UNEP

CMS

CONVENTION ON MIGRATORY SPECIES

Distribution: General

UNEP/CMS/COP11/Doc.23.1.5.2
29 August 2014

Original: English

11th MEETING OF THE CONFERENCE OF THE PARTIES
Quito, Ecuador, 4-9 November 2014
Agenda Item 23.1.5

SAKER FALCON *FALCO CHERRUG* GLOBAL ACTION PLAN (SAKERGAP), INCLUDING A MANAGEMENT AND MONITORING SYSTEM, TO CONSERVE THE SPECIES

Summary:

Under Agenda Item 23.1.5 of the 11th Conference of Parties is presented the Saker Falcon *Falco cherrug* Global Action Plan (SakerGAP). The document emanates from CMS Resolution 10.28, which enacted an immediate Concerted Action for the species, including establishing a Saker Falcon Task Force 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 species.

CMS RAPTORS MOU TECHNICAL PUBLICATION NO. 2
CMS TECHNICAL SERIES NO. 31

Saker Falcon *Falco cherrug* Global Action Plan (SakerGAP)

including a management and monitoring system, to conserve the species

UNEP | CMS | RAPTORS MOU

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

Saker Falcon Task Force

Saker Falcon *Falco cherrug* Global Action Plan (SakerGAP)

including a management and monitoring system, to conserve the species

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 Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora and the Parties to the Convention on the Conservation of Migratory Species of Wild Animals.

CMS Raptors MOU Technical Publication No. 2
CMS Technical Series No. 31

August 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, the Environment and Sustainable Management of Natural Resources (ENRTP) Strategic Cooperation Agreement (STA) between the European Commission – Directorate-General (DG) for the Environment – and UNEP, the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Parties to the Convention on the Conservation of Migratory Species of Wild Animals (CMS).

Compiled by:

András Kovács, Nick P. Williams and Colin A. Galbraith.

With contributions from:

Boris Barov (BirdLife International), Jenny Renell (CMS Raptors MOU), Aurelie Boutrou (CMS Raptors MOU), Dragana Stojkovic (CMS Raptors MOU).

Contributors to the SakerGAP Questionnaire (Lead Compilers in *italics*):

Karen Aghababyan (**Armenia**); *Anita Gamauf* (**Austria**); *Elchin Sultanov*, Tahir Kerimov, Arzu Mammaedov, Abulfat Samadov (**Azerbaijan**); *Allama Shibli Sadik, Tapan Kumar Dey*, Sayam U. Chowdhury, Shibli Sadik (**Bangladesh**); *Dimitar Gradinarov, Petar Iankov*, Ruslan Serbezov, Stoycho Stoychev, Dimitar Ragyov (**Bulgaria**); *Ana Kobašlić*, Jelena Kralj, Tamara Čimbora Zovko, Zrinka Domazetović, Ivana Jelenić, Vlatka Dumbović Mazal (**Croatia**); *Martin Hellica*r, Nicolaos Kassinis (**Cyprus**); *Václav Beran*, David Horal, Vlasta Škorpíková, Gašpar Čamlík (**Czech Republic**); *Esko Hyvärinen*, Matti Osara (**Finland**); *Jean-Philippe Siblet* (**France**); *Irina Lomashvili*, Zurab Javakhishvili, Alexander Gavashelishvili (**Georgia**); *Oliver Schall*, Marion Gschweng (**Germany**); *András Schmidt*, János Bagyura, Mátyás Prommer, Levente Viszló, József Fidlóczky (**Hungary**); *Suresh Kumar*, Shiv Pal Singh, Dhananjai Mohan, Gobind Sagar Bhardwaj (**India**); *Sadegh Sadeghi Zadegan*, Hamid Amini, Zahra Elahi Rad (**Iran, Islamic Reopublic of**); *Omar F. Al-Sheikhly*, Ali Al-Lami, Saeed Al-Zirgani, Hameed Al-Habash, Faris Al- Tamimi, *Richard Porter, Mudhafar Salim*, Thair Kareem (**Iraq**); *Ohad Hatzofe* (**Israel**); *Renato Grimaldi*, Alessandro Andreotti, *Arianna Aradis*, Massimo Brunelli, Andrea Corso, Marco Gustin (**Italy**); *Anatoly Levin*, *Sergey Sklyarenko*, Yevgeniy Bragin, Bakhytbek Duisekeyev, Igor Karyakin, Andrey Kovalenko (**Kazakhstan**); *Charles Musyoki*, Ronald Mulwa, Titus Imboma, Paul Muoria, Darcy Ogada (**Kenya**); *Sergei Viktorovich Kulagin*, Valentina Toropova, Nadejda Trotchenko, Seitkazy Sagymbaev, Bektur Kumushaliev (**Kyrgyzstan**); *Alfousseini Semega*, Boureïma Camara, Bourama Niagate (**Mali**); *Sergei Golovkin*, Gatt Stanley John, Haber Gilbert, Lia Richard, Barbara Nicholas, Cassar Louis Francis (**Malta**); *Onon Yondon*, Batbayar Galtbalt (**Mongolia**); *Darko Saveljic* (**Montenegro**); *Ali Laouel Abbagana*, Yacouba Magagi (**Niger**); *Umeed Khali*d, Muhammad Samar Hussain Khan (**Pakistan**); *Janusz Sielicki* (**Poland**); *Grimalschi Vitalie*, Larisa Bogdea (**Republic of Moldova**); *Nela Miaută*, Alexandru Doroşencu, Dan Hulea, Luca Dehelean (**Romania**); *Elvira Nikolenko*, Igor

Karyakin (**Russian Federation**); *Mohammed Shobrak*, Mohammed Ebin Khathlan (*Saudi Arabia*); *Marija Mladenovic*, Daliborka Stankovic, Drazenko Rajkovic, Slobodan Puzovic (**Serbia**); *Lucia Deutschová*, Jozef Chavko, Michal Adamec, Ján Lipták, Jozef Mihók (**Slovakia**); *Ahmed Osman* (**Somalia**); *Omer Abdalla Sulieman*, Aisha Alfaki Mohamed, Ibrahim Mohamed Hashim, Mohamed Younis (**Sudan**); *Roba Alserhan*, Darem Tabbaa, Adeeb Asaad, Nabegh Ghazal Asswad (**Syrian Arab Republic**); *Branko Micevsk*i (**The FYR Macedonia**); *Hela Guidara*, Hichem Azafzaf (**Tunisia**); *Maxim Gavrilyuk*, *Volodymyr Domashlinets*, Yurij Milobog, Vitaly Vetrov, Sergey Domashevsky, Mátyás Prommer (*Ukraine*); *Ahmed Al-Hashmi*, *Gamal Medani*, Salim Javed (**United Arab Emirates**); *Khaled Saeed Al Shaibani* and Omer A. Baeshen (**Yemen**).

Stakeholders' Workshop participants:

Range State delegates:
Jalaludin Naseri (**Afganistan**), Sevak Baloyan (**Armenia**), Vanda Medic (**Bosnia and Herzegovina**), Dimitar Gradinarov (**Bulgaria**), Difei Chen (**China**), Jelena Kralj (**Croatia**), Václav Beran (**Czech Republic**), Fatma Aboushouk, Osama Saadawy (**Egypt**), Asgedom Kahsay Gebretensae (**Ethiopia**), Mátyás Prommer, Béla Velez (**Hungary**), Shiv Pal Singh, Suresh Ramani Kumar (**India**), Sadegh Sadeghi Zadegan (**Iran, Islamic Republic of**), Ali Al-Lami, Ali Ne'amah Salman, Mohammed Fadhil Abed (**Iraq**), Andrey Kovalenko (**Kazakhstan**), Charles Mutua Musyoki (**Kenya**), Askar Davletbakov (**Kyrgyzstan**), Georges Phrem (**Lebanon**), Maitsetseg Khadbaatar (**Mongolia**), Iman Al-Azri, Rahma AL-Kalbani (**Oman**), Umeed Khalid (**Pakistan**), Ghanim Alboloushi (**Qatar**), Nela Miauta (**Romania**), Mohammad Sulayem, Mohammed Shobrak, Monif AlRashidi, Mohammad Bin Khathlan, Faisal Al-Otaishan, (**Saudi Arabia**), Slobodan Puzovic (**Serbia**), Michal Adamec (**Slovakia**), Omer Sulieman (**Sudan**), Khaled Zahzah (**Tunisia**), Leone Candia (**Uganda**), Volodymyr Domashlinets (**Ukraine**), H.E. Mohammed Al Bowardi, H.E. Razan Khalifa Al Mubarak, Shaikha Al Dhaheri, Salim Javed, Gamal Madani (**United Arab Emirates**) and Murad Aripdjanov (**Uzbekistan**).

