the Saker's huge cultural significance in falconry, there are many gaps in our knowledge, concerning (1) distribution; (2) population sizes and trends; (3) ecological issues; (4) trade effects; and (5) anthropogenic impacts (positive and negative) other than trade.

A review of information on range and numbers indicates the need for improved breeding distribution data for Turkey, Russian Federation, Kazakhstan, Kyrgyzstan and China, for improved breeding population data for Turkey, Ukraine, Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan, Mongolia and China, and for information on the size of the migrant population in Iran and Afghanistan.

Scientific fieldwork is needed also to determine (a) the proportion of the sexes and age-classes affected by trapping in wintering areas, (b) the effects of trapping on breeding performance, (c) any long-term effects on dispersal of trapping the longer-distance migrants, (d) the migration routes and wintering grounds of different populations and the boundaries between them, (e) age-specific survival rates and the causes of their variation, (f) the vulnerability (and its prevention) of habitats to food declines, (g) the seriousness of the impacts of grassland conversion, undergrazing, overgrazing, rodent eradication, afforestation, tree-felling, infrastructure development and mining on breeding populations (h) the impact (and its mitigation) of powerlines on Saker numbers, (i) the measures to mitigate climate change effects on lowland grasslands, (j) the risk level posed by wild Sakers hybridising with escaped hybrid falcons, (k) the identity of populations that can be subject to marker-recording techniques to indicate population sizes and trends, (l) the funding needed to improve the future Saker monitoring and conservation technologies, (m) the socio-economic costs and benefits of maintaining traditional landscapes for Sakers, and (n) the relationships of Saker performance variables with nest availability and food supply. Management and policy decisions will be needed to identify (o) the population levels appropriate for Range States to seek to achieve, (p) the scale and extent of trapping of wild Sakers in countries not holding breeding populations, (q) harvest levels from different Saker populations and the contribution of falconers to sustainable supplies, (r) appropriate measures to optimise the contribution and effectiveness of protected areas to Saker security, (s) the conditions, practices and protocols for successfully establishing new Saker populations with artificial nests, for sustainably harvesting new populations from such nests, and for successfully reintroducing Sakers to parts of the former range, (t) the level and type of state and NGO activity to prevent poaching, (u) the means by which falconers will be persuaded to require a legal supply chain, and (v) the level and source of funding for a system of education, monitoring, regulation and conservation based on training wild Sakers.

Towards the sustainable use of the Saker Falcon **-** Summary of the STF Objective 7 Working Group Report (Galbraith *et al.*, 2013)

CBD's Addis Ababa Principles and Guidelines make it clear that adaptive management, based on monitoring and then appropriate adjustment of the management is an essential prerequisite for the sustainable use of wild resources. Management should be adaptive in order to be able to respond to uncertainties and should contain elements of "learning- by-doing" or research feedback. Scientific research can help ensure that management decisions are based on the best available science in the context of the precautionary approach. Measures may need to be taken even when some cause-and-effect relationships are not yet fully established scientifically (CBD, 2004; CBD, 2004a).

The Saker Falcon is an iconic species famed for its historic role in falconry. Its conservation status has attracted considerable attention, particularly over recent times. It is a species that engenders strong opinions about its conservation and wider management, with these opinions becoming ever more strident over recent years as the population has declined over much of its traditional range, and as the traditional practice of taking some birds from the wild for falconry has been questioned.

This has led to what can be considered a classic conservation dilemma, where the use of the species has become a core part of the culture for a number of countries in the species range, while active protection, with no taking from the wild, possession or use of the species, is the management norm in other range States.

The challenge for all those involved in the management of the species is to identify a clear way forward and ideally to do this by consensus, so that a holistic approach can be implemented for its conservation and management. There are, however, also many positive aspects apparent. Firstly there are various stakeholder groups interested in the Saker Falcon, ranging from conservationists to falconers, as well as numerous governments across the species' range (STF Objective 5 Report, Kovács *et al.*, 2013a). These stakeholders are seeking to collaborate and jointly work towards the conservation of the species. Secondly, there has been considerable publicity and media attention on Saker Falcons in recent times, thereby raising wider awareness of the need for concerted action in favour of this species. This means that there is real engagement and considerable effort now being expended to aid its conservation overall.

A number of detailed and important questions remain about the nature and extent of any "take" from the wild that will need to be addressed in order to develop a holistic system for the sustainable use of the species, including:

i) How many birds can be taken from the wild each year?
ii) When can birds be taken?
iii) From where can birds be taken?
iv) What age and sex ratio of birds can be taken? How might this vary across the species range and during different stages of its life cycle?
v) How should birds be taken (trapping methods) and what factors might influence this, both from a biological and socio-economic perspective?
vi) What variability in the level of "taking from the wild" over time might be appropriate and how could such variability, for example over a period of years, be incorporated into any management system?
vii) Could the variability covered in vi) above be linked to the relative productivity of the species over a number of years?
viii) Is a taking and export quota system a viable option as part of this approach?

A range of outcomes can be envisaged from the discussions at CMS COP11 in 2014, and consideration is being given now to the implementation of any monitoring and management framework that might be required after that point.

Elaboration of a modelling framework to integrate population dynamics and sustainable use of the Saker Falcon *Falco cherrug* – Conclusion of the demographic and socio-economic modelling for SakerGAP (Kenward *et al.*, 2013)

Simple matrix modelling, of a transparent nature as implemented in the International Association of Falconry and Conservation of Birds of Prey (IAF) MS Excel implementation (Kenward *et al.,* 2013), has already shown ability to model declining and expanding Saker Falcon populations (based on Nagy *unpubl.*; MME & RPS *unpubl.*; Kenward *et al.*, 2007; Ragyov *et al.*, 2009; Dixon *et al.*, 2011; Prommer *et al.*, 2012). Such models require productivity rates as observed by biologists in local breeding areas, combined with estimates of survival from which additional rates of attrition, for example due

to harvest or mortality on power-lines, can be subtracted. Minimum estimates of 50%, 65% and 80% of natural survival for months 0-9, 10-21 and >21 post-fledging, respectively, seem likely to be conservative. These base-line estimates are below estimates for other raptors of similar size to the Saker falcon (e.g. of 58%, 65% and 81% for Northern Goshawk and 70%, 91%, and 88% for Common Buzzard). Funding for increased use of reliable long-life radio tags to improve estimates to first breeding, and for adults, could involve sponsoring of marked adults by falconers. The relative importance of additional attrition for Sakers from mortality on power-lines, and of harvest for falconry, could also be defined by such tagging provided that trappers cooperate to report tags.

There are now suitable human resources in terms of science and technology capabilities, and of attitudes and knowledge among local falconers, for a Saker Data Management System to be run in the Gulf States to estimate harvest rates and, given cooperation with falcon trappers, sizes of trapped Saker populations. The increasing use of web-sites and mobile communications by falconers and trappers means that the internet could be used increasingly to engage with and build trust among these stakeholders, using Arabic as a *lingua franca*, and providing useful information on falcons, falcon management, individual marked falcons (if a monitoring system is developed), surveys, survey results and other rewards for participation. However, it requires time to attract people to new sites and build their trust. International legislation which increases opportunity costs for trappers is a further complication to building a trusted system to monitor population sizes and harvests of Saker Falcons.

The engagement of scientists, governments and NGOs for the STF Stakeholders' Workshop is important if Multilateral Environmental Agreements (MEAs) are to have any chance of accommodating a complex system for managing conservation of the Saker Falcon through sustainable use. It is already recognised that the interactions of MEAs can create complications for conservation (Ivanova & Roy, 2007; Kanie, 2007). Although this recognition is leading towards synergies (UNEP-WCMC, 2012), the immediacy of conflicting business models (in the triangular relationship of protection, cultivation and wild-resource use) does not favour patient deliberation needed to inform and converge the thinking of all actors. Those genuinely wishing to conserve Sakers, and their important steppe habitats that were cradles of western civilization, must seek to keep the topic broad and avoid hasty decisions. Can they provide the time needed for other stakeholders to engage productively, or will they prefer to create conditions in which falconers and trappers find it hard to keep their roles legal?

To ensure legal procurement of a desirable commodity, it is necessary for end-users to require evidence of legal provenance; given that requirement, legality can be driven back up a supply chain. In this case it is falconers in Arab states who are the recipients of the birds, and trappers who operate within their countries or abroad, together with falcon traders who are especially important components in the supply chain. A key challenge is to ensure that ordinary falconers and trappers become engaged in as many countries as possible. Representation of the falcon hospitals, as a major link between falconers/trappers and higher levels, is also essential. Key knowledge gaps are the time that would be required to engage falconers, falcon hospitals and, especially, falcon trappers in the effective operation of a Saker Data Management System.

Although any management system for wild resources may ultimately only be socio-economically sustainable if it self-funds from contributions of the resource beneficiaries, funding the initial start-up budget and technology costs for a Saker Data Management System is beyond the capability of individual falconers. However, there remains the possibility that an organisation representative of stakeholders could provide enough funding for a bottom-up approach, to run a trust-building portal and gradually build interest, trust, cooperation and funding from those involved. Whether that

approach could work would depend on the extent of voluntary support from local stakeholders and enduring tolerance of high-level stakeholders. It is not clear whether either would suffice.

Conclusions of the review and synthesis of current field monitoring and research activities **-** STF Objective 8 Working Group Report (Stahl *et al.*, 2013)

In order to seek initial information on current monitoring and research activity concerning the Saker Falcon a short questionnaire was circulated to all STF Objective 8 Working Group members.
From the responses to the questionnaire and the monitoring protocols received it became evident that there are very different monitoring methods currently in use. To facilitate collaboration between countries and ensure efficient use of money and effort, we recommend developing a common standard monitoring protocol within the SakerGAP process. Even if existing monitoring plans remain unchanged, an agreement to identify best practice for new monitoring plans (Objective 8.1.) is necessary.

This could be started by agreeing on a minimum set of parameters to be collected in each range state, using comparable methods and common definitions (e.g. age groups). The methods and definitions should be identified as best practice from existing monitoring efforts. The monitoring protocol should take into account the needs identified by the STF Objective 7 Working Group for input data into a modeling approach and make sure that data is available in sufficient quality.

This monitoring protocol should be supplemented by a prioritized list of additional "great-to-have" elements to be implemented if feasible These should also aim at addressing the knowledge gaps identified by the Objective 6 Working Group where integration into a Monitoring Plan is beneficial (e.g. could be: Marking/Reporting, Genetic sampling, Satellite Tracking, Monitoring for pollutants).

In this context it would also be of importance to find and agree on methods on how to integrate data from different sources, e.g. trappers or official records with the field data.

Our access to knowledge on Saker Falcon monitoring systems has gaps, particularly in key countries for the Saker Falcon, e.g. China. Gathering information on, and if necessary providing assistance in setting up and maintaining monitoring systems in such countries will be a priority.

As with monitoring, other field work and field research planning outside the scope of a monitoring plan would benefit from coordinated research planning to save time and effort. The first aim should be to identify the most pressing research areas, taking into account the gaps and needs identified in the STF Objective 6 and 7 Working Group, such as increasing data quality in relation population sizes and trends as well as on survival and migration routes. The methodology for this seems to be largely available, including research areas where it might not be feasible to integrate data collection into a regular monitoring plan or where separate designated data collection protocols and research plans might be needed (e.g. suggested for attrition factors such as electrocution and trapping). The use of advanced tracking technology, in particular, presents chances to improve the available knowledge.

The collection and integration of other sources of data and socio-economic data could offer synergies in facilitating collaboration between different user groups. A common data infrastructure could be beneficial here, but lack of trust and need for data protection could present challenges to progress.

Finally it can be concluded that the monitoring of pollutants seems feasible and now needs to be implemented in all study areas.

The conclusions & recommendations of an earlier BirdLife report (2011) should also be taken into account, which recommends: to initiate a five-to-ten-year programme of studies of the Saker Falcon,

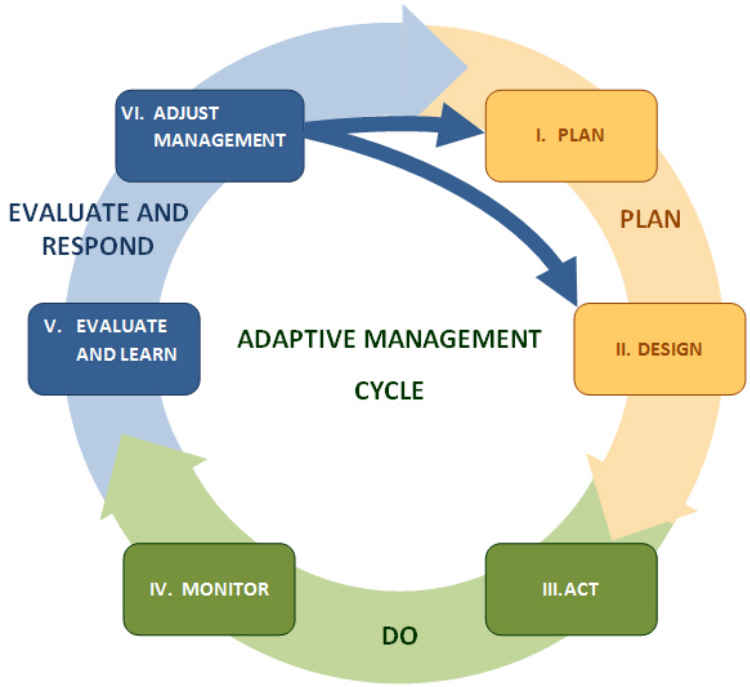
involving (1) intensive springtime surveys in a number of key Range States; (2) ecological research; and (3) satellite telemetry.

A proposed programme and methods for a Saker Falcon Adaptive Management Framework

Adaptive management provides a framework that allows resource managers to deal with complex ecological systems in which there are continual changes, hence the available information at any particular point in time incomplete. The strength of adaptive management is that it establishes an experimental or scientific approach to resource management.
Key characteristics of adaptive management are testing assumptions, adaptation and learning. Adaptive management involves trying different actions systematically to achieve a desired outcome. It is also about taking action to improve subsequent actions. The whole process of adaptive management is about learning. A crucial part of learning is that the assumptions, the actions taken, and the results of the monitoring are documented and fed back into the process (Bond *et al.*, 2006).

The six key steps in the adaptive management cycle are I. Plan, II. Design, III. Act, IV. Monitor, V. Evaluate and learn and VI. Adjust management (*Figure 9*).

Figure 9 The six key steps in the adaptive management cycle



Management must be adaptive in order to be able to respond to uncertainties and contain elements of "learning-by-doing" or research feedback. Scientific research will help ensure that management decisions are based on the best available science in the context of the precautionary principle. Measures may need to be taken even when some cause-and-effect relationships are not yet fully established scientifically (CBD, 2004; CBD, 2004a).

Below a generic, non-country specific programme is proposed, including methods for a Saker Falcon Adaptive Management Framework that could to be applied throughout the whole range of the

species (*Table 5*). It aims to provide a general, but still Saker-specific, framework of possibilities due to the highly variable parameters at different spatial scales, which can greatly influence the elements of the framework over the range of the species.

Accordingly, decisions about specific methods to be used should be made only after the areas of implementation have already been selected. Together with other priority conservation actions, the framework fits fully into the planned actions of the Saker Falcon Global Action Plan (SakerGAP) as a fundamental building block for its implementation.

Table 4 A proposed Saker Falcon Adaptive Management Framework

PLAN (SakerGAP process 2012-2014)	**Step 0: Establish and legitimise a coordination structure** Establish a transparent system of coordination related to the overall management of the species which is used by CMS and CITES as their source of advice on the management of the Saker Falcon and that key stakeholders recognise and support. Nominate a core team for coordination. Extend the remit of the Saker Falcon Task Force to oversee implementation of the SakerGAP and recruit a Coordinator as soon as funding is available for implementation (see *Figure 11*).
	Step I: Plan
	1. Make an inventory, define/refine the problem, threats and analyse the pertaining situation. ***Related documents:*** SakerGAP Compilation Report of STF Work Plan Objectives 4-8 SakerGAP Stakeholders' Workshop Report
	2. Establish goals and objectives, including targets and indicators, and set priorities.
	Step II: Design
	3. Design actions (what/where/when/how and who? - Legal, policy, socio-economic, stakeholders' awareness-raising and engagement, research and conservation actions) and a monitoring plan based on priorities. Plan a data management system. Develop Work Plan, timeline and budget for actions and for monitoring.
Act (Implementation of SakerGAP, 2014 -)	**Step III: DO**
	4. Implement priority actions and document progress and note deviations to the plan. *a. Legal, policy, socio-economic, stakeholders' awareness-raising and engagement steps for creating a supportive environment for implementing conservation management actions.* *b. Priority conservation management actions indentified at the Stakeholders' Workshop and in the SakerGAP towards the favourable conservation status of populations:* i. *Establish a Saker Data Management System* (SDMS), a central database for collecting, analysing and reporting data; ii. Reduce the impact of electrocution on Saker Falcon populations; iii. Ensure trapping and trade in Saker Falcons is sustainable; iv. Increase suitable available nest sites; v. Increase productivity by improving habitats and reducing environmental hazards, such as poisoning; vi. Reduce the impact of infrastructure developments (collision with man-made structures and habitat fragmentation); vii. Develop guidelines for policies and legislation; viii. Improve law enforcement; and, ix. Inform and engage stakeholders and the public.

	Step IV: Monitor
	5. Implement monitoring plan to assess effectiveness, document progress and note deviations to plan (applied options depend mainly on the parameters of the monitored area and on the capacities of the monitoring organisations). a. Action monitoring Monitoring of the progress and effectiveness of implementation. b. Monitoring of environmental parameters Measures of environmental conditions (e.g. habitat availability/quality/composition; prey availability/dynamics; effects of climate change/extreme weather). c. Monitoring of population parameters *Potential methods:* repeated 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). *Potential methods:* territory mapping, nest search, nest examination (clutch, brood size), point count, line transect, mark/recapture/resighting, simultaneous counts, phenological observations, remote sensing, nest camera recording system. *Potential techniques:* regular (metal) ring, colour ring, VHF, satellite and GSM tracking, wing tagging, PIT (passive integrated transponder) tagging, GPS dataloggers, genetic identification, X-ray, contaminant and toxicological analyses. *Biological materials to collect:* egg remains, feather, falcon carcasses, food and pellet remains. d. Risk-based monitoring, e.g. i) Monitoring the impact of electrocution (surveys along medium-voltage electric lines); and ii) Monitoring trade and use. *Potential techniques:* microchips, rings, PIT tags, falcon passports, falcon hospitals' database, genetic identification.
EVALUATE AND RESPOND	**Step V: Evaluate and learn**
	6. Prepare, analyse, synthesize and evaluate data collected through monitoring Apply data in integrated landscape management, forecasting trends, predicting changes in space and time, risk assessment and decision making. *Potential means:* Saker Falcon specific monitoring database and Saker Falcon specific GIS within a *Saker Data Management System* (SAMS).
	7. Share knowledge, communicate current understanding with stakeholders and learn lessons (document and share learning through networking)
	Step VI: Adjust management
	8. Adapt strategic plan and adjust management, as necessary.

Guidance to ensure that harvest and international trade are sustainable for wild Saker Falcon populations

The underlying principle of conservation through the sustainable use of wildlife resources requires that there is no detrimental impact on the population being harvested. The establishment of such a system requires sound scientific data on Saker productivity combined with a rigid and transparent system of regulating the harvesting.

Modern Arabic falconry practices result in a large demand for falcons (Riddle and Remple, 1994; Barton, 2000). This demand can be met from three sources: (i) captive-bred falcons, (ii) wild-sourced falcons through legal CITES regulated trade and (iii) wild-sourced falcons through unregulated, illegal trade. Restrictions on the availability of falcons through captive-breeding and CITES regulated trade routes appear to have resulted in an increased demand for wild falcons through unregulated, illegal trade (Dixon, 2012b).

In line with other harvest schemes (for example USFWS, 2007), and in order to shift unregulated illegal harvest towards a controlled legal harvest, the management goal should be to allow a regulated, reasonable but sustainable harvest of the Saker Falcon while simultaneously: a) decreasing the cumulative global harvest; and, b) exerting minimal impact on decreasing non-target populations.

Kenward *et al.* (2013) noted that in order to provide a robust basis for any harvesting of the Saker Falcon, reliable data on productivity, survival and attrition factors are needed to enable precautionary estimates of population resilience and persistence in the face of natural variation.

The study observed that:

- productivity, and survival estimates of 50% through the first nine months after fledging, 65% of the next year and 80% thereafter predicted resilience of compact European and central Asian Saker populations above 80 pairs if not subject to trapping of breeding adults.
- The IAF population model in Microsoft Excel is simple, flexible and transparent as a basis for stakeholders to reach agreement on safe harvest quotas from continuous populations that comfortably exceed an 80 breeding pair threshold.

Millsap and Allen (2006) recommended that falconry harvest rates for juvenile raptors in the United States do not exceed one-half of the estimated maximum sustainable yield (MSY) up to a maximum of 5%, depending on species-specific estimates of capacity to sustain harvest.
Under this guideline, harvest rates of up to 5% of annual production are supported for Northern Goshawk (*Accipiter gentilis*), Harris's Hawk (*Parabuteo unicinctus*), Peregrine Falcon (*Falco peregrinus*), and Golden Eagle (*Aquila chrysaetos*); lower harvest rates were recommended for other species until better estimates of vital rates confirm greater harvest potential.

Based on guidelines of sustainable harvest in other birds of prey (Millsap and Allen, 2006; USFWS, 2006; USFWS, 2007) and available population data for the Saker Falcon (Kenward *et al.*, 2013), a preliminary estimate is that a maximum 5% harvest of fledged juveniles may be sustainable in continuous, stable or increasing Saker Falcon populations which exceed 100 observed breeding pairs.

Calculations using the productivity data of European and Central Asian Saker Falcon subpopulations (Kenward *et al.*, 2013) implies a maximum of 10 harvested juveniles/160 territorial pairs in Europe, and 10 harvested juveniles/120 territorial pairs in Asia.

In all Range States the principle of 'the consumer pays' should be considered. This is when consumers put in place compensatory conservation measures and pay the remedial conservation costs associated with the resources they use. Conservation measures that are proved to improve the survival or reproduction success of Saker Falcon populations (e.g. mitigation of electrocution or provision of artificial nests) may increase sustainable harvest quota, thereby encouraging conservation investments.

Since the origins of Saker Falcons trapped along its migration routes and in wintering areas is usually unknown, the impact of this form of trapping on breeding populations is also difficult to quantify accurately. For this reason, the legal harvest and trade should ideally be restricted to the taking of falcons within breeding Range States. In practical terms, this would mean that the use of recommended maximum harvest levels is restricted to nestlings or recently fledged birds as was recommended for the Prairie Falcon *Falco mexicanus* in Colorado, USA (Millsap and Allen, 2006; Klute, 2010). However, this is probably unrealistic in the case of the Saker Falcon since it is widely trapped on migration, thousands of kilometres away from the breeding grounds. Therefore, we recommend in practice and to take account of the reality of the present situation, that the maximum global harvest level is calculated based on the *observed* productivity of the relevant subpopulations and distributed geographically based on the conservation status of Saker populations affected.

Target and 'no-go' regions for harvest should be agreed by key stakeholders for ensuring that harvest does not effect non-target populations.

Clearly managing such a system will require careful coordination, where for example, the legal harvest and trade within the territory of 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, supporting an artificial nest programme, or take other action to directly benefit the conservation of the species), in a breeding range country or in their own territory.

In this case, harvest rates/quotas could be calculated using methods similar to those adopted by breeding Range States and 'quota credits' could be shared or traded between cooperating countries. If there is a clear link between the conservation efforts and the increase in Saker Falcon breeding populations, the annual quota can be reviewed and increased accordingly. Within sustainable limits, consumers in non-breeding Range States may also purchase credits from certain types of approved Saker Falcon conservation projects implemented within breeding Range States.

The whole system would require firm national and international control, coordination and data-sharing. International coordination would be necessary to ensure appropriate geographic allocation of global harvest quotas amongst regions and consumer States (including States where nestling harvest occurs, so that cumulative harvest levels remain within sustainable limits) and this could be established within the recommended Saker Falcon Adaptive Management Framework and managed by the Saker Falcon Task Force (see *Figure 11*).

Listed below (Table 5) are the proposed safeguards to be put in place to help ensure sustainable trapping/harvest; many of which also promote population surveys and monitoring:

Table 5 Proposed safeguards to ensure sustainable harvest

Essential safeguards
1. Quota calculations should where practical be based on the *observed* (not estimated) number of breeding pairs and should also consider the level of taking of Sakers geographically, i.e. on breeding grounds, migration and in wintering areas.

2. Only *stable or increasing* populations should be considered for harvesting. This requires the monitoring of populations through repeated population surveys. 5% is recommended as the *maximum* harvest rate of fledged juveniles and this level should not be seen as a target to reach, rather as a limit on the total numbers that could be taken. Only the harvesting of 1st year (up to 9 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 to be conservative, and follows the precautionary principle. Based on productivity data of European and Central Asian Saker Falcon meta-populations (Kenward *et al.*, 2013), this means a maximum of 10 harvested juveniles/160 territorial pairs in Europe, and 10 harvested juveniles/120 territorial pairs in Asia. When assessing the conservation status of the populations targeted by harvest, a combining assessment of range, population, suitable habitat and future prospects should be made.
3. *Net production* (fledged juveniles) is calculated annually based on the rolling mean annual net production of known breeding pairs in the preceding 5 years. This approach would smooth out any fluctuations in the annual number of fledged juveniles and at the same time it would enable application of the principle of adaptive management.
4. *No adult Saker Falcons* to be trapped or taken (or purchased). The cumulative loss of adults, whether through trapping, electrocution or other factors, is a severe threat to Saker Falcon populations. In effect, it is drawing on the 'capital' rather than the 'interest' of the population (Kenward *et al.*, 2007).
5. *Trapping pressure should be minimized on the most threatened, non-target populations* on breeding grounds and along their entire flyways.
Desirable safeguards
6. 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 own territory or in a breeding range country. This safeguard is to prevent harvesting Saker Falcons without compensatory conservation measures taking place.
7. Mitigation of electrocution on medium-voltage power-lines has started in Saker Falcon habitats.
8. At least 300 artificial nests have been established in Saker Falcon habitats within pilot projects to check whether the lack of suitable nest sites is a limiting factor.
9. The above factors would need to be put in place, 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.

Opportunities to involve rural communities in a Saker Falcon Stewardship Scheme partly funded by the legal trade of falcons

In 2013, CITES Parties adopted Resolution Conf. 16.6 on *CITES and livelihoods* (CITES, 2013b), which recognises *inter alia* that the implementation of CITES is better achieved with the engagement of rural communities, especially those which are traditionally dependent on CITES-listed species for their livelihoods. The Resolution recognised also that implementation of some listings (particularly

Appendix I listings) may impact livelihoods of rural communities by restricting access to income, employment and other resources.

Rural people can potentially be involved in many aspects of Saker Falcon conservation management within a Saker Falcon Stewardship Scheme in exchange for funding, employment, information, or permissions, in line with the implementation of Multi-lateral Environmental Agreements including CITES.

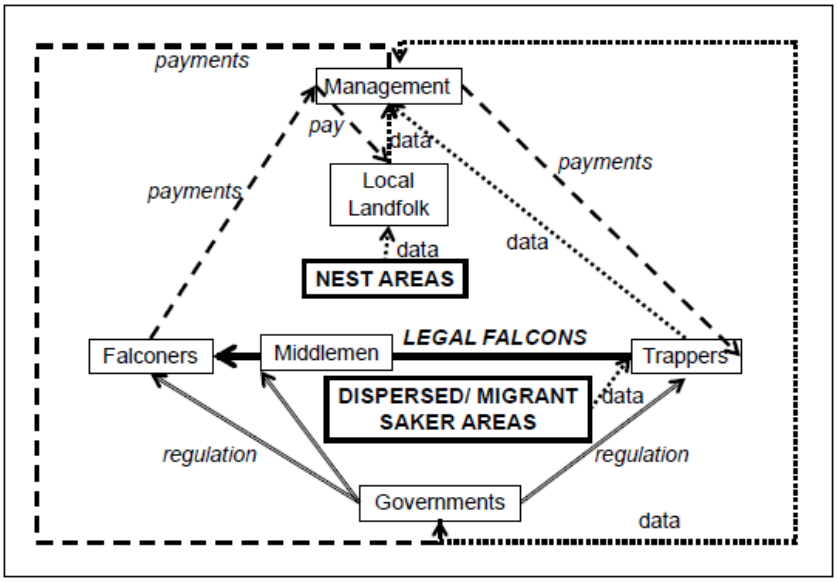
As in other species, in the case of the Saker Falcon the main question is how to make local, often rural, groups and communities interested in the sustainable use of the Saker Falcon as part of an Adaptive Management Framework in order to decrease the level of illegal trapping and trade. There are usually many different stakeholder groups in rural communities but there is at least one thing which they have in common: all seek to improve their standard of living.

For example trapping and trade of the Saker Falcon are rooted in economic, social and cultural drivers. Therefore, an effective solution to combat illegal activities may need to be similarly rooted in addressing initially the economics involved.

Kenward *et al.* (2013) outlined the data and motivation flows (economic and regulatory) between the different actors that need to be modelled in a possible management system for the Saker Falcon (*Figure 10*).

The model currently lacks important data on the numbers of falconers and trappers, although a recent survey undertaken in Saudi Arabia by Al Rashidi (in Kenward *et al.*, 2013) indicated that these knowledge gaps can be overcome if these stakeholders can be effectively engaged. A more detailed and refined socio-economic model would be needed to optimise flows of information and payments in such a system.

Figure 10 An outline of the data and motivation flows (economic and regulatory) that need to be modelled in a possible management system for the Saker Falcon.



The current large-scale artificial nest box system in Mongolia is probably a good example to show that to provide a long-term benefit for Saker Falcons the nest box scheme needs to generate an income to pay for their maintenance, replacement and for nest monitoring. To achieve this aim the project team has looked at a range of 'services' provided by the artificial nests and developed ways

of obtaining a financial income in return, thereby making the system self-sustainable (Dixon *et al.*, 2008, 2010; Dixon and Batbayar, 2010; Dixon, 2011; Galtbalt and Batbayar, 2012, Dixon, 2012a).

Any opportunities of community-based resource management (Brown, 1999; Brown *et al.*, 2002; Bond *et al.*, 2006) can make real contributions only through a robust delivery system, including coordination, training for staff, documenting actions and by the monitoring of progress through periodic reviews of effectiveness.

Realistically, the income of beneficiaries can only be partly covered by sustainable, legal and traceable trade. Meaningful alternatives, to ensure that it is possible to derive a legal income in connection with the management of the Saker Falcon, are keys to bring about a shift from illegal to legal activities. The opportunities identified to involve rural stakeholders within a potential Saker Falcon Stewardship Scheme are shown in *Table 6*.

Table 6 Opportunities to involve local, including rural, stakeholders in a Saker Falcon Stewardship Scheme

Local municipalities • Local coordination of different conservation management activities and income generation approaches.
Land managers, farmers, herdsmen, hunters, students and villagers • Provision of data on the presence of the Saker Falcon, on territories, nest sites, breeding success and the impact of specific threats (e.g. surveys along medium voltage electric lines, monitoring of artificial nest boxes). • Provision of information on Saker-related harmful and illegal activities.Provision of Saker Falcon feather samples. • Constructing and erecting artificial nest boxes. • Habitat management beneficial for the Saker and for its prey base. • Employment in eco-tourism activities (e.g. accommodation, sales, guiding, etc.).
Teachers, educators: • Conservation education in schools and during community meetings. • Employment in eco-tourism activities.
Trappers and tradesmen: • Application of an individual specimen marking scheme for the Saker Falcon. • Reporting on the capture, recapture and re-sighting of all Sakers; especially of individually marked falcons. • Provision of feather samples from trapped birds for DNA extraction, for genetic fingerprinting and investigation of origins.
Falconers • Establish and join falconers' clubs which promote measures for sustainable use. • Voluntary application of a Code of Conduct for sustainable use of the Saker Falcon.
Breeders • Establish and run breeding centres for falcons including pure-bred Saker Falcons and hybrids.

5 - FRAMEWORK FOR ACTION

A summary of the Goal, Objectives, Expected results and Activities

OVERALL GOAL

The overall goal of SakerGAP is to re-establish a healthy and self-sustaining wild Saker Falcon population throughout its range, and to ensure that any use is sustainable.