Organizations:
Margit Müller (**Abu Dhabi Falcon Hospital**), Leon Bennun (**BirdLife International**), Thomas De Meulenaer (**CITES Secretariat**), Lyle Glowka, Nick P. Williams, Jenny Renell, Rima Al Mubarak, Dragana Stojkovic, Mariam Yacout, Colin Galbraith, Boris Barov, András Kovács (**CMS Office - Abu Dhabi**), Robert Vagg (**CMS Secretariat**), Fernando Spina (**CMS Scientific Council**), Janusz Sielicki (**International Association for Falconry and Conservation of Bird of Prey, IAF**), Akram Eissa Darwich (**International Fund for Animal Welfare, IFAW**), Mohammed Saleh Al Baidani, Delphine Delire, Chris Carrington, Ali Alshamsi (**International Fund for Houbara Conservation**), Nicholas Fox, Andrew Dixon (**International Wildlife Consultants Ltd**), Robert Kenward (IUCN – Sustainable Use and Livelihoods Specialist Group), Nermin Wafa (**League of Arab States**), Frederic Launay (**Mohamed Bin Zayed Species Conservation Fund**), Elvira Nikolenko (**Siberian Environmental Center**), Maksym Gavrilyuk (**Ukrainian Society for the Protection of Birds**) and Kehkashan Basu (**UNEP/Major Groups Facilitating Committee, MGFC**).

Chairman of the Workshop:
Colin A. Galbraith (STF)

Workshop Facilitators:
Boris Barov (BirdLife International) – Lead Facilitator, Thomas De Meulenaer (CITES), Colin A. Galbraith (STF), Fernando Spina (CMS) and Nick P. Williams (CMS Raptors MOU)

Workshop Report Writer:
Robert Vagg (CMS)

The Report of the Workshop is available at:
http://www.cms.int/raptors/sites/default/files/document/stf_ws_report.pdf

Comments on consecutive drafts received from:

Khalid Al-Ghanim, Ahmed Al-Hashmi, Yahia Al-Shehabi, Nabegh Ghazal Asswad, Mohamed At Twaijri, István Balázs, Sylvia Barova, Leon Bennun, Vaclav Beran, Joost Brouwer, Zoltán Czirák, Lucia Deutschová, Tapan Kumar Dey, Andrew Dixon, Nicholas Fox, Matthew J. G. Gage, Anita Gamauf, Mohamed Habib, David Horal, Márton Horváth, Petar Iankov, Igor Karyakin, Roman Kashkarov, Robert Kenward, Jelena Kralj, Anatoliy Levin, Adrian Lombard, Mary Megalli, Branko Micevski, Elvira Nikolenko, Gábor Papp, Mátyás Prommer, András Schmidt, Anne-Theo Seinen, Mohammed Shobrak, Janusz Sielicki, Shiv Pal Singl, Vlasta Skorpikova, Stoycho Stoychev, Andy Symes, Mohammad Sulayem, Jean-Marc Thiollay, Simon Thomsett, Nermin Wafa, Dave Wootton, Sadegh Sadeghi Zadegan and Tamara Cimbora Zovko.

Milestones in the production of the SakerGAP

1st Draft	12 August 2013
Stakeholders' Workshop:	9-11 September 2013, Abu Dhabi, United Arab Emirates
2nd Draft	25 February 2014
3rd Draft	31 May 2014
Final Draft	31 July 2014
Final Version	31 August 2014

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 (Islamic Republic of), Iraq, Kazakhstan, Kyrgyzstan, Mongolia, Republic of Moldova, Romania, Russian Federation, Serbia, Slovakia, Tajikistan, Turkey, Turkmenistan, Ukraine and Uzbekistan.

Winter or passage Range States (59)
Albania, Algeria, Azerbaijan, Bahrain, Bangladesh, Belarus, Bhutan, Bosnia and Herzegovina, Burundi, Cameroon, Chad, Cyprus, Denmark, Djibouti, Egypt, Eritrea, Estonia, Ethiopia, Finland, France, Germany, Greece, Israel, Italy, Jordan, Kenya, Kuwait, Latvia, Lebanon, Libya, Lithuania, Mali, Malta, Mauritania, Montenegro, Morocco, Nepal, Niger, Oman, Pakistan, Palestine, Poland, Qatar, Republic of Korea, Saudi Arabia, Senegal, Somalia, South Sudan, Spain, Sudan, Sweden, Syrian Arab Republic, the FYR of Macedonia, Tunisia, Uganda, United Arab Emirates, United Kingdom (Gibraltar and Cyprus - Sovereign Base Areas), United Republic of Tanzania and Yemen.

International species working group - Saker Falcon Task Force

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). In effect, the STF will fulfill the responsibilities that would normally be undertaken by an international species working group.

The Report on the 1st Meeting of the STF is available at:
http://www.cms.int/raptors/sites/default/files/document/saker_tf_report_072012_2.pdf

The Report on the 2nd Meeting of the STF is available at:
http://www.cms.int/sites/default/files/document/stf2_report_122013.pdf

Reviews

It is envisaged that the SakerGAP will be implemented over a ten-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 should be undertaken if there is a sudden major change occurring or likely to negatively affect one or more 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. Raptors MOU Technical Publication No. 2. CMS Technical Series No. 31. Coordinating Unit - CMS Raptors MOU, Abu Dhabi, United Arab Emirates.

Photo credits

©Gábor Papp/www.raptorimages.hu: front cover, inside of cover, 9, 17, 19, 31, 44, 73
©András Kovács/www.raptorimages.hu: 12, 59, 91

Design

Initial design by Karina Waedt. Final design process by Zoltán Turny

Disclaimer

Opinions, findings, conclusions or recommendations expressed in this publication are those of the authors, and do not necessarily reflect the official policy of CMS. The designation of geographical entities does not imply the expression of any opinion on the part of CMS concerning the legal status of any country, territory or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries. Links to resources outside this document are provided as a convenience and for informational purposes only and should not be construed as an endorsement or approval by CMS of information provided through other sites and computer systems.

For more information please contact:

Coordinating Unit of the CMS Raptors MOU
Convention on Migratory Species Office - Abu Dhabi
United Nations Environment Programme
c/o Environment Agency - Abu Dhabi
P.O.Box 45553
Abu Dhabi
United Arab Emirates
Tel: +971 2 6934 437
Email: cmsoffice.ae@cms.int
Website: www.cms.int/raptors

Table of contents

List of Tables

List of Figures

Glossary

Breeding Rate - The proportion or percentage of adults that breed during a single reproductive cycle.

Community-based Natural Resource Management (CBNRM) - An approach to the management of natural resources which is relevant to, and has the potential to provide solutions to some of the (conservation) problems found in a certain territories, where the majority of people live with, and depend on, natural researches.

Hacking - A training method developed by falconers that is designed to assist fledgling raptors (taken younger from a nest in the wild or captive-bred) to reach their hunting potential naturally. It involves establishing a hack box, to simulate the nest site, in which the young are initially confined for a few days. At the age when they are ready for their first flight, the box is opened (usually remotely) to allow the birds freedom to fledge naturally. Regular food is supplied at the box to encourage the free-flying young to remain in the vicinity and to return at will. They can either be trapped for further training before they become fully independent, or be allowed to remain free as a method to transition or soft-release young raptors into the wild.

Maximum Sustainable Harvest Rate (MSHR) - The maximum sustainable harvest rate is the greatest harvest rate that does not produce a decline in the number of breeding adults in a population.

Non-detriment Findings (NDFs) - 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 an export will not be detrimental to the survival of the species.