OBJECTIVES

1. Ensure that the impact of electrocution on the Saker Falcon is reduced significantly; enabling a stable or increasing population trend of the Saker Falcon in key breeding Range States of Central Asia and Europe.
2. Ensure that trapping and other forms of taking Sakers from the wild are legal, controlled, and sustainable, thereby allowing population growth and eventual stabilisation.
3. Ensure that other identified mortality factors (e.g. poisoning and collision with man-made objects and infrastructure) do not have significant impact on Saker Falcon subpopulations.
4. Maintain, restore and expand the range of the Saker Falcon by ensuring suitable breeding and foraging habitats and reinforcing prey populations.
5. Ensure effective Stakeholders' involvement in the implementation of SakerGAP within a Saker Falcon Adaptive Management Framework.

EXPECTED RESULTS

1. Steady and effective increase in bird-friendly medium-voltage electric lines over the whole range of the Saker Falcon, especially in Range States hosting key populations.
2. An internationally recognised sustainable management framework to conserve the Saker Falcon is designed and approved by Range States and by CMS/CITES.
3. Saker Falcon mortality due to poisoning, collision with man-made objects and infrastructure and other factors is reduced significantly.
4. The global breeding population size and productivity is enhanced through increased suitable nest sites and available food supplies in the range of the Saker Falcon.
5. The SakerGAP is effectively implemented through strong Stakeholder collaboration within the Saker Falcon Adaptive Management Framework.

ACTIONS

Actions to achieve Objective 1: The impact of electrocution is reduced significantly

1.1. Ensure that new and fully reconstructed medium-voltage electric lines are safe for birds by design
1.2. Modify existing high-risk medium-voltage poles to be safe for birds with the most cost-effective mitigation measures

1.3. Raise the awareness of Stakeholders about the risks of bird-power line interactions, bird friendly designs, their quality applications and priorities for mitigation

Actions to achieve Objective 2: Sustainable use

2.1. Ensure that appropriate international and national legislation, policy and guidelines are in place and in synergy to prevent overharvest and allow sustainable use
2.2. Improve law enforcement to prevent and convert uncontrolled illegal use to controlled, legal and sustainable use
2.3. Take ex-situ conservation measures to reduce pressure on wild Saker populations
2.4. Ensure that Range States implement regulatory mechanism to define and enforce levels of use that are safe for the population and are supported by accurate scientific knowledge, monitoring and feedback
2.5. Awareness raising and involvement of Stakeholders in sustainable use schemes

Actions to achieve Objective 3: The impact of mortality factors (other than electrocution, trapping and trade) is reduced significantly

3.1. Review and improve the legal protection of the Saker Falcon where it is necessary to protect it from unintentional or deliberate killing and deliberate disturbance where it is considered detrimental
3.2. Mitigate unintentional secondary poisoning of the Saker Falcon
3.3. Ensure that spatial planning and infrastructure design adapted to biodiversity needs
3.4. Ensure that energy infrastructure projects avoid sensitive sites and habitats used by breeding, migrating and wintering Saker falcons
3.5. Develop and implement effective mitigation measures on existing infrastructures
3.6. Establish internet platforms and hot lines for reporting on injured or dead raptors including the Saker Falcon
3.7. Promote that dead or injured Sakers are examined (X-rayed and tested for contaminants, agri-chemicals and poisons) to monitor the causes of death and injuries (especially the level of shooting and poisoning) and data is disseminated sufficiently to support Adaptive Management.
3.8. Guard threatened Saker Falcon nests, particularly in severely depleted subpopulations
3.9. Awareness raising of Stakeholders to prevent loss and persecution of the Saker Falcon

Actions to achieve Objective 4: Habitat conservation and management

4.1. Map important sites, significant flyways, temporary settlement areas and habitats for the Saker Falcon; designate them and encourage their protection
4.2. Establish controlled artificial nest systems where safe nest sites are limited to increase breeding population and breeding success
4.3. Maintain and increase natural nests and nest sites for Sakers
4.4. Maintain and improve the area and quality of Saker foraging habitats throughout its range
4.5. Reduce the impact of mass poisoning of prey species

Actions to achieve Objective 5: Coordination Stakeholders' involvement within a Saker Falcon Adaptive Management Framework

5.1. Put in place an agreed coordination structure
5.2. Implement the Saker Falcon Adaptive Management Framework
5.3. Design
5.4. Act
5.5. Monitor
5.6. Evaluate and learn

5.7. Adjust management
5.8. Raise Stakeholders' awareness about the status and biology of the Saker Falcon and increase their cooperation and involvement in its conservation

Table 7 **The Logical Framework** (Overall Goal, Objectives and Expected results)

Logical Framework	Monitoring Indicators	Sources of Verification	Assumptions
OVERALL GOAL The ultimate goal of SakerGAP is to re-establish a healthy and self-sustaining wild Saker Falcon population throughout its range, and to ensure that any use is sustainable.	Global population status assessment showing stable and recovering subpopulations. The Saker Falcon is down-listed by IUCN to globally Vulnerable by 2019 and to Near Threatened by 2030.	IUCN Red List assessment in 2019 and 2030. SakerGAP Reviews of Implementation in 2019 and 2024. CMS reports. CITES reports.	Range countries endorse the SakerGAP and start implementing it. Stakeholders are cooperative and comply with relevant international and national legislation, policies and guidelines. Climate change does not have a significant impact on the global population of the Saker Falcon.
OBJECTIVES 1. Ensure that the impact of electrocution on the Saker Falcon is reduced significantly; enabling a stable or increasing population trend of the Saker Falcon in key breeding Range States of Central Asia and Europe.	Adult survival is increased by 3%. Survival rates are equal or higher than 50% (to 9 months), 65% (10-21 months) and 80% (3+ year). 15% increase in Sakers that reach the age of 21 months in the wild by 2024.	National survey and monitoring reports on the reconstruction and mitigation of medium-voltage electric lines. National monitoring and survey reports on population parameters (e.g. population size, trend, mortality and survival) based on *inter alia* an internationally recognised individual marking scheme.	No major omissions and contradictions between MEAs and national law. National laws ensure the implementation of the SakerGAP. Species conservation and management activities are implemented by national governments in line with the SakerGAP.

Logical Framework	Monitoring Indicators	Sources of Verification	Assumptions
2. Ensure that trapping and other forms of taking Sakers from the wild are legal, controlled, and sustainable, thereby allowing population growth and eventual stabilisation.	20% increase in the use of captive-bred Sakers compared to the proportion of wild-origin Sakers used, by 2019. The number of legally and sustainably harvested Sakers increases in order to meet market demands effectively. Effective remedial conservation measures are to increase sustainable harvest quota. An effective management framework is established to ensure that any use of wild Saker Falcons is sustainable.	CITES reports and database. National reports on the legal and illegal level of trapping/harvest, trade and use of the Saker Falcon. SakerGAP implementation reports from the STF to CMS/CITES.	An international framework (i.e. a set of sustainable management systems recognised by CMS/ COP and CITES COP) for the sustainable use of wild Saker Falcons is operational from 2015.
3. Ensure that other identified mortality factors (e.g. poisoning and collision with man-made objects and infrastructure) do not have significant impact on Saker Falcon subpopulations.	Decrease in the number of such Saker mortality incidents.	National survey reports. SakerGAP implementation reports.	Legal protection of the Saker Falcon is in place in all range states and effectively enforced.
4. Maintain, restore and expand the range of the Saker Falcon by ensuring suitable breeding and foraging habitats and reinforcing prey populations.	Increase in the extent of occurrence, breeding distribution, nest site availability and occupancy. Increase in Saker productivity. 5 -10 large scale nest box grids	National reports on the implementation of National Biodiversity Strategies and Action Plans. National survey reports and maps on presence/absence, breeding distribution, nest	Legal protection of the main sites and habitats for the Saker Falcon is in place and effectively enforced. Habitat conservation and management activities are

Logical Framework	Monitoring Indicators	Sources of Verification	Assumptions
	with a total of 25,000 nest boxes erected in suitable areas by 2024.	occupancy, breeding success (brood size, nest success, productivity) and prey availability. Reports from Parties to CMS COP and as part of the Raptor MoU.	implemented by national governments in line with the SakerGAP.
5. Ensure effective Stakeholders' involvement in the implementation of SakerGAP within a Saker Falcon Adaptive Management Framework.	An effective management for the implementation of the Saker GAP is operational, especially in relation to the delivery of sustainable use. Increase in collaborative IGO, GO and NGOs, business and the private sector.	International and national reports on the cooperation with Stakeholders.	Stakeholders are willing to cooperate in order to fully implement the SakerGAP.
EXPECTED RESULTS 1. Steady and effective increase in bird-friendly medium-voltage electric lines over the whole range of the Saker Falcon, especially in range states hosting key populations.	New and fully reconstructed electric line sections are safe for birds by design from 2017 onward. Existing killer poles (e.g. switch, strain and transformer poles) are reduced by 20% by 2024 in Saker Falcon habitats.	National survey and monitoring reports on the reconstruction and mitigation of medium-voltage electric lines. SakerGAP implementation reports.	Legal and policy obligations for bird-friendly new and fully reconstructed electric lines are in place and effectively enforced.
2. An internationally recognised sustainable management framework to conserve the	Comprehensive records of the numbers of birds taken from the	CITES Reports on the trade of the Saker Falcon.	Sustainable use schemes for the Saker falcon are

Logical Framework	Monitoring Indicators	Sources of Verification	Assumptions
Saker Falcon is designed and approved by Range States and by CMS/CITES.	wild, exported and released available and meet sustainable use and non-detriment finding criteria. Increase in first year survival in wild birds. Increase in the number of legally used Sakers (wild and captive) in proportion to illegal stock.	National reports on the legal and illegal level of trapping/harvest, trade and use of the Saker Falcon. National survey reports. Falcon Hospital databases. SakerGAP implementation reports.	endorsed by range countries and by CMS/CITES. Legal protection of the Saker Falcon is in place in all range states and effectively enforced.
3. Saker Falcon mortality due to poisoning, collision with man-made objects and infrastructure and other factors is reduced significantly.	Decrease in the number of such Saker mortality incidents.	National survey and monitoring reports on mortality incidents and their mitigation. SakerGAP implementation reports.	Legal protection of the Saker Falcon is in place in all range states and effectively enforced. Stakeholders are willing to cooperate in order to fully implement the SakerGAP.
4. The global breeding population size and productivity is enhanced through increased suitable nest sites and available food supply in the range of the Saker Falcon.	3,000 newly registered breeding pairs in natural nest sites and artificial nest platforms by 2024. Productivity (nestling/clutch) is equal or higher than 2.4 n/c in Europe and to 3.2 n/c in Asia (a minimum of 0.15 increase in the mean productivity values in Europe and in Asia).	National survey reports. Project reports. SakerGAP implementation reports.	Natural processes (e.g. succession, climate change) do not cause large scale decline in prey populations. Sakers use artificial nest platforms where provided.
5. The SakerGAP is effectively implemented	The Saker Falcon Adaptive	National reports.	Stakeholders are willing to

Logical Framework	Monitoring Indicators	Sources of Verification	Assumptions
through strong Stakeholder collaboration within the Saker Falcon Adaptive Management Framework.	Management Framework is established and operates from 2015 on. Increase in the number of knowledge gaps addressed in peer reviewed scientific papers. Decrease in the number of Saker mortality incidents due to disturbance and persecution (e.g. shooting, direct poisoning and nest destruction) . Increase in the number of coordinated international and national Stakeholders' meetings, workshops and training events. Increase in the number of awareness raising publications and events. Increase in Stakeholders' involvement in the conservation and management of the Saker Falcon.	SakerGAP implementation reports. Steering Group meeting reports. National research and monitoring reports. Peer reviewed scientific journals. Meeting, workshop and training reports.	cooperate in order to fully implement the SakerGAP. Legal protection of the Saker Falcon is in place in all range states and effectively enforced. Funding is available for field monitoring and research. Any research and monitoring is of a standard suitable for publication.

Table 8 Framework for Action

Priority scales of actions:

Essential: an action that is needed to prevent a large decline in the population which could lead to the species or sub-species extinction.
High: an action that is needed to prevent a decline of more than 20 % of the population in 20 years or less.
Medium: an action that is needed to prevent a decline of less than 20% of the population in 20 years or less.
Low: an action that is needed to prevent local population declines or which is likely to have only a small impact on the population across the range.

Timescale criteria of actions:

Immediate: completed within the next year.
Short: completed within the next 1-3 years.
Medium: completed within the next 1-5 years.
Long: completed within the next 1-10 years.
Ongoing: an action that is currently being implemented and should continue.

Action	*Priority*	*Time scale*	*Organisations responsible*
Objective 1: **Ensure that the impact of electrocution on the Saker Falcon is reduced significantly; enabling a stable or increasing population trend of the Saker Falcon in key breeding range counties of Central Asia and Europe.**			
Result 1: **Steady and effective increase in bird-friendly medium-voltage electric lines over the whole range of the Saker Falcon, especially in Range States holding key populations.**			
1.1. Ensure that new and fully reconstructed medium-voltage electric lines are safe for birds by design 1.1.1. Review and implement legal/policy provision where they exist. 1.1.2. Develop appropriate legal, policy instruments and new pole designs as necessary. 1.1.3. Make legal steps against the use of dangerous pole designs. 1.1.4. Put CMS and Bern Convention's obligations for electric power lines into action. 1.1.5. Promote the recognition of donors of the latest bird safety standards so that they only fund lines with bird-friendly design.	High	Long	• **Relevant national authorities,** • National governments, • Governmental and non-governmental conservation organisations (Conservation GOs/NGOs), • Research organisations, consultants, • National Courts, • Power utility companies and their suppliers.
1.2. Modify existing high-risk medium-voltage poles to be safe for birds with the most cost-effective mitigation measures 1.2.1. Develop protocols for risk assessment of electrocution. 1.2.2. Map, assess and prioritise power lines for electrocution risk. 1.2.3. Prioritize power lines by their risk to birds. 1.2.4. Identify appropriate mitigation measures. Avoid temporary solutions with costly maintenance needs; prefer permanent reconfiguration of lines with bird-friendly designs. 1.2.5. Implement modifications according to priorities. 1.2.6. Monitor and control the quality of mitigation by power line managers/owners. 1.2.7. Engage international power companies/ donors to change dangerous lines. 1.2.8. Carry out pre- and post-mitigation surveys along lines to detect bird casualties and assess efficiency of mitigation.	High	Long	• **Relevant national authorities,** • National governments, • Conservation GOs and NGOs, • Power utility companies and their suppliers, • Research organisations and universities.

Action	*Priority*	*Time scale*	*Organisations responsible*
1.3. Raise the awareness of Stakeholders about the risks of bird-power line interactions, bird friendly designs, their quality applications and priorities for mitigation (see Action 5.8 for more).	High	Immediate	
Objective 2: Ensure that trapping and other forms of taking Sakers from the wild are legal, controlled, and sustainable, thereby allowing population growth and stabilisation**.**			
Result 2: An internationally recognised sustainable management framework to conserve the Saker Falcon is designed and approved by Range States and by CMS/CITES.			
2.1. Ensure that appropriate international and national legislation, policy and guidelines are in place and in synergy to prevent overharvest and allow sustainable use	High	Short	• **Conservation GOs and NGOs**, • National governments, • Relevant national authorities, • International (CIC, FACE, IAF) and national hunting and falconry organisations, • Research organisations and universities.
2.1.1. Improve the legal protection of the Saker Falcon where it is necessary to protect it from egg collection and other forms of taking from the wild. 2.1.2. Review relevant international policies, legislation and guidelines relevant to the use of the Saker (see Kovács *et al.,* 2013 for details). 2.1.3. Identify major omissions (e.g. regarding a quota system, individual marking of wild Sakers, incentives for sustainable use, involvement of local communities in conservation management) in existing laws, policies & guidelines and work with law and policy makers to resolve them. 2.1.4. Identify major contradictions (e.g. regarding use of wild Sakers, use of hybrid falcons) in existing laws, policies & guidelines and work with law and policy makers to resolve them. 2.1.5. Develop National Species Action Plans for the Saker, as well as regional plans for cooperation and coordination. 2.1.6. Designate important sites for the Saker and other migratory birds of prey as protected areas.			
2.2. Improve law enforcement to prevent and convert uncontrolled illegal use to controlled, legal and sustainable use	High	Medium	• **Relevant national authorities,** • National Police Organisations • National Customs
2.2.1. Investigate the possibilities of improving law enforcement and develop tools to do			

Action	*Priority*	*Time scale*	*Organisations responsible*
so in range countries so as to reduce the level of illegal taking, illegal trapping and illegal trade of wild Sakers. 2.2.2. Reproduce and disseminate CITES or similar identification tool-kit guide to law enforcement bodies (police, customs) to increase the probability of crime detection. 2.2.3. Establish a facility for voluntary reporting. 2.2.4. Ensure that strict penalties are imposed upon offenders (e.g. illegal trappers and tradesmen) to increase the level of deterrence. 2.2.5. Ensure severe sanctions upon corrupt administrators and officers. 2.2.6. Improve the compliance-friendliness of regulatory design through the spontaneous, control and sanction dimensions of 'Table of Eleven' concept. 2.2.7. Explore the possibilities of networking with other ICCWC (International Consortium on Combating Wildlife Crime) IGOs and with already established WENs (Wildlife Enforcement Networks).			Organisations • National Courts, • Conservation GOs and NGOs, • CITES, • ICCWC (INTERPOL, UNOCD, WCO), • WENs, • WWF, TRAFFIC.
2.3. Take ex-situ conservation measures to reduce pressure on wild Saker populations	High	Short	• **Conservation GOs and NGOs**, • Relevant national authorities, • International (CIC, FACE, IAF) and national hunting and falconry organisations, • Research organisations and universities, • Falcon hospitals and rehabilitation centres.
2.3.1. Encourage that wild Sakers are only kept for limited time by falconers and are released/re-introduced through official release programmes. 2.3.2. Establish a genetic bank for wild-origin Sakers for identification of origin within a cooperation of falcon hospitals, breeding centres and falconers. 2.3.3. Link all falcon hospitals in an organized network and improve information exchange (e.g. establish shared register for captive Sakers). 2.3.4. Promote and improve captive breeding techniques and release/re-introductionprogrammes (in line with best practice standards) so as to alleviate the pressure of harvest on wild Saker Populations. 2.3.5. Establish networks of falcon hospitals, breeding centres, falconers and trappers and maintain regular communication (e.g. through appropriate channels, exhibitions, etc.). 2.3.6. Establish regional rescue centres for recovered birds of prey.			

Action	*Priority*	*Time scale*	*Organisations responsible*
2.4. Ensure that range states implement regulatory mechanism to define and enforce levels of use that are safe for the population and are supported by accurate scientific knowledge, monitoring and feedback (see Galbraith *et al.*, 2013 and Actions 5.1-5.7 for more).	High	Short	• **Relevant national authorities,** • Conservation GOs and NGOs, • CITES, • International (CIC, FACE, IAF) and national hunting and falconry organisations, • Research organisations and universities, • Falcon hospitals.
2.4.1. Define and agree (using appropriate population models and other relevant data) on geographical alternatives for biologically sustainable levels for trapping of Saker falcons where relevant. 2.4.2. Agree on the principles of making Non-detriment Finding for the Saker. 2.4.3. Define Maximum Sustainable Harvest Rates and biologically sustainable quotas for legal trade applying CITES's Non-detriment Finding assessment and checklist where relevant. 2.4.4. Implement water tight system of marking of captured wild falcons. 2.4.5. Ensure that all wild-origin Sakers are individually marked and registered. 2.4.6. Establish a robust system to monitor the impact of trapping on the most threatened, non-target Saker populations on breeding grounds, in wintering areas and along their entire flyways.			
2.5. Awareness raising and involvement of Stakeholders in sustainable use schemes (see Action 5.8 for more)	High	Immediate	• **CU of the CMS Raptors MoU.**
Objective 3: Ensure that other identified mortality factors (e.g. poisoning and collision with man-made objects and infrastructure) do not have significant impact on Saker Falcon subpopulations.			
Results 3: Saker Falcon mortality due to poisoning, collision with man-made objects and infrastructure and other factors is reduced significantly.			
3.1. Review and improve the legal protection of the Saker Falcon where it is necessary to protect it from unintentional or deliberate killing and deliberate disturbance where it is considered detrimental.	High	Short	• **Conservation GOs and NGOs**.
3.2. Mitigate unintentional secondary poisoning of the Saker Falcon	Medium	Medium	• **Relevant national authorities,** • Conservation GOs and NGOs, • Toxicology laboratories, • Vet laboratories,
3.2.1. Promote the chemical and toxicological analyses of eggs and dead or injured Sakers of all age groups. 3.2.2. Improve control over the storage and marketing of biocides and other substances			

Action	*Priority*	*Time scale*	*Organisations responsible*
that might cause mass secondary poisoning of birds of prey. 3.2.3. Take steps to ban biocides that have been shown wide-spread secondary poisoning of Saker Falcons.			• Research organisations and universities, • Falcon hospitals and rehabilitation centres.
3.3. Ensure that spatial planning and infrastructure design adapted to biodiversity needs	Medium	Medium	• **Relevant national authorities,** • Infrastructure developers, • Conservation GOs and NGOs, • Research organisations and universities.
3.3.1. Review of the planning policy and infrastructure development plans to identify shortcomings and risks for biodiversity (migratory birds in particular). 3.3.2. Conduct Strategic Environmental Assessments of planned significant infrastructure developments within major flyways to identify key risk areas. 3.3.3. Undertake Environmental Impact Assessments (EIAs) in accordance with the CBD guidelines (CBD Decision VI/7A and any subsequent amendments) and CMS Resolution 7.2 on Impact Assessment and Migratory Species for any projects potentially adversely impacting sites listed in Table 3 of the Raptors MoU, and any other sites holding significant subpopulations of the Saker Falcon.			
3.4. Ensure that energy infrastructure project properly avoid sensitive sites and habitats used by breeding, migrating and wintering Saker falcons	Medium	Medium	• **Conservation GOs and NGOs,** • Relevant national authorities, • Infrastructure developers, • Research organisations and universities.
3.4.1. Compile and publish a sensitivity map of the most sensitive sites and habitats for migratory birds of prey. 3.4.2. Ensure access of relevant national authorities and donors to the sensitivity maps for integration into their policies.			
3.5. Develop and implement effective mitigation measures on existing infrastructures	Medium	Long	• **Conservation GOs and NGOs,** • Relevant national authorities, • Infrastructure developers, • Electric utility companies, • Research organisations and universities.
3.5.1. Promote the existing guidelines of power line and windfarm mitigation and/or update them regularly. 3.5.2. Encourage energy companies to carry out mitigation works on their infrastructures (e.g. through public-private-partnership projects and through legal obligations).			
3.6. Establish internet platforms and hot lines for reporting on injured or dead raptors including the Saker Falcon	Medium	Short	• **Conservation GOs and NGOs.**
3.7. Promote that dead or injured Sakers are examined (X-rayed and tested for contaminants,	Medium	Long	• **Conservation GOs and NGOs,**

Action	Priority	Time scale	Organisations responsible
agri-chemicals and poisons) to monitor the causes of death and injuries (especially the level of shooting and poisoning) and data is disseminated sufficiently to support Adaptive Management.			• Vet laboratories, • Falcon hospitals and rehabilitation centres.
3.8. Guard threatened Saker Falcon nests in severely depleted sub-populations	Low	Short	• **Conservation GOs and NGOs.**
3.9. Awareness raising of Stakeholders to prevent loss and persecution of the Saker Falcon (see Action 5.8 for more)	High	Immediate	• **CU of the CMS Raptors MoU,** • **Conservation GOs and NGOs.**
Objective 4: Maintain, restore and expand the range of the Saker Falcon by ensuring suitable breeding and foraging habitats and reinforcing prey populations.			
Results 4: The global breeding population size and productivity is enhanced through increased suitable nest sites and available food supply in the range of the Saker Falcon.			
4.1. Map important sites, significant flyways, temporary settlement areas and habitats for the Saker Falcon; designate them and encourage their protection.	High	Medium	• **Conservation GOs and NGOs,** • Research organisations and universities.
4.1.1. Make and inventory of know sites, flyways and habitats. 4.1.2. Use spatial modelling, remote sensing and individual tracking to map potential habitats.			
4.2. Establish controlled artificial nest systems where safe nest sites are limited to increase breeding population and breeding success	High	Medium	• **Conservation GOs and NGOs,** • Relevant national authorities, • Research organisations and universities, • Power utility companies, • Local authorities, • Local businesses.
4.2.1. Select locations for grids of artificial nest systems based on biological and threat assessment, gap analysis, previous survey data and spatial models. 4.2.2. Develop best practice protocols for establishing and running the artificial nest system. 4.2.3. Carry out pilot studies to check the effectiveness of the artificial nests. 4.2.4. Construct artificial nests in suitable places. 4.2.5. Establish an economically viable Saker Falcon Stewardship Scheme for the monitoring and maintenance of nest boxes by local people			
4.3. Maintain and increase natural nests and nest sites for Sakers	Medium	Medium	
4.4. Maintain and improve the area and quality of Saker foraging habitats throughout its range	Medium	Medium	• **Conservation GOs and NGOs,**

Action	*Priority*	*Time scale*	*Organisations responsible*
4.4.1. Improve spatial planning practices to minimise habitat loss and fragmentation of extensive agricultural landscapes and grasslands. 4.4.2. Phase out subsidies for afforestation, farm intensification and conversion to intensive arable, livestock and perennial crops in key Saker sites. 4.4.3. Counteract ongoing desertification due to anthropogenic factors in the non-breeding range. 4.4.4. Encourage agri-environmental schemes and habitat management in favour of prey species (e.g. to regulate livestock density and appropriate level of grazing in order to prevent natural succession or to maintain habitat features for prey reproduction and shelter). 4.4.5. Integrate the principles of Saker Falcon conservation and management into National Biodiversity Strategies and Action Plans. 4.4.6. Seek for synergies with large-scale conservation programmes in order to maintain and develop Saker habitats.			• Relevant national authorities, • Research organisations and universities.
4.5. Reduce the impact of mass poisoning of prey species	Medium	Medium	• **Relevant national authorities,** • Conservation GOs and NGOs, • Plant protection agencies, • Research organisations and universities.
4.5.1. Increase the control of use of rodenticides and other biocides.			
Objective 5: Ensure effective Stakeholders' involvement in the implementation of SakerGAP within a Saker Falcon Adaptive Management Framework.			
Result 5: The SakerGAP is effectively implemented through strong Stakeholder collaboration within the Saker Falcon Adaptive Management Framework.			
5.1. Establish and legitimise a coordination structure	High	Immediate	• **CMS COP,** • **STF,** • **CU of the CMS Raptors MoU.**
5.2. Plan the Saker Falcon Adaptive Management Framework	High	Immediate	• **STF,** • CU of the CMS Raptors MoU.
5.2.1. Make an inventory of resources, define/refine the problem, threats and analyze the complete situation.			

Action	*Priority*	*Time scale*	*Organisations responsible*
5.2.2. Establish goals and objectives with targets and indicators and set priorities for conservation, monitoring and research based on Stahl *et al.*, 2013. 5.2.3. Prepare national or regional Saker Falcon or raptor conservation and management strategies.			
5.3. Design	High	Immediate	• **STF,** • CU of the CMS Raptors MoU, • Conservation GOs and NGOs, • Research organisations and universities.
5.3.1. Develop a Phase 1 mid-term Implementation Plan of the SakerGAP. 5.3.2. Design actions (what/where/when/how and who to do?). 5.3.3. Design monitoring plan (what/where/when/how and who to do?) and agree on centralized data collection. 5.3.4. Establish Saker Falcon Data Management System (SFDMS) and Saker Falcon specific GIS; and agree on centralized data processing, storage and data safety. 5.3.5. Develop guidelines and protocols for coordinated action. 5.3.6. Design Stakeholder involvement in implementation including meaningful and economically viable alternatives of the illegal use of the Saker Falcon.			
5.4. Act	High	Medium	• **STF,** • CU of the CMS Raptors MoU, • Conservation GOs and NGOs, • Research organisations and universities.
5.4.1. Carry out pilot studies to check the effectiveness of conservation interventions. 5.4.2. Implement priority actions with Stakeholders and document progress and note deviations to plan.			
5.5. Monitor	High	Medium	• **STF,** • CU of the CMS Raptors MoU, • Conservation GOs and NGOs, • Research organisations and universities, • All Stakeholder groups.
5.5.1. Implement the monitoring plan to assess effectiveness, document progress and note deviations to plan. 5.5.2. Fill critical knowledge gaps identified by Collar *et al.,* 2013 concerning (1) distribution; (2) population sizes and trends; (3) ecological issues; (4) effects of harvest and other forms of taking; and (5) anthropogenic impacts (positive and negative) other than harvest in a coordinated monitoring programme.			
5.6. Evaluate and learn	High	Medium	

Action	*Priority*	*Time scale*	*Organisations responsible*
5.6.1. Prepare, analyze, synthesize and evaluate data collected through monitoring within a Saker Falcon Data Management System.			
5.7. Adjust management	High	Medium	• **STF,** • CU of the CMS Raptors MoU.
5.7.1. Adapt strategic plan and adjust management.			
5.8. Raise Stakeholders' awareness about the status and biology of the Saker Falcon and increase their cooperation and involvement in its conservation	High	Medium	• **STF,** • CU of the CMS Raptors MoU, • Conservation GOs and NGOs, • Research organisations and universities, • All Stakeholder groups.
5.8.1. Develop multi-lingual awareness raising documents with Stakeholder-specific information (see the SakerGAP Stakeholder Analysis in Williams *et al.*, 2013). 5.8.2. Establish networks of key Stakeholders groups. Hold regular regional and sub-regional meetings, workshops and conferences with them to understand their needs and to plan, implement, monitor and review conservation measures with them. Apply 'learning-by-doing' principle. Exchange information, share knowledge and provide feedback on the implementation of the SakerGAP. 5.8.3. Increase understanding of responsibilities and spontaneous compliance dimensions among top users of the Saker Falcon. 5.8.4. Explain shared interests and win-win situations to Stakeholders and facilitate wide access to solutions. 5.8.5. Promote the recognition of donors of potentially dangerous developments so that they only fund those projects that are not harmful for the Saker Falcon. 5.8.6. Develop a school educational programme and teaching resources to inform school children of the status, threats and conservation needs of the Saker Falcon. 5.8.7. Hold training (on e.g. falcon identification, law enforcement, sustainable use, welfare and management of trapped Saker Falcons) regularly for key Stakeholders in major countries of import, export, re-export and transit of			

Action	Priority	Time scale	Organisations responsible
falcons. 5.8.8. Educate and raise the awareness of local communities about the conservation and sustainable, community-based management of the Saker Falcon. 5.8.9. Develop realistic and economically viable options for reasonable legal income for locals and for those who are already involved in the use of the Saker Falcon within the Saker Falcon Stewardship Scheme (see Kenward *et al.*, 2013). 5.8.10. Grant the accolade of environmental excellence to those municipalities and areas that carry out sound environmental practices in favour of the Saker Falcon. 5.8.11. Recruit and train volunteers for Saker Falcon monitoring, conservation management and related education.			

6 - NEXT STEPS

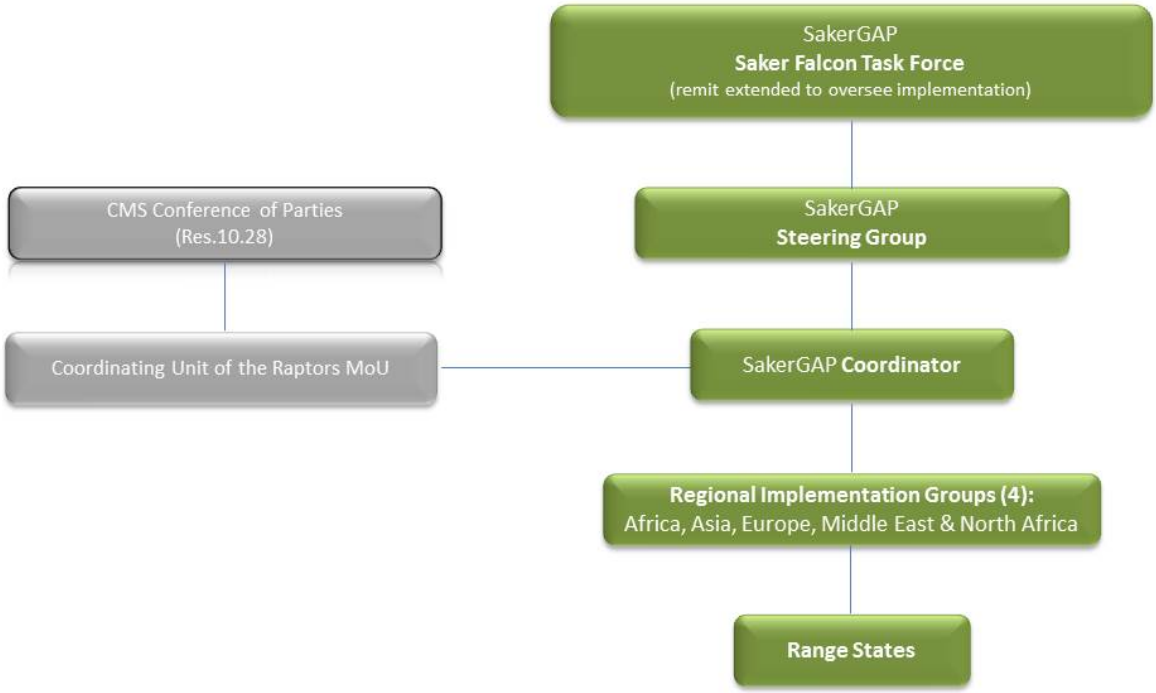
Step 0 of the Saker Falcon Adaptive Management Framework: Establish and legitimise a coordination structure

Successful implementation of the SakerGAP will require effective coordination, including establishing clear roles and responsibilities for the organisations and individuals involved.

It is envisaged that the SakerGAP will be implemented over a 10 year period (2015 – 2024), incorporating regular reports to the CMS Conference of Parties, held triennially and scheduled in 2017, 2020, 2023 and 2026. In line with the CMS Resolution 10.28, the Coordinating Unit of the Raptors MoU is anticipated to continue its facilitation role to guide the process on behalf of CMS.

Below we provide a possible coordination structure for the implementation of the SakerGAP, including brief descriptions of the key bodies (Figure 11).

Figure 11 A proposed coordination structure for SakerGAP (CU, Raptors MoU, 2013)



Saker Falcon Task Force (STF)

The STF has functioned effectively since it was established in early 2012. It has a wide membership, including many important stakeholders. Valuable synergies and relationships have been established during its period of operation. Rather than dismantling the STF, it is proposed that its remit be extended to oversee implementation of the SakerGAP. The aim would be for the STF to undertake this role primarily via electronic communications but, subject to available resources, at least one meeting or teleconference could he held during each triennium.

SakerGAP Coordinator

Experience from other Single Species Action Plans has demonstrated that a single individual (full or part-time) would be essential to drive forward coordinated international implementation of the SakerGAP. This person could be managed by the Coordinating Unit of the Raptors MoU but not necessarily stationed in Abu Dhabi, UAE, subject to the needs and requirements of a sponsor.

SakerGAP Steering Group (SG)

This Steering Group is envisaged to be a small (up to 10 people) but active group that would work closely with the SakerGAP Coordinator to lead the implementation process. It is proposed that the Steering Group be comprised as follows: the Chair and up to five members of the STF, one representative drawn from each of the four Regional Implementation Groups and a representative from the Coordinating Unit of the Raptors MoU. The SG is anticipated to meet annually, but with more frequent teleconferences.

SakerGAP Regional Implementation Groups (RIGs)

Establishing perhaps four RIGs could promote effective co-operation regionally. For example, Europe, Asia, Middle East and North Africa and Africa. The aim would be ensure that regional differences in threats and actions are fully accommodated during implementation of the SakerGAP. RIGs could vary in size but perhaps consist of a maximum of 15 – 20 persons, representing the range countries that make up each regions. The RIGs could operate electronically and/or via face-to-face meetings, depending upon available resources.

Flagship Proposals

The Saker Falcon Task Force - Stakeholders' Workshop convened on 9 – 11 September 2013 in Abu Dhabi, United Arab Emirates, with more than 70 representatives from 30 Range States and the 2nd Meeting of the STF held immediately after the Workshop, stressed that the SakerGAP would gain momentum if activities that would fill gaps in knowledge in the short term (within the next 1-3 years) were undertaken as soon as possible.

Therefore immediate actions, focussing on four Flagship Proposals have been elaborated by STF Members and the Coordinating Unit of the CMS Raptors MoU after the meetings. Brief summaries of each project are presented below.

Creating 1 Saker Falcon Online Information Portal and Engaging 10 Falcon Hospitals and 10 Trappers in a Saker Falcon Network

This proposal is for a multilingual portal to build trust and raise awareness by linking falconers, trappers, falcon hospitals, conservationists and researchers in an exchange of information that

enables estimation of harvests and sizes for Saker Falcon populations, and encourages best practice. The Portal would facilitate a more complex data collection and management system to manage trade in Sakers. Trappers could be encouraged to register by a prize-linked smart-phone survey.

Deploying 100 Satellite Tags on Saker Falcons

The primary aim of the proposal is to reveal the potential impact of threats and their spatial distribution, posed on adult Sakers in the breeding habitat through collecting information on their daily movements. The secondary aim is to list potential risks factors posed both on adult and juvenile Sakers on migration and in the wintering areas. The project aims to collect information on the movement patterns of Saker Falcons, including breeding and wintering habitat use, and migration. Gathering information on the habitats, diet composition and prey species is also planned.

Erecting 1,000 Artificial Nest Platforms for Saker Falcons

1,000 artificial nests will be erected to increase the breeding population and/or productivity of the Saker Falcon in areas where a shortage of optimal nest sites is limiting the size of the Saker breeding population. Grids of 100-200 nest-boxes will be placed in Kazakhstan, extending south into empty steppe from a tree-nesting Saker population at Naursum, and north from cliff-nesting populations in the south. Falcons of appropriate Kazakh stock will be released on each grid. The objectives of the proposal are to a) discover how artificial nest sites can best enhance Saker breeding in Kazakhstan; and, b) test whether local communities can promote conservation of breeding Sakers.

Installing or Retro-fitting 1,000,000 New or Existing 'Bird-safe' Electricity Poles (Phase I)

One of the main identified threats to the Saker Falcon is the electrocution on medium-voltage electricity poles, which occurs across the full extent of its range also affecting other threatened bird, including birds of prey populations. The goal of the proposal is to made safe 1 million existing or new electricity poles for the Saker Falcon in priority breeding and wintering areas as well as along migration flyways in the long term (by 2024). The objectives of Phase I are to a) identify priority areas for action; b) ensure that new and fully reconstructed electric line sections are safe for birds by design in target areas from 2017 onward; and c) ensure that existing killer poles (e.g. switch, strain and transformer poles) are gradually reduced by 20% by 2024.

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ANNEXES

ANNEX 1 - Threats importance at population/group of countries level (as determined at the SakerGAP Stakeholders' Workshop, September 2013)

Region & Threat definition:	Overall impact*	Priority
Europe		
Electrocution on MV powerlines	7	High
Decreased prey availability	7	High
Illegal/unsustainable trapping of adults	6	High
Poisoning (secondary)	6	High
Illegal harvesting of eggs/chicks (nest robbery)	5	Medium
Disturbance during nesting period	5	Medium
Increased vulnerability to natural factors (stochastic)	5	Medium
Asia	**Overall impact**	**Priority**
Trapping of adults esp. breeding birds	9	Critical
Trapping of non-breeding birds	9	Critical
Electrocution on MV powerlines (declining population)	8	Critical
Decreased prey availability	7	High
Electrocution on MV powerlines (healthy population)	6	High
Harvest of eggs/chicks	6	High
Collision with man-made structures (windfarms)	5	Medium
Poisoning (secondary)	5	Medium
Middle east	**Overall impact**	**Priority**
Unsustainable levels of trapping (illegal)	5	Medium
Electrocution on MV powerlines	4	Medium
Poisoning (secondary)	4	Medium
Africa	**Overall impact**	**Priority**
Unsustainable levels of trapping (illegal)	7	High
Electrocution on MV powerlines	7	High
Collision with man-made structures	7	High
Poisoning (secondary)	5	Medium

*Overall impact score = scope + severity + timing

ANNEX 2 - Conservation priority rank 1 - 4 of key Range States

List of Saker Falcon Range States	Priority Rank
Russian Federation (Asia)	1
Kazakhstan	1
China	1
Mongolia	1
Serbia	2
Uzbekistan	2
Afghanistan	2
Hungary	2
Turkmenistan	2
Ukraine	2
Iran	3
Iraq	3
Moldova	3
Tajikistan	3
Turkey	3
Austria	3
Czech Republic	3
Slovakia	3
Bulgaria	4
Croatia	4
Georgia	4
Germany	4
India	4
Kyrgyzstan	4
Macedonia	4
Poland	4
Romania	4
Saudi Arabia	4
Bahrain	4
Kuwait	4
Pakistan	4
Qatar	4
Syrian Arab Republic	4

Notes:

Spatial prioritization is required to direct limited resources to where actions are most urgently needed and most likely to produce effective 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 - min-max median is 1000 pairs<
3 - min-max median is 100 pairs<
2 - min-max median is 10 pairs<
1 - 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
2 - No

'Source' State of wild Saker Falcons
1 - Yes
2 - No

'Consumer' State of wild Saker Falcons
1 - Yes
2 - No

ANNEX 3 - Ongoing activities for the conservation of the species

Current conservation activities/interventions are grouped into the following four main areas:

1. Increase the survival of all age classes – 'Species protection'
2. Increase resource (nest site and prey) availability – 'Habitat conservation'
3. Fill Saker Falcon-specific knowledge gaps – 'Research and monitoring'
4. Raise public and stakeholder awareness

Conservation actions		*Europe*	*Asia*	*Middle East & Africa*	*Effectiveness*
1. Increase the survival of all age classes – 'Species protection'					
Field Activities	Guarding of nests to prevent nest robbery and disturbance.	Yes	?	N/A	High
	Modification of existing MV power lines or establishing bird friendly powerlines to decrease the impact of electrocution on Saker Falcon populations.	Yes	Yes	?	High
	Application of traditional falconry /Release of wild origin Saker Falcons.	-	Yes	Yes	?
	Reintroduction of Saker Falcons into historic or current breeding areas.	Yes	Yes	N/A	N/A
'Indoor' Activities	Ensure that the Saker Falcon is adequately protected by law.	Yes			?
	Control of illegal trapping and trade.	Yes			Low
	Control direct persecution (illegal shooting and poisoning).	Yes			Low
	Integration of bird conservation principles in the design of medium-voltage electric poles.	Yes	Yes	?	?
	Sustainable use of the Saker Falcon including an introduction of a quota system.	?	Yes	?	?
	Run Falcon Hospitals (to reduce demand for wild origin birds) and rehabilitation centres.	Yes	Yes	Yes	Medium
	Captive breeding and release (to reduce demand for wild origin birds).	Yes	Yes	Yes	?
	Ban the use and release of Saker Falcon hybrids to prevent genetic introgression.	Yes	?	?	?
2. Increase resource (nest and prey) availability – 'Habitat conservation'					
Field Activities	Provision of artificial nest boxes and reinforce natural nests.	Yes	Yes	N/A	High
	Ensure the protection of natural nest-builder birds species for the benefit of the Saker Falcon.	Yes	Yes	N/A	Low
	Relocation/reintroduction of Susliks as food supplies.	Yes	?	-	Low
'Indoor' Activities	Designation of protected areas for threatened species including the Saker Falcon.	Yes			?
	Land purchase for the benefit of protected species including the Saker Falcon.	Yes			?
	Environmental Impact Assessment of policies, plans and projects.	Yes			?
	Ensure cross-compliance of policies and sectoral planning to prevent key habitat conversion and degradation (e.g. agro-environmental programmes in Europe).	Yes			Low
	Conservation/spatial planning of land use in key Saker Falcon areas to prevent habitat fragmentation/loss,	Yes	Yes	?	Low

	Conservation actions	*Europe*	*Asia*	*Middle East & Africa*	*Effectiveness*
	degradation and disturbance.				
	Prevention of habitat pollution (e.g. banning harmful rodenticides and insecticides).	Yes	Yes	?	?
3. Fill Saker Falcon-specific knowledge gaps – 'Research and monitoring'					
Field Activities	Monitoring or surveys of breeding population parameters (distribution, population size, abundance, breeding success, productivity).	Yes		?	?
	Monitoring or surveys of passage or wintering populations.	Yes	?	?	
	Genetic studies to study relations between and within populations.	Yes	Yes	?	?
	Identify priority (breeding, wintering, temporary settlement) areas for the Saker Falcon.	Yes		Yes	?
	Mapping and monitoring of habitat composition, quality and availability.	Yes	Yes	?	?
	Monitoring of prey composition and availability.	Yes	Yes	?	?
	Individual marking to monitoring trapping and trade pressures (e.g. DNA sampling, microchipping).	Yes	Yes	Yes	?
	Individual marking to monitoring survival (e.g. ringing, colour ringing, marking with wing tags, PIT tags).	Yes	Yes	Yes	?
	Monitoring of the impact of specific threats on Saker Falcon populations (e.g. electrocution, windfarms, chemicals).	Yes	Yes	Yes	?
	Satellite or VHF tracking to study habitat use, dispersion and migration pattern.	Yes	Yes	Yes	High
'Indoor' Activities	Monitoring of trapping and trade pressures (through registration, falcon passport and checking of Saker Falcons for microchips).	Yes			?
	Monitor markets to quantify falcon trade.	?	Yes	Yes	?
	Monitoring of an Adaptive Management Framework (including the evaluation of the effectiveness of conservation actions).	Yes	Yes	Yes	?
	Monitoring of the implementation of the Saker Falcon European or National Species Action Plan.	Yes	?	?	?
4.	**Raise public and stakeholder awareness**				
'Indoor' Activities	Consultation with stakeholders regarding the status, conservation and management of the Saker Falcon.	Yes			?
	International cooperation within the frame of Multilateral Environmental Agreements (CBD, CITES, CMS).	Yes			?
	International cooperation within the frame of a Saker Falcon Working Group, sharing best practice.	Yes			?
	Public awareness, education and training programmes (students and local people).	Yes	Yes	Yes	?
	Engagement of local people in the conservation of the Saker Falcon.	?	Yes	?	?

ANNEX 4 - Overview of status and population trends

Table 1 The status of the Saker Falcon in Range Countries

Country	Breeding	Migration	Wintering	Extinct as breeder
Armenia	No	Yes	Yes	No
Austria	Yes	Yes	Yes	No
Azerbaijan	?	Yes	Yes	?
Bangladesh	No	?	Yes	-
Bulgaria	Yes (occasional or in very low numbers)	Yes	Yes	There is not known nest at the present moment
Czech Republic	Yes (regular)	Yes	Yes	No
Croatia	Yes (regular)	Yes	Yes	No
Cyprus	No	Yes	Yes	No
Finland	No	No	No	No
France	No	Yes (occasional)	Yes (occasional)	No
Georgia	Yes (regular)	Yes	Yes	No
Germany	Last breeding in Germany 1997-2001	Occasionally in D – cf. encl. Article	No	Anyhow irregular breeding in Germany
Hungary	Yes (regular)	Yes	Yes	No
India	Possibility of breeding in Ladakh, the western extension of Tibetan plateau	Yes	Yes	No
Iraq	Has bred historically	Yes	Yes	Yes(1990s)
Islamic Republic of Iran	Yes (regular/occasional)	Yes	Yes	No
Israel	No	Yes	Yes	Not relevant
Italy	No	Yes	Yes	No

Country	Breeding	Migration	Wintering	Extinct as breeder
Kazakhstan	Yes (regular)	Yes	Yes	No
Kenya	No	*Yes*	Yes	?
Kyrgyzstan	Regular	Yes	Yes	
Macedonia	Yes (indications)	Yes	Yes	Yes(year)/No
Mali	No	Yes	Yes	No
Malta	No	Yes (Rare)	No	It should be noted that the species was never documented as a breeder locally
Mongolia	Yes	Yes	Yes	No
Montenegro	No	Yes	No	?
Niger	No	Yes	Yes	Yes
Pakistan	No	Yes	Yes	?
Poland	Yes (occasional)	Yes	No	?
Republic of Serbia	Yes (regular)	Yes	Yes	?
Romania	Yes	Yes	No	No
Russia	Yes (regular)	Yes	No	No
Saudi Arabia	Not breeding	Yes	Yes (few individuals were observed in winter)	No (non breeding)
Slovakia	Yes (regular)	Yes	Yes	No
Somalia	Yes	Yes	No	No
Sudan	?	?	?	?
Syrian Arab Republic	Rare	Yes	No	Yes
Tunisia	NO (A case of breeding evidence in 1922 is dubious)	Yes	Yes	NO
Ukraine	Yes (regular)	Yes	Yes	No
United Arab Emirates	?	Yes	?	?
Yemen	?	?	?	?

Table 2 Population size and trend of the Saker Falcon in Range Countries

Country	Known breeding pairs (observed)	Year of the latest survey	Estimated breeding population size	Data Quality	Year of the latest estimate	Breeding population trend in the last 20 years (or 3 generations)	Data Quality	Estimated minimum number of passage and wintering Sakers	Data Quality	Year of the latest estimate	References
Armenia	-	2013	-	GO	2013	-	-	2	ME	2013	K.Aghababyan, unpublished
Austria	?	2013	25-30 pairs	GO	2013	Increasing	GO	-	-	-	Gamauf, 2013; BirdLife Austria, 2013
Azerbaijan	-	-	-	-	-	-	-	-	-	-	-
Bangladesh	N/A	N/A	N/A	**?**	?	No breeding record	?	There is only one from Madhupur National park on 18 April 1992	?	**?**	Thompson, P. M., Harvey, W. G., Johnson, D. L., Millin, D. J., Rashid, S. M. A., Scott, D. A., Stanford, C. and Woolner, J. D. (1993)Recent notable bird records from Bangladesh. *Forktail*9: 13–44.
Bulgaria	0-8 pairs	2013	0-8 pairs	Medium Estimated (ME)	2013	Steep declining until 2006. After 2006 unknown breeding trend, probably stable.	Medium Estimated (ME)	During migration: – 80-100 individualls passing through Bulgaria During the winter: at least 5-10 individuals	Good Estimated (GE)	2012	http://sakerlife2.mme.hu/en http://www.saveraptors.org

Country	Known breeding pairs (observed)	Year of the latest survey	Estimated breeding population size	Data Quality	Year of the latest estimate	Breeding population trend in the last 20 years (or 3 generations)	Data Quality	Estimated minimum number of passage and wintering Sakers	Data Quality	Year of the latest estimate	References
	0	2013	0-3 bp	GE	2013	Large decline	GE	10-100	P	2012	Ragyov et al (in prep)
Czech Republic	10	2012	15-20	GE	2012	Moderate increase	ME	20 *	ME	2012	-
Croatia	3	2013	3-5	GE	2011	Stable	GE	30-50	MI	2011	-
Cyprus	-	-	-	-	-	-	-	5	ME	2011	BirdLife Cyprus Bird Reports
Finland	0	2013	0	GE	2013	No breeding population	-	0-1	GE	2013	-
France	0	-	-	-	-	-	-	Less than 5 per year and less than 30 records since 1979	ME	2013	French Bird National homologation Comitee
Georgia	1-3	2013	1-3	G in 2005; M in 2013	2013	1-3 in 2005; 1-3 in 2013	G in 2005; M in 2013	U	-	-	Galvez, R.A., Gavashelishvili, L., Javakhishvili, Z. 2005. Raptors and Owls of Georgia. Tbilisi, GCCW &Buneba Print. 128pp. ; Abuladze, A. 2013. Birds of Pray of Georgia. Tbilisi, Ilia State University. 218 pp.
Germany	None in the last years	Ongoing	-	-	-	-	-	0	-	-	Cf. enclosed article

Country	Known breeding pairs (observed)	Year of the latest survey	Estimated breeding population size	Data Quality	Year of the latest estimate	Breeding population trend in the last 20 years (or 3 generations)	Data Quality	Estimated minimum number of passage and wintering Sakers	Data Quality	Year of the latest estimate	References
Hungary	164	2012	241	GO	2012	1993: 75 known breeding pairs, 111 territories estimated – increased to approximately 218% by 2012 Large increase	GO	50	ME	2012	1. Bagyura, J., Szitta, T., Haraszthy, L., Viszló, L., Fidlóczky, J. & Prommer, M. (2013): Results of the Saker Falcon (Falco cherrug) conservation programme in Hungary, 1980–2010. Aquila 119, p. 105–110. 2.http://sakerlife2.mme.hu/hu/content/kerecsensolyom-monitoringja: Breeding results of Saker Falcons in Hungary in 2012. 3. Prommer, M., Bagyura, J., Chavko, J., Uhrin, M. (2012): Migratory movements of Central and

Country	Known breeding pairs (observed)	Year of the latest survey	Estimated breeding population size	Data Quality	Year of the latest estimate	Breeding population trend in the last 20 years (or 3 generations)	Data Quality	Estimated minimum number of passage and wintering Sakers	Data Quality	Year of the latest estimate	References
											Eastern European Saker Falcons (Falco cherrug) from juvenile dispersal to adulthood. Aquila, Vol. 119, p. 111–134
India	U	2006	U	P	2006	U	P	U	P	2006	Rishad, Naoroji: 2006
Iraq	0	June-July-2012	U	P	June-July-2012	Mo	P,U	80-167 individual/year (2007-2012)	GO, GE	2012	Al-Sheikhly O.F., 2011
	No counts available, being historical	1998	Not measured but might be less than 10 pairs	ME	2012	Generally, declining The actual trend cannot be measured based on the insufficient data	ME	Less than 100	ME	2012	Salim, M.A. et.al. 2006 And Based on the data collected from the hunters and falconers in different places in Iraq
	None observed	There have been no dedicated surveys	Not known, probably no longer breeds	P	2012	Probably a severe decline	P	Probably <50	P	2012	during KBA and site surveys 2005 – 2012, only one Saker was seen on passage.

Country	Known breeding pairs (observed)	Year of the latest survey	Estimated breeding population size	Data Quality	Year of the latest estimate	Breeding population trend in the last 20 years (or 3 generations)	Data Quality	Estimated minimum number of passage and wintering Sakers	Data Quality	Year of the latest estimate	References
Islamic Republic of Iran	1	2014	Several pairs	MI	2014	Stable/declining	MI	45-119 According to 5 years counting	MI	2014	Department of Environment
Israel	0	2013	0	GO	2013	0	GO	3	GO	2013	-
Italy	-	-	No breeds	-	-	-	-	Few individuals (0-50 in '70)	P	2003	Brichetti & Fracasso 2003 and updating
Kazakhstan	About 700 since 1995	2011	Less than 1000 pairs	GE	2011	Large decline	GE	More than 1000 individuals	MI	2011	The data discussed in 2011 on the site of BirdLife International
	about 200 in 2007-2012 (rough calculation from different sources)	2013 (for North Kazakhstan)	700-1400 pairs	ME	2012	general declining for at least 66-75%; some local breeding populations disappeared	ME	-	-	-	Kenward R.E., Pfeffer R.G. 1995. Saker Falcons in Central Asia. Final Report of the Pilot Study. Wareham, Dorset, 46 p. Levin A.S., Kovalenko A.V., Karyakin I.V. 2010. Saker Falcon Population Trends in South-Eastern Kazakhstan. Raptors Conservation

Country	Known breeding pairs (observed)	Year of the latest survey	Estimated breeding population size	Data Quality	Year of the latest estimate	Breeding population trend in the last 20 years (or 3 generations)	Data Quality	Estimated minimum number of passage and wintering Sakers	Data Quality	Year of the latest estimate	References
											2010, 18, pp. 167-174. Карякин И.В., Коваленко А.В., Левин А.С., Мошкин А.В., Барашкова А.Н., Николенко Э.Г. (2012) Ревизия статуса балобана в России и Казахстане – результаты удручают // Степной бюллетень, 36; 49-51.
Kenya	-	-	-	-	-	-	-	U	P	U	Zimmerman et al 1996
Kyrgyzstan	2-5 years ago, 2-3 nesting pairs is known	2011	Stable low	Questionnaires and personal observations	2007	Large decline at the end of 90s	CO, H	U	H	2007	Red Book of Kyrgyzstan (2007) Systematic list of vertebrates (2010)

Country	Known breeding pairs (observed)	Year of the latest survey	Estimated breeding population size	Data Quality	Year of the latest estimate	Breeding population trend in the last 20 years (or 3 generations)	Data Quality	Estimated minimum number of passage and wintering Sakers	Data Quality	Year of the latest estimate	References
				CO, H							
Macedonia	-	2007	1-2 pairs	P	2013	Unknown	P	20	P	2013	-
Mali	No	-	-	-	Unknown	-	-	-	-	U	-

Country	Known breeding pairs (observed)	Year of the latest survey	Estimated breeding population size	Data Quality	Year of the latest estimate	Breeding population trend in the last 20 years (or 3 generations)	Data Quality	Estimated minimum number of passage and wintering Sakers	Data Quality	Year of the latest estimate	References
Malta	0	2008 (reference 1)	0	GO	2008 (reference 1)	0	GO	1-5 annually	GO	2005 (reference 3)	(1) Raine, A; Sultana, J. & Gillings, G. (2009): Malta Breeding Bird Atlas 2008. Malta: BirdLife Malta, 94pp. (2)Sultana, J; Borg, J.J.; Gauci, C. & Falzon, V. (2011): The Breeding Birds of Malta. Malta: BirdLife Malta, 379pp. Bonavia, E.; Borg. J.J.; Coleiro, C.; Gauci, C.; Johnson, M.; Raine, A.; Sultana, J. (2010) Systematic List 2000-2005. *Il-Merill: The Ornithological Journal of Birdlife Malta,* No.32: 55-109.

Country	Known breeding pairs (observed)	Year of the latest survey	Estimated breeding population size	Data Quality	Year of the latest estimate	Breeding population trend in the last 20 years (or 3 generations)	Data Quality	Estimated minimum number of passage and wintering Sakers	Data Quality	Year of the latest estimate	References
Mongolia	-	2010	6800 individuals	ME	2010	Stable	ME	U	-	-	Unpublished report of Saker falcon population assessment in 2010
Montenegro	0	-	-	GO	1990/2013	0	GO	3	ME	2011	http://www.sakerlife.mme.hu/en/content/show Rubinić, B., Jovićević,M., Saveljić, D (2012): Review of ornithofauna of Možura hill near Ulcinj in the light of potential bulding of windturbines. Material and environmental protection. No1, pg.48-56. Podgorica 2012
Niger	U	2010	U	U	2010	U	U	U	U	U	-
Pakistan	-	-	-	-	-	-	-	-	U	-	-
Poland	1	1998	Only 1 case known	GO	2009	U Only 1 case known in	GE	20	ME	2009	Sielicki et al 2009

Country	Known breeding pairs (observed)	Year of the latest survey	Estimated breeding population size	Data Quality	Year of the latest estimate	Breeding population trend in the last 20 years (or 3 generations)	Data Quality	Estimated minimum number of passage and wintering Sakers	Data Quality	Year of the latest estimate	References
						history					
Republic of Serbia	15	2013	12-16	GO	2013	Large decline	GO	50 individuals	MI	2013	Draženko Rajković, *viva voce*
	32 26 27 *1)27, 2)13, 3)20 22 *1)22, 2)6, 3)18 16 *1)18, 2)4, 3)16	1996 2002 2007 2008 2013	51-65 52-64 40-50 40-50 25-35(40)	GE GE GE ME GE	2013	Large decline (c. 30%)	GE	100> (?)	MI	-	Puzovic, 2000 Puzovic et al, 2003 Puzovic & Tucakov, 2007 Tucakov & Puzovic, 2008 Rajkovic & Tucakov, 2013
Romania	6	2013	6	GE	2013	Unknown	GE	6	GE	2013	Milvus Group Bird and Nature Protection Association
Russia	531	2011	1746 (1553-2094)	ME	2011	>50% Large decline	ME	-	-	-	Karyakin, 2004; Karyakin et al., 2005; Karyakin, Nikolenko, Barashkova, 2006; Belik, 2008;

Country	Known breeding pairs (observed)	Year of the latest survey	Estimated breeding population size	Data Quality	Year of the latest estimate	Breeding population trend in the last 20 years (or 3 generations)	Data Quality	Estimated minimum number of passage and wintering Sakers	Data Quality	Year of the latest estimate	References
											Karyakin, 2008; Karyakin, Nikolenko, Barashkova, 2011; Karyakin et al., 2012
Saudi Arabia	-	-	-	-	-	-	-	According to the number of falcons trapped during migration between 22-41	GE	2013	Ebin Khathlan Pers. Comm.
Slovakia	45 pairs	2013	48 pairs	GO	2013	Large increase	GO	100 individuals	GE	2013	Chavko, 2013
Somalia	MI	P	GO	-	2009 and2010	Stable	-	Stable	-	2009 and 2010	Birds sector Information data
Sudan	-	-	U	P	-	Decreasing due to habitat destruction	-	-	-	-	-
Syrian Arab Republic	Unknown	-	5 -6	P	2009	30X3=90	p	60	p	2001	Saker Falcon breeding population estimates. Part 2: Asia *Andrew Dixon* International Wildlife Consultants (UK) Ltd., PO Box 19,

Country	Known breeding pairs (observed)	Year of the latest survey	Estimated breeding population size	Data Quality	Year of the latest estimate	Breeding population trend in the last 20 years (or 3 generations)	Data Quality	Estimated minimum number of passage and wintering Sakers	Data Quality	Year of the latest estimate	References
											Carmarthen, SA33 5YL, United Kingdom. E-mail: falco@falcons.co.uk
Tunisia	0	-	0	-	-	-	-	20	GE	1974-1975	THIOLLAY (1977)
Ukraine1	251	2010	350-400	GE	1993	Small increase	ME	Passage - 1400-1800 Wintering – 40-50	ME	2010	Milobog et al., 2010; Prokopenko, 1994
United Arab Emirates	U	2012	U	-	2012	-	-	<5	ME	2012	-
Yemen	10 individuals	2011	U	U	U	U	U	U	U	U	Omer A Baeshen

Notes:

- **Estimated breeding population size**: Specify if pairs or individuals (the same unit will be used for all breeding range countries).
- **Data quality**:
    - **Good Observed (GO)=** *Reliable or representative quantitative data are available through complete counts or comprehensive measurements for the whole period and country.*
    - **Good Estimated (GE)** = *Reliable quantitative or representative data are available through sampling or interpolation for the whole period and country.*
    - **Medium Estimated (ME)** = *Only incomplete quantitative data are available through sampling or interpolation.*
    - **Medium Inferred (MI)** = *Only poor or incomplete quantitative data are available derived from indirect evidence.*
    - **Poor (P)** = *Poorly known with no quantitative data are available and with guesses derived from circumstantial evidence.*
    - **Unknown (U)** = *information on quality not available*.
- **Breeding Population trend in the last 20 years** *(or three generations – 6.4x3=19.2 years , BirdLife International, 2013).*

  If possible, **calculate the actual trend in %** or use the following categories:
    - **Large decline** (>=30%), **Moderate decline** (10-29%), **Small decline** (0-9%),
    - **Stable** (<10% decline and <10% increase),
    - **Small increase** (0-9%), **Moderate increase** (10-29%), **Large increase** (>=30%),
    - **Unknown** (insufficient data).
- **Estimated minimum number of passage and wintering Sakers**: numbers in individuals.
- **References:** Describe the data sources as (*First Author*) (*et al.*), (*year*)

Table 3 Habitat use and diet of the Saker Falcon

Country	Habitat use	Diet
Armenia	During wintering period was observed at valleys such as Ararat plain and other open areas.	There are no observations on diet, however potential food consists on wintering water birds and doves and pigeons. There is slight opportunity of catching domesticated pigeons, since the pigeon breeding is rather widespread in the coutry.
Austria	Extensive open areas, mostly agricultural habitats.	Mostly birds (especially passerines up to Starling size, feral pigeons), but also small mammals (especially voles) and young European Brown Hare.
Azerbaijan	Semi-desert.	Waterbirds and other wintering and migratory birds.
Bangladesh	The only one individual that was observed in 1992, was flying and resting on a grassy area at Modhupur National Park, Dhaka division.	No data was taken on diet.
Bulgaria	IN THE PAST – MAINLY AREAS BELOW 600 M ABOVE SEA LEVEL Nesting habitats 1. open areas with scattered old single trees 2. open areas and wetlands along big rivers where gallery river forests provided nesting sites 3. pen areas mixed with old mature forest Hunting habitats 1. grasslands such as pastures and shrubby communities were most probably the main hunting habitat for Sakers 2. wetlands such as rivers, marshlands, bogs, fish-ponds, temporary flooded areas IN 1990S – MAINLY AREAS ABOVE 600 M ABOVE SEA LEVEL Nesting habitats 1. Mountain foothills next to open areas 2. Mountain areas Hunting habitats:	Small mammals and small and medium sized birds such as: *Spermophilus citellus* (Baumgart, 1971) *Apodemus spp.* *Microtus spp.* *Perdix perdix* *Coturnix coturnix* *Corvidae* *Columba livia f. domestica* *Streptopelia turtur* *Sturnus vulgaris* *Turdus sp.(e.g. T. pilaris)* *Carduelis cannabina* *Fulica atra* *Columba palumbus* *Columba oenas* *Sturnus roseus* (Reference: Янков, П., Г. Стоянов, Д. Рагьов. 2013. План за действие за опазването на ловния сокол (Falco cherrug Gray, 1834) в България, МОСВ, София, 91 с.)