Online Information Portal (OIP) - An complex on-line data collection and management facility to be developed to build trust and to raise awareness by linking falconers, trappers, falcon hospitals, conservationists and researchers in an exchange for information that will enable enhanced estimations of Saker Falcon populations and associated harvest levels, and encourage best practice.

Productivity - The number of young that fledge per clutch of eggs laid during a single reproductive cycle.

Saker Data Management System (SDMS) - A specially developed computer database to capture, organize and analyse all types of data collected during the implementation of the SakerGAP (monitoring data, geospatial data, SakerID, data from the OIP, etc.).

Saker Falcon Adaptive Management Framework - This provides a general, but still Saker-specific, framework of possibilities due to the highly variable parameters at different spatial scales within the range of the Saker Falcon, and it will involve testing different methods and actions systematically to achieve the objectives of the SakerGAP.

Saker Falcon Network - The online communication system for stakeholders to be established to exchange information and services, and to cultivate productive relationships for the effective implementation of the SakerGAP for mutual benefit.

Saker Falcon specific GIS (SakerGIS) [Part of SDMS] - A computer based Geographic Information System designed to capture, store, manipulate, analyze, manage, and present all types of geospatial data collected during the implementation of the SakerGAP.

Saker Falcon Stewardship Scheme (SFSS) - A scheme to involve rural people in different aspects of Saker Falcon conservation management in exchange for funding, employment, information, or permissions, and in line with the implementation of Multi-lateral Environmental Agreements including CITES.

Saker Identity Database (SakerID) [Part of SDMS] - This computer system will be used to capture and store all types of data in connection with the individual marking and identification of Saker Falcons.

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
EC	European Council
EU	European Union
GCC	Gulf Cooperation Council
IAF	International Assosciation for Falconry and Conservation of Birds of Prey
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 Organization
Raptors MOU	MOU on the Conservation of Migratory Birds of Prey in Africa and Eurasia
SakerGAP	Saker Falcon Global Action Plan
SDMS	Saker Data Management System
SakerID	Saker Identity Database
SDMS	Saker Data Management System
SPA	Special Protection Area
STF	Saker Falcon Task Force
UAE	United Arab Emirates
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
USFWS	United States Fish and Wildlife Service

Foreword

In 2011, CMS Parties recognized that international conservation efforts to halt recent rapid declines in populations of the Saker Falcon required a partnership approach involving all key stakeholders throughout the species' range. A Saker Falcon Task Force was established to bring together Range States and a wide range of interested parties, to develop a coordinated Global Action Plan, including a management and monitoring system, to conserve the species.

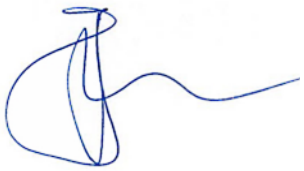
The Task Force is a unique and productive partnership that brings together an enormous amount of knowledge, experience and expertise. It has developed an innovative adaptive management approach designed specifically for the conservation of this iconic species, with the overall aim being to re-establish and maintain a flourishing wild population of Saker Falcons, whilst at the same time enabling traditional falconry practices to continue in a sustainable way over the long term.

After almost three years of highly constructive and open-minded discussions, we are delighted to welcome the production of this Saker Falcon Global Action Plan (SakerGAP) and we warmly congratulate the members of the Saker Falcon Task Force for the excellent work they have done. Developing an agreed way forward amongst so many stakeholders is a significant achievement and this document lays out the detailed framework of measures required to conserve the species.

Much remains to be done and further research is required to address key knowledge gaps. However, it is imperative that practical conservation action is undertaken right now to reduce significantly the various threats to the species, including the range-wide threat from electrocution on medium-voltage electricity distribution poles. It is important also to put in place an effective system of management to ensure that any use of wild Saker Falcons is sustainable and to do this in a way that shows real benefit to the local communities involved, especially in the breeding areas.

This SakerGAP is a very significant step forward but it is indeed only a plan – and one that requires widespread involvement and support to be implemented effectively. On behalf of the Secretariats of CMS and of CITES, we are delighted to give this SakerGAP our support, and to encourage all stakeholders to do all they can to deliver the Action Plan over the coming months and years.

Bradnee Chambers
Executive Secretary
CMS Secretariat



John E. Scanlon
Secretary-General
CITES Secretariat

0 - Executive summary

The Saker Falcon

The Saker Falcon *Falco cherrug* is a large, powerful falcon, roughly between the Gyr Falcon *F. rusticolus* and the Peregrine *F. peregrinus* in size. The Saker Falcon has been a favoured bird of prey for use in falconry for thousands of years, hence 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 need for urgent, coordinated action requiring the full engagement of key stakeholders to maintain and restore its conservation status.

The Saker Falcon Task Force and the SakerGAP - origin and context

CMS Parties adopted Resolution 10.28 on 25 November 2011 at the 10th Conference of Parties (COP10) held in Bergen, Norway. 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 CMS MOU on the Conservation of Migratory Birds of Prey in Africa and Eurasia (Raptors MOU).

This Saker Falcon Global Action Plan is a product of the STF. 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 recognized by CMS and CITES) for the species.

The International (European) Action Plan for the Saker Falcon (Nagy & Demeter, 2006) was considered carefully during the development of the SakerGAP, although there are particular issues (e.g. sustainable use) that apply primarily for distribution areas outside of Europe.

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
- EC 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 a Questionnaire 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, the 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 powerlines, unsustainable trapping/harvest on the breeding grounds and 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 remain to be filled as part of the implementation of the SakerGAP; these relate 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. Some of these knowledge gaps appear to be preventing the effective management of Saker populations; hence addressing these issues is an urgent priority for action.

The SakerGAP proposes that a Saker Data Management System (SDMS) should be established to help facilitate the collection and management of large amounts 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 where trapping and other forms of taking Saker Falcons from the wild are legal, they are controlled, and sustainable, thereby encouraging population growth and eventual stabilization.
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 stakeholder 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 recognized management framework 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 supplies 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

The Addis Ababa Principles and Guidelines, developed by the Convention on Biological Diversity (CBD), make it clear that adaptive management, based on monitoring, assessment and re-adjustment of management practices, is an essential prerequisite for the sustainable use of wildlife resources. The SakerGAP proposes a programme, including the outline of a Saker Falcon Adaptive Management Framework that can 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 the existing unregulated, illegal harvest towards a regulated legal one, the overall management goal is to enable controlled, sustainable harvest of the Saker Falcon in parts of its range, while simultaneously decreasing the overall level of harvest globally, and exerting minimal adverse impact on decreasing non-target populations.

This goal can be achieved through the application of a carefully designed and managed global harvest quota system underpinned by synergistic international and national legislation and effective enforcement across the full range of the species, on the basis of a compliance-friendly regulatory design, effective control and sanctioning. Based on demographic modelling by Kenward *et al.* (2013) and on

examples of sustainable harvest in populations of 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 that exceed 100 observed or accurately estimated breeding pairs.

The SakerGAP includes the introduction of the 'consumers and extractors pay' principle to enhance overall responsibility for sustainable use and for activities that impose a proven negative effect on Saker populations, and to help develop co-operation between 'user' and 'source' Range States along flyways. In all Range States, the principle of 'consumers and extractors pay' should be considered. This involves consumers and extractors establishing compensatory conservation measures to pay the remedial conservation costs associated with the resources they use or affect directly or indirectly. The proposed meaning of the term 'consumers and extractors' includes stakeholders that directly use wild-origin Saker Falcons (e.g. falconers, breeders), and also those groups whose activities impose a proven negative effect on Saker Falcon populations (e.g. electric utility companies, or potentially producers of harmful agrichemicals) thereby creating 'negative externalities' or 'external costs'. This system proposes that compensatory conservation measures are taken by consumers and extractors, including financing 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 satisfying 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 Multilateral Environmental Agreements including CITES and CMS. For example, the SakerGAP lists opportunities to involve at least six local stakeholder groups within a suggested Saker Falcon Stewardship Scheme.

Coordination

The SakerGAP includes a proposal to establish and formalize a coordinating 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 continuing key roles for the Coordinating Unit of the CMS Raptors MOU and for the Saker Falcon Task Force, albeit with amended Terms of Reference.

Next steps

It is envisaged that the SakerGAP will be implemented over a ten-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 legitimizing 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 create 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-fit 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 730–1,150 g.

The plumage is brown above and streaked below with a paler head and whitish supercilia. It has a relatively small head on a broad-chested, though long and otherwise slender body, with long wings and a 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. Saker Falcons 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 Arab 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 uplisted to globally Endangered in 2012 (IUCN, 2013a) because a revised analysis of population trends indicated that it may have undergone a very rapid decline, involving a drop of 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 recognize 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 localizations 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 & Christie, 2001) treating it as a separate species. Besides the sought-after but disappearing Altai Falcon (*F. c. altaicus*), falconers also favour other rare phenotypes such as the large blond 'Ashgar Falcon' (Eastham et al., 2002).

The Saker Falcon together with Gyr *F. rusticolus*, Lanner *F. biarmicus* and Laggar Falcons *F. 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 analyzsing 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 are no overlapping breeding zones of the two species in the wild (Moseikin & Ellis 2004; Potapov & Sale, 2005). Nittinger *et al.* (2005) suggesting that the Saker Falcon and other species within the subgenus *Hierofalc*o are genetically not clearly differentiated. This implies that hierofalcons form an evolutionarily 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 recognized 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 dispersal 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 & Simmons, 1980; Baumgart, 1991; Snow & 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 Western China, east to Northeast China and it winters south to Iran, North-west 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 species' range has contracted from historical levels and become fragmented in Europe and in some parts of Asia (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 the Russian Federation (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 Saker-GAP in 2013 has shown slightly smaller population figures, possibly due to better-quality estimations based on recent information especially 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. 9,760; 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, the Russian Federation, Serbia and Uzbekistan. The population appears stable in Croatia, Georgia and Mongolia; and unknown for the rest of the breeding Range States. The large declines revealed in Kazakhstan and in Asiatic Russia are particularly disconcerting.

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 size of the global population remains subject to considerable uncertainty. Dixon (2009) classified the data quality of national population figures he assembled for thirteen States in Asia into five classes (excellent, good, medium, poor, and guess) and found that one was medium, six were poor and six 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 nine (35% - Europe: seven, Asia: two) Range States, medium in four (15% - Europe: two, Asia: two), poor in nine (35% - Europe: three, Asia: six) and unknown in four (15% - Europe: one, Asia: three).

This reflects that a significant degree of uncertainty and speculation accompanies the population estimates for certain 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)

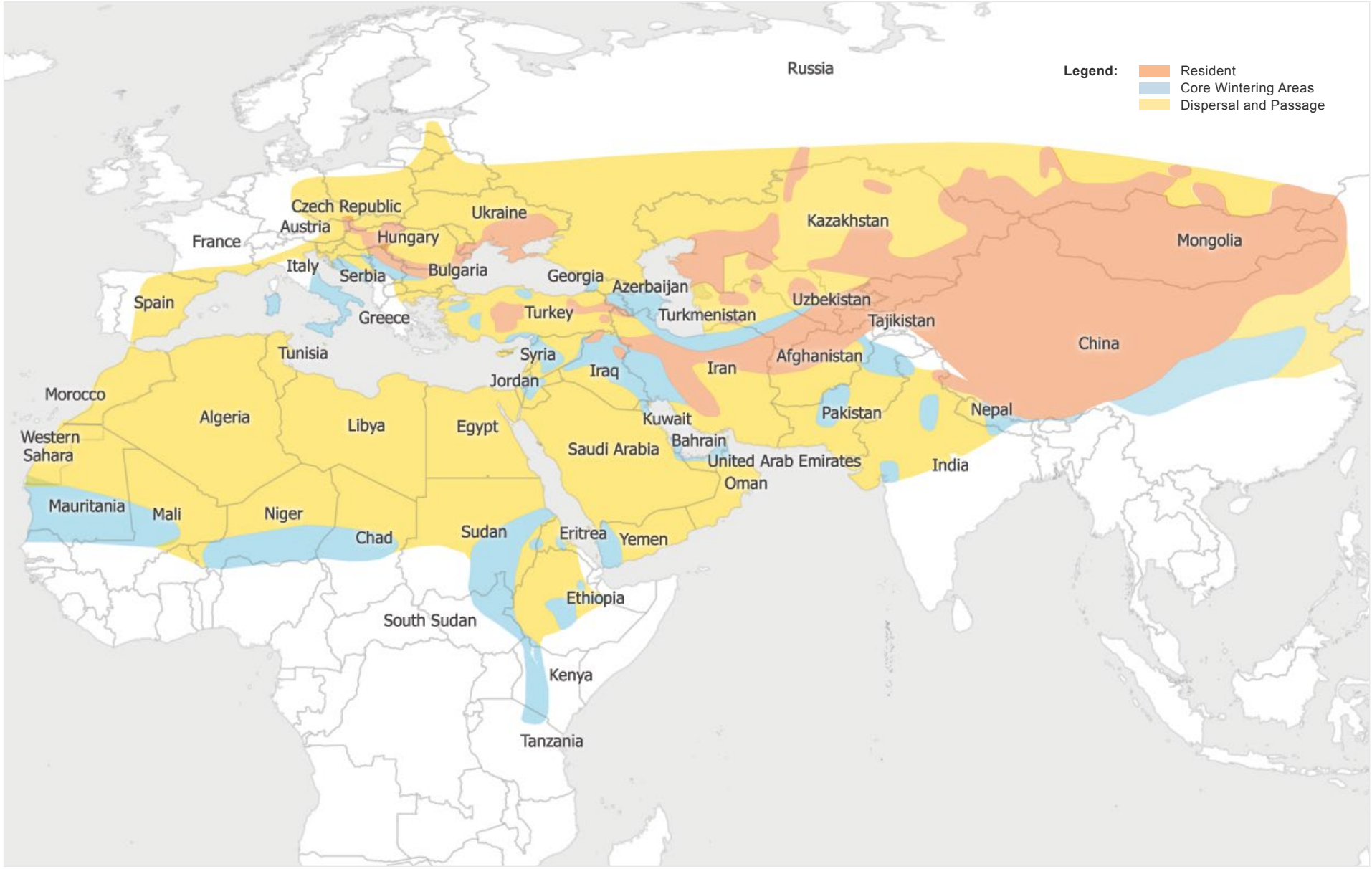
Range States	Pop. Min. (pairs)	Pop. Max. (pairs)	Pop. Med. (pairs)	Data quality	Year	Breeding population trend	Data quality	Source of information
Austria	25	30	28	GO	2013	Small increase	GO	Gamauf & Dosedel, 2012; Gamauf, 2013; BirdLife Austria, 2013
Bulgaria	0	8	4	ME	2013	Large decline	ME	Gradinarov & 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
Poland	0	0	0	-	-	-	-	Sielicki *et al.*, 2009
Republic of Moldova	8	15	12	P	2005	?	?	Dixon, 2007
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
The FYR Macedonia	1	2	2	P	2013	?	P	Micevski *in litt.*, 2013
Ukraine	350	400	375	GE	2010	Small increase	ME	Milibog *et al.*, 2010; Gavrilyuk *in litt.*, 2013

Range States	Pop. Min. (pairs)	Pop. Max. (pairs)	Pop. Med. (pairs)	Data quality	Year	Breeding population trend	Data quality	Source of information
EUROPE (subtotal)	637	823	734			Moderate increase		
Afghanistan	10	100	55	P	?	?	?	Dixon, 2009
China	1,000	5,000	3,000	P	2008	Moderate decline	?	Dixon *in litt.*, 2012
India	0	10	5	P	2006	?	P	Naoroji, 2006; Dixon, 2009
Iran, Islamic Republic of	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	1,400	1,050	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	2,000	5,000	3,500	ME	2010	Stable	ME	Galtbalt *in litt.*, 2013; Dixon, 2009
Pakistan	0	50	25	?	?	?	?	Khan & Khalid *in litt.*, 2013, Dixon, 2009
Russian Federation (Asia)	1,553	2,089	1,821	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 (subtotal)	5,444	14,082	9,764			Moderate decline		
TOTAL	**6,081**	**14,905**	**10,498**			**Moderate decline**		

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 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 (no discernable changes),**
  - **Small increase (0–9%), Moderate increase (10–29%), Large increase (≥30%),**
  - **Unknown (insufficient data).**
- **European, Asian and global breeding population trends** (CMS Raptors MOU, 2014): regional and global trends were calculated by the weighted means of national breeding population trends.