Country	Habitat use	Diet
	3. extensively grazed pastures (European ground squirrel's colonies) 4. alpine grasslands IN 2000s No breeding records are available during that period, but roaming birds observed in different areas during the breeding season such as mountain terrains, wetlands near black sea coast, extensive areas with natural or semi natural grasslands (Reference: Ragyov, D., Kmetova, E., Dixon, A., Franz, K., Koshev, Y. and Nedialkov, N. (2009) Saker Falcon Falco cherrug Reintroduction in Bulgaria: Feasibility Study. SESN. Sofia, 2009.)	
Czech Republic	Agricultural steppes (agrocenoses) in lowlands, up to three pairs breeding regularly in floodplain forests.	Mainly birds, especially pigeons, in some pairs young hares.
Croatia	Agricultural land, nesting on electricity pylons.	Birds (*Passer domesticus, Sturnus vulgaris, Vanellus vanellus, Streptopelia decaocto, Columba livia, Pica pica, Corvus cornix, Corvus monedula, Phasianus colchicus, Falco tinnunculus)*, domestic turkey (juvenile) Mammals (probably voles, but also young hares)
Cyprus	Coastal habitats, open areas on passage.	Unknown
Finland	Recorded as vagrant only 8 times in Finland. Only one of those specimens has been considered to be of wild origin. The other ones have been identified as escapees from captivity.	Unknown
France	Large open fields mostly agricultural lands.	Mostly birds and specially pigeons.
Georgia	Semiarid and arid steppes and Scrublands; Semideserts	Rodents, Reptiles and Birds.
Germany	Cf. enclosed article.	Cf. enclosed article: In the Middle of Europe *Spermophilus citellus* is obviously in the centre of the pray scheme.
Hungary	Extensive open areas, mostly steppes and agricultural areas.	mainly small mammals and small birds (including feral pigeons and doves), some small reptiles

Country	Habitat use	Diet
		Prey composition identified by video pictures and photo traps at different locations in 2012 by LIFE09 NAT/HU/000384 (%) The following average data is coming from the first „test" years and may change by years until the end of the project period. *Spermophilus citellus* 25,73 (2001:16,8%, 2002: 24,14%)* *Lepus europaeus* 9,36 *small mammals not identifiable* 4,39 *mammals not identifiable* 1,75 *Cricetus cricetus* 0,88 (Rodents 2001:1%, 2002:11,6%)* *Microtus arvalis* 0,73 *Rattus sp.* 0,58 *Talpa europaea* 0,15 *Columba sp.* 32,75 (2001: 18,9%, 2002:14,8%)* *Sturnus vulgaris* 4,68 (2001: 67%, 2002:55%)* *small birds not identifiable* 4,53 *birds not identifiable* 2,05 (2001: 3,1%, 2002:11,6%)* *Phasianus colchicus* 1,46 *Vanellus vanellus* 0,58 *Alauda arvensis* 0,58 *Coturnix coturnix* 0,15 *Columba oenas* 0,15 *Columba palumbus* 0,15 *Streptopelia decaocto* 0,15 sp (2001:13,6%, 2002: 24,14%)* *Streptopelia turtur* 0,15 *Passer montanus* 0,15 *Saxicola rubetra* 0,15 *Carduelis chloris* 0,15 *Lacerta viridis* 0,15 *Sauria sp.* 0,15 Not identifiable 8,33 (2001:8,4%,)*Total: 100 (684 specimens) *By observation of the same nest in the Börzsöny mountains during the breeding season
India	Open Country and saline flats.	Desert Gerbil *Meriones hurricane*, other small mammals, Spiny-tailed lizard *Uromastix hardwickii*, Waterbirds,Sandgrouse

Country	Habitat use	Diet
		(*Pterocles* spp.), Hill Pigeon *Columba rupestris*, Red-billed Chough *Pyrrhocorax pyrrhocorax,* frogs and insects
Iraq	On Passage: Open steppes- arid lands – desert - hummocks with sparse vegetation – occasionally on the edge of the wetlands. Wintering: Mountains and high grounds, grassy steppes in central and southern Iraq, foothills in northern Iraq.	Mainly on small birds such as Pin-tailed Sandgrouse and small mammals such as Hare, Girds, and terrestrial reptiles such as agamas and desert lizards of the genus *Acanthodactylus*.
Islamic Republic of Iran	Breeding habitats consists of mountainous areas with less threats and feeding habitats amongst deserts and steps based on open areas which are subject to trapping for falconry/ smuggling.	-
Israel	Western Negev plains: cultivated open fields, mainly wheat, potatoes, carrots, etc. Open fields in the Hula valley.	Medium to small birds: pigeons, sky larks, starlings.
Italy	in migration and wintering use open land, preferably in hot and dry regions, occasionally in mountain areas.	Unknown
Kazakhstan1	Low Mountains in the southern and eastern part of Kazakhstan, chalk and clay walls (chinks) in the western and pine forest in the northern part of Kazakhstan.	Big Gerbil at the southern, Red-chicked Suslik at central and long-tailed Suslik and Steppe Lemming at the eastern part of Kazakhstan.
Kenya	Arid area along the rift valley	-
Kyrgyzstan	On wintering are used mountain valleys, on nesting are used gorges .	Relict ground squirrel, partridge, pigeon, sparrow bird.
Macedonia	Step areas with rocks.	Unknown
Mali	Shrubs – Termite mounds – Bushes.	Insects – small reptiles – birds and young birds.
Malta	Habitat use by Saker falcon in Malta is opportunity-dependent since the species is present only during migration. Various habitats are used.	Not known since on migration for very short periods.
Mongolia	Steppe, Mountain steppe, forest steppe, desert steppe, cliffs.	Sakers mainly feed on Mongolian gerbil, Brandt's vole, Daurian pika and Mongolian lark, horned lark, other passerine species.
Montenegro	Unknown	Unknown

Country	Habitat use	Diet
Niger	Pastoral areas, agricultural lands.	Other small birds, mammals, insects.
Pakistan	In Pakistan wintering habitat of Saker Falcon rangelands (in hilly and desert areas) and cultivated lands.	Small mammals and medium size birds. However no scientific data is available in Pakistan.
Poland	Open land and forests.	Observed feeding on birds.
Republic of Serbia	Agriculture land near settlements with high power lines, open stepe grasslands, mosaic landscape with natural-agicultural habitats, mountain plateaues with open pastures. Saker Falcon had inhabited steppe and forrest-steppe habitats before, the habitats where it nested in the lonely trees or on the edges of the forests as well as on the rocks and loess outcrops. This species has significantly modified its nesting place and nourishment in the second half of XX century in the countries of Panonska Plain, especially in Serbia (Puzovic, 2000; Puzovic, 2008). Because of the evironmental conditions changes in the natural habitats (plowing steppe habitats, cutting trees – deforrestation, lack of traditional pray, chasing), this species has begun to stay at agricultural areas near smaller settlements. Because of fragmented distribution of Saker Falcon breeding pairs in intensively used agriculture land in Serbia, often alonog power line linear structure, there is not possible to establish adequate protected zones around the nests and officialy cover active pairs by designation of protected areas. In period 2000-2010 only a few pairs have breeds inside or along the border of protected areas. One of important future task is how to attract birds to breed inside designated protected areas with adequate guarding and management.	Pigeons, other birds, small mammals (Voles), suslik, hamster, prey grabbing Saker Falcon in Serbia (Vojvodina province) regularly grabs prey from different species of birds which temporarily or permanently stay around Power lines. Prey is grabbed from other species of falcon which nest on power poles or nearby (Kestrel *Falco tinnunculus* and Hobby *Falco subbuteo*), from nesters of the Crow family (Hooded Crow *Corvus corone cornix* and Jackdaw *Corvus monedula*), and also from species which migrate over those areas (Marsh Harrier *Circus aeruginosus* and Hen Harrier *Circus cyaneus*). The male Saker Falcon grabs prey from Buzzard (*Buteo buteo*) during winter and early spring, and very occasionally it tries to do it from the Raven (*Corvus corax*). The couple of Saker Falcon grabbed prey from 5 different species of birds on the power line in Donji Srem during a year. From the total of 40 cases of prey grabbing in the period January-December, even 70% was related to Kestrel. At the beginning of reproduction period the couple of Saker Falcon did not hunt other living prey much, but focused on prey grabbing. In winter and early spring grabbing was perfomed predominantly by the male, while from May it was sometimes done by female, too. Taking into account the results of the research of feeding ecology of Saker Falcon in Srem and Central Europe, the great part in the grabbed prey is Common Vole (*Microtus arvalis*)(Puzovic, 2008).
Romania	Lowland steppe, agricultural area and mountain foothills.	Terrestrial rodents especially ground Squirrels (*Spermophillus citellus*) of open grassy landscapes such as steppes, voles

Country	Habitat use	Diet
		(*Microtus arvalis)* and birds like Pigeons (*Columba livia*), Starlings (*Sturnus vulgaris*)
Russia	Steppe and forest-steppe, steppe depression, alpine zone in mountains. On rocks and in trees. Occupied nests of Upland Buzzard, Imperial Eagle, Golden Eagle, Black Kite and others. http://rrrcn.ru/ru/keyspecies/f_cher/o-balobane - information on Saker in Russia (in Russian only)	-
Saudi Arabia	(According to the areas were the falcons trapped) Open sandy and sandy gravel with scattered vegetation and trees.	Not observed.
Slovakia	Agricultural land, breeding in artificial nest boxes	*Columba livia forma domestica 62 %, Sturnus vulgaris 7 %, Cricetus cricetus 6 %, Phasianus colchicus 4 %, Columba oenans 4 %, Spermophilus citellus 3 %, Columba palumbus 2 %, other 12 %.*
Somalia	South and central.	Mize diet.
Sudan	Gash River Valley – kassala state Sudan North of the Red Sea in the boundary with Egypt as well as South of the Red Sea bordering Eriteria.	Pigeons, grasshopper, mice.
Syrian Arab Republic	Forest-steppes, grasslands, agricultural areas, hills or open mountain ranges from the Mediterranean cost to the lakes in the north and middle of Syria to the steppe in the east.	Gerbil, Gerd, and many other rodents and small birds.
Tunisia	-	-
Ukraine	Agricultural areas, steppe areas. Nesting places: power lines – 74%, rocks -15%, precipices – 9, planted forests – 2%.	Rodents (susliks, small rodents), birds (rook, gulls etc.).
United Arab Emirates	-	-
Yemen	-	-

Table 4 Most important areas or sites for the Saker Falcon

Country	Area or Site name (in English please)	Area or Site size (km^2)	Location in the country	Estimated population size		Estimated density	Year	Season	Data quality
				Min	Max				
Armenia	Ararat Plain	3300	Ararat & Armavir regions	2	5	-	2013	Winter	ME
Austria	Feuchte Ebene, Marchfeld, Weinviertel (all Lower Austria), Parndorfer Platte (Burgenland)	6000 (in total)	NE Austria (Pannonian part)	20	25	-	2013	Breeding	GO
Azerbaijan	Lake Makhmudchala	80	Salyan district	2	10	-	2000-2012	Winter. migration	ME
	Shirvan National Park	650	Salyan district	2	15	-	-	-	ME
	Gyzylagach State Nature Reserve	880	Lankaran district	10	50	-	-	-	ME
	Aggol NP	180	Agjabedi district	5	15	-	-	-	ME
	Araz sanctuary (Nakhchivan Autonomous Republic)	200	Nakhchivan Autonomous republic	5	20	-	2005-2013	-	ME
Bulgaria	Western Balkan SPA	1468	Western	0	1 pair	0,07	2008-2013	Breeding	Medium Estimated (ME)
	Ponor SPA	313	Western	0	1 pair	0 ,3	2008-2013	Breeding	Medium Estimated (ME)
	Central Balkan SPA	1666	Central part	0	2 pair	0,1	2008-2013	Breeding	Medium Estimated (ME)

Country	Area or Site name (in English please)	Area or Site size (km^2)	Location in the country	Estimated population size		Estimated density	Year	Season	Data quality
				Min	Max				
	Eastern Balkan, Emine SPA	681	East part	0	1 pair	0,2	2008-2013	Breeding	Medium Estimated (ME)
	Dobrudzha- Batova, Hursovska, Suha Reka, Kaliakra, Shabla, Durankulag SPAs	381, 384, 257, 161, 319, 335	NE	0	1 pair	0,1	2008-2013	Breeding, wintering, migration	Medium Estimated (ME)
	Besaparski hills SPA	147	Central part	0	1 pair	0,7	2008-2013	Breeding, wintering, migration	Medium Estimated (ME)
	Sinite kamuni SPA	159	East part	0	1 pair	0,6	2008-2013	Breeding, migration	Medium Estimated (ME)
	SPA Ludogorie	913	NE part	0	1 pair	0,1	2008-2013	Breeding, wintering, migration	Medium Estimated (ME)
Croatia	Eastern Slavonia	1830	Eastern Croatia	3	5	0,002 pairs/ km2	2007-2013	Breeding	GE
Cyprus	Akrotiri Peninsula	70	SW	5	20	-	2005-11	Autumn	Good
	Cape Greco	18	SE	1	5	-	2005-11	Autumn	Poor
	Achna dam	1.79	SE	1	2	-	2005-11	Spring	Poor
Czech Republic	South Moravia	1000	SE	8	15	-	2013	Br, wi	GO
	Eastern and Central Bohemia	1000	centre	2	5	-	2013	Br, wi	GE
Finland	-	-	-	-	-	-	-	-	-
France	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	-
Germany	-	-	-	-	-	-	-	-	-
Hungary	Transdanubia	-		38	38	-	2012	breeding	GO
	Danube-Tisza Interfluve	-	-	100	100	-	2012	breeding	GO
	East of the River Tisza	-	-	103	103	-	2012	breeding	GO

Country	Area or Site name (in English please)	Area or Site size (km^2)	Location in the country	Estimated population size		Estimated density	Year	Season	Data quality
				Min	Max				
India	Changthang Wildlife Sanctuary	4000	Jammu and Kashmir	Unknown	Unknown	Unknown	-	-	U
	-	-	Gujarat	-	--	U	-	Winter	U
	Tal Chappar Sanctuary	-	Rajasthan	-	-	U	-	Winter	U
	-	-	Haryana	-	-	U	-	Winter	U
	-	-	Delhi	-	-	U	-	Winter	U
	-	-	Punjab	-	-	U	-	Winter	U
Iraq	Al-Tharthar Lake	340.6	Anbar/Salahadin – Central Iraq	3	9	Unknown	2009-2013	Wintering	GO
	Al-Habbaniya Lake	45.3	Anbar- Central Iraq	1	4	=	2009-2013	Wintering	GO
	Haur Al-Shwaicha	53.6	Diyala/Wasit – Central Iraq	-	13-21	=	2010-2013	Migration	GE
	Permagroon Mountain	10.4	Sulaymaniyah – Northern Iraq	1	-	=	2012	Wintering	GO
	Jebel Makhool	35.2	Salahadin- Central Iraq	2	-	=	2012	Wintering	GO

Country	Area or Site name (in English please)	Area or Site size (km^2)	Location in the country	Estimated population size		Estimated density	Year	Season	Data quality
				Min	Max				
	Answering this requires dedicated study. All what is available of information now is the very few recordings that might illustrate preliminarily picture. This requires more dedicated studies about this bird in Iraq. Over the period 2005-2010 surveys, only one SF was observed and recorded – this gives an indicator of it rarity	-	-	-	-	-	-		-
Islamic Republic of Iran	Lorestan Province	-	Western part of the country	-	-	-	1998-2012	Year round	Low
	Kurdestan Province	-	Western part of the country	-	-	-	1998-2012	Year round	Low
	Ardebil Province	-	North West Part of the country	-	-	-	1998-2012	Year round	Low
	South Khorasan Province	-	North East Part of the country	-	-	-	1998-2012	Year round	Low
	East Azerbaijan Province	-	North West Part of the country	-	-	-	1998-2012	Year round	Low
	Ilam Province	-	Western part of the country	-	-	-	1998-2012	Year round	Low
Israel	Western Negev	900	south-west	1	4	-	2012/3	winter	GO
	Hula valley	120	north	1	1	-	2012/3	winter	GO
Italy	Natural Reserve of Litorale romano	16.327 ha	Lazio region	1	2	-	2002-2012	winter	medium

Country	Area or Site name (in English please)	Area or Site size (km^2)	Location in the country	Estimated population size		Estimated density	Year	Season	Data quality
				Min	Max				
Kazakhstan	Plateau Usturt	Chinks of about 200000 km^2	Western Kazakhstan	200 pairs	300 pairs	0,1-0,15 per 100 km^2	2011	summer	ME
	Betpak-Dala desert	75000 km^2	Central Kazakhstan	50 pairs	100 pairs	0,07-0,13 per 100 km^2	2011	Summer	ME
	Pine forest	5440 km^2	Northern Kazakhstan	30 pairs	50 pairs	0,54-0,92 per 100 km^2	2008	Summer	ME
	Tarbagatai ridge area	30000 km^2	Eastern Kazakhstan	50 pairs	70 pairs	0,17-0,23 per 100 km^2	2008	Summer	ME
	North Kazakhstan (Kostanay region); Naurzum State Nature Reserve and adjacent areas *	40000	North	18 pairs	22 pairs	-	2013	breeding	GO
	Ustyurt Plateau and areas to north from Aral Sea**	-	west	300 pairs	900 pairs	-	2005-2010	breeding	GE
	Karatau Mountains**	5860 (suitable habitats)	south	106 pairs	145 pairs	2.37/100 km^2	2010	breeding	GE
	Betpak-Dala desert and Central Kazakhstan low-hill country**	-	centre	80 pairs	150 pairs	-	2005-2012	breeding	ME
	Zayssan depression and adjacent areas**	-	east	20 pairs	80 pairs	-	2005-2012	breeding	ME
	Altay mountains and forests along Irtysh river**	-	east	25 pairs	45 pairs	-	2005-2012	breeding	ME
	South-East Kazakhstan***	-	south-east	10 pairs	20 pairs	-	2010-2012	breeding	ME
	in total	-	-	about 700 pairs	about 1400 pairs	-	-	-	-

Country	Area or Site name (in English please)	Area or Site size (km^2)	Location in the country	Estimated population size		Estimated density	Year	Season	Data quality
				Min	Max				
Kenya	Ol Donyo Sabache	10	North, Samburu district	No data	No data	Unknown	-	Rainy (October – March)	P
Kyrgyzstan	Western Tien Shan	-	-	-	-	-	-	Nesting	H
	Internal Tien-Shan	-	-	-	-	-	-	Nesting, Wintering	H
Macedonia	Central Macedonia	3000 km2	Central	1	2	2pa	-		P
Mali	Nioro du Sahel	100	Nord - West	80	100	-	2006	Cold season/ December	-
	Ségou	100	Centre	100	500	-	2007	January	-
	Youvarou	More than 100	Centre	200	600	-	2007	January	-
	Nara	+ 500	West	500	700	-	2009		
	Gourma	+ 500	Est	100	200	-	2009		
Malta	Saker Falcon is a rarely occurring species and therefore, there is no known site to which it has a particular affinity.	-	-	-	-	-	-	-	-
Mongolia	-	-	-	-	-	-	-	-	-
Montenegro	Durmitor	300	Nord	1	2	-	2010	spring	GO
	Morackeplanine	400	Central	-	-	-	2010	Spring	GO
	Skadar lake	350	South	-	-	-	2010	Spring	GO
	Rumija	200	South east	-	-	-	2010	spring	GO
Niger	Toumnia	-	Diffa region	1	-	1	2010-01-01	Migration	U
	Dani	-	Diffa region	1	-	1	2009-11-15	Migration	U

Country	Area or Site name (in English please)	Area or Site size (km^2)	Location in the country	Estimated population size		Estimated density	Year	Season	Data quality
				Min	Max				
	Nguigmi, near camel...	-	Diffa region	1	-	1	2009-11-13	Migration	U
	block Tahoua SO...	-	Tahoua region	-	1	1	2009-01-15	Migration	U
	block Tahoua SE...	-	Tahoua region	-	1	1	2008-11-15	Migration	U
Pakistan	1. Kirthar National Park	3087.3	Sindh: 25.65^0 N 67.54^0 E	No data	No data	No data	-	-	U
	2. Hingol Deosai	6190.4	Balochistan: 25.52 N 65.09 E	No data	No data	No data	-	-	U
	3. Sheikh Buddin National Park	155.40	Khyber-Pakhtunkhwa: 32.39 N 70.95 E	No data	No data	No data	-	-	U
	4. Cholistan Game Reserve	203.26	Punjab: 59.23N 71.39E	No data	No data	No data	-	-	U
	5. Thal Game Reserve	712.75	Punjab: 33.22N 70.33E	No data	No data	No data	-	-	U
	6. Deosai National Park	3626.0	Gilgit-Baltistan: 34.98 N 75.40 E	No data	No data	No data	-	-	U
Poland	Sakers are observed in the whole country	-	-	-	-	-	-	-	-
Republic of Serbia	Banat, Vojvodina	9.295	Part of Province	6	8	0,08	2013	Breeding	GO
	Backa, Vojvodina	8.913	Part of Province	5	7	0,07	2013	Breeding	GO

Country	Area or Site name (in English please)	Area or Site size (km^2)	Location in the country	Estimated population size		Estimated density	Year	Season	Data quality
				Min	Max				
Romania	BabadagForest	524 ha	South-East	-	-	-	2011-2013	Breeding	GE
	ROSPA0100CasimceaSteppe	22226.10ha	South-East	-	-	-	2011-2013	Breeding	GE
	ROSPA0073MăcinNiculiţel	67361,1 ha	South-East	-	-	-	2011-2013	Breeding	GE
	ROSPA0040OldDanube-Braţul Măcin	18759.2 ha	South-East	-	-	-	2011-2013	Breeding	GE
	ROSCI0123MăcinMountains	18546 ha	South-East	-	-	-	2011-2013	Breeding	GE
	ROSPA0069 LuncaMureşului Inferior	17428,3 ha	West	-	-	-	2011-2013	Breeding	GE
	ROSPA0015 the Plainof Crişului AlbandCrişuluiNegru	39499 ha	West	-	-	-	2011-2013	Breeding	GE
Russia	Altai-Sayan Region	149364.7[1]	Southern Siberia	1196	1440	-	2011	Breeding	GE
	Baikal Region and Dauria	44027.47[2] 76690.1[3]	Southern Siberia	257	494	-	2010	Breeding	ME
Saudi Arabia	Mujermah	?	(south of Jeddah) at the coast of the Red Sea	?	?	?	?	Autumn	GE
	Al Hannu	?	(North of Yanbu)	?	?	?	?	?	GE

[1] the area only typical habitats of Saker in Russian part of Altai-Sayan region under extrapolation
[2] the area only steppe depressions in the Baikal region under extrapolation
[3] the area only steppe and forest-steppe depressions in Dauria region under extrapolation

Country	Area or Site name (in English please)	Area or Site size (km^2)	Location in the country	Estimated population size		Estimated density	Year	Season	Data quality
				Min	Max				
	Shuaibah	?	south of Jeddah at the coast of the Red Sea,	?	?	?	?	?	GE
	Beash	?	North of Jizan, at the coast of the Red Sea	?	?	?	?	?	GE
	Al Busetah	?	(Northern part of Saudi Arabia)	?	?	?	?	?	GE
	Al Wajh	?	South of Tabuk province along of the Red Sea coast	?	?	?	?	?	GE
	Ar-Ar	?	North East of Saudi Arabia	?	?	?	?	?	GE
Serbia	-	Vojvodina total: 21,000 km2	-	-	-	-	-	-	-
	South Banat	-	Vojvodina province	8	11	-	2007-2013	breeding	GE
	North Banat	-	Vojvodina province	6	7	-	2007-2013	breeding	GE
	North Bačka	-	Vojvodina Province	4	6	-	2007-2013	breeding	GE
	South Bačka	-	Vovjodina province	3	4	-	2007-2013	breeding	GE
	Srem	-	Vojvodina province	2	4	-	2007-2013	breeding	GE
	Staraplanina, Vlasina, Dukat	-	Southerneastern Serbia	2	3	-	2000-2013	probable breeding	ME
Slovakia	Lowlands of Western Slovakia	6917	West	33	35	-	2013	Breeding	GO
	Lowlands of Eastern Slovakia	1388	East	12	13	-	2013	Breeding	GO
Somalia	1.nugal site	40 km square	North Somalia	min	-	-	2010	migration	u

Country	Area or Site name (in English please)	Area or Site size (km^2)	Location in the country	Estimated population size		Estimated density	Year	Season	Data quality
				Min	Max				
	2.sarar site	35km square	North Somalia	min	-	-	2009	migration	u
Sudan	1-Kassala 25 kilos south	700km square	Eastern sudan	-	-	-	-	-	-
	2-Moulih north of Omdurman about 15 kilos	400km	Khartoum state	-	-	-	-	-	-
	3-Seddon near Atbara	20000km	River nile state	-	-	-	-	-	-
	4-Buttana areas till Fao	100000km	gedarief	-	-	-	-	-	-
	5-Red Sea north of the state	90000	Red sea	-	-	-	-	-	-
Syrian Arab Republic	Sabkhat Al Jaboul	-	North-east	5	10	1	2009	Autumn	p
	Palmyra	-	Middle	5	8	1	2010	Autumn	p
	Sulunfeh	-	North-west	2	4	1	2007	Autumn	p
	Yarmouk Vally	-	South-west	1	2	1	2005	Autumn	p
	Abdulaziz mountain	-	North-East	1	3	1	2008	Autumn	p
Tunisia	Djebel el Haouaria (situated on the northern point of the Cap Bon peninsula in the extreme north-east of the country)	1,300 ha	37°04'N 11°01'E	1 ind.	20 ind.	NA	1974 - 1975	Migration and Non breeding visitor	-
Ukraine	Saki Rajon	Near 1000 sq. km	AR Crimea	14	16	1.5	2010	Breeding	GE
	Tarchankut peninsula	Near 900 sq. km	AR Crimea	11	13	1.3	2010	Breeding	GE
	Siwash	Near 2000 sq. km	AR Crimea	9	11	0.5	2010	Breeding	GE
	Belogorsky Rajon	Near 1000 sq. km	AR Crimea	10	12	1.1	2010	Breeding	GE

Country	Area or Site name (in English please)	Area or Site size (km^2)	Location in the country	Estimated population size		Estimated density	Year	Season	Data quality
				Min	Max				
	Ochakiv Rajon	Near 1000 sq. km	Mykolaiv Oblast	5	10	0.7 (ind.)	2011	Postbreeding period	ME
United Arab Emirates	-	-	-	-	-	-	-	-	-
Yemen	-	-	-	-	-	-	-	-	-

ANNEX 5 - Threats

Table 1 General overview of threats

Country	• What are the most important threats to the Saker Falcon in your country?
Armenia	Due to extremely low number of migrating/wintering Sakers in Armenia it is difficult to record threats. The only possible threat for the species can be occasional poaching by water-bird or pigeon hunters. Such poaching is usually a result of lack of hunters' education, and lack of appropriate tests/exams that they have to pass for licensing.
Austria	Intensification of land-use, esp. agriculture (decrease of natural prey), illegal shooting, trapping; strong development of wind energy; escaped hybrid falcons.
Azerbaijan	Illegal catching by foreign "hunters" for selling in Arabian countries.
Bangladesh	Possibly habitat destruction.
Bulgaria	• Theft of eggs and young, and disturbance of the nesting sites; Importance: critical • Mortality due to direct persecution: Mainly killing by poisonous baits set by pigeon fanciers; Importance: critical • Electrocution – Most risky is the 20 kV powerlines that consist of pylons with up-right (pin type) insulators posing high electrocutin hazards for birds that perch on pylons and cross arms Importance: high • Deterioration of the natural food supply (small numbers of small rodents and birds: sousliks and pigeons in some of the former nesting territories); Importance: high • Deterioration and destruction of nesting sites and habitats; Importance: high • Critically small number of breeding pairs. Importance: high
Czech Republic	Human disturbance (forest and field works, photographers, etc.), collisions with power-lines and irresponsible reintroduction experiments, wind-turbines, persecution (poisoning and shooting), contamination of food chains by toxic chemicals
Croatia	1. Poaching and illegal taking of eggs and young 2. Disturbance 3. Sensitivity of nests situated on electricity pylons in extreme weather conditions 4. Habitat loss 5. Poisoning

Country	• What are the most important threats to the Saker Falcon in your country?
	6. Electrocution
Cyprus	Habitat loss (due to development), collision with antennae installations (Akrotiri peninsula) and disturbance
Finland	No threats
France	Electric power lines collision.
Georgia	Unknown
Germany	-
Hungary	Descending priority of threats only by main groups (no order of priority within groups or between groups). For description of threats, see the 2006 International Action Plan for the Saker Falcon (Falco cherrug) endorsed by the Standing Committee of the Bern Convention. The list of threats and their importance has been re-assessed for the recent situation in Hungary. 1. Habitat loss 1.a) conversion of grasslands into arable lands: low 1. b) decrease in grazing animal stock: medium 1. d) afforestation: low 1. e) tree felling: medium 1. f) infrastructure development: high (wind farms) medium to high 1. c) quarrying, mining: local 2. Destruction and taking of individuals 2. a) shooting: low (potentially medium on migration) 2. b) poisoning by pesticides or chemicals: medium 2. c) electrocution: high 2. d) collision with man-made structures: probably low to medium 2.e) trapping: medium, affecting mostly juvenile birds on migration 2. f) nest robbing: low, potentially local 2. g) disturbance: medium 2. h) predation: low 2. i) collapsing nests: low

Country	• What are the most important threats to the Saker Falcon in your country?
	2. j) extreme weather: high 3. Genetic introgression 3. a) hybrid falcons breeding with wild Sakers: low (potential unknown)
India	Not known
Iraq	1. Over-exploitation, persecution and Control of Species (Trapping and Hunting). 2. Pollution (Agricultural effluence and practises-mainly using of pesticide) 3. Residential and Commercial Development (Urbanization, Commercial developments, and Tourism & recreation al activities). 4. Human intrusion and disturbance.
Islamic Republic of Iran	Trapping in order to illicit for falconry purposes and Chicks collection from the nests. Probably, hybridization will be a problem in the future.
Israel	The main threat might be collision with power lines but there's no evident for it.
Italy	Illegal killing
Kazakhstan	1. Trapping 2. Destruction of breeding habitats 3. Electrocution The most important threat for Saker Falcon in Kazakhstan is illegal trapping in the autumn and winter.
Kenya	Not assessed But the species may be affected by habitat loss due to land use changes and climate change
Kyrgyzstan	1. Poaching 2. Destruction of nests 3. Trapping during migration
Macedonia	Maybe hunting and habitat destruction but we need reliable information
Mali	1. Climate change, drought and low rainfall resulting in the lack of preys and other foods (insects, termites and young birds) ; 2. Bush fires and tree cutting leading to the destruction of its habitat; 3. Poaching by capture with traps and other devices: capture of birds, collecting of eggs and young birds 4. Pesticides, insecticides and chemicals causing the death of preys.