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; Karyakin *et al.*, 2012; Prommer *et al.*, 2012; Dixon *in litt.*, 2014)



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 part of the range may be inhospitable to Saker Falcons in winter, whilst central areas may allow year-long residency and southern areas provide wintering 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 the Russian Federation), 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; *Figure 4*). 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*).

Most migratory individuals in the first-year cohort satellite-tagged in Central Europe showed parallel migration (210° on average), uniformly moving to the south-west, regardless of their starting position (Prommer *et al.*, 2012). In the central Mediterranean, it is a regular winter visitor to Italy and winters in the south (Corso & Harris, 2012). The Saker Falcon regularly winters 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 Estonia (Ferguson-Lees & Christie, 2001; De Juana, 2006; www.satellitetracking.eu, MME *et al.*, 2014). Some longer movements along the east-west axis indicated by European juveniles (*F. c. cherrug*) have been recorded as far east as Pakistan and North-west India (Ferguson-Lees & Christie, 2001).

Asia

In Asia, a large proportion of the population leaves its breeding areas in September–October and return in March–April (Ferguson-Lees & Christie, 2001; *Figure 3*). 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 Western 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 to India (Gujarat), Hong Kong and in South Korea (Ferguson-Lees & Christie, 2001; Prommer *in litt.*, 2014; *Figure 4*).

Middle East

The passage of Saker Falcons is recorded in the Middle East and in the Arabian Peninsula in mid-September–November peaking in the second half of October, with the birds returning 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; *Figure 3*). 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

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

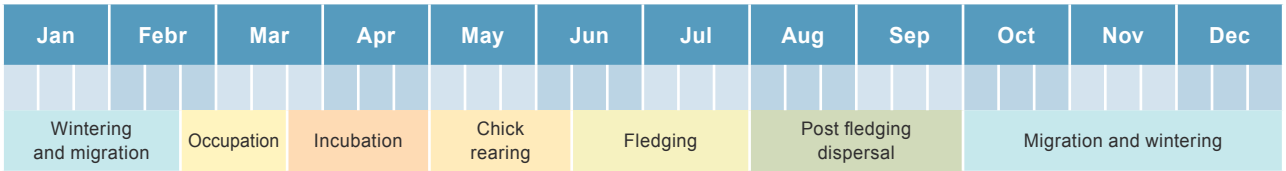
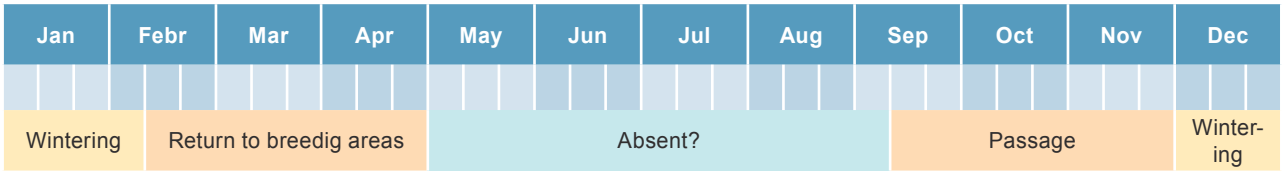


Figure 3. Annual cycle in passage and winter Range States of the Middle East and Africa (CMS Raptors MOU, 2013)



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 Saker Falcons overwinter in Saudi Arabia (Shobrak and Pallait, 1998).

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; *Figure 4*). Hungarian satellite tracking data showed that during juvenile dispersal Saker Falcons from Western Europe occasionally cross the Strait of Gibraltar (Prommer *in litt.*, 2014). It occurs from North-west to North-east Africa south to Kenya and northernmost Tanzania (Ferguson-Lees & Christie, 2001). It has been known as a scarce winter migrant to North-west 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 Saker Falcons 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 and 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).

Life history

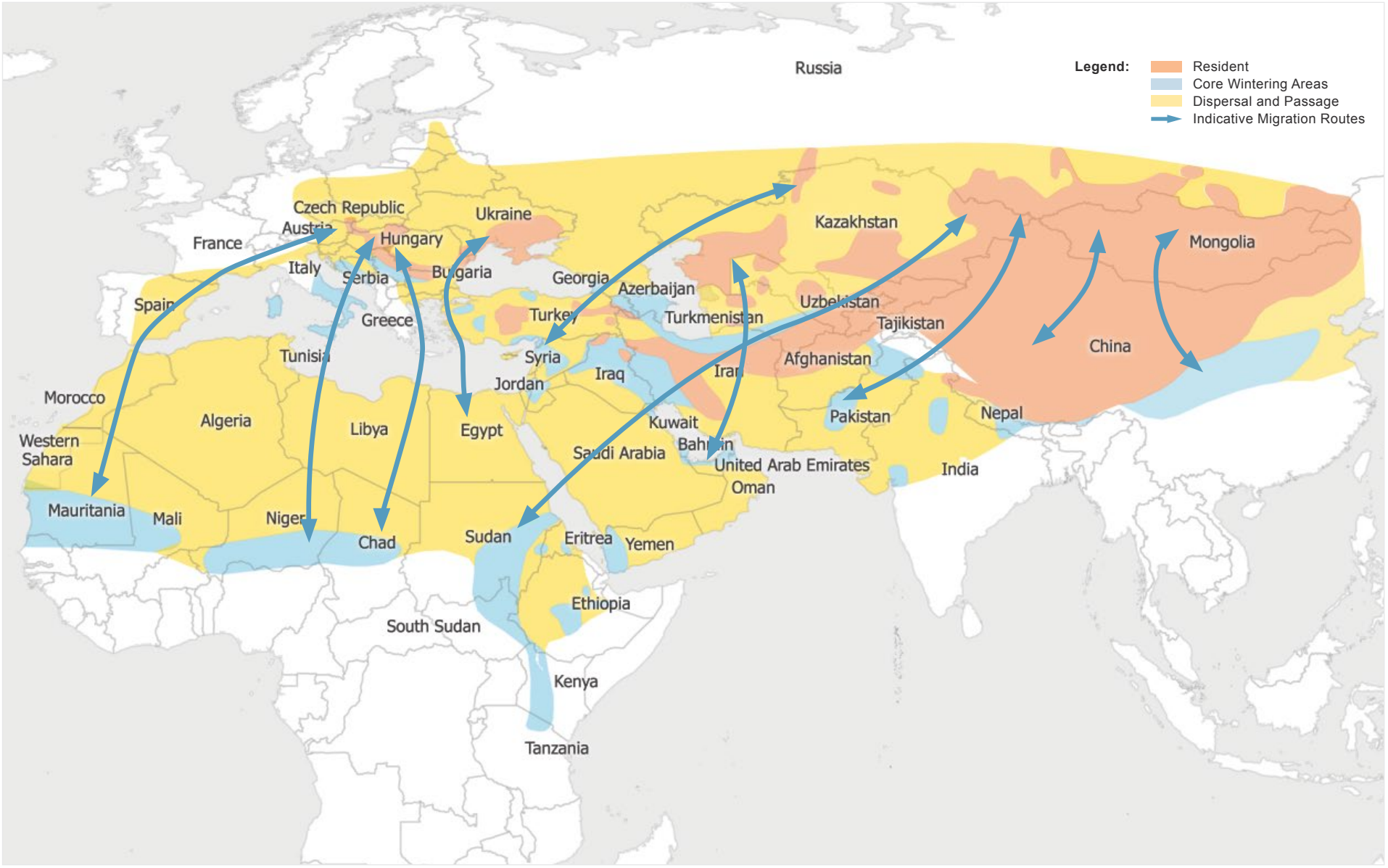
Breeding

As with other falcons, the Saker Falcon does not build its own 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, 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 & Perrins, 1998; Ferguson-Lees & Christie, 2001; Potapov *et al.*, 2002).