Country	• What are the most important threats to the Saker Falcon in your country?
Malta	Illegal shooting, mostly driven by illegal taxidermy demand.
Mongolia	1. Electrocution on powerlines 2. Unsustainable harvest.
Montenegro	1. Illegal killing 2. Wind farms as barrier (possible treat)
Niger	1. Poaching 2. Insufficient feeds 3. Diseases
Pakistan	1. Habitat loss/degradation 2. Illegal netting/trade
Poland	Known cases of electrocution and killed by pigeon fanciers
Republic of Serbia	1. Pigeon breeders negative impact 2. Illegal hunting of birds of prey, including Saker Falcon 3. Natural habitats destruction 4. Electro company activities, lethal medim voltage power lines 5. Agriculture negative impact 6. Nest robbing
Romania	Power lines which could increase the mortality caused by electrocution 1. Wind turbines 2. The loss and 3. Pesticide use
Russia	1. Destruction and taking of individuals a) trapping: critical b) electrocution: high c) extreme weather: medium d) shooting: low e) nest robbing: low f) disturbance: low g) predation: low

Country	• What are the most important threats to the Saker Falcon in your country?
	h) collapsing nests: low 2. Habitat loss a) decrease in grazing animal stock: medium b) conversion of grasslands into arable lands: low c) afforestation: low d) tree felling: low e) infrastructure development: low f) quarrying, mining: low
Saudi Arabia	According to the number of saker falcons trapped during migration, the number is fluctuating (see the table below) with the same trapping effort is suggest that the threats it may be at the breeding ground. However, if the species is declining which bring its global status to Endangered trapping could be a threats in the future.
Slovakia	Nest robbery was in 70's and 80's of the 20th century one of the major factors endangering Saker population in Western Slovakia. Only by intensive guarding of the nest between 1990 and 1995 it was managed to maintain the population. Out of the negative factors the illegal activities have the most serious impact on the population at present, mostly in lowlands, where the major part of the population is nesting. At present we have especially recorded cases of poisoning and shooting. Change of the land-use – intensification of the agriculture is also considered to be an important threat, especially because decrease of natural prey sources and nesting opportunities.
Somalia	1. Famines and dissertation. 2. Hunting and trafficking
Sudan	1. Pesticides-spraying of vermins such as grasshoppers, pigeons, weavers 2. Destruction of roosting trees of its preys
Syrian Arab Republic	1. Shooting 2. Poisoning by pesticides or chemicals 3. Trapping 4. Nest robbing 5. Disturbance
Tunisia	1. Wind farms 2. Habitats lose

Country	• What are the most important threats to the Saker Falcon in your country?
Ukraine	Habitat change and habitat loss, trapping and nest robbing, electrocution, shooting, collapsing nests, extreme weather, eradication of rodents, decrease in grazing animal stock, poisoning by pesticides or chemicals, infrastructure development.
United Arab Emirates	Trapping.
Yemen	1. Trapping 2. Nest robbing 3. Infrastructure development 4. Collapsing nests 5. Collision with man-made structures 6. Electrocution

Table 2 The impact of threats on populations

Country	What is their impact on the population?
Armenia	With rough estimation the impact is more occasional rather than regular.
Austria	Exact data are lacking.
Azerbaijan	Unknown
Bulgaria	In the past the single biggest impact was the nest robbing. In some regions all the known nest has been robed systematically until the complete disappearance of the pairs. Currently we consider as the most serious impacts the mortality due to direct persecution by pigeon fanciers and electrocution and the low natural food supply in otherwise suitable habitats. But we did not exclude the potential problem of nest robbing.
Czech Republic	Unknown
Croatia	1. Population decrease 2. Low breeding success 3. Low breeding success 4. Lack of food 5. Population decrease, Low breeding success 6. Population decrease
Cyprus	Unknown
Finland	No impact
France	Unknown but in 2012 an adult Saker falcon from Hungary spend a few weeks in winter in western southern France and use almost systematically power line tower as a perching roost.
Georgia	Unknown
Germany	No population, only reared birds
Hungary	Impact is summarised in the importance ranking (high, medium etc.) above. Some additional comments on impact for certain threats: 1.a) the decrease of grasslands is now graded as a low priority threat as most of this loss took place historically, but grassland restoration is a high priority conservation issue. So the impact of decrease also took part in the historical decline of the Saker Falcon, and still may have a potential medium effect on its

Country	• What is their impact on the population?
Hungary	population. In addition, most of the recent breeding pairs are only vaguely connected to natural grasslands. 1. b) the decrease of grazing livestock caused the deterioration and loss of habitat on a large scale in the 1990s, but it has halted. Presently, habitat restoration and management efforts by nature conservation bodies bring back grazing livestock numbers to some Saker habitats locally. 1. f) wind power farms are to be noted for causing loss of habitat, and they are spreading at a large scale in Saker habitats. Although, satellite tagged adult males by LIFE09NAT/HU/000384 along the existing wind farms use wind farm areas, they prefer to use the areas without wind turbines. It is likely that Sakers will not find appropriate hunting ground, if the wind turbines spread all around the eyries and there will not be alternative areas. In addition, turbine blades pose immediate risk on Sakers especially on fledged juveniles. 2.Destruction and taking of individuals 2. a) shooting has been proven to occur still in recent years, although the impact is probably low in Hungary. Stakeholders whose interests conflict with those of the Saker Falcon include game keepers and pigeon keepers, and the threat may increase potentially. Large-scale illegal killing of birds in the Mediterranean may potentially affect migrant birds. 2. b) illegal poison baits have already affected Saker Falcons as well, probably as secondary poisoning. 2. c) Saker Falcons are regularly found electrocuted, this threat has a high proven impact on the population.Minimum 5% of the tracked individuals were proven to get electrocuted, but the ratio is most probably much higher. 2.e) Two migrant Saker Falcons fitted with satellite telemetry may have been trapped in North Africa during the first LIFE project. The two females stopped transmitting in Libya immediately after arrival there. Catching of another two females marked by ornithological rings were confirmed by Lybian falconers by email, and there are other recoveries from Libya in the previous years too. Interviews with Libyan falconers catching one of the Hungarian Sakers confirmed that regular trapping of large falcon species is carried out in North Africa for local and for Middle East market (Qatari agents are purchasing the trapped falcons). Considering the migration routes and admitted trapping pressure (only in Libya), the number of trapped individuals in some years may reach the 5% of the annual cohort of the Central European Saker population. Satellite tracking suggests that only 1cy females migrate to Africa, thus they are affected the most. 2. i) collapsing of nests is probably no longer an important threat with the advance of artificial nest boxes. 2. j) extreme weather caused very low breeding success in 2010 and in 2013 throughout the Hungarian

Country	• What is their impact on the population?
	population. 3. a) No hybrid falcon is permitted to be kept in Hungary, but hybrid falcon escapees may wander to Hungary and may cause problems to native falcon populations (genetic introgression, occupation of breeding birds). The impact is presently considered low, but its potential is unknown and may be higher.
India	-
Iraq	1. Over-exploitation 2. Persecution 3. Control of Species (Trapping and Hunting).
Islamic Republic of Iran	Considerable. Regarding with the above mentioned issue, possibly the population will be declining in the future.
Israel	Negligible
Italy	Unknown
Kazakhstan	1. Dramatic decline in total and in all local populations 2. Additional factor of declining especially dangerous under current low number
Kenya	Unknown Some wintering sites may seize being suitable
Kyrgyzstan	The source of easy and illegal income
Macedonia	Nobody knows?
Mali	1. Decline of population, distribution of the species at national level and the length of stay in the hosting areas, rarity of preys in the feeding areas, reduction of population and of the number of nests, reduced presence in the air in search of food and shorter length of stay which is not of three months during winter (rainy season) but some days or some weeks ; 2. Increase of the number of solitary individuals compared to pairs ; 3. Increase of the number of carcasses on local markets and of subjects and trophies exported (skulls, claws, feathers and skeletons).
Malta	Negligible with respect to the species' worldwide population.

Country	• What is their impact on the population?
Mongolia	Currently, their impact on the population is not known.
Montenegro	Unknown
Niger	Source of proteins
Pakistan	No scientific data is available on population trend in Pakistan.
Poland	Unknown
Republic of Serbia	1. Direct reduction of population by Killing of ad. and young birds 2. Reduction of traditional prey habitats: Ploughing steppe-pasture habitats, cutting of natural trees – deforestation, lack of traditional prey – souslik. 3. Destruction (ruination) of nests during power line (pylons) regular maintenance, electrocution 4. Mortality increase and breeding success decrease 5. Reduction of breeding success
Romania	1. Disturbance of species 2. Unnatural death for birds, collision victims 3. Increase the mortality
Russia	Illegal catching falcons on breeding areas and migration to the needs of falconry (users in Arab countries).
Saudi Arabia	Possibly the population will be affected in the future.
Slovakia	Change of nesting habitats and prey composition. The population is nesting only in artificial nest boxes in agricultural land in lowlands.
Somalia	1. When the threats like famines and dissertation continue for a long time they may cause disaster that affect the population of living things including birds(falcon),and it would make a visible impact that remain. 2. Continuous trafficking is problem have an impact to population of the saker falcon.
Sudan	Affects negatively reducing the abundance and distribution
Syrian Arab Republic	The breeding population has been nearly extinct and the migratory birds declined from thousands in the last century of less than hundred now a days.
Tunisia	-

Country	• What is their impact on the population?
Ukraine	The impact of habitat change and habitat loss to estimate difficult due to lack of research. Trapping and nest robbing are the most important from known threats. There are 30-50 Sakers exclude every year for use in falconry. Sakers can be electrocuted on medium-voltage power lines. There are several such facts are known. Shooting of Sakers occur by pigeon-breeders and during the autumn hunting season (as other birds of prey). Collapsing nests is more important for Sakers which build nests on precipices. Sakers may occupy weak or unstable nests of ravens or crows. These nests may not hold up until the end of the nestling period. Cold or rainy weather in the period of hatching can lead to death of embryos or small chicks. Cold and snow in the winter period can lead to death of wintering birds. Eradication of rodents are results luck of food and also it can cause secondary poisoning to Sakers. Without grazing, pasture vegetation becomes taller and denser, bush encroachment and afforestation start and thus the ae becomes unfavourable for susliks and other important prey. Besides reducing prey availability (see above), pesticide use may adversely affect Sakers through the accumulation in the food chain and direct poisoning. There is few data available from Ukraine due to lack of research. Building roads, motorways, railways, urban and industrial development or tourist facilities can directly destroy breeding and feeding habitats of the Saker.
United Arab Emirates	Small, as Saker Falcon occurs in the country as irregular & on passage and hence it is expected that local trapping is insignificant for the species.
Yemen	1. Decreasing numbers Falcons 2. Change migration path

Table 3 List of critical and important threats

Country	• Please follow a descending priority order of threats, starting with the most important. *Importance: (critical, high, medium, low, local, unknown)*
Armenia	1. Name of threat: Poaching Brief description: Occasional shooting of Saker falcons by hunters during the regular game bird hunting period. The aim is having mounted specimens of predatory birds at home. Importance: low
Austria	1. Change of land-use and intensification of agriculture Importance: high 2. Direct (illegal) persecution (shooting, trapping) Importance: medium 3. Wind energy Importance: local 4. Hybridization Importance: local
Azerbaijan	Illegal catching by foreign "hunters" for selling in Arabian countries
Bangladesh	-
Bulgaria	Theft of eggs and young Brief description: that was the biggest problem in the past (before the last 15 years, probably this was the single most important reason for the disappearance of the species in some of the most important areas for the species) Importance: critical in the past, high in the present Disturbance Brief description: There is much higher pressure in most of the remote areas that are important for the species: tourism, extreme sports: paragliding, caving, climbing, recreational off road etc. A very big problem in Bulgaria is also treasure hunting: digging blowing rocks etc. Including in very remote and distant places. Importance: high Direct persecution Brief description: shooting and setting poisonous baits by pigeon fanciers (currently these is quite spread in the

Country	• Please follow a descending priority order of threats, starting with the most important. *Importance: (critical, high, medium, low, local, unknown)*
	country, there are illegal gambling with pigeons with big turnover of money and thus all the birds of prey that can cause harm on racing pigeons are persecuted) Importance: critical Deterioration of the natural food supply Brief description: in many areas and territories there are substantial changes of land use and practices which have negative effect in some cases drastically of food availability Importance: high Deterioration and destruction of nesting sites and habitats Brief description: In some cases there are direct loss of habitat (drastic change of the land use: buildings, replacement of pastures with vineyards, setting a new rock quarry etc and in some cases it is combination of different factors Importance: high Electrocution Most risky is the 20 kV powerlines that consist of pylons with up-right (pin type) insulators posing high electrocution hazards for birds that perch on pylons and cross arms. Importance: high Critically small number of breeding pairs. Importance: high Brief description: In some of the territories we still have occasional breeding or at least breeding attempts. With such a small and unstable population any negative effect can be of devastating and can cause complete disappearance of the birds. Importance: high
Czech Republic	Human disturbance (forest and field works, photographers, etc.) – in breeding season, unintentional Collisions with power-lines (many dangerous power-lines and poles) – high Persecution by hunters and pigeon-keepers (shooting nests and adults, poisoning) – medium Wind turbines (building of wind turbines on the breeding sites) – medium, local Reintroduction experiments – low, local Contamination of food chains by toxic chemicals - several cases, not enough proof
Croatia	Poaching and illegal taking of eggs and youngs Brief description: One confirmed and one suspected case in the period 2007-2011

Country	• Please follow a descending priority order of threats, starting with the most important. *Importance: (critical, high, medium, low, local, unknown)*
	Importance: Critical Disturbance Brief description: Agricultural activities in the vicinity of nest Importance: Critical Sensitivity of nests situated on electricity pylons in extreme weather conditions Brief description: Low hatching rate in nests on electricity pylon Importance: Critical Habitat loss Brief description: Agricultural intensification, loss of pastures Importance: Medium Poisoning Brief description: Sakers rarely feed on carrion that can be poisoned with carbofuran used for illegal killing of golden jackals; accumulation of pesticides through food chain could cause low breeding success. Importance: Critical Electrocution Brief description: Nests are placed on electricity pylons without proper (bird-safe) insulation Importance: Critical
Cyprus	Not well enough known to be more specific
Finland	-
France	-
Georgia	-
Germany	-
Hungary	See above.
India	Name of the Treat: Possible Loss of habitat Brief description The Saker falcon is a winter visitor to India where it occurs in open country. These sites in Gujarat and Haryana are

Country	• Please follow a descending priority order of threats, starting with the most important. *Importance: (critical, high, medium, low, local, unknown)*
	undergoing development process with more and more land coming under intensive agriculture, and also under industries and infrastructural development projects. Habitat loss may also be due to extensive livestock grazing and also lost due to invasive plant species.
Iraq	1. Over-exploitation, persecution and Control of Species (Trapping and Hunting). Previously Saker Falcon nestlings, young, and juveniles were harvested inside the breeding site form local people (Allouse, 1960). Recently hundreds of migrant and wintering birds trapped during their migration throughout Iraq (Al-Sheikhly, 2011).Importance: (critical) 2. Residential and Commercial Development which results to habitat destruction. Mainly resembled by rapid Urbanization and commercial developments, at the former wintering grounds of Saker Falcon especially in northern and central Iraq. Tourism & recreation al activities have been noticed at the former breeding grounds of Saker Falcon In Iraq such as Jebel Himreen and Jebel Makhool in central Iraq (Al-Sheikhly, 2012). Importance: (high) 3. Pollution (Agricultural effluence and practises-mainly using of pesticide) Many areas especially those where Saker Falcons use as foraging areas mainly in Eastern and South-eastern Iraq have been influenced by rapid agricultural expansion with increasing use of chemical pesticides and herbicides which subsequently resulted to negative bioaccumulation which possibly accelerate the mortality rate of migrants/wintering falcons(Al-Sheikhly, 2012). Importance: (high, local) 4. Human intrusion and disturbance. Such a threat has been noticed through the recent years resembled by local recreational activities, war and military exercises. Importance: (local, unknown) 5. Hunting the Saker Falcon by the falconers importance: (high to medium)
Islamic Republic of Iran	1. Trapping (including illicit export for falconry purposes) 2. Habitat destruction (development, over grazing, mining and road construction) 3. Climate change
Israel	-
Italy	1. Illegal killing Brief description: (for example one Hungarian individual with satellite data logger was killed in southern Italy)

Country	• Please follow a descending priority order of threats, starting with the most important. *Importance: (critical, high, medium, low, local, unknown)*
	Importance : critical
Kazakhstan	1. Illegal trapping Every year about 350-400 Sakers are trapped illegally and removed from Kazakhstan through the airports of the country Importance: high 2. Electrocution Not less than 100 Sakers are electrocuted at the power lines 6-10 kV Importance: medium 3. Destruction of breeding habitats by tree cutting (northern Kazakhstan) Importance: low
Kenya	Threats not really known
Kyrgyzstan	-
Macedonia	No information for Macedonia as nobody is doing such survey! or Bird protection is not supported to do such survey! as the only reliable organization for such matters in the country.
Mali	1. Climate change, drought and low rainfall (critical and high natural threats) ; 2. Bush fires and tree cutting (high and medium threats) ; 3. Poaching by capture with traps and other devices (capture of birds, collecting of eggs and young birds) (medium and low threats) ; 4. Trade of by-products of the species (skulls, claws, feathers and skeletons). Currently, these threats are the real hazards to be promptly eliminated in all the range States of the species.
Malta	A scientific assessment of threats pertaining to Saker Falcon in Malta is not available, due to this species being a very rare and occasional visitor to the Maltese Islands. It is however understood that some of the general threats applicable to other migratory species in Malta may also apply to Saker falcon. Illegal shooting for taxidermy purposes represents the main threat. This threat is of a local nature and its impact on worldwide population status is negligible.
Mongolia	Electrocution on the powerline Unsustainable harvest Habitat distruction due to mining.

Country	• Please follow a descending priority order of threats, starting with the most important. *Importance: (critical, high, medium, low, local, unknown)*
Montenegro	Illegal killing Description: Although protected, in Montenegro still kill protected raptors. Falco cherrug can be target, too. Impact: unknown
Niger	1. Poaching, 2. Insufficient feeds, 3. Diseases
Pakistan	
Poland	said before
Republic of Serbia	1. Name of threat: Destruction of habitat: tree cutting Brief description: Habitat loss make birds to escape from their historical territories, to look for new ones and to avoid nesting on trees, but on power line pools. Also by habitat change they lose their hunting territories. Importance: high 2 Name of threat: Illegal hunting Brief description: Almost all birds of prey are hunted illegally by people who breed pigeons. They use a lot of different methods of bird killing, such as poisoning of prey, using sick pigeon shroud with a lot of hooks and so on. Importance: critical 3. Name of threat: Disturbing by human Brief description: Freighting of birds during breeding season in different ways. Importance: local 4. Name of threat: Pigeon breeders negative impact Brief description: Killing of birds (systematic in some areas of Vojvodina province) (near the nest or at nest by guns, or by poisoned pigeons as baits at feeding grounds, or trapping by three-pointed hook fixed on flying pigeon- similar threat as in Peregrine falcon) Importance: (critical, high, medium, low, local, unknown) 5. Name of threat: Natural habitats destruction Brief description: Reduction of traditional prey habitats: Plowing steppe-pasture habitats, alien species invasion, complexity of infrastructure (highway, railway, power lines, wind farms), cutting of natural trees – deforrestation, lack of traditional prey habitats – suslik. Surface of pastures in lowland areas of Srebia (Vojvodina) has reduced more than

Country	• Please follow a descending priority order of threats, starting with the most important. *Importance: (critical, high, medium, low, local, unknown)*
	10,000 ha in last 15 years and converted into arable land, infrastructure and building ground. Importance: (critical, high, medium, low, local, unknown) 6. Name of threat: Destruction of nests during power line (pilons) regular maintenance, electrocution Brief description: During regular electro companies maintenance activities on power lines (pilons) some nests have been destructed (ruined) by workers. After education programme this threat has downward trend. Electrocution has negative role at lethal medim voltage power lines. There are more than 70,000 km and beetwen 700,000-1.milion pilons of medium power lines in Serbija (mainly hazardous)(Puzovic, 2007). Importance: (critical, high, medium, low, local, unknown) 7. Name of threat: Agriculture negative activities (use of chemicals) Brief description: Using of danger biocide (pesticide, rodenticide, fungicide). Mortality increase of ad. and young birds, and breeding success decrease. Reduction and contamination of favourite prey (pigeon, dove, rodents, suslik, hamster) Importance: (critical, high, medium, low, local, unknown) 8. Name of threat: Nest robbing Brief description: Various reason of nest robbing (for eggs and pull. Collection)(eggs taking for private collection , zoo collection, falconers, museums skins collection, …) Importance: (critical, high, medium, low, local, unknown) 9. Name of threat: Building of wind farms Brief description: There is no any wind warm in Serbia so far. But, there are a several tens developing projects, mainly in Vojvodina, in very important Saker habitats (central and south Banat area). This is potentially very high future threat. Importance: (critical, potentially high, medium, low, local, unknown) 10. Name of threat: Natural nest collapsing by storm Brief description: Have in mind fact that natural nests of Raven on high power line pilons often are not so stabile, during storm weather some of them collapsed (with eggs or pullus). Annually more than 5% of active nest regularly collapsed during breeding period. Importance: (critical, high, medium, low, local, unknown)
Romania	1. Name of threat: power lines Brief description: The collision with the power lines could increase the mortality caused by electrocution and the increases in energy demands and the introduction of new power lines will lead to an increase in bird deaths. Power line mortality is an important concern for rare or declining species. In certain cases it can have significant negative effects on

Country	• Please follow a descending priority order of threats, starting with the most important. *Importance: (critical, high, medium, low, local, unknown)*
	the local scale or even at the population level. It can also involve financial losses due to the power interruptions and repairs Importance: high 2. Name of threat: wind turbines Brief description: Wind-turbine blades actually move very rapidly and when falcons and eagles are flying, they're usually looking down at the ground for prey, not glancing up to watch for a knifelike blade whipping down on them. Sitting wind turbines in areas with lower bird populations is one option. Placing them away from certain corridors can reduce the death rate of Saker Falcon. Importance: high 3. Name of threat: pesticide use Brief description: Birds of prey are at high risk of poisoning by eating organisms that have been killed or debilitated by pesticide. Raptors may be poisoned by legal, labeled use of pesticides or by illegal use. Cases can be identified as abuse if the chemical responsible is prohibited by law or not in use in the affected area. Importance: high 4. Name of threat: the loss and degradation of habitat Brief description: The loss and degradation of steppe and dry grasslands through agricultural intensification cause the indiscriminate deaths of many raptors that feed on them. The Saker Falcon cannot find the prey especially mid-sized mammals such as ground squirrels (Spermophilus citellus) and hares (Lepus europaeus). Importance: medium
Russia	1. Trapping: critical 2. Electrocution: high 3. decrease in grazing animal stock: medium 4. extreme weather: medium
Saudi Arabia	1. Trapping 2. Prey declining 3. Habitat destruction (over grazing and wood cutting)
Slovakia	1. Change of land-use and intensification of agriculture. Importance: critical Description: Changing of agricultural schemes to manage agricultural land, changing of planted crops, which are not suitable for the Saker and its prey, enlarging the fields sometimes cause destruction of wind-breaking trees, which use to

Country	• Please follow a descending priority order of threats, starting with the most important. *Importance: (critical, high, medium, low, local, unknown)*
	be suitable for nesting. 2. Poisoning. Importance: high Description: Direct poisoning of the prey species (vole, ground squirrel etc) is impacting also population and survival of Saker individuals. Sometimes also direct poisoning of Sakers take place, with the aim to reduce so called “hunters enemy who reduce the amount of small game (rabbits, partridge etc). 3. Shooting. Importance: medium Description: Illegal shooting of Sakers is sometimes realized with the aim to reduce so called “hunters enemy who reduce the amount of small game (rabbits, partridge etc).
Somalia	1. Famines. 2. Dissertation. 3. Trafficking. 4. Lack of protection. 5. Poor facilities and funding system.
Sudan	1. Habitats destruction 2. Pesticides used against falcons preys 3. Low public awareness 4. Ineffective policies and application of regulations issued
Syrian Arab Republic	1. Trapping Sakers are trapped in Syria on migration routes for use in falconry, where it is considered an important threat (CITES Secretariat 2004), which has lead to the Saker falcon being listed as Globally threatened. Critical 2. Poisoning by pesticides or chemicals Pesticide use affects Sakers through the accumulation in the food chain and direct poisoning. Poisoning can result in decreased productiveness of pairs or even in the death of individuals. high 3. Disturbance

Country	• Please follow a descending priority order of threats, starting with the most important. *Importance: (critical, high, medium, low, local, unknown)*
	Disturbance at nest sites during sensitive parts of the breeding period lead to failure of the breeding attempt. Disturbance occur from agricultural or forestry activities, hunting, uncontrolled tourism, cliff climbing, road construction, bird watching, photography, etc. Medium 4. Shooting The Saker is legally protected in Syria. Therefore, only illegal shooting occurs, mainly in relation to hunting habits. This threat has been significantly reduced in the western part of the range such the cost areas but still practiced in the middle of the steppe. low 5. Nest robbing Robbing of Saker nests used to be to some extent a critical threat in the western part of Syria. Low
Tunisia	- No Data, but the wind farms seem to be the mean threat. - The wind turbines are located in the fly way.
Ukraine	1. Habitat change and habitat loss. Importance: medium 2. Trapping and nest robbing.Importance: high 3. Electrocution. Importance: local 4. Shooting. Importance: local 5. Collapsing nests. Importance: low 6. Extreme weather. Importance: low 7. Eradication of rodents.Importance: unknown 8. Decrease in grazing animal stock. Importance: low 9. Poisoning by pesticides or chemicals. Importance: unknown 10. Infrastructure development. Importance: low
United Arab Emirates	-
Yemen	1. Trapping 2. Nest robbing

Country	• Please follow a descending priority order of threats, starting with the most important. *Importance: (critical, high, medium, low, local, unknown)*
	3. Infrastructure development 4. Collapsing nests 5. Collision with man-made structures 6. Electrocution

Table 4 Threats importance at population or country level

Country	Threat Description	Threat Score
Armenia	-	-
Azerbaijan	Habitat Loss/Degradation (human induced)	Low
	Missing or ineffective policies, laws and enforcement	High
	Low public and stakeholder awareness	High
Bangladesh	-	-
Bulgaria	Habitat Loss/Degradation (human induced)	High
	1.1. Deterioration of the natural food supply	High
	1.2. Deterioration and destruction of nesting sites and habitats	High
	High mortality/loss	Critical
	1.1. Theft of eggs and young	Critical
	1.2. Direct persecution (setting poisonous baits by pigeon fanciers)	Critical
	1.3. Electrocution	High
	Missing or ineffective policies, laws and enforcement	Low
	Low public and stakeholder awareness	Medium
Croatia	Habitat Loss/Degradation (human induced)	-
	Agricultural intensification	Medium
	Use of pesticides/ Poisoning	Critical
	High mortality/loss	-
	Poaching and illegal taking of youngs and eggs	Critical
	Sensitivity of nests situated on electricity pylons in extreme weather conditions	Critical
	Missing or ineffective policies, laws and enforcement	-
	Low public and stakeholder awareness	-
	Disturbance in the vicinity of nests	Critical
Cyprus	-	-
Czech Republic	-	-
France	-	-
Finland	-	-
Georgia	-	-
Germany	-	-

Country	Threat Description	Threat Score
Hungary	Habitat Loss/Degradation (human induced)	-
	conversion of grasslands into arable lands	low
	decrease in grazing animal stock	medium
	afforestation	low
	tree felling	medium
	infrastructure development (wind farms)	high
	quarrying, mining	low
	High mortality/loss	-
	shooting	low (potentially medium on migration)
	poisoning by pesticides or chemicals	medium
	electrocution	high
	collision with man-made structures	low to medium
	trapping	medium, affecting birds on migration
	nest robbing	low, potentially local
	disturbance	low
	predation	low
	collapsing nests	low
	extreme weather	high
	Genetic introgression	
	hybrid falcons breeding with wild Sakers	low
India	Habitat Loss/Degradation (human induced)	Unknown
	High mortality/loss	Unknown
	Missing or ineffective policies, laws and enforcement	Not a threat
	Low public and stakeholder awareness	Unknown
Iraq	Habitat Loss/Degradation (human induced)	-
	Destruction of nesting habitats	Unknown
	Destruction of feeding habitats	Medium
	High mortality/loss	-
	Not measured	-
	Not measured	-

Country	Threat Description	Threat Score
	Missing or ineffective policies, laws and enforcement	-
	Lack of related legislations	Unknown
	Lack of the governmental control on-ground	Critical
	Low public and stakeholder awareness	
	Falconers and hunters community	Critical
	General community	Medium
	Habitat Loss/Degradation (human induced)	
	Mainly resembled by rapid Urbanization and commercial developments, at the former wintering grounds of Saker Falcon especially in northern and central Iraq.	High
	High mortality/loss	-
	...Unknown as there were no measurements were taken regarding breeding population in Iraq.	Unknown
	Missing or ineffective policies, laws and enforcement	-
	...Presence of hunting regulating and illegal hunting preventing law but very week implementation	High
	Low public and stakeholder awareness	-
	..Lack of general awareness among locals especially hunters.	High
	Habitat Loss/Degradation (human induced)	-
	Unknown	High
	High mortality/loss	-
	Unknown	Unknown
	Missing or ineffective policies, laws and enforcement	-
	Enforcement of illegal hunting	High
	Low public and stakeholder awareness	-
	Lack of general awareness among locals especially hunters.	High
Islamic Republic of Iran	Habitat Loss/Degradation (human induced)	-
	Grazing	-
	Industrial/Urban development/Mining	-
	High mortality/loss	-
	Trapping for illicit export to neighbour countries	-
	Climate change	-
	Missing or ineffective policies, laws and enforcement	-
	Insufficient game guards and equipments to control trappers and enforce the law	-
	Lack of appropriate laws and management plan for falconry	-
	Low public and stakeholder awareness	-

Country	Threat Description	Threat Score
	Insufficient awareness among trappers	-
	Lack of alternative livelihood among local people	-
Israel	-	-
Italy	Habitat Loss/Degradation (human induced)	-
	Degradation habitat (high)	-
	High mortality/loss	-
	Illegal killing (critical)	-
	Missing or ineffective policies, laws and enforcement	-
	Low public and stakeholder awareness	-
Kazakhstan	Habitat Loss/Degradation (human induced)	-
	Habitat degradation in West Kazakhstan caused by oil & gas extraction	Low (locally medium)
	High mortality/loss	-
	Illegal trapping fox export	Critical
	Electrocutions	Medium (?? - real effect is unknown, locally the number of dead Sakers is high)
	Missing or ineffective policies, laws and enforcement	-
	Ineffective low enforcement (not enough staff & funding for wildlife protection at local level)	Critical/High
	Low public and stakeholder awareness	-
	Not enough awareness about responsibility (penalties, crime responsibility) and too high expectation of locals (too high expected profit) for Saker trade	Medium/High
Kenya	-	-
Kyrgyzstan	Habitat Loss/Degradation (human induced)	-
	High mortality/loss	-
	Missing or ineffective policies, laws and enforcement	-
	...Inadequate implementation of laws	High
	Low public and stakeholder awareness	-
	...Lack of environmental interest of the local population	High
Macedonia	-	-
Mali	Habitat Loss/Degradation (human induced)	-
	Fraudulent exploitation in the protected areas (tree cutting and mutilation)	-

Country	Threat Description	Threat Score
	Bush fires	-
	Transhumance	-
	High mortality/loss	-
	Chemicals (pesticides, insecticides which favor the poisoning of preys and other foods)	-
	Capture by traps and collecting of eggs and young birds)	-
	Trade of specimens causing death during transport from capture places to external sites	-
	Missing or ineffective policies, laws and enforcement	-
	Forestry Code and compendium of forestry documents	-
	Act No.95 – 031 setting the conditions of the management of wildlife and its habitat and the relevant implementing decrees	-
	Low public and stakeholder awareness	-
	Unknown, but better managed by national and international NGO	-
	Unknown, but better managed by national and international NGO	-
Malta	Habitat Loss/Degradation (human induced)	Unknown
	Malta does not have studies dealing with the threat of habitat loss and degradation on Saker Falcon	-
	High mortality/loss	Local, Low
	Illegal shooting presents a localised threat. However due to Saker Falcon being an extremely rare visitor to the Maltese Islands, in terms of the potential impact on worldwide population this threat is deemed to be low.	-
	Missing or ineffective policies, laws and enforcement	Low
	Malta has a comprehensive legal and policy framework, dealing with all aspects of conservation of wild birds, which framework is modelled on EU legislation and policy. This framework is underpinned by an effective institutional set up that oversees all aspects of the regulatory cycle ranging from policy making to enforcement.	-
	Low public and stakeholder awareness	Low
	Public attitudes surveys show that the Maltese public and stakeholders have relatively high level of awareness of the general conservation issues including issues concerning conservation of wild birds. For this reason, lack of public awareness is not considered to be a threat.	-
Mongolia	Habitat Loss/Degradation (human induced	Unknown
	High mortality/loss	-
	...Electrocution	Unknown
	Missing or ineffective policies, laws and enforcement	-
	Low public and stakeholder awareness	-