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; Dixon, 2013)



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 the Saker Falcon 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 pairs/100 km² along a stretch of powerlines in the northern Balkhash area.

Ellis *et al.* (2011) suggested that Saker Falcons 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 the diet but can, rarely, form 30–60% in the breeding season. Prey ranges 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), the Saker Falcon regularly takes 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 the Saker Falcon in Slovakia between 2000 and 2010) (Chavko & Deutschová, 2012). The Saker Falcon also takes some reptiles, insects (beetles), and rarely *amphibians*, especially in wintering areas (Baumgart, 1991; Baumgart, 1994; Snow & 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 Saker Falcons regularly kleptoparasitizing other species of birds that occasionally or constantly spend much time in the vicinity of falcon nest sites, e.g. along power lines. 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 kleptoparatized by Saker Falcons (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 because they based on radio tracking and did not involve potential tag failures.

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, the 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 seven European countries with a mean value of 2.59, while in Central Asia the average in three 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.

Habitat preference

The Saker Falcon prefers open, steppe-like habitats from sea-level up to 4,700 m (mostly above 2,600 m) 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-

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

Population parameters	Kazakhstan (juvenile survival underestimated)	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%

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	3,562	2.59	0.64	2.21
Central Asia	1993–2010	462	3.61	0.85	3.04

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, habitats - agrocoenoses (Bagyura *et al.*, 2012; Chavko, 2010; Chavko and Deutschová, 2012). The Saker Falcon breeds also on seaside cliffs (in Ukraine 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 & 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 Saker Falcons respect neighbouring territories (Mátyás Prommer, *pers. comm.*, 2014). It seems that the Saker Falcon most often avoids 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 km^2 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 considered to be 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* for the draft problem trees).

The estimated impact of threats (high/medium/low) is given by the cumulative score of scope, severity and timing defined by the participants of the STF Stakeholders' Workshop.

The following prioritized 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, the risk of electrocution is high with "badly engineered" medium voltage (1 kV to 60 kV, most often between 10 kV 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 the Russian Federation (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 line in the Zaysan depression, Eastern Kazakhstan, between 1990 and 1993 (Starikov, 2007). One of two radio-tagged Saker Falcons that attempted to overwinter 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 Saker Falcons on recently erected electricity distribution lines in the open landscapes of the Mongolian steppe and Qinghai-Tibetan plateau, China. For example 235 electrocuted Saker Falcons were collected along a 15-km-long electric line section in Eastern Mongolia during 149 survey days between March and August 2013. 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 use of bird-friendly pole designs.

In several European Range States successful long-term partnerships have been established between nature conservation organizations 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 1990s and early 2000s in Bahrain, Kuwait, Qatar and Saudi Arabia and the United Arab Emirates, most Saker Falcons 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 Saker Falcons 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 has become unsustainable in many areas. Trappers are often local people or at least cooperate with the local community. Many trapped falcons die in the process of illegal trapping, keeping and transportation (Alexei Vaisman *pers. comm.*, 2009).

In 1994 Riddle and Remple determined which countries were major sourcess of falcons using information gained from trappers. Saker Falcons were

trapped in large numbers in Central Asia, where trapping is still 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 falcons were the Islamic Republic of Iran, Pakistan, China and Mongolia. Afghanistan, Egypt (Gabal el Zait area, M. Habib *pers. comm.*), the Syrian Arab Republic and Libya all provided falcons to the Middle East. Iraq and Morocco provided small numbers; unknown numbers were trapped within the Kingdom of Saudi Arabia and a few elsewhere 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 6,825-8,400 individuals, with the vast majority being juvenile females (e.g. 68.7% in Dubai, UAE; Barton, 2000; ERWDA, 2003), while over 90% of the Saker Falcons 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 Saker Falcons 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% 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 offtake 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 Saker Falcons in Libya most probably has an impact on Central and Eastern European populations (Prommer *in litt.*, 2014).

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 legislation (Kovács *et al.*, 2013). Although, the Saker Falcon is a rare species in Kuwait, 10-20 individuals are captured and sold in private sales every year (Yahya Al-Shehabi *in litt.* based on falconers' data, 2014).

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 can considerably increase the lifespan of captive wild-origin Saker Falcons, 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 into the wild. Within the framework of the SZFRP, 726 donated, confiscated or rehabilitated Saker Falcons (95% females) were 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 (Müller, 2013). Future release programmes should be supported by conservation research regarding the identification of geographical origin of falcons to be released and should follow the IUCN Guidelines for Reintroductions and Other Conservation Translocations (IUCN, 2013b).

2.3. Unsustainable trade of wild Saker Falcons

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 (Iran (the Islamic Republic of), 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 that export permits of *Falco cherrug* immediately be 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. However, Mongolia selected the Saker Falcon to be its national bird and announced a five-year suspension of 'commercial trade' in January 2013 (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 a Non-detriment Finding review had been undertaken or not, and even if completed, the importing country had no means of verifying 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, the Russian Federation and Uzbekistan during the last decade, including some shipments involving more than 100 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 the Syrian Arab Republic) who catch falcons on autumn migration and during post-breeding dispersal in, for example, the Russian Federation, 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 fully 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 are 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 between 2002 and 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 lead pellets when their prey (usually birds) are killed or injured by begin shot with a shotgun. Sixteen per cent 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: Urbanization 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 vine-

yards 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 Saker Falcons 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) but its importance has decreased drastically there 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.*), the Russian Federation (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) did not have a strong impact on population size and dynamics. However, the impact is not the same for a fragmented and decreasing population. When low juvenile survival rate and a small number of offspring per breeding pair have been assumed, especially combined with trapping of adults, harvesting could cause further decrease in population size (Kenward *et al.*, 2007).

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 Falcon's European range, especially to severely depleted populations.

On average 21% of breeding attempts failed in Hungary between 1980 and 2002. Over 60% of these attempts failed during incubation and it was suspected that human disturbance had played a significant role (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 (Bagyura *et al.*, 2003; 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; policies and legislation not in place; ineffective law enforcement; low stakeholder awareness.

The Saker Falcon is legally protected in most countries across its range. Therefore, where shooting of Saker Falcons 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 incidents still occur. Little is known about the extent of the problem in Romania, Ukraine and the Russian Federation where the problem may still have been 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 mostly 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 a particularly pervasive form of direct persecution of Saker Falcons 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 the Saker Falcon. 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 (MME, Bird Crime Database, 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 and pigeon fanciers 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 and domestic pigeons (Sielicki *in litt.*, 2014). This threat was reported to occur from the Czech Republic and Hungary. In some Range States electric utility companies removed all natural nests regardless of 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 around 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 out of nests placed on artificial substrates (Gombobaatar *et al.*, 2004).

Extreme amounts 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 *Corvus 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 Owl and Goshawk 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 newly 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 Owl 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 the shortage of good-quality nest sites. Provision of artifi-

cial 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 (Bagyura *et al.*, 2003; Dixon & Batbayar, 2010). 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 Saker Falcons

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 Saker Falcons.

Captive-bred hybrid falcons may escape from aviaries or may also be lost whilst being hacked or flown free during training or hunting by falconers. Concerns exist that these escaped hybrids may form pairs with the Saker Falcon 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 Falcon populations (Nittinger *et al.*, 2007; BirdLife International, 2008c). Anthropogenic-induced genetic introgression is not only a risk posed by hybrid birds; many so-called pure-bred falcons produced in captivity may be derived from various sub-species (obtained via importation) other than solely the native or nearest sub-species (Fleming *et al.*, 2011).

Hybrid falcons are known to have produced offspring with the Saker Falcon in the wild (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 Falcon produced offspring with a Peregrine x Saker Falcon hybrid male in 1999 and 2003 (Michal Adamec *in litt.*, 2008). Cross-breeding between the Saker Falcon in the wild and hybrids is believed to have occurred at six sites in Slovakia. There has been no further record of any ex-falconry hybrid attempting to breed with a wild Saker Falcon 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'.