Country	Threat Description	Threat Score
Montenegro	Habitat Loss/Degradation (human induced)	Unknown
	-	Unknown
	High mortality/loss	Unknown
	-	Unknown
	Missing or ineffective policies, laws and enforcement	Unknown
	-	Unknown
	Low public and stakeholder awareness	Unknown
	-	Unknown
Niger	-	-
Pakistan	Habitat Loss/Degradation (human induced)	-
	Increasing population has resulted in vast networks of roads, urbanization, industrial expansion, increased agricultural practices, and over exploitation of natural resources. All these factors have destroyed natural habitat of Saker Falcons.	medium
	Illegal netting/trade	
	Since 2005, netting/trapping and trade of Saker Falcon is banned under a directive from the CITES Secretariat. However illegal trapping of Saker Falcon and subsequent trade in black market is reported	medium
Poland	Habitat Loss/Degradation (human induced)	-
	High mortality/loss	-
	Electrocution	Unknown
	Pigeon fanciers killing	unknown
	Missing or ineffective policies, laws and enforcement	-
	Low public and stakeholder awareness	-
Republic of Serbia	Habitat Loss/Degradation (human induced)	-
	...tree cutting	Critical
	...heath transformation in plought	Critical
	High mortality/loss	-
	Missing or ineffective policies, laws and enforcement	-
	...irreverence of policies	Medium
	Low public and stakeholder awareness	-
	...illegal hunting	High
Romania	HabitatLoss/Degradation(humaninduced)	-
	The loss and degradation of steppe and dry grasslands through agricultural intensification cause the	High

Country	Threat Description	Threat Score
	indiscriminate deaths of many raptors that feed on them. The Saker Falcon cannot find the prey especially mid- sized mammals such as ground squirrels (*Spermophilus citellus*) and hares (*Lepus europaeus).*	
	High mortality/loss	-
	The collision with the power lines could increase the mortality caused by electrocution and the increasing in energy demands, the introduction of new power lines will lead to an increase in bird deaths. Power line mortality is an important concern for rare or declining species. In certain cases it can have significant negative effects on the local scale or even at the population level. It can also involve financial losses due to the power interruptions and repairs.	High
	Wind-turbine blades actually move very rapidly and when falcons and eagles are flying, they're usually looking down at the ground for prey, not glancing up to watch for a knifelike blade whipping down on them. Sitting wind turbines in areas with lower bird populations is one option. Placing them away from certain corridors can reduce the death rate of Saker Falcon.	High
	Birds of prey are at high risk of poisoning by eating organisms that have been killed or debilitated by pesticide. Raptors maybe poisoned by legal, labelled use of pesticides or by illegal use. Cases can be identified as abuse if the chemical responsible is prohibited by law or not in use in the affected area.	High
	Missing or ineffective policies, laws and enforcement	Low
	Low public and stakeholder awareness	Local
Russia	-	-
Saudi Arabia	Habitat Loss/Degradation (human induced)	-
	Overgrazing...	Local
	Wood cutting...	Local
	High mortality/loss	-
	Decline in the prey items...	High
	Missing or ineffective policies, laws and enforcement	-
	Trapping management	Low
	Local trade	Medium
	Illegal entrance of smuggled falcon	High
	Hunting outside the protected areas (effecting the prey item)...	High
	Lack of governs to develop and enforce the law	Medium
	Low public and stakeholder awareness	-
	Lack of awareness among falconers ...	High

Country	Threat Description	Threat Score
	Lack of management plan for the falconry...	High
Serbia	Habitat Loss/Degradation (human induced)	-
	Medium	-
	High mortality/loss	-
	High to Critical	-
	Missing or ineffective policies, laws and enforcement	-
	High to Critical	-
	Low public and stakeholder awareness	-
	Medium	-
Slovakia	Habitat Loss/Degradation (human induced)	-
	The loss of suitable breeding and feeding habitats resulted in change of Saker preferences. The Saker moved from mountains to lowlands, from natural nests to artificial ones and adapted to another prey, especially pigeons. Due to change of habitats and nest robberies the population was on the brink of extinction in 1980-90s. Thanks to conservation measures (especially installation of nest boxes on high-voltage pylons) the population was stabilized and has increased in the recent years.	High – not causing the decline of the population, but significant change of habitat preferences, present status of the population is not sustainable
	High mortality/loss	-
	Electrocution on 22 kV poles. Raptor Protection of Slovakia is in close cooperation with all responsible Electric Companies, insulation of dangerous poles is on-going in the whole country. We also cooperate by solving the problem of collisions.	High
	Shooting and poisoning.	High
	Uncontrolled / increased use of pesticides	Medium
	Missing or ineffective policies, laws and enforcement	-
	Insufficient control of individuals kept in captivity. The obligation of DNA tests for Saker was removed from the law, can result in nest robberies.	Low
	Several ineffective parts of the law: insufficient support for farmers included in agri-schemes, insufficient conservation of natural breeding and feeding habitats including important sites within SPAs, ineffective conservation of the species, insufficient motivation for land-users to follow favourable management measures	High – not causing the decline of the population, but significant change of habitat preferences, present status of the

Country	Threat Description	Threat Score
		population is not sustainable
	Little financial support for conservation measures from government, the species is not the target species. The conservation measures are implemented especially by RPS as an NGO via different projects, but in cooperation with State Nature Conservancy of the Slovak Republic.	High
	Low public and stakeholder awareness	-
	Low awareness of hunters.	Critical
	Low awareness of land-users and stakeholders (including farmers).	High – not causing decline of population, but endangering sustainability of conservation status of the population
	Low awareness of public.	Low
Somalia	High mortality/loss	Unknown
	Missing or ineffective policies, laws and enforcement	Local
	Low public and stakeholder awareness	Unknown
Sudan	-	-
Syrian Arab Republic	Habitat Loss/Degradation (human induced)	
	Deforestation	Critical
	Desertification	Critical
	High mortality/loss	
	Hunting	Low
	Missing or ineffective policies, laws and enforcement	
	National conservation legislation	Critical
	Low public and stakeholder awareness	
	Trapping	Critical
	Hunting	Low
Tunisia	-	-
Ukraine	Habitat Loss/Degradation (human induced)	-
	Habitat change and habitat loss.	Medium
	Decrease in grazing animal stock.	Low

Country	Threat Description	Threat Score
	Infrastructure development.	Low
	High mortality/loss	-
	Trapping and nest robbing.	High
	Electrocution.	Local
	Shooting.	Local
	Collapsing nests.	Local
	Extreme weather.	Low
	Eradication of rodents.	Unknown
	Poisoning by pesticides or chemicals.	Unknown
	Missing or ineffective policies, laws and enforcement	-
	Low public and stakeholder awareness	-
	A low level of ecological culture among people	Local
United Arab Emirates	The minor threats results from trapping as the species occur on passage and in a very small number.	-
Yemen	-	-

ANNEX 6 - Policies and legislation relevant for management

Table 1 National policies, legislation and ongoing activities relevant to the Saker Falcon

Country	National nature conservation and related legislation
Armenia	The Red Book of Animals of the Republic of Armenia. 2010. The Law on the protection of the Fauna of Republic of Armenia
Austria	In the Austrian Red List of 2005 the Saker Falcon is denoted as critically endangered (CR). Like other raptor species it belongs to the national hunting laws, in which it is officially protected year round. Saker Falcon breeds in two out of nine Federal Provinces. Conservation related problems arise when research becomes complicated by these circumstances or when birds are illegally killed/trapped. In one of the Federal Provinces (Lower Austria) Common Buzzard and Goshawks are allowed to be killed legally, which is a risk also for Sakers and occurs presumably several times a year. To convey the Saker Falcon into conservation laws has failed so far.
Azerbaijan	Law about protection of Animal World, Law about protection of environment Azerbaijan Red Data Book (included)
Bangladesh	It is considered as nationally Endangered. It is protected by the Bangladesh Wildlife (Preservation) Act 2012.
Bulgaria	In general the current environmental legislation is relatively good and there are ongoing proposals for a better control of legal trade which will further ensure the control in the country. The species currently has the highest level of protection and is regarded as one of the most important species in terms of ongoing projects with the active support and participation of the Ministry of environment and water.
Czech Republic	Saker is listed among critically endangered animals in the CR, according to the Nature Protection Act it is impossible to keep, rear in captivity, kill, injure, sell etc. it without special permission. Killing, injuring, taking from wild nature etc. of Sakers is a criminal offence It is included in related national legislation implementing CITES convention as well.
Croatia	Strategy and Action Plan for the Protection of Biological and Landscape Diversity of the Republic of Croatia (OG 143/08) Nature Protection Act (OG 80/13) Ordinance on Proclamation of the Wild Species as Protected and Strictly Protected (OG 99/09) Ordinance on the compensation for damage caused by illegal action on protected animal species (OG 84/96, OG 79/02) Act on Transboundary Movement and Trade in Wild Species (adopted in Parliament) Council Regulation (EC) No 338/97 of 9 December 1996 on the protection of species of wild fauna and flora by regulating trade therein, and implementing regulations

Country	National nature conservation and related legislation
	Ordinance on the method of preparing and implementing risk assessment studies with respect to introduction, reintroduction and breeding of wild taxa (OG 35/08) Regulation on the Proclamation of the Ecological Network (OG 109/07) Regulation on the Ecological Network (under Governmental procedure) Ordinance on the appropriate assessment of the impact of plans, programmes and projects on the ecological network (OG 118/09) Animal Protection Act (OG 135/06, OG 37/13)
Cyprus	Fully protected under Cyprus law transposing the EU Birds Directive and also under the British Bases ordinance mirroring this Cyprus legislation
Finland	The species is protected by law as are all the other birds of prey.
France	Arrêté interministériel du 29 octobre 2009 fixant la liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection (JORF 5 décembre 2009, p. 21056)
Georgia	National Red List
Germany	Bundesnaturschutzgesetz (in the version of 29.7.2009) – the federal Nature protection law Bundesartenschutzverordnung (in the version of 16.2.2005) – the federal species protection decree Legally the species is considered as an indigenous species, even if not annually breeding in Germany. Trade with reared birds allowed according to Art. 8 EG-VO 338/97 (CITES).
Hungary	Act No. 53 of 1996 on Nature Conservation Decree No. 13 of 2001 of the Minister of Environment on the lists of protected and strictly protected plant and animal species, of strictly protected caves and of plant and animal species of Community importance Government Decree No. 348 of 2006 on the rules pertaining to the protection, keeping, utilisation and displaying of protected animal species Government Decree No. 275/2004 (X.8.) concerning the nature conservation sites of Community importance Decree No. 43/2012 (V.3.) on the detailed rules of applying for grants for the preparation of the management plans of Natura 2000 sites from the European Agricultural Fund for Rural Development Decree 128/2007 of the Minister for Agriculture and Rural Development on compensation payments in Natura 2000 grasslands from the European Agricultural Fund for Rural Development Decree of the Minister for Agriculture and Rural Development from the 61/2009 (V.14.) on agri-environmental payments from the European Agricultural Fund for Rural Development
India	The species is listed in the Wildlife (Protection) Act, 1972 under Schedule I. Thereby the species have been provided the most stringent legal protection against hunting which include capturing, trapping and poisoning and every such attempts. Further, though Saker Falcon has not received specific focus in regulations about climate change and diversion of forests for land use change, general impact of such activities on the environment is considered while deciding on clearances and appropriate mitigative measures undertaken.

Country	National nature conservation and related legislation
Iraq	There is no legislation that tackles the protecting of this bird species in Iraq directly, but it is included, however generally, under different legislations. The Ministry of Environment is currently developing a legislation dedicated for protection of the wildlife and the threatened flora and fauna. Iraq authorized hunting law No. (57) issued in 1938. This regulates the illegal hunting of wildlife in Iraq and this law is enforced by the Ministry of Internal Affairs, the Ministry of Agriculture and Ministry of Environment.
Islamic Republic of Iran	• Article 50 of the Constitution is the most important accredited existing legal statement concerning protection of the environment and preventing its pollution and degradation. It states that all legal and real persons have a duty to protect the environment. The Constitution prohibits all activities, economic or otherwise, that may result in irreparable damage to the environment. • According to Hunting and Trapping Law: (1967), Saker Falcon has the highest rate of penalty for illegal hunting and trapping (10,000 USD) • CITES signed in 1977 • Convention on Biological Diversity signed in 1996 • Convention on Conservation of Migratory Species signed in 2007
Israel	In Israel, all terrestrial vertebrates are fully protected by law since 1955. Only less than 10 species are declared as pests in agriculture and only 5 waterfowl species are game birds, in the hunting season. So the Saker falcons as all raptors are strictly protected. In Israel Falconry is illegal act and raptors are not allowed to be kept in captivity.
Italy	The species is protected by law on hunting
Kazakhstan	Saker Falcon is included in the Red Data Book of Kazakhstan as endangered species Saker Falcon is protected by the «Law on protection, reproduction and use of fauna» 1. The law “On protection, reproduction and use of animals” (2004 with additions of 2012) 2. The Criminal Code of Kazakhstan 3. The governmental decree N 1140 of 04.09.2001 “On approval of size of compensation of damage caused by violation of legislation on protection, reproduction and use of animals” 4. “The list of rare and threatened species of animals and plants” (2006, Governmental Decree)
Kenya	There is a Wildlife Conservation and Management Act in place, which covers all wildlife species
Kyrgyzstan	Included in the Red Book of the Kyrgyz Republic, and the list of CITES, "Biodiversity Conservation Strategy of the Kyrgyz Republic"
Macedonia	Law on hunting does not mention this species at all- so it is not protected by any means

Country	National nature conservation and related legislation
Mali	The Act No. 95 – 031 setting the conditions for the management of wildlife and its habitat, classifying all birds of prey (Falconidea) in Annex I, the Saker Falcon becoming a fully protected species. This Act forbids in all circumstances any form of exploitation (hunting, capture, collecting of eggs and young birds, trade of specimens) of the Saker Falcon in Mali.
Malta	• L.N. 79 of 2006 Environment Protection Act (Act No XX of 2001) Conservation of Wild Birds Regulations, 2006 as amended. • L.N. 311 of 2006 Environment Protection Act, 2001 (CAP. 435) Development Planning Act, 1992 (CAP. 356) Flora, Fauna and Natural Habitats Protection Regulations, 2003 as amended. • L.N. 236 of 2004 Environment Protection Act (CAP. 435) Trade in Species of Fauna and Flora Regulations, 2004
Mongolia	Saker trade has banned for 5 years in December, 2012.
Montenegro	Falco cherrug is protected bird species from 1981.
Niger	• Loi 98-07 du 29 Avril 1998 portant régime de chasse et de la protection de la faune, • Décret N° 98-295/PRN/MH/E du 29 octobre 1998 Déterminant les modalités d'application De la loi n° 98-07 du 29 Avril 1998 Portent régime de la chasse et de la Protection de la faune
Pakistan	Following are Legislative Cover/Strategies and Policies for protection of migratory birds of prey in general including Saker Falcon: • Pakistan Trade Control of Wild Fauna and Flora Act 2012 • Trade Policy, Customs Act (Export Policy Order) • The Sindh Wildlife Protection Ordinance, 1972 • The Balochistan Wildlife Protection Act, 1974 • The Khyber Pakhtunkhwa Wildlife (Protection, Preservation, Conservation and Management) Act, 1975 • The Gilgit-Baltistan Wildlife Preservation Act, 1975 • Azad Jammu & Kashmir Wildlife Act, 1975 • The Punjab Wildlife (Protection, Preservation, Conservation and Management) (Amendment) Act, 2007 • The Pakistan Environmental Protection Act, 1997 • The Pakistan National Conservation Strategy (1992) • Biodiversity Action Plan (2000) • Provincial/territorial Conservation Strategies
Poland	Saker is protected, as all birds of prey are protected
Republic of Serbia	• Strictly protected species (since 2010). • Protected natural rarities (from 1993 to 2009). • Law of Nature Conservation of Serbia (2009) • Regulation of use control and trade of wild flora and fauna (2005) • Strategy of biological diversity of Serbia with Action plan (2011-2018) • Regulation of ecological network in Serbia (2010) Order of hunting regulation and proclamation of protected game (2012) Law on Nature Protection (Off. Gazette NO.36/09, 88/10, 91/10), Law on Ratification of Convention on Conservation of Migratory Species of Wild

Country	National nature conservation and related legislation
	Animals(Off. Gazette NO.102/07), Law on Ratification of Convention on the conservation of European wildlife and natural habitats (Off. Gazette NO.102/07), Law on Ratification of CITES(off. Journal 11/2001), Law on Game and Hunting (Off. Gazette NO.18/10), Rulebook on Proclamation and Protection of Strictly Protected and Protected Wild Species of Plants, Animals and Fungi (Off. Gazette NO.5/10, 47/11), Rulebook on compensation applies for determination of the amount of damages caused by unauthorized act in relation to a strictly protected and protected species(Off. Gazette NO.37/10), Rulebook on special technical-technological solutions which enable unobstructed and safe communication of wild animals (Off. Gazette NO.72/10),Rulebook on Closed Hunt Season (Off. Gazette NO.9/12),Rulebook on transboundary movement and trade of protected species(Off. Gazette NO. 99/09).
Romania	• Romanian legislation transposed the provisions of Birds Directive 2009/147/EC and Directive Habitats (92/43/EEC) through Government Emergency Ordinance No. 57/2007 on the regime of protected natural habitats, conservation of natural habitats of flora and fauna approved with amendments by Law No. 49/2011. • Minister Order No. 2387/2011 for amending the Minister Order No. 1964/2007 regarding the establishment of protected natural area regime for the Sites of Community Importance as integrant part of the European ecological network „Nature 2000" in Romania. • Government Decision No. 971/2011 for amending the Government Decision No. 1284/2007 regarding the designation of Special Protection Areas as integrant part of the European ecological network „Nature 2000" in Romania.
Russia	• Federal Law On Wildlife of 24 April 1995 (FL#52) • Federal Law On Protection of the Environment of 10 January 2002 (FL#7) • Federal Law On Protected Areas of 14 March 1995 (FL #33) • Federal Law on Hunting and Wildlife Resources of 24 July 2009 (FL#209) • Requirements to Prevent Loss of Wildlife during Industrial Practices and Exploitation of Roads, Pipelines, Power and Communication Lines approved by the Russian Government on 13 August 1996 (Decree #997) • Decree of the Russian Government of 19 February 1996 #158 On the Red Data Book of the Russian Federation • Land Code of the Russian Federation (of 25 October 2001, FL #136) • Forest Code of the Russian Federation • Criminal Code of the Russian Federation (of 25 November 2013, FL #317) • List of strategic goods and resources for the purposes of Article 226.1 of the Criminal Code of the Russian Federation (of 13 September 2012, RF Government Resolution # 923)
Saudi Arabia	• The royal decree approved signing the agreement in 1996, with the Saudi Wildlife Authority to be the national authority for implementing the CITES agreement in Saudi Arabia. In the same year the kingdom became a member of the agreement • Royal decree no. (M/9) for the law of trade in wild animals and their products in 2001. • Royal approval no. (149/49) in 2004 to produce by law , which have the definition, responsibility, permits, requirement for captive animals and steps for implementing the low. Amendment by law (no. 173/73) in 2008.

Country	National nature conservation and related legislation
Slovakia	• Act No. 543/2002 Coll. on Nature and Landscape Protection as amended, all bird species in Slovakia are protected • Order No. 24/2003 Coll. by which is executing the Act No. 543/2002 Coll. as amended – sets social value of species, lists the species as protected and list the forbidden methods of catching and killing of protected species (this is only for the cases if the catching is permitted) • Act No. 15/2005 Coll. on Trade on Endangered Species of Wild Fauna and Flora on the Amending and Complementing of certain Acts as amended, • Order No. 110/2005 Coll. to implement some provisions of the Act No. 15/2005 Coll., • Act No. 274/2009 Coll. on Hunting as amended, • Order No. 344/2009 Coll. by which the "Hunting Act" is amended
Somalia	1. Somali wildlife officers make awareness seminars to the youth and communities to protect good given birds specially the falcon. 2. Customs and police authority control airports, ports, and regional boundary to exported.
Sudan	The new constitution is expected to give stronger conservation measures The proposed new wildlife act after the amendment of the constitution Declaration of new protected areas around Kassala.
Syrian Arab Republic	There are still no special national policies or legislation and ongoing activities relevant of Saker Falcon in Syria, but general conservation of wild life according to different international conventions signed by Syrian government.
Tunisia	Protected by the Tunisian legislation under the article 7.
Ukraine	• The Saker Falcon is listed in the Red Data Book of Ukraine since 1980. Current status is "Vulnerable" (since 2009). Its taking from the wild is only allowable for conservation and scientific purposes under special permits issued by the Ministry of Ecology and Natural Resources subject to positive advice of the National Commission on the Red Data Book of Ukraine. The species is "strictly protected" by the law. The following main legal acts of Ukraine are relevant to the protection of animals including the Red Data Book species: • The Law of Ukraine "On the Animal World" (2001); • The Law of Ukraine "On the Red Data Book of Ukraine" (2002); • The Law of Ukraine "On Hunting" (2002) (regulates falconry); • The Law of Ukraine "On Natural Reserves Fund of Ukraine" (1992); • The Law of Ukraine "On the Protection of Animals against Cruelty" (2006); • The Law of Ukraine "On Ecological Network of Ukraine" (2004); • The Decree of the Cabinet of Ministers of Ukraine No 1030 of 07.11.2012 "On the levels of compensation for illegal taking, destruction or injuring of animal and plant species listed in the Red Data Book of Ukraine as well as for destruction or worsening of their habitats" • Ukraine is a Party to CBD, CMS, CITES and the Bern Convention.
United Arab Emirates	National Biodiversity Strategy – 5 Ramsar sites for the key habitats for migrant birds beside the 22 announced protected areas

Country	National nature conservation and related legislation
	• Federal Law No. (24) -1999- Concerning Protection and Development of the Environment • Federal Law No. (11) - 2002 Concerning the Regulation and Control of International Trade in Endangered Species of Wild Fauna and Flora • Law No. (13) -2005 Concerning Regulation of Grazing in Abu Dhabi Emirate • Local Law No. (22) -2005 Concerning Animal Hunting in the Abu Dhabi Emirate • Law No. 9 – 1983 Regarding regulating hunting in the Abu Dhabi Emirate • Convention on Conservation of Wildlife and its Natural Habitats in GCC Countries – 2003 Regional Convention to promote conservation of wildlife in the GCC countries • Convention on Biological Diversity of 1992 signed in 1999 International Convention • MoU on the Conservation of Migratory Birds of Prey 2008
Yemen	There is no special national legislation for protecting of Saker Falcon in the present time

Table 2 National conservation and legal status

Country	Status in national Red Data Book	Legal protection from taking and killing	Current protection status (since year)	Penalties for illegal taking, killing or nest destruction	Highest responsible national authority
Armenia	Endangered En A2bcd+3cd+4bcd	Yes (taking, killing)	Endangered En A2bcd+3cd+4bcd, 2010	Yes (600 USD)	Ministry of Nature Protection
Austria	Critically Endangered	Yes (taking and killing)	Protected year round	Yes	Federal Ministry of Agriculture, Forestry, Environment and Water Management
Azerbaijan	Included	Yes (taking, killing)	Included in National Red Data Book	Yes in AZN	Ministry of Ecology and National Resources
Bangladesh	Nationally Endangered	Yes	It is protected by Bangladesh Wildlife (Preservation & Security) Acts, 2012	-	-
Bulgaria	Critically Endangered	Yes (taking and killing)	In Bulgaria the species is under protection since 1962, After 2002 it is protected under the Nature protection legislation (with the highest possible penalties.)	Yes (up to 3380 US $ and up to 5 years in prison)	MOEW (Ministry of Environment and Water)

Country	Status in national Red Data Book	Legal protection from taking and killing	Current protection status (since year)	Penalties for illegal taking, killing or nest destruction	Highest responsible national authority
Croatia	CR breeding population	Yes (taking, killing)	Strictly protected (since 2006) Special protection status (1995-2006)	Yes (up to 43,000 $US)	Ministry of Environmental and Nature Protection
Cyprus	NA	Yes (taking, killing)	Protected species (since 1974)	Yes (in $22,500)	Interior Ministry
Czech Republic	Critically endangered	Yes (taking, killing)	Critically endangered (1992)	prison sentence (6 months-8 years)	Ministry for Environment
Finland	NA	Yes	-	Yes	Ministry of the Environment
France	-	Yes	1976	Yes	-
Georgia	-	-	-	-	-
Germany	Not listed (no regular breeding bird)	Yes (taking, killing and illegal possession)	Cf. above	Prison sentence possible	Federal Ministry for the Environment
Hungary	Directly threatened (Red Data Book 1989); Conservation dependent (MME red list 1999).	Yes (taking, killing)	1954	Imprisonment and fine of up to ~4363 USD (1000000 HUF).	Ministry of Rural Development
India	Wildlife Protection Act – Schedule I	Yes (taking, killing and poisoning and every such attempts)	1972	Yes (Imprisonment up to three years or fine of up to USD 400 or both)	Ministry of Environment & Forests
Iraq	Provisionally assessed as Critically Endangered	No protection	No protection	No penalties	Iraqi Ministry of Environment
Islamic Republic of Iran	Critically Endangered	Yes (taking, killing)	1967	Yes 10,000(in $US)	Department of Environment
Israel	Not relevant	Yes	-	-	Israel Nature & Parks

Country	Status in national Red Data Book	Legal protection from taking and killing	Current protection status (since year)	Penalties for illegal taking, killing or nest destruction	Highest responsible national authority
					Authority/ Ministry of Environment
Italy	-	Yes	-	-	?
Kazakhstan I.	Endangered	Yes (taking, killing)	-	-	Committee of forest
Kazakhstan II.	1-st (the highest) category of threat, "critically threatened"	Fully protected since 1955	Yes (up to the court house. Not relevant for Saker falcons since no such cases)	-	The Committee of Forestry and Hunting of Ministry of Protection of Environment of Kazakhstan
Kenya	-	-	Yes	-	-
Kyrgyzstan	Red Book of Kyrgyz Republic	Endangered	Yes	-	State Agency on Environmental Protection and Forestry
Macedonia	No red data book	since 1996	Yes, about USD 8000 per 1 specimen of any age killed or taken; for 1 nest - about USD 115, and for every egg - about USD 4000 (50% of a bird)	-	-
Mali	Threatened	-	-	-	Directeur National des Eaux et Forêts
Malta	-	Constantly	Yes	-	Malta Environment and Planning Authority
Mongolia	-	-	no	-	-
Montenegro	-	Fully protected	Yes. Art.130 et 132 of Act No. 95 – 031 (30.48 – 152.43 in $US)	Yes	Environmental Protection Agency
Niger	Entirely protected	1980	Yes. Current	Yes	-

Country	Status in national Red Data Book	Legal protection from taking and killing	Current protection status (since year)	Penalties for illegal taking, killing or nest destruction	Highest responsible national authority
			penalties according to L.N. 79 of 2006 as amended include: First time offence: EUR 232.94-EUR 4658.75 (that is, approximately USD 302– USD 6,040) fine and the suspension of the hunting licence for a period of 1-3 years and the confiscation of the corpus delicti; second time offence: EUR 465.87-EUR 9317.49 (that is, approximately USD 604- USD 12,070) fine or/and to an imprisonment term of 2 months-2 years and the revocation of the hunting licence		

Country	Status in national Red Data Book	Legal protection from taking and killing	Current protection status (since year)	Penalties for illegal taking, killing or nest destruction	Highest responsible national authority
			and the confiscation of the corpus delicti.		
Pakistan	-	Yes (Since 2005, netting/trapping and trade of Saker Falcon is banned under a directive from the CITES Secretariat. However illegal trapping of Saker Falcon and subsequent trade in black market is reported in Pakistan.)/	2005	The Pakistan Trade Control of Wild Fauna and Flora Act 2012 regulates international trade of CITES listed species. Any violation of the Act is punished with imprisonment for a term not less than one year or more than two years or fine not less than 0.500 million rupees or more than 1.000 million rupees. Birds of prey (Whether migratory or resident) are protected under the provincial wildlife laws. The protected birds cannot be hunted, killed or captured. Any violation is dealt under respective provincial wildlife laws.	Forestry Wing, Climate Change Division, Government of Pakistan, Islamabad
Poland	None	Yes (taking, killing)	1980	Yes, different levels, decision by the court	Ministry of Environment
Romania	Threatened	Yes	Unknown	Yes	Ministry of Environment and Climate Change
Russia	Category 2 - decreasing species	Yes (taking, killing)	1997	Yes (20 000 $US)	Russian Ministry of Nature

Country	Status in national Red Data Book	Legal protection from taking and killing	Current protection status (since year)	Penalties for illegal taking, killing or nest destruction	Highest responsible national authority
Saudi Arabia	The draft document (A)	Yes	2006	No	Saudi Wildlife Authority and Ministry of Inertial
Serbia	• o official national Red Data Book • n national Atlas of Birds of Prey (Puzović et al, 2000) this species listed as - EN in Serbia.	Yes • trictly protected wild species uder the law in Serbia. • ut, there are a few falconers and Falconry NVO, with several Sakers as captivity birds, originally from artificial reproduction.	Strictly protected wild species (since 2010)	Yes (in $US) in accordance with Rulebook on compensation applies for determination of the amount of damages caused by unauthorized act in relation to a strictly protected and protected species (Off. Gazette NO.37/10) 20,000 Eur	• inistry for Energy, Development and Environmental Protection • nstitutes for nature Conservation • rovincial Secretariat for Urban planning, Construction and Environmental protection
Slovakia	CR (due to 2000)	Yes (taking, killing)	strictly all-year protected species	Yes (in $US) depends on circumstances; from money fine to arrest in jail	Ministry of the Environment of SR
Somalia	-	Yes	1990 up to now	Yes	-
Sudan	Table 2	Yes with licence only (taking, killing)/No	Table 2	Fine and confiscation and prisonment Yes (in $US)/No	Wildlife conservation
Syrian Arab Republic	Critical Endangered	Yes	Unknown	Yes	State Ministry of Environmental Affaires
Tunisia	No Red Data Book	Yes	Protected by the Tunisian legislation under the article 7	Yes	General directorate of forests
Ukraine	Vulnerable	Yes (taking, killing)	2009	Yes (11200 $US)	Ministry of Ecology and Natural Resources of Ukraine (Legal Framework) State Ecological Inspection of Ukraine (Enforcement)

Country	Status in national Red Data Book	Legal protection from taking and killing	Current protection status (since year)	Penalties for illegal taking, killing or nest destruction	Highest responsible national authority
United Arab Emirates	-	Yes	Since issuing of the relevant Federal and local laws (above mentioned)	Yes punished by, imprisonment and a fine of not less than a thousand dirhams and not more than twenty thousand dirhams or any of them , in addition to confiscation of seized birds and animals.	-
Yemen	-	-	-	-	-

Table 3 Key sectoral programmes

Country	Key sectoral programmes *(e.g. Rural Development Plans, Forestry Development Plans, etc.)* which contain measures that may be relevant to the conservation of the Saker Falcon.
Armenia	None
Austria	National Prioritised Action Framework for the Natura 2000 network Rural development plans, Habitat management in National parks etc.
Azerbaijan	-
Bangladesh	Bangladesh Forest Department and other conservation NGOs and clubs.
Bulgaria	In close coordination BSPB and the Ministry of Agriculture and Food BSPB has been working on improving of the payment system of EU funds, which will directly improve the natural food supply in key areas for the species in the country (*Agri-Environment Schemes*). An agri-environmental measure that includes payments for farmers that convert arable land into pastures in areas inhabit by Saker falcons was adopted in 2012
Czech Republic	Area development plans – protection of some parameters of Sakers´environment Forestry development plans – protection of repeatedly used breeding sites in woods National Action Plan – its preparation is approved
Croatia	Rural Development Programme 2014-2020 Forest management plans
Cyprus	-
Finland	-
France	Bonnacorsi G. (1999).- Premières mentions du Faucon sacre Falco cherrug en Corse. Alauda 67 : 271. (first data of Saker Falcon in Corsica) Comité d'Homologation National : Rapports annuels (french bird national homologation comitee annual reports)
Georgia	-
Germany	-

Hungary	New Hungary Development Programme (Axis I) prioritises Natura 2000 sites by bonus points in the case of agricultural developments that are favourable to nature conservation purposes. Environment and Energy Operational Program (KEOP), one of the main funding sources for nature conservation development projects, including the modification of medium-voltage electric lines into bird-friendly lines. National Prioritised Action Framework for the Natura 2000 network.
India	None known
Iraq	1. Agricultural expansion; 2. Tourism; 3. Local development plans (especially over the habitats suitable for breeding). No programmes that relevant to the conservation of the Saker Falcon
Islamic Republic of Iran	1. Conservation of Biodiversity in Zagros Region 2. Protected Area's Comprehensive Management Plans 3. Local Development Plans Department of Environment's Regulation and policies
Israel	-
Italy	No rural development plans have a sectoral programme to Saker Falcon in Italy
Kazakhstan	There is no special program on Saker Falcon research in Kazakhstan at the moment More than 10 important bird areas were arranged for Saker Falcon protection in Kazakhstan About 100 of Sakers are released in Kazakhstan every year (Sheikh Sayed release program, UAE) Sectoral program "Zhasyl Damu" (2010-2014) (complex governmental program for nature&wildlife conservation and sustainable use)
Kenya	Important Bird Areas (IBA) program
Kyrgyzstan	Protection in nature reserves and national parks. The concept of forest resources conservation
Macedonia	Forestation of Macedonia Rural development
Mali	The responsibility for the conservation of the Saker Falcon lies with the Direction Nationale des Eaux et Forêts (under the Ministry of the Environment and Sanitation) which is in

	charge of the management of gazetted forests, national parks and wildlife reserves. These State sites and other adjacent areas are considered the natural habitats of the Saker Falcon. But the species is also present in the transition areas of the above-mentioned sites. Only the forestry sector has developed laws and implementing decrees regarding the gazetted forests for the conservation, the protection and the monitoring of different species of falcons and in particular the Saker Falcon.
Malta	Due to this species being a very rare and occasional visitor to the Maltese Islands there are no policies or plans that specifically deal with this species. However, a number of policy initiatives undertaken at the general level may be of relevance. These include: (1) National Biodiversity Strategy and Action Plan (please see table 4 above). (2) Natura 2000 network- Each Member State of the European Union has the obligation under the EC Habitats Directive of contributing to the creation of the Natura 2000 network in proportion to the representation within its territory of the natural habitat types and the habitats of species specified in the Annexes of this Directive. In addition to this, the Wild Birds Directive requires Member States to protect naturally occurring wild birds and their habitats. The measures indicated in order to affect this include among others the designation of Special Protection Areas. To date, Malta has designated 28 Sites of Community Importance (eventually Special Areas of Conservation) declared under the EC Habitats Directive and 13 Special Protection Areas declared under the EC Birds Directive. Collectively these comprise about 13.25% of the Maltese Islands' land area. Further information may be downloaded from: http://www.mepa.org.mt/impnatareas-pas-int-n2k-mt . (3) At present, the Malta Environment and Planning Authority is implementing a project which is expected to result, by the end of 2013, in the preparation of management plans for all terrestrial Natura 2000 sites in the Maltese Islands. This project involves comprehensive assessment of the conservation status of habitats and species found within these sites, the development of conservation objectives, as well as measures to deliver upon these objectives. The project involves a significant stakeholder outreach and involvement component. Whilst not directly dealing with Saker falcon, these management plans directly address issues such as habitats restoration, management of invasive alien species and other concerns which may be of indirect relevance to the conservation of

	Saker falcon.
Mongolia	Monitoring programme of Saker falcon is developing by stakeholders and it will be start to implement in2014 in 3 important areas.
Montenegro	National strategy for biodiversity with Action plan 2011-2014 contain measures for protection all protected bird species in the country.
Niger	- Niger Fauna Corridors Project (PNFC); - Programme d'aménagement du parc de l'entente (PAPE) ; - Programme national du développement économique et social (PDES) ;
Pakistan	Birds of prey (including Saker Falcon) are protected under the provincial wildlife laws. The protected birds cannot be hunted, killed or captured. For conservation and preservation of threatened species (including birds of prey) a system of protected areas has been established in the country. The protected areas provide safe habitat for the threatened species. In Pakistan total protected area comprise of more than 12% of the total area. The protected areas include the following categories: • National Parks: 26 • Wildlife Sanctuaries: 92 • Game Reserves: 89 • Community Conservation Area: 114
Poland	None of them mention Saker
Republic of Serbia	- Spatial plan of Republic of Serbia (2010-2020) - Spatial plan of Autonomous Province of Vojvodina (2011-2020) - Spatial plans of protected areas in Serbia (several) - Strategy of Serbian forestry (2006) - National agriculture program (2010) - Strategy of national rural development (2008) - Strategy of energy sector (renewable energy, energy transmition)

Romania	The Sectoral Operational Programme Environment 2007-2013, priority axis 4- Implementation of adequate management systems for nature's protection.
Russia	1. Federal Program on Agriculture Development and Food Markets Regulation 2013-2017. 2. 2. Action Plan to Support the Implementation of the Strategy for Forestry Development 2012-2017 (Forest restoration, improving forest management and forest fire fighting operations).
Saudi Arabia	-
Slovakia	Rural Development Plans Forestry Development Plans
Somalia	1. Survey programs on specific areas have been done. 2. Protection teams from rural areas were created.
Sudan	1. Establishment of new protected areas 2. Establishment of new regional forests
Syrian Arab Republic	1. Desertification national program 2. Deforestation national program 3. Ban of hunting legislation 4. Rural development strategy
Tunisia	- Forestry Development Plans,
Ukraine2	National Action Plan on the Protection of Environment for 2011-2015 (2011); Nationwide Programme for Forming of the National Ecological Network of Ukraine for 2000-2015 (2000)
United Arab Emirates	-
Yemen	1. Field survey 2. Preparing conservation plan 3. Raising awareness of key stakeholders. 4. Development of legislation and the announcement of the nesting areas as protected areas

ANNEX 7 - Use

Table 1 The use of the Saker Falcon

Country	Purpose of use	Taking from the wild	Level of annual taking	Opening and closing months of taking	Is there any quota scheme in place?	Legal national trade	Legal use for falconry
Armenia	Making Mounted Specimens	Yes	1 per 3-4 years / ME	November - march	No	No	No
Austria	Falconry, captive breeding, trophy when killed	Taking from the wild is illegal	-	-	-	Yes, when captive bred (according of CITES regulations)	?
Azerbaijan	Catching for selling to Arabian countries	Yes	Unknown	Migration season	It is illegal	No	No
Bangladesh	-	-	-	-	-	-	-
Bulgaria	Falconry	Yes	In the past this was probably the highest reason for the disappearing of the breeding population in Bulgaria. Currently there is no data but we consider this as one of the most potentially serious	No. It is strictly forbidden in Bulgaria to catch wild birds.	No. It is strictly forbidden in Bulgaria to catch wild birds.	Yes (captive bred/hybrid)	Officially No. But as it is possible to have a captive bred/hybrid) in captivity is a common practice to use these birds for illegal falconry hunting.

Country	Purpose of use	Taking from the wild	Level of annual taking	Opening and closing months of taking	Is there any quota scheme in place?	Legal national trade	Legal use for falconry
			problem for the species. It is in it was completely forbidden.				
Croatia	Breeding in captivity, falconry	No	-	No	No	Yes (captive bred)	Yes (captive bred)
Cyprus	-	no	-	-	-	-	-
Czech Republic	falconry	No	0	-	-	No	Yes (captive bred/hybrid)
Finland	No use	No	0	-	-	-	-
France	Falconry	No	0	No	No	Yes Captive and hybrid	Yes captive and hybrid
Georgia	-	-	-	-	-	-	-
Germany	-	Taking is illegal	-	-	-	No	Exemptions are a matter of competence of the 16 German Länder.
Hungary	Captive breeding of injured birds for repatriation of juveniles	No	0	No	No	No	No
India	-	Not permitted	-	-	-	Not permitted	Not permitted
Iraq	Trading and use for	Yes	50-60, not known	Yes (September – March)	No	No (but illegal)	No (but illegal)

Country	Purpose of use	Taking from the wild	Level of annual taking	Opening and closing months of taking	Is there any quota scheme in place?	Legal national trade	Legal use for falconry
	hunting						
Islamic Republic of Iran	Illicit export for falconry	Yes	Around 100 – 400 not based on survey	Yes (September – end of February	No	Yes (captive bred/hybrid)	Yes (captive bred/hybrid)
Israel	-	No	0/GO	No	No	No	No
Italy	-	No	-	No	No	No	No
Kazakhstan	Falconry. Illegal use for export to Arabian markets	Yes, but only illegal	Estimated min. 300 and max. 400 birds/ME (illegal; there is no data, it is just guess)	No	No	No (allowed only for captive bred birds)	Yes (only captive bred)
Kenya	None	No	-	-	No	No	No
Kyrgyzstan	Falconry	Yes	Unknown	-	Are issued very rarely	No	No
Macedonia	-	-	-	-	No	No	No
Mali	Traditional medicine	Yes	100-600/Estimation not based on survey	Yes (June-September)	-	Wild: No	-
Malta	Falconry	No	0	No	No	Yes (captive bred)	Yes (captive bred)
Mongolia	-	-	-	-	-	-	-
Montenegro	No use	-	-	-	-	-	-
Niger	None	No	none	No	No	No	No
Pakistan	Since 2005, netting/trapping and trade of Saker Falcon is banned under a directive	-	-	-	-	-	-

Country	Purpose of use	Taking from the wild	Level of annual taking	Opening and closing months of taking	Is there any quota scheme in place?	Legal national trade	Legal use for falconry
	from the CITES Secretariat. However illegal trapping of Saker Falcon and subsequent trade in black market is reported in Pakistan						
Poland	falconry	No	0	No	No	Yes (captive bred/hybrid)	Yes (captive bred/hybrid)
Romania	No	No	-	-	No	No	No
Russia	-	-	-	No	No	No	-
Saudi Arabia	Falconry	Yes	22-41/GE	Not found	Not found	Yes (wild/captive bred/hybrid)	Yes (wild/captive bred/hybrid)
Serbia	No	Suspected	No data	No	No	No	No
Slovakia	Possible use only based on permission * (exception from law) – not such case yet	No	No	No	No	Yes (wild/captive bred/hybrid) according to CITES legislation	Yes no limitation in use, if the bird is legally owned according to CITES regulations
Somalia	hunting	Yes	Un known	No	No	N0	no
Sudan	Yes	Estimated min. and max.	Yes. Not exceeding 300	October to June next year	-	-	-

Country	Purpose of use	Taking from the wild	Level of annual taking	Opening and closing months of taking	Is there any quota scheme in place?	Legal national trade	Legal use for falconry
		numbers/a 100 per yeart a quality					
Syrian Arab Republic	Trade	Yes	5 local and 60 international	Yes (September-November)	No	Yes (captive bred/hybrid)	Yes (wild/captive bred/hybrid)
Tunisia	-	-	-	-	-	-	-
Ukraine	-	No	-	-	No	Yes (captive bred)	Yes (captive bred)
United Arab Emirates	Falconry	-	-	-	-	Yes	Yes
Yemen	-	-	-	-	-	-	-

ANNEX 8 – Conservation, research & monitoring

Table 1 Conservation background

Country	General attitude towads the Saker Falcon	Is there a national action plan for the Saker Falcon?	Is there a national Saker Falcon project /working group?
Armenia	Indifferent	No	No
Austria	In the public indifferent, in hunters predominantly negative (if known)	No	Monitoring activities (coordinated by BirdLife Austria) and artificial nest-boxes on power lines
Azerbaijan	Protection	No	No
Bangladesh	Protection	No	No
Bulgaria	-	Yes	Yes (Saker Falcon Reintroduction in Bulgaria – *www.cherrug.org*; http://greenbalkans.org/category.php?language=en_EN&cat_id=67&)
	As a whole the general attitude toward birds of prey in Bulgaria is positive. However there is negative attitude among some hunters and pigeon fanciers. The attitude toward the Saker is no different in this regard.	Yes (Action plan for the conservation of the Saker falcon (Falco cherrug Gray, 1834) in Bulgaria 2013-2022)	Yes Conservation of Imperial Eagle and Saker Falcon in key Natura 2000 sites in Bulgaria/ **http://www.saveraptors.org** (Southeast European Saker Network (SESN) funded by International Wildlife Consultants (IWC) (Environmental Agency of Abu Dhabi (EAD) and People's Trust for Endangered Species (PTES);; Conservation of Falco Cherrug in NE Bulgaria, Hungary, Romania and Slovakia/ **http://sakerlife2.mme.hu**;
Croatia	Positive	No (but in preparation)	Yes (http://saker.pd-drava.hr/)
Cyprus	Little known species nationally	No	No
Czech Republic	Good, but not in the centre of attention	No, but its preparation was approved by responsible state organization	Yes (no web page)
Finland	-	no	no

Country	General attitude towads the Saker Falcon	Is there a national action plan for the Saker Falcon?	Is there a national Saker Falcon project /working group?
France	-	No	No
Georgia	-	Yes (title, year)/No	Yes (provide a title or link)/No
Germany	-	No	No
Hungary	Respected nationally as the ancient totem animal of Hungarians	Yes (title, year)/No But it is included in the European Action Plan what was initiated and organised by MME/BirdLife Hungary on behalf of BirdLife International	Yes (provide a title or link)/No Conservation of F. cherrug in the Carpathian Basin Life project LIFE06 NAT/HU/000096 (2006-2010) Conservation of F. cherrug in Bulgaria, Hungary, Romania and Slovakia LIFE09 NAT/HU/000384 (2010-2014)
India	Unknown	No	No
Iraq	-	-	-
	Normal bird over most of Iraq, but very 'special' bird over other areas	No	No
	Mainly persuaded due to use in Falconry or as a cultural tradition	No	Yes
Islamic Republic of Iran	The highest rate of penalty amongst birds	No (Special attention through the Hunting and Trapping Law)	No (Some NGOs are active in this field)
Israel	Fully protected. No special attitude	No	No
Italy	-	No	No
Kazakhstan	Bad	No	No
	People like falcons; but now everybody in Saker breeding/migration areas knows that it is valuable expensive bird (the price if very often overestimated)	No	No
Kenya	Low awareness among the general public	No	Yes - Raptor Working Group
Kyrgyzstan	Positive understanding of the need to	National biodiversity conservation plan	No

Country	General attitude towads the Saker Falcon	Is there a national action plan for the Saker Falcon?	Is there a national Saker Falcon project /working group?
	protect		
Macedonia	Not known species	No	No
Mali	National concern for the destruction of the species	No	No
Malta	Positive	No	No
Mongolia	-	?	?
Montenegro	-	No	No
Niger	Killing or capturing especially local people (village level)	No	Yes
Pakistan	-	No	No
Poland	neutral	No	No
Republic of Serbia	-	No	No
Romania	Protection	No	Yes
Russia	-	-	-
Saudi Arabia	Highly respected	Not yet (in process)	Yes (Saker Falcon committee)
Serbia	Strictly protected wild species	Yes (title, year)/No	Yes (provide a title or link)/No Several small projects leading by BPSSS
Slovakia	good	No (the last version of NAP was valid until for 5 years – 2003 – 2008; recently preparing the new one and expecting new funding for EU	Yes - There is an RPS Saker Working Group operating in the whole territory of Slovakia; but with small or none funding
Somalia	-	No	No
Sudan	Conservative and against illegal taking	No Yes (title, year)/No	No Yes (provide a title or link)/No
Syrian Arab Republic	Very low	No	No
Tunisia	-	No	No
Ukraine	-	Yes, Manuscript, 2013	No
United Arab Emirates	There is a high positive attitude towards birds of prey in UAE, and a special attention is paid for Saker	?	?

Country	General attitude towads the Saker Falcon	Is there a national action plan for the Saker Falcon?	Is there a national Saker Falcon project /working group?
	Falcon.		
Yemen	-	?	?

Table 2 Current conservation and management actions for the Saker Falcon

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
Armenia	Is included into the list of breeding bird surveys, in case if become occasional breeder	Annual surveys of breeding birds	National	Started in 2010	Acopian Center for the Environment of American University of Armenia
Austria	?	Annual survey of breeding pairs and breeding success; Preparing guidelines about the effect of wind farms; satellite-telemetry of released captive bred Sakers.	Regional (In the two Federal Provinces where it is breeding)	?	Monitoring is coordinated by BirdLife Austria; nest-box-programme by FIWI/Vet.Med.Univ Vienna; satellite-telemetry by Museum of Natural History Vienna.
Azerbaijan	-	-	-	-	-
Bangladesh	-	-	-	-	-

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
Bulgaria	Population restoration	Survey of Saker Falcons breeding population status Preparation of feasibility study for Saker Falcon reintroduction Pilot reintroductions of Saker Falcons in Bulgaria	National	Started in XXI	Institute of Biodiversity and Ecosystem Research Green Balkans Federation – NGO Wildlife Rehabilitation and Breeding Center – Greeen Balkans, Stara Zagora Spatia Wildlife Ltd. Environment Agency – Abu Dhabi International Wildlife Consultants (UK) Ltd
Bulgaria	Population restoration / maintain a gene bank	Captive breeding of Saker Falcons for the need of reintroduction programme Awareness campaign for Saker Falcons conservation	National	Started in XXI	Institute of Biodiversity and Ecosystem Research Green Balkans Federation – NGO Wildlife Rehabilitation and Breeding Center – Greeen Balkans, Stara Zagora Spatia Wildlife Ltd. Environment Agency – Abu Dhabi International Wildlife Consultants (UK) Ltd

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
Bulgaria	Investigate the current status of the species	Mapping of all the former breeding Saker territories.	Regional	Started in 2009-2013	BSPB
			National	2009-2013	BSPB
	To ensure better protection of the species in all former breeding sites	Designation of breeding areas as protected areas.			
	To establish new well protected nesting sites in suitable territories	80 Artificial nest mounted on trees and electric pylons	Regional	2009-2013	BSPB
	To develop capacity on the issue of Bird Crimes on national level	Bird Crime enforcement work	National	2009-2013	BSPB
	To ensure long term conservation of the species by implementing all possible best practices	Development of the first National Saker action plan	National	2009-2013	BSPB/BPPS/IBER
	To minimise the risk of electrocution in key Natura 2000 sites for Imperial eagle and Saker falcon in Bulgaria	Insulation of hazardous power line poles in the South of Bulgaria	Regional	2010-2013	BSPB in collaboration with the grid operator EVN

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
Bulgaria	Investigate the current status of the species	Mapping of all the former breeding Saker territories.	Regional		
	To establish new well protected nesting sites in suitable territories	Installation of next boxes on electric pylons.	Regional	Started in 2010-2014	BSPB BirdLife Bulgaria
	To minimise the risk of electrocution on the important migration routes and wintering sites	Insulation of dangerous electric pylons in North East Bulgaria	Regional	Started in 2010-2014	BSPB BirdLife Bulgaria
	To improve the foraging potential of aglri lands	Implementation of agri- environmental schemes	Regional	Started in 2010-2014	BSPB BirdLife Bulgaria
	To investigate the potential risk and important areas for staging and migratory birds	Monitoring of satellite tagged bird from neighbouring countries	Local	Started in 2010-2014	BSPB BirdLife Bulgaria
	Investigate the current status of the species	Mapping of all the relevant territories has been done on national and regional level. Investigation about the threats and limitation has been done	National	2008-ongoing	IBER/Bulgarian academy of science & Green Balkans
	To establish science based study on which the future actions will be based	A dedicated fusibility study for reintroduction has been developed and prepared	National	2008-ongoing	IBER/Bulgarian academy of science & Green Balkans

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
	To investigate the threats, important areas and dispersal movements of the species	Satellite tracking of all the released birds is ongoing	Internatio nal	2008-ongoing	IBER/Bulgarian academy of science & Green Balkans
	To evaluate the effect of the boxes	Monitoring of nest boxes	Regional	2008-ongoing	IBER/Bulgarian academy of science & Green Balkans

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
Czech Republic	Population stability	Monitoring of the breeding population parameters: number of breeding pairs, breeding success.	National	1976	Various, changing year to year, e.g: Agency for Nature conservation and Landscape protection, Ministry of Environment, Czech Society for Ornithology, The regional authority of South Moravian region
	To evaluate the effect of the boxes	Protection of breeding pairs	National	1976	various
	Increased breeding success.	Installation of next boxes on trees and electric pylons.	Regional	1980	various
Croatia	Increased breeding success.	Monitoring of the breeding population parameters: number of breeding pairs, breeding success.	Regional	Started in 2007	NGO Drava, State Institute for Nature Protection
Cyprus	Designation of key passage sites as protected areas	Akrotiri peninsula designated as the equivalent of an SPA (NATURA 2000 site for birds)	National	2009	British Base Authorities in Cyprus
		Cape Greco designated as SPA Achna dam designated as SPA	National National	2007 2008	Cyprus Interior Ministry
Finland	Recorded as vagrant only 8 times in Finland. Only one of those specimens has been considered to be wild.	None	-	-	-
		-	-	-	-

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
France	-	None	-	-	-
Georgia	-	-	-	-	-
Germany	-	-	-	-	-
Hungary	Population decline halted and reversed.	Species protection	National	1954 - recent	Government (Ministry of Rural Development)

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
Hungary		Designation of breeding and feeding areas as protected areas.	National	Started in mid-20th century with nationally protected areas, continued with designation of IBAs as a background of Natura 2000 areas, major extensions in 2004 with designation of Natura 2000 sites for the species, a site extension also in 2010	Government (Ministry of Rural Development), MME/BirdLife Hungary
		Monitoring of the breeding population parameters: number of breeding pairs, breeding success	National	1980 - recent	national park directorates, MME-BirdLife Hungary
	Increased breeding success.	Providing artificial nest sites (nest boxes and platforms)	National	1987 - recent	national park directorates, MME-BirdLife Hungary, Pro Vértes Public Foundation

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
		Nest guarding	Local	1977 – 2006	national park directorates, MME-BirdLife Hungary
Hungary	-	Captive breeding of injured birds that cannot be repatriated and repatriation of juveniles.	Local	1986-recent	MME-BirdLife Hungary, Pro Vértes Public Foundation, Duna-Ipoly NP Directorate.
	Improvement and maintenance of habitat. Reduced mortality.	Introduction of agricultural subvention schemes	National	2003 - recent	Government (Ministry of Rural Development)
		Studying agricultural subvention schemes and effects of the related habitat management.	National	2006 - recent	Saker conservation in the Carpathian Basin Life project LIFE06 NAT/HU/000096
		Conserving Souslik as the most important prey (species protection, monitoring, agri-environmental scheme, re-introduction to sites, evaluation of their wintering success).	National	1982 – protection, monitoring and re-introduction since 1987, other actions chiefly since 2006 - recent	Saker conservation in the Carpathian Basin Life project LIFE06 NAT/HU/000096

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
Hungary		Purchasing land	Local	1995 - recent	State nature conservation (ministry and national park directorates); MME/Birdlife Hungary & Pro Vértes Public Foundation
	Reduced mortality.	Insulating pylons of electric power lines.	National	1980 - recent	national park directorates, MME-BirdLife Hungary
		Saving injured birds at rescue stations and repatriation when feasible.	National	1986- recent	national park directorates, MME-BirdLife Hungary
		Collection of information on the migration and wintering of Sakers by ringing, satellite telemetry and an international mailing list.	National	Occasional ringing since 1954; regular ringing programme: since 1980; Satellite tracking: since 2007	LIFE programmes: LIFE06 NAT/HU/000096 LIFE09 NAT/HU/000384
		Study the habitat use of Saker Falcon at wind farms.	National	2010 - recent	Second LIFE Saker Conservation programme LIFE09 NAT/HU/000384
	Knowledge gaps restricting conservation efforts are eliminated.	Studying of food and habitat preference	National	2010 - recent	Second LIFE Saker Conservation programme LIFE09 NAT/HU/000384

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
Hungary	Saker Falcon is widely recognised as an important piece of our natural heritage	Increasing public awareness including the most important stakeholders (hunters, farmers).	National	1974 - recent	Government (Ministry of Rural Development); national park directorates, MME-BirdLife Hungary
	International networking in research and conservation	International collaboration, sharing information and best practice.	Internatio nal	1986 - recent	Government (Ministry of Rural Development); national park directorates, MME-BirdLife Hungary
India	-	-	-	-	-
Iraq	Population rapid assessment	Migrant and wintering birds monitoring through bi-annual field survey and systematic monitoring for the key wintering habitats.	National Local	2006-2012	Canada –Iraq Marshland Initiative (CIMI) Iraqi Ministry of Environment (IMoE) Iraqi Ministry of Higher Education Iraqi Natural History Research Centre and Museum Nature Iraq
	-	Peramagroon Mountain in Sulaymaniyah province in Northern Iraq 9Kurdistan Region)	Local	Still in process	Iraqi Ministry of Environment (IMoE) and Kurdistan Region Government (KRG)
	-	No dedicated surveys have been undertaken in Iraq and there has been no response to halt any decline	-	-	-
	-	A study of the number and origin of Saker Falcons in captivity should be initiated	-	-	-

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
Islamic Republic of Iran		Many of Protected Areas have been designated by the Department of Environment which SFs (within breeding and wintering areas) are benefited. Breeding, migrant and wintering birds are monitored through bi-annual wildlife census in the Protected Areas Network.	National/Local and Regional	Ongoing activity	Department of Environment
Israel	-	-	-	-	-
Italy	-	-	-	-	-
	-	Arranging of Bird Important Areas for Saker's conservation	National	Started in 2008	Forest and Hunting Committee of Ministry of Agriculture; ACBK
	Recovery of Saker Falcon population Important bird areas in Kazakhstan	Release of Saker Falcons from UAE and in captivity bread	National	Started in 2008	Forest and Hunting Committee of Ministry of Agriculture
Kazakhstan	Population decline research	Monitoring of the breeding population till 80 breeding pairs per year, breeding success	National	Started in 1993	ERWDA (UAE), IWC Ltd (UK)
	Conservation of Saker Falcon population	Arranging of Bird Important Areas for Saker's conservation	National	Started in 2008	Forest and Hunting Committee of Ministry of Agriculture; ACBK
	Recovery of Saker Falcon population Important bird areas in Kazakhstan Restoration of Saker population in south-east Kazakhstan	Designation of key breeding areas as Important Bird Areas (in frame of IBA national program)	National	2004-2008	National BirdLife Partner - Association for the Conservation of Biodiversity of Kazakhstan (ACBK)

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
	Important bird areas in Kazakhstan	Designation of key breeding areas as Important Bird Areas (in frame of IBA national program)	National	2004-2008	National BirdLife Partner - Association for the Conservation of Biodiversity of Kazakhstan (ACBK)
	Restoration of Saker population in south-east Kazakhstan	Reintroduction of captive-bred Sakers (from "Sunkar" Breeding Centre, Almaty)	Local	2007	Committee of Forestry and Hunting & Institute of Zoology (governmental funding)
Kenya	None in place	None in place	-	-	Kenya Wildlife Service National Museums of Kenya, Kenya Wildlife Service
Macedonia	No such case	-	-	-	-
Mali	-	-	-	-	-
Malta	To provide direction on matters relating to environment protection on a national scale	The National Environment Policy is a comprehensive environmental policy covering all environmental sectors including, air, waste, water, land, soil, climate, biodiversity, noise and mineral resources. It also covers, but is not restricted to, obligations arising from the European Union environment *acquis*. Although not specifically devised for Saker Falcon protection, the Policy provides for a broad range of measures that deal with the protection of biodiversity. More information can be viewed at: https://secure2.gov.mt/tsdu/environment-nep	National	2012-2020	Ministry for Sustainable Development, the Environment and Climate change

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
	Conservation of Biodiversity	The National Biodiversity Strategy and Action Plan (NBSAP) was published in 2012 as part of Malta's obligations under Convention for Biological Diversity. Although not specifically targeting the conservation of Saker Falcon, NBSAP adopts an integrated approach towards biodiversity conservation and aims at contributing towards halting or reversing the trend of global biodiversity loss. More information may be found on : https://www.mepa.org.mt/biodiversity-nbsap	National	2012-2020	Ministry for Sustainable Development, the Environment and Climate Change and the Malta Environment and Planning Authority
Mongolia	Intake saker harvest and reduce electrocution mortality,	Monitoring breeding population at the 5000 artificial nests.	Regional	Started in 2010	Mongolian ministry of environment and green development, International Wildlife Consultants, Ltd, UK Wildlife Science and Conservation center of Mongolia
		Experimental studies on the power lines	Regional	Started in 2013	International Wildlife Consultants, Ltd, UK Mongolian wildlife science and conservation center, Mongolian ministry of Nature Environment and green development. Local administrations, Eastern Electricity Company (EEC)
Montenegro	-	-	-	-	-
Niger	-	-	-	-	-

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
Pakistan	-	-	-	-	-
Poland	Saker is observed sporadically in summer and autumn, only 1 case of breeding	-	-	-	-
Republic of Serbia	Number of breeding pairs	Census of breeding pairs of Saker Falcon in Serbia.	National	2013	Bird Protection and Study Society of Serbia
	Improvement of nesting possibilities and breeding success Population decline halted	Installation of next boxes on electric pylons.	National	2007-2008	Bird protection and Study Society of Serbia (BPSSS), Serbian Electro Company, Provincial Secretariat for environment (PSE), Institute for nature conservation of Vojvodina (INCV)
		Designation of breeding areas as protected areas.	National	Permanent	Ministry of Environment (ME), Institute for nature conservation of Serbia, PSE, INCV
	Increased breeding success	Monitoring of the breeding population parameters: number of breeding pairs, breeding success.	National	2004-2013	INCV, BPSSS, PSE, International Wildlife Consultants 2007-2008 (IWC)
	Increased breeding success, Population decline halted	Revitalization of open pasture and grasslands and improvement of traditional grazing Suslik reintroduction and population increase	Regional	2003-2013	PSE, INVC, BPSSS, ME, managers of protected areas,
	Improvement of legal protection	Review relevant legislation and take steps, where possible to make sure that it protects all birds of prey fro all form.	National	2013-2014	Ministry of Environment and Climate Change

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
Romania		Strengthen the application of the legal protection of birds of prey by ensuring appropriate penalties.	National	2013-2014	Ministry of Environment and Climate Change
	Population decline halted.	Monitoring the breeding population parameters: number of breeding pairs, distribution, status of conservation, breeding success.	National	2011-2014	BirdLife Romania Milvus Group Bird and Nature Protection Association
		Collecting information on Saker Falcon population and migration routes, from available sources, in a programme of field research.	National	2011-2014	BirdLife Romania Milvus Group Bird and Nature Protection Association
		Develop existing microchipping schemes to help monitor of Saker Falcon.	National	2011-2014	BirdLife Romania Milvus Group Bird and Nature Protection Association
		Elaborate a GIS database of Saker Falcon and the prey species.	National	2011-2014	BirdLife Romania Milvus Group Bird and Nature Protection Association
	Habitat conservation and sustainable management of the important sites and flyways	Implement programmes of habitat management.	National	2011-2014	BirdLife Romania Milvus Group Bird and Nature Protection Association
		Undertake Environmental Impact Assessment for any project potentially adversely impacting sites on raptors and their habitats.	National	All the time	Ministry of Environment and Climate Change National Environmental Protection Agency

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
		Maintain ecologically and socially sustainable grazing systems to ensure long-term survival of key prey species.	National	2011-2014	BirdLife Romania Milvus Group Bird and Nature Protection Association
		Conduct Strategic Environmental Assessments of planned significant infrastructure developments within major flyways to identify key risk areas.	National	All the time	Ministry of Environment and Climate Change National Environmental Protection Agency
	Increase breeding success.	Collect information on the national power line network and create a basic national potential conflict hotspot map together with information about the Critical Site Network Tool, Important Bird Areas.	National	2011-2014	BirdLife Romania Milvus Group Bird and Nature Protection Association
		Installation of next boxes on electric pylons in the western part of Romania and in Dobrudja region	National	2011-2014	BirdLife Romania Milvus Group Bird and Nature Protection Association
		Insulate the dangerous electric pylons in Bihor, Satu-Mare, Arad, Timiş counties and Dobrudja region.	National	2011-2014	BirdLife Romania Milvus Group Bird and Nature Protection Association Romanian Electricity Companies (ENEL, Electrica, Transelectrica)