Hybridization also occurs under natural conditions, especially within zones of contact between closely-related species. Instances of natural hybrid pairs have been reported between Saker Falcon × Barbary Falcon (Angelov *et al.*, 2006, a case with uncertainties), Saker Falcon × Lanner (Boev & Dimitrov, 1995), Saker Falcon × 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 there is no evidence that hybrid falcons that had escaped outside the breeding distribution of the Gyr or of the Saker Falcon were recruited to wild populations in the long term.

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 Saker Falcons in the last 15 or more 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.*).

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 Arab falconry and, in the current situation with a highly restricted legal CITES regulated trade, would be likely to 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 mal-imprinting of the hybrid nestlings or by sterilization. Clearly, the deliberate release of hybrids into the wild should be avoided (Nittinger *et al.*, 2007; IAF, 2014). The International Association for Falconry and Conservation of Birds of Prey (IAF) has a simple Code of Conduct which aims to reduce the risk of genetic introgression: no exotics/hybrids to be released to the wild deliberately, and all to be flown with functioning telemetry. IAF also runs an online reporting system to collect records of wild-living hybrids or exotics, allowing any potential threats from introgression to be rapidly and transparently reported (IAF, 2014).

More information is needed to evaluate the level of risk and potential effects of escaped hybrids on wild falcon populations (Dixon, 2012b).

Threats that may cause 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; inappropriate 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. The Saker Falcon 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, what impact this change in foraging behaviour has 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 (Sielicki *in litt.*, 2014; 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 (Watson, 2000; Sánchez-Zapata, 2003). Since the early 1990s, there has been a major decrease in the numbers of grazing animals throughout the whole of 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 may have been a factor enhancing this (Galushin *et al.*, 2001). As a result of the significant reduction of stockbreeding, vast areas of important suslik habitat were lost, and 280,000 km of the unused electricity distribution network was dismantled in the steppe zone, leaving even fewer nesting opportunities for the Saker (Karyakin, 2005). On the other hand the risk of electrocution of Saker Falcons and other raptors also decreased in these areas.

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. This 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 livestock has been concentrated around human settlements, 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 1990s 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 five-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 led to overgrazing, which was immediately exploited 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 the Russian Federation, 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 the Russian Federation 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 the Russian Federation 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 Falcon 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 programmes 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.

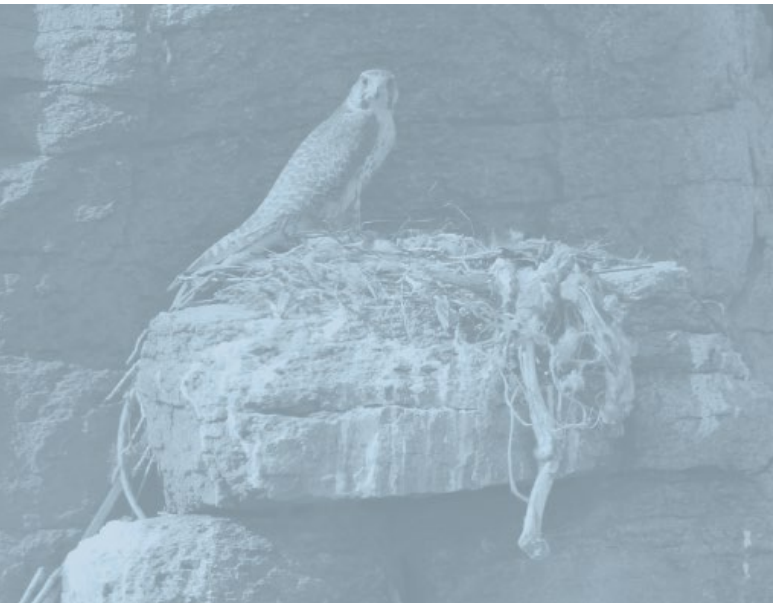
Large scale afforestation may reduce the availability of open hunting grounds for the Saker Falcon. It has an especially adverse impact when it is targeted at grasslands in areas where the availability of this habitat is limited. Afforestation is usually subsidised by governments, especially in the EU Member States through the funds for rural development as a tool to reduce agriculture surpluses (Nagy & Demeter, 2006).

Attempts to sequestrate carbon 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 power lines 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 (<five 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 that may cause 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 uses and domestic 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 privatization of agricultural land and declining living standards in Hungary, Slovakia, Romania, Turkey and Georgia. However, it was not reported from Bulgaria, Ukraine and the Russian Federation. Forest fires also present a potential threat. Tree-felling can, however, be counteracted because Saker readily accept pylons and other artificial nest platforms (Bagyura et. al., 2003, Puzović, 1988, 2003; Nagy & Demeter, 2006; Dixon *et al.*, 2010; Dixon & Batbayar, 2010). In Northern Kazakhstan and Southern 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 aban-

doned 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 at least 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, urbanization, 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 (e.g. ecological or climatic) factors and human activities (e.g. persecution of nest-building species)

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 1 km x 1 km 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 characteristics of the project, which could be an exemplar for other initiatives accross 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
(Red P1 – Critical threats in one or more regions of the distribution Orange P2 – High threats in one or more regions, Yellow – Threats with mostly unknown impact on Saker Falcon populations; CMS Raptors MOU CU, 2013)