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
	Decrease the impact of electricity transmission lines, conductors and towers in causing injury and death to Saker Falcon and to minimize the risk in the long term.	Collaborate with the relevant utility companies.	National	2011-2014	BirdLife Romania Milvus Group Bird and Nature Protection Association Romanian Electricity Companies (ENEL, Electrica, Transelectrica)
		Encourage constructors and operators of new transmission lines and towers to incorporate appropriate measures and to neutralize existing towers	National	2011-2014	Ministry of Environment and Climate Change BirdLife Romania Milvus Group Bird and Nature Protection Association Romanian Electricity Companies (ENEL, Electrica, Transelectrica)
		Elaborate the database of priority power lines and bird casualties	National	2011-2014	BirdLife Romania Milvus Group Bird and Nature Protection Association Romanian Electricity Companies (ENEL, Electrica, Transelectrica)
	Raise awareness of problems faced by the Saker Falcon	Develop a programme of public awareness using electronic and print media to publicise the current status of Saker Falcon, the threats, the conservation measures	National	2011-2014	BirdLife Romania Milvus Group Bird and Nature Protection Association Ministry of Environment and Climate Change

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
		Educate and raise awareness of local communities to the importance of Saker Falcon and the need to monitor and protect this species.	National	2011-2014	Milvus Group Bird and Nature Protection Association BirdLife Romania
		Organise training workshop to improve skills in the monitoring of Saker Falcon	Regional	2012-2013	Milvus Group Bird and Nature
	Establish the best practices for the Saker Falcon conservation	Elaborate, approve and implement the National Action Plan for conservation of the Saker Falcon	National	2013-2014	Ministry of Environment and Climate Change Milvus Group Bird and Nature Protection Association
		Elaborate, approve and implement the Management Plans of Special Protected Areas which include conservation measures for the Saker Falcon	National	2013-2020	Administrators, custodians of natural protected areas, Local Environment Protection Agencies Ministry of Environment and Climate Change
		Enhancing scientific research and information in connection with the development of the Intergovernmental Platform on Biodiversity and Ecosystem, Service	National	2013-2020	National Environment Protection Agency Universities, Research Institutes Ministry of Environment and Climate Change

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
	Develop cooperation between Government agencies, IGOs, NGOs, the electrical utility companies and with neighbouring countries	Establish legal procedures between various stakeholders	National	2013-2014	Ministry of Environment and Climate Change
		Partnership working which foresees closer collaboration with IGOs, NGOs, private sector	National Regional	2011-2020	Ministry of Environment and Climate Change National Environment Protection Agency Administrators of natural protected areas
		Identifying opportunities for cooperation and coordination at national and regional level through the creation of synergies	National Regional	2013-2020	Ministry of Environment and Climate Change
Russia	Population decline halted	1. Monitoring of the breeding population parameters: distribution, number of breeding pairs, breeding success, threats.	National	Started in 1998	Center of Field Studies, NGO Siberian Environmental Center, NGO RRRCN, NGO
		2. Information and methodological support to Russian customs to ensure compliance with environmental legislation of Russia – prevent the illegal export of falcons.	Regional	Started in 2005	Siberian Environmental Center, NGO WWF-Russia
	Increased breeding success	3. Installation of platforms for nests in Tuva region.	Local	Started in 2006	Siberian Environmental Center, NGO
	Reducing of bird death on power lines of average voltage	1. Working with the power grid companies in order to power lines, dangerous for birds, will be equipped by bird protective devices.	National	Started in 2009	Siberian Environmental Center, NGO RRRCN, NGO

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
Saudi Arabia	-	-	-	-	-
Slovakia	Stabilisation and increase of population, elimination of threats, improvement of prey offer	Preparing guidelines about the effect of wind farms, Identification of prey composition, Implement and promote agri-environmental scheme for *S. citellus,* repatriation of *S. citellus*, Locate and insulate dangerous pylons, Keeping and breeding of injured juveniles, Guarding of endangered nests, Marking juveniles with PTTs, PR activities	National	1.10.2010 – 30.9.2014	Raptor Protection of Slovakia, Západoslovenská energetika, a.s.
	Survey and conservation of birds of prey, including Saker Falcon	Monitoring and counting of common and rare bird species (including Saker), Solving of bird crime cases, Coloured ringing of birds, Development of online database and ringing database, PR activities	National	1.4.2012-31.3.2014	Raptor Protection of Slovakia, Slovak Ornithological Society / BirdLife Slovakia
	Conservation of birds of prey and owls, including the Saker Falcon	Monitoring of the species, creating of nesting opportunities	National	2013	Raptor Protection of Slovakia
	Achieve favourable conservation status of bird species in SPA	Compiling the existing data and gathering the now one on criteria bird species and their habitats in special protected areas (SPA is the Special Protection Area designated for the protection of birds according to EU legislation – Bird Directive) including Saker Falcon as criteria species of some of designated SPAs	National	2009 – 2014	State Nature Conservancy of the Slovak Republic
Somalia	-	-	-	-	-

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
Sudan	Enhancing capacity building, wildlife conservation and sustainable management of protected areas	Monitoring of migratory waterbirds, establishing of new protected areas in the Red Sea areas	Regional	2012-2014	FAO project 3303
	African Great Green Wall	Protection of biodiversity, conservation of habitats and ecosystems	Regional	2012-2017	World bank, GEF
Syrian Arab Republic	All activities related to the general conservation actions undertaken through different international agreements only like Convention on Biological Diversity (Biodiversity Convention) And Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	-	-	-	-
Tunisia	-	-	-	-	-
Ukraine	Population decline halted.	Monitoring of the breeding population parameters: number of breeding pairs, breeding success.	Local	Started in 2001	Ukrainian Birds of Prey Research Centre

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
	Increased breeding success.	Installation of nest boxes on electric pylons and artificial nests in precipices.	Local	Started in 2008	Ukrainian Society for the Protection of Birds, Ukrainian Birds of Prey Research Centre
	Legislation	Increase the amount of compensation for the dead bird	National	Since 2013	Government
United Arab Emirates	Monitoring of birds, including raptors	International Waterbird Census (IWC), There is a monitoring programme for birds in Abu Dhabi which also includes raptors	Local	-	-
Yemen		Monitoring of the breeding population parameters: number of breeding pairs, breeding success.	National	Oct. 2013	Environment protection Authority
		Designation of breeding areas as protected areas.	National	Oct. 2013	Environment protection Authority
		Develop a program to monitor the hunting regulation	National	Oct. 2013	Environment protection Authority
	Increased breeding success.	Installation of next boxes on electric pylons	National	Oct. 2013	EPA
	Establishment a protected areas	Field survey Preparing conservation plan Raising awareness of key stakeholders. Development of legislation and the announcement of the nesting areas as protected areas	National	Oct. 2013	EPA

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organisation
	Monitoring and regulating the hunting	Develop a program to monitor the hunting regulation	National	Oct. 2013	EPA

Table 3 Conservation efforts and research activities over the last ten years

Country	Brief summary of conservation efforts targeting the Saker Falcon over the last ten years	Brief summary of research activities dealing with the Saker Falcon over the last ten year
Armenia	There are no special conservation efforts targeted at species. The species' status was updated during last publication of the Red data Book of Armenia. The species status is reviewed at current in frames of ongoing report under Bern Convention**.**	The species is included into counting schemes, aimed at revealing of occasional breeding.
Austria	Survey of the breeding population and installation of artificial nest boxes.	Satellite-telemetry of captive-bred released falcons.
Azerbaijan	Included in National red data book since 1989	On the way registering duting winter counts of waterbirds
Bangladesh	Included in Bangladesh Wildlife (Preservation & Security) Acts, 2012	None
Bulgaria I.	- Survey of the current breeding population status - Preparation for Saker Falcon reintroduction - Pilot releases of Saker Falcons (2011-2013) - Awareness campaign toward species conservation - Artificial nest boxes installation - Management of a key European Groundsquirrel colony as aimproving the food supply for Saker Falcons	1. Population survey Survey teams from the Institute of Biodiversity and Ecosystem Research (IBER) with cooperation of other organizations (Green Balkans Federation, Birds of Prey Protection Society /BPPS/, Fund for Wild Flora & Fauna /FWFF/ and Institute of Zoology) implemented a four-year Saker survey from 2006-09. The survey was targeted at localities where Saker Falcons had previously been recorded in Bulgaria. Potentially suitable habitats were also explored. Total size of the surveyed territories comprises more than 10% of Bulgarian territory (> 11,000 km²). In results no breeding Saker falcons were found. Due to the fact that one third of the breeding populations of Golden Eagles, Long-legged buzzards and Peregrines were localized and mapped, the Saker falcon population is estimated to be 0-3 pairs if not extinct. 2. Feasibility study for reintroduction

Country	Brief summary of conservation efforts targeting the Saker Falcon over the last ten years	Brief summary of research activities dealing with the Saker Falcon over the last ten year
		The feasibility study i) determines the current breeding status of the saker falcon in Bulgaria, ii) undertakes a review of the historical status of the species in the country, iii) assesses the factors that were responsible for the population decline, iv) makes review of potential release areas and select a suitable site for the re-introduction, v) makes review of potential re-introduction strategies for their appropriateness to meet thegoals of the project and vi)develops population models to determinerequirements of releases. 3. Assessment of attitudes of target groups to the reintroduction of SakerFalcons in Bulgaria The assessment was made on the territory of Central Balkan National Park and neighbouring areas – a territory potential for future Saker Falcon releases and restoration of the population. Pigeon fanciers and hunters were the two target groups that possibly could have a negative impact on Saker Falcon restoration in Bulgaria
Bulgaria II.	More than 300 artificial nest boxes on electric pylons and trees have been mounted Insulation of dangerous electric pylons (about 300) in some of the territories and wintering/staging sites Raising public awareness	Mapping of all the relevant territories has been done on national and regional level. Investigation about the threats and limitation has been done A dedicated fusibility study for eventual reintroduction has

Country	Brief summary of conservation efforts targeting the Saker Falcon over the last ten years	Brief summary of research activities dealing with the Saker Falcon over the last ten year
	Bird Crime enforcement work Work with all the relevant authorities (Ministry of environment and water, Ministry of Interior, Custom Agency, Ministry of Justice etc.) Establishing of working group with active representatives from all institutions, balding capacities: workshops, seminars, Improvement of the legislation and work on specific crime cases regarding rare species of birds of prey. National Action plan has been developed and endorsed by the Ministry of Environment and Water All of the former breeding Saker sites has been designated as protected areas Restocking program for the species (for the last (3 years). Each year a small number of young birds have been released, equipped with satellite transmitters) Agri-environmental schemes has been developed targeting the species	been developed and prepared Satellite tracking of all the released birds is ongoing Monitoring of nest boxes
Croatia	Legislative framework established, National action plan for the Saker Falcon in preparation.	Since 2006, NGO "Drava" and SINP, with support from the Ministry and other financiral resources,conducts research and monitoring of Saker falcon population in Croatia, particularly monitoringof nests and ringing of young falconson electricity pylons.
Cyprus	None specifically for species	Monitoring of migrationg raptor numbers
Czech Republic	Monitoring of the population, protection of the eyries, stabilization of nests, installation of artificial breeding platforms and nest boxes, effort to safeguard critical parts of dangerous power lines	
Finland	no	no
France	any	-
Georgia	-	-
Germany	None – no breeding in the last 10 years	None – no breeding in the last ten years

Country	Brief summary of conservation efforts targeting the Saker Falcon over the last ten years	Brief summary of research activities dealing with the Saker Falcon over the last ten year
Hungary	See results of the first LIFE project: http://sakerlife.mme.hu/uploads/File/LIFE06NAT_H_000096FR_311210.pdf and mid-term results of the second LIFE project: http://sakerlife2.mme.hu/sites/default/files/LIFE09NAT-HU-000384_PRNr1.pdf	See results of the first LIFE project: http://sakerlife.mme.hu/uploads/File/LIFE06NAT_H_000096FR_311210.pdf and mid-term results of the second LIFE project: http://sakerlife2.mme.hu/sites/default/files/LIFE09NAT-HU-000384_PRNr1.pdf
India	None	None
Iraq	There are no conservation efforts and research activities	-
	Saker Falcon was one of the iconic species that was concerning the surveying efforts that were undertaken by the Iraqi Ministry of Environment and Non-governmental NGOs.	A specific proposal was submitted to Mohammad Bin Zaid Fund for species conservation MBZ in 2012 to undertake a monitoring survey to the wintering and breeding population of Saker Falcon In Iraq. The illegal trapping and hunting of Saker Falcon was monitored since 2006.
Islamic Republic of Iran	Implement CITES regulations through provide all falcons CITES permit requirements in order to control illegal trade. Special Annual Patrolling operation to control trapping activities within the country.	-
Israel	null	null
Italy	-	-
Kazakhstan	Conservation of the Falcons on the IBA	Monitoring of different populations, release Sakers from Emirates
	Of conservation actions, there were only several releases of captive bred Sakers from “Sunkar” breeding centre; the biggest one (30 birds) was supported by governmental money via Committee of Forestry and Hunting. Of course, routine patrolling is done systematically by governmental rangers, but usually not especially for Saker but generally for wildlife protection. In “high” season of illegal trapping of Sakers (July-September) special patrolling is done in the most popular trapping areas in south-east Kazakhstan.	Selected breeding areas were monitored by Dr Anatoly Levin in frame of project supported by UAE via UK. Dr Yevgeny Bragin made regular annual monitoring of breeding pairs and population trends in Naurzum State Nature Reserve and in adjacent areas in North Kazakhstan. Surveys were done in West and Central Kazakhstan and partly in South Kazakhstan by joint team of Russian and Kazakhstan ornithologists under leading of Igor Karyakin (Russia).

Country	Brief summary of conservation efforts targeting the Saker Falcon over the last ten years	Brief summary of research activities dealing with the Saker Falcon over the last ten year
Kenya	May benefit from the IBA program	Raptor surveys at selected sites, Raptor road counts
Kyrgyzstan	Suppression of smuggling illegal exports of Saker	Conducting surveys on objects supply Saker.
Macedonia	In 2007 was undertaken short survey in some part of Macedonia partly supported by International Wildlife Consultants	Only in 2007 a short survey ; materijal taken for DNA analises from F cherrug from the several museum speciments shoot maynly in winter period but also in Spring...Rezults still not known.
Mali	During the last ten years, Mali has developed several policies, in particular the Environmental Action Plan of Mali and a National Strategy for the protected areas. The protection and the conservation of wildlife and its habitat are integrated in this dynamics which support the Act No. 95-031 of 20 March 1995, setting the conditions of the management of wildlife and its habitat and its implementing decrees. Within this dynamics, the protection of the species is one of the national concerns. The country now has 113 gazetted forests and 26 protected areas and adjacent zones which constitute the natural range of the Saker Falcon. These national actions complete each other to protect the Saker Falcon in Mali. Texts (Laws and implementing decrees)	No research action
Malta	-	-
Mongolia	-	-
Montenegro	no actions	-
Niger	Some conservation efforts targeting saker falcon are: Implementation of legal policy on hunting and wildlife (low 98-07), Elaboration of national strategy on wildlife management; Signature of memorandum of understanding on the conservation of migratory birds of prey in Africa and Eurasia (Raptors MoU) ; Niger is member of Technical Advisory Group (TAG) to the	None

Country	Brief summary of conservation efforts targeting the Saker Falcon over the last ten years	Brief summary of research activities dealing with the Saker Falcon over the last ten year
	Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia (Raptors MoU);	
Pakistan	Nil	Nil
Poland	None	None
Republic of Serbia	No conservation effort are made specially toward Saker Falcon	Sprandic researches, but no within organized projects
Romania	(Too long text, please see the National Questionnaire!)	(Too long text, please see the National Questionnaire!)
Russia	See Table 2 in Annex 8	
Saudi Arabia	Flacon release, establishment of falcon release fund, support the saker falcon task force, implement CITES rolls through marking all falcons need CITES permit with microchip and monitoring the market for illegal trade.	AlRashidi, M. 2006. An ecological study on hunting falcon species and their protection in Saudi Arabia. Falco 27: 9–11 *http://www.falcons.co.uk/images/falco27.pdf*
Slovakia	Different projects, especially 2 LIFE projects implemented between 2006 – 2014, several smaller projects	Supporting of nesting opportunities and feeding opportunities (incl. prey analyses), regular monitoring, survey, other conservation measures
Somalia	We have done conservations, but not finished	Researches to know the saker population and trafficking.
Serbia	- Artificial platform program (2006-2007, 100 wooden platforms erected on high power line pilons) - Revitalization of open pasture and grasslands and improvement of tradicional grazing (several locations in Vojvodina province) - Suslik reintroduction and population increase (Deliblato sand) - Public campaign about Saker Falcon protection (stakeholders: electro company, foresters, manager of protected areas)(meetings, - Designation of new protected areas suitable for feeding and breeding of Saker Falcon - Satellite transmitter marking of joung bird (2013) and monitoring of Sakers movements in cooperation with Hungarian colleague (LIFE projects)	- Collecting of the terrain facts about the content, size/density of nesting population, distribution and trends of kinds of nesters which nest on power poles in Voivodina, was done in the period 1985-2006 (especially 1986, 1994, 2004 and 2006), and also 2007, 2008 and 2013. Fact collecting was realised along the power lines, with the use of partly modified method of minimal and limited transect and census at the spot, in association with detailed mapping of the birds' nests at the beginning of reproduction and their regular checking. The work included all high-voltage power lines in Voivodina, and special attention was given to the region of Srem, where there are about 730 km power lines (110, 220 and 400kV) with the total of 2,450 metal power poles.

Country	Brief summary of conservation efforts targeting the Saker Falcon over the last ten years	Brief summary of research activities dealing with the Saker Falcon over the last ten year
Sudan	None	-
Syrian Arab Republic	No special activity concerning Saker falcon	No research activity known
Tunisia		Monitoring of the raptors migration in Djebel el Haouaria northern point of the Cap Bon peninsula in the extreme north-east of the country, by Association « Les Amis des Oiseaux » BirdLife Partner and the General directorate of forests.
Ukraine	Building of artificial nests. Learning more about Saker and nature conservation by lectures at school, with hunters etc. Print posters and leaflet about Saker conservation. Involving local 'allies' in Saker conservation.	Establishment of modern distribution and number in the country. Investigation migration using satellite-tracking. Study of Saker's ecology. Counts of wintering birds. Collecting and analysing the information available to identify important saker areas. Collecting and analysing the information about habitat types.
United Arab Emirates	Generally, legislation and establishment of Protected areas	-
Yemen	-	-

Table 4 Ongoing monitoring schemes for the Saker Falcon

Country	Is there a national survey / monitoring programme?	Is there a monitoring programme in protected areas?	Protocols for informing national authorities about monitoing results?	Is there a national coordinator and/or monitoring organisation?
Armenia	No	No	No	No
Austria	Yes	Yes	Yes	Yes (BirdLife Austria)
Azerbaijan	No	No	No	Independent ion the way monitoring by forces of Azerbaijan Ornithological Society
Bangladesh	No	No	No	No
Bulgaria	Yes (2008/last 2013)	Yes(in some areas)	No(But there is a good mutual communication on the matter)	Yes(2 organisation are mainly responsible for the Saker conservation and research: BSPB and IBER/Bulgarian academy of science)
Croatia	Yes (but there is no official protocol for it)	No, since national monitoring program is ongoing there is no need for specific protected area monitoring	No	Yes(SINP)
Cyprus	No	Yes	No	Yes(Game & fauna Service)
Czech Republic	Yes (1976/2013)	No	Yes	Yes(Vaclav Beran)
Finland	No	No	No	No
France	No	No	No	No
Georgia	?	?	?	?
Germany	Yes-a general Bird Monitoring	Yes- in Natura 2000 sites	Länder responsibility	None for Saker falcons
Hungary	Yes (1980-2013)	Yes	Yes	Yes(Ministry of Rural Development and BirdLife

Country	Is there a national survey / monitoring programme?	Is there a monitoring programme in protected areas?	Protocols for informing national authorities about monitoing results?	Is there a national coordinator and/or monitoring organisation?
				Hungary)/No
India	No	No	No	No
Iraq	There is no dedicated monitoring program, but it is included by our Key Biodiversity Areas monitoring program	There is no dedicated monitoring program, but it is included by our Key Biodiversity Areas monitoring program	The KBAs results are being sent regularly to the Iraqi Ministry of Environment as well as the related institutions.	Mudhafar A. Salim is the national focal point of the Protected Areas program in Iraq (and member for the national Committee for the Pas in Iraq). Mudhafar also the coordinator of the KBAs program and monitoring in Iraq.
	Yes (2006/2012)	No	No	Yes
	No	No	No	No
Islamic Republic of Iran	Yes through semi- annual wildlife counting programme Annual Waterbird Mid-winter Census.	Yes, through mentioned programme	Yes, collected data are using to allocate numbers (quota) for hunting and trapping licences. Data are stored in the Wildlife Date Base.	Wildlife Bureau, Department of Environment
Israel	No	No	No	No
Italy	No	No	No	No
Kazakhstan	Yes (1993/current)* * There is a program but not at national/governmental level. It is a program of monitoring of selected breeding areas supported	Yes**	No	No***

Country	Is there a national survey / monitoring programme?	Is there a monitoring programme in protected areas?	Protocols for informing national authorities about monitoing results?	Is there a national coordinator and/or monitoring organisation?
	by UAE via UK ** There is regular monitoring in Naurzum State Nature Reserve (North Kazakhstan); in other protected areas Saker is recorded/reported in frame of general wildlife monitoring *** There is no coordinator at national level; Dr Anatoliy Levin coordinates and accomplish the monitoring of selected areas in frame of program supported by UAE. There is no monitoring organization at national level because there is no national monitoring program or SSAP.			
Kenya	Yes - (IBA monitoring at selected sites but not targeting the species	No	Yes – Annual IBA status and trends reports based on Pressure-State – Response model	Yes(Nature Kenya – Coordinated IBA monitoring
Kyrgyzstan	Yes, in reserves and National Parks	Yes	Yes	No
Macedonia	No	No, only for one (Prespa) but completely improperly by	No	No

Country	Is there a national survey / monitoring programme?	Is there a monitoring programme in protected areas?	Protocols for informing national authorities about monitoing results?	Is there a national coordinator and/or monitoring organisation?
		dilettantes and without any transparency?		
Mali	No	Yes	Yes	Yes, the Waters and Forests Services
Malta	Malta has a general national biodiversity monitoring programme, however there is no specific monitoring programme for Saker falcon since the species is an extremely rare and occasional visitor.	Malta has a general national biodiversity monitoring programme, including monitoring of protected areas however there is no specific monitoring programme for Saker falcon since the species is an extremely rare and occasional visitor.	Not specifically for Saker Falcon	Yes – the Malta Environment and Planning Authority
Mongolia	?	?	?	?
Montenegro	YES but not specific for this species	Yes	Yes	Environmental Protection Agency
Niger	No	No	No	No
Pakistan	No	No	No	No
Poland	No	No	No	No
Republic of Serbia	No	No	No	No
Romania	Yes	Yes	Yes	BirdLifeRomania
Russia	No	No	No	No
Saudi Arabia	Yes (between trappers record the number of falcons trapped)	No	No	Yes(Saudi Wildlife Authority and Universities)
Serbia	No - There was only regional monitoring programme for Saker Falcon in Vojvodina	? - Generaly there are no Saker Falcon breeding pairs inside protected areas.	?	Yes Two Institutes for Nature Conservation (inBelgrade for Serbia and in Novi Sad

Country	Is there a national survey / monitoring programme?	Is there a monitoring programme in protected areas?	Protocols for informing national authorities about monitoing results?	Is there a national coordinator and/or monitoring organisation?
	province 2003-2008, guided by Institute for Nature Conservation of Vojvodina and with assistance of BPSSS, and with financial support of Provincial Secretariat for environment. - There are sporadic national Saker Falcon survey (monitoring of breeding pairs)2007, 2008, 2013 guided by BPSSS	- Maybe there are only a few pairs (not regularly breed) in Deliblato and Mali pesaksand,GornjePodunavlje and Staraplanina.		for Vojvodina province)are obliged to take care about protected species included Saker Falcon. Bird Protection and Study Society of Serbia has important role in monitoring and research, including active measure of protection.
Slovakia	Yes	Yes	Yes	Yes (Raptor Protection of Slovakia in cooperation with State Nature Conservancy of SR and local employees)
Somalia	Yes in 2009,2010	Yes	Yes	Yes wildlife
Sudan	Only reports from wildlife office	no	Wildlife reports	Wildlife conservation
Syrian Arab Republic	No	Yes	Yes	No
Tunisia	No	No	No	No
Ukraine I.	No	Yes	No	No
Ukraine II.	No	Yes	No	No

Country	Is there a national survey / monitoring programme?	Is there a monitoring programme in protected areas?	Protocols for informing national authorities about monitoing results?	Is there a national coordinator and/or monitoring organisation?
United Arab Emirates	International Waterbird Census (IWC); There is a monitoring programme for birds in Abu Dhabi which also includes raptors	?	?	?
Yemen	?	?	?	?

ANNEX 9 - References and publications

Country	Key references about the Saker Falcon in Range States
Armenia	Amiryan S. 2010. Saker Falcon – Falco cherrug J.E.Gray, 1834. in: The Red Book of the Animals of Republic of Armenia. 2010. Asoghik. Aghababyan K. unpublished data.
Austria	Baumgart W., Gamauf A., Bagyura J., Haraszthy L., Chavco J. & Prokopenko L. (1993): Status und Verbreitung des Sakerfalken in Osteuropa. Greifvögel und Falknerei, Jb. DFO, 103-106.Nittinger F., Gamauf A., Pinsker W., M. Wink, Haring E. (2007) Phylogeography and population structure of the saker falcon (Falco cherrug) and the influence of hybridization: mitochondrial and microsatellite data. Molecular Ecology 16: 1497-1518. Berg, H.-M. (2000): Zwischenbericht über die Kartierung des Sakerfalken (Falco cherrug) – Vorkommen in Ostösterreich 1999. Unveröff. Bericht, Wien. 24 pp. Gamauf A. & Dosedel R. (2012): Satellite telemetry of Saker falcons (Falco cherrug) in Austria: juvenile dispersal at the westernmost distribution limit of the species. Aquila 119: 65-78. Gamauf A. (2012): A preliminary overview of raptor monitoring in Austria. Acrocephalus 33: 159-166. Nittinger F., Haring E., Pinsker W. & Gamauf A. (2006): Are escaped hybrid falcons a threat to feral Pannonian populations of the Saker Falcon (Falco cherrug)- pp. 19-24. In: Gamauf A. & H.-M. Berg (eds.) - Greifvögel & Eulen in Österreich. Verlag NMW, Wien.Nittinger F., Haring E., Pinsker W., Wink M., Gamauf A. (2005): Out of Africa- Phylogenetic relationships between Falco biarmicus and the other Hierofalcons (Aves: Falconidae). J. Zool. Syst. Evol. Research 43: 321-331. Sielicki J., Prommer M., Gamauf A. & Kata M. (2009). Saker Falcon Falco cherrug in Poland (2008-2009). Pp. 273-285 in: Wiącek J., Polak M., Kucharczyk M., Grzywaczewski G., Jerzak L. (Eds.) - Ptaki - Środowisko - ZagroŝSenia - Ochrona Wybrane aspekty ekologii ptakow. LTO, Lublin.
Azerbaijan	No publications, on tyhe way registering during winter counts of waterbirds.
Bangladesh	Thompson, P. M., Harvey, W. G., Johnson, D. L., Millin, D. J., Rashid, S. M. A., Scott, D. A., Stanford, C. & Woolner, J. D. (1993) Recent notable bird records from Bangladesh. Forktail9: 13–44. Siddiqui, K. U., Islam, M. A., Kabir, S. M. H., Ahmed, A. T. A., Rahman, A. K. A., Haque, E. U., Ahmed, Z. U., Begum, Z. N. T., Hassan, M. A., Khondker, M. & Rahman, M. M., eds. (2008) Encyclopedia of flora and fauna of Bangladesh, Vol. 26. Birds. Dhaka: Asiatic Society of Bangladesh.

Country	Key references about the Saker Falcon in Range States
Bulgaria	Baumgart, W. 1971. Beitrag zur Kenntnis der Greifvogel Bulgariens. - Beitr. Vögelkd., 17, Baumgart, W. 1966. Der Würgfalke als Brutvogel im Gebirge der Volksrepublik Bulgarien. Falke, 13, 256-260. Baumgart, W. 1977. Der gegenwurtide Status des Sakerfalken in Europa. - Falke, 24, 154 - 158. Baumgart, W., St. Dontschev. 1976. Zum angeblichen Vorkommen des Lannerfalken (Falco biarmicus Temminck, 1825) in Bulgarien. - Beitr. Vogelkd., Leipzig, 22, № 1-2, 49-57. Baumgart, W., L. Haraszthy. 1997. Saker falcon (Falco cherrug). - In: The EBCC Atlas of European Breeding Birds - their distribution and abundance. T&AD Poyser. London, p. 190. Dixon, A. 2007. Saker Falcon breeding population estimates. Part 1: Europe. - Falco, 29, 4- 12. Dixon, A. 2009. Saker Falcon breeding population estimates. Part 2: Asia. Falco, 33, 4-10. Ragyov, D., G. Stoyanov, V. Kojchev and A. Stanchev (2011) Attitudes of pigeon keepers to the reintroduction of Saker Falcons in Bulgaria. Falco 37 p.6-8 Gradinarov, D., P. Iankov, M. Gramatikov, M. Prommer, J. Fidlóczky (in print) Satellite tracked Saker Falcon (Falco cherrug) highlights threats in staging area abroad. – Proceedings of the Saker Conference, September 2010, Eger, Hungary. Iankov, P. 2010. Würgfalken in Bulgarien. - Falke, 12, 500-505. Iankov, P., D. Gradinarov (in print) Conservation strategy for the Saker Falcon (Falco cherrug) in Bulgaria. – Proceedings of the Saker Conference, September 2010, Eger, Hungary. Янков, П., Г. Стоянов, Д. Рагьов. 2013. План за действие за опазването на ловния сокол (Falco cherrug Gray, 1834) в България, МОСВ, София, 91 с. Prommer, M., J. Bagyura. 2007. First Results of Satellite Tracking of Saker Falcons (Falco cherrug) in the Carpathian Basin. - Abstracts of the Peregrine Conference, Poland 2007, 60-61. Ragyov, D., Kmetova, E., Dixon, A., Franz, K., Koshev, Y. and Nedialkov, N. (2009) Saker Falcon Falco cherrug Reintroduction in Bulgaria: Feasibility Study. SESN. Sofia, 2009. Ragyov, D., G. Stoyanov, V. Kojchev and A. Stanchev (2011) Attitudes of pigeon keepers to the reintroduction of Saker Falcons in Bulgaria. Falco 37 p.6-8 Ragyov, D., V. Shishkova. 2006. The Saker falcon in Bulgaria: Past, Present and Future. - Stoyanov, G. 2003. Observations of the Saker falcon (Falco cherrug) in Southwestern Bulgaria. - Acrocephalus, 24 (116), 40-41.

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Croatia	Tutiš, V., Kralj, J., Radović, D., Ćiković, D., Barišić, S. (2013) Red Data Book of Birds in Croatia. Ministry of Environmental and Nature Protection, State Institute for Nature Protection, Zagreb. 131 pg. Grlica I. & V.Dumbovic Mazal (draft): Saker Falcon (Falco cherrug) management plan with action plan for species protection. State Institute for Nature Protection, Zagreb.
Cyprus	-
Finland	-
Georgia	Galvez, R.A., Gavashelishvili, L., Javakhishvili, Z. 2005. Raptors and Owls of Georgia. Tbilisi, GCCW &Buneba Print. 128pp. ; Abuladze, A. 2013. Birds of Pray of Georgia. Tbilisi, Ilia State University. 218 pp.
Germany	Cf. enclosed article

Country	Key references about the Saker Falcon in Range States
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India	Naoroji, R. (2006). Birds of prey of the Indian subcontinent. New Delhi: Om Books International. Grimmett, R., Inskipp, C., Inskipp, T., & Allen, R. (2011). Birds of the Indian subcontinent. Christopher Helm.
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United Arab Emirates	-
Yemen	1-All Most references Saker Falcon issued by the Birdlife 2- local People 3- Environment Protection authority