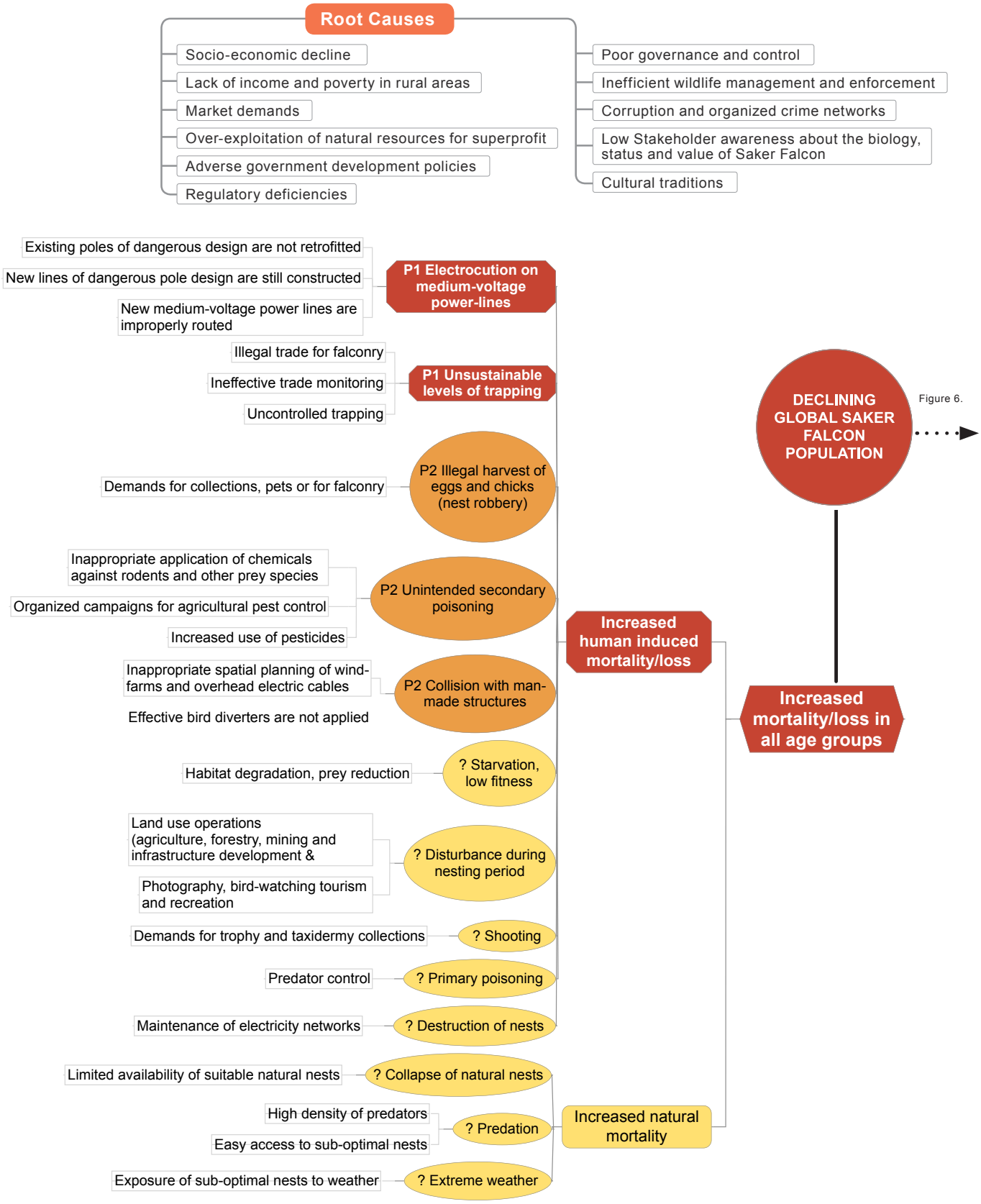
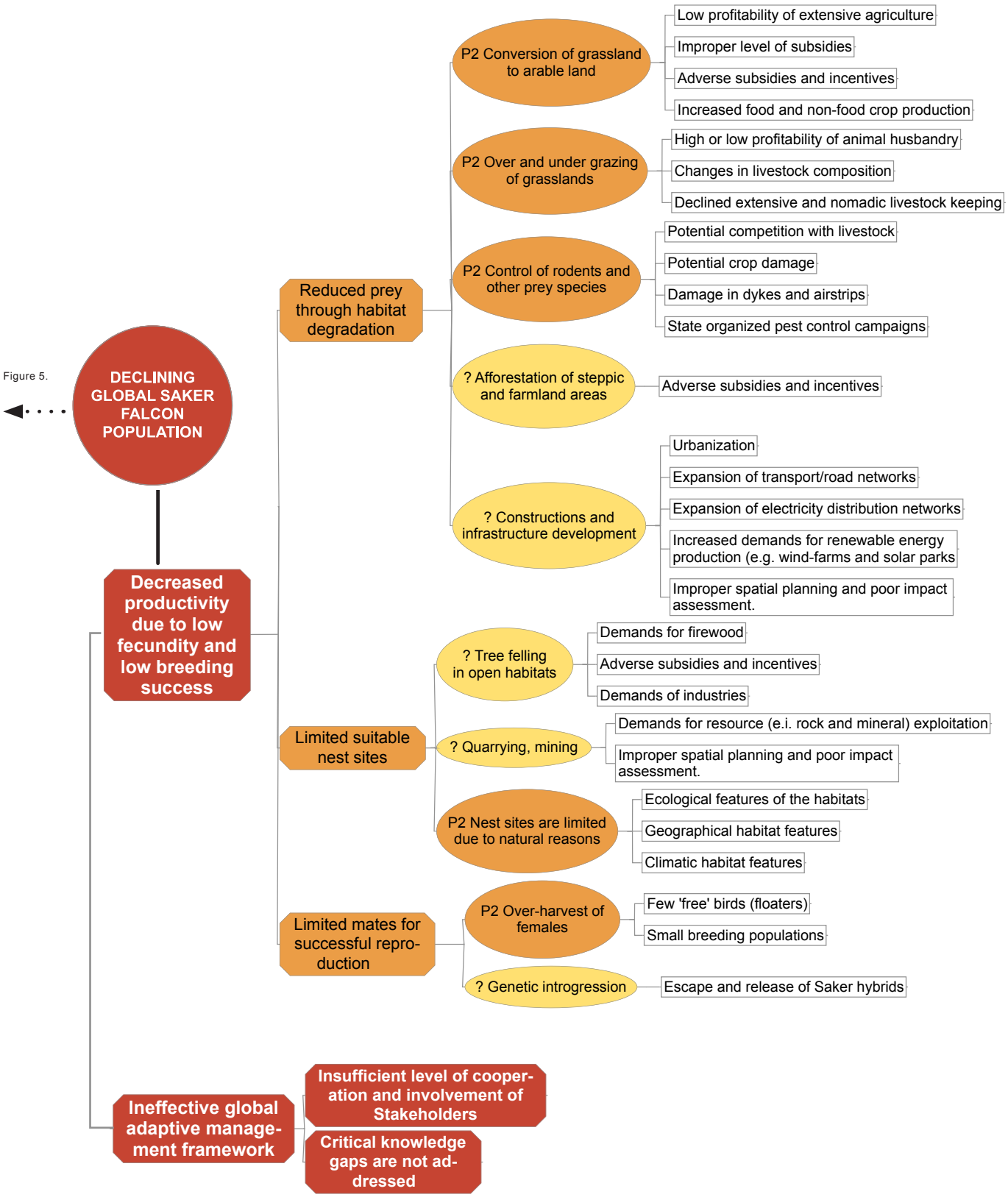


Figure 6. Draft Problem Tree Part II: Threats potentially causing decreased productivity due to low fecundity and low breeding success
(Orange P2 – High threats in one or more regions, Yellow – Threats with mostly unknown impact; CMS Raptors MOU CU, 2013)



3 - Policies, legislation and current 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, 2013a) because a revised analysis of population trends indicated that it may have undergone a very rapid decline, of around 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 EC 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 three 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 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). Subsequently, Mongolia selected the Saker Falcon as its national bird and announced a five-year suspension of 'commercial trade' in January 2013.

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 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 in 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 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, Mongolia, Morocco, Qatar, the Republic of Korea, Saudi Arabia, Spain and the Syrian Arab Republic, the Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage, UNESCO, inscribed falconry as 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 cooperation in that field (CE, 1979).

The Saker Falcon is listed under Annex II. Annex II includes strictly protected species of fauna. Species may be neither disturbed nor captured, killed or traded, except by derogation under Article 9, provided that there is no other satisfac¬tory solution and that the exception will not be detrimental to the survival of the population concerned. 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).

In the European Union, taking wild specimens of Saker Falcon is generally prohibited by the provisions of the Birds Directive due to the species being listed on Annex 1. However, derogations under Article 9 may be permitted, under strictly supervised conditions and where there is no other satisfactory solution, provided that the potential consequences are not incompatible with the Directive.

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 the European Union'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 rational 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, Iran (Islamic Republic of), Iraq, Israel, Italy, Kazakhstan, Kenya, Kyrgyzstan, Mali, Malta, Mongolia, Montenegro, Niger, Pakistan, Poland, Romania, Russian Federation, Saudi Arabia, Serbia, Slovakia, Somalia, Sudan, Syrian Arab Republic, the FYR Macedonia,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, the FYR 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, Mongolia, Romania, Syrian Arab Republic, the FYR Macedonia and Yemen.

There are no penalties for illegal taking, killing or nest destruction in Iraq, Saudi Arabia and the FYR Macedonia; and information on penalties is incomplete for Georgia, Kenya, Mongolia and Yemen. Maximum penalties for illegal taking, killing or nest destruction 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, Russian Federation, Sudan and the United Arab Emirates.

Based on the Questionnaires, taking of wild Saker Falcons occurs in Armenia, Azerbaijan, Bulgaria, Iraq, Iran (Islamic Republic of), Kazakhstan, Kyrgyzstan, Pakistan, Russian Federation, Saudi Arabia, Somalia, Sudan, and Syrian Arab Republic; it is suspected in Serbia and information is incomplete for Georgia, Mongolia, the FYR Macedonia, 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 cover 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, Russian Federation, Saudi Arabia, Slovakia, Syrian Arab Republic and Ukraine.

Saker Falcon hybrids can be legally traded internally in Bulgaria, France, Iran (Islamic Republic of), Malta, Poland, Russian Federation, Saudi Arabia, Slovakia and Syrian Arab Republic.

The use of wild-taken Saker Falcons for falconry is legal in Saudi Arabia and Syrian Arab Republic. The use of captive-bred Saker Falcons or Saker Falcon hybrids for falconry is legal in Croatia, Czech Republic, France, Iran (Islamic Republic of), Kazakhstan, Malta, Poland, Russian Federation, Saudi Arabia, Slovakia, Syrian Arab Republic and Ukraine; and was reported as an illegal activity in Bulgaria, Hungary 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.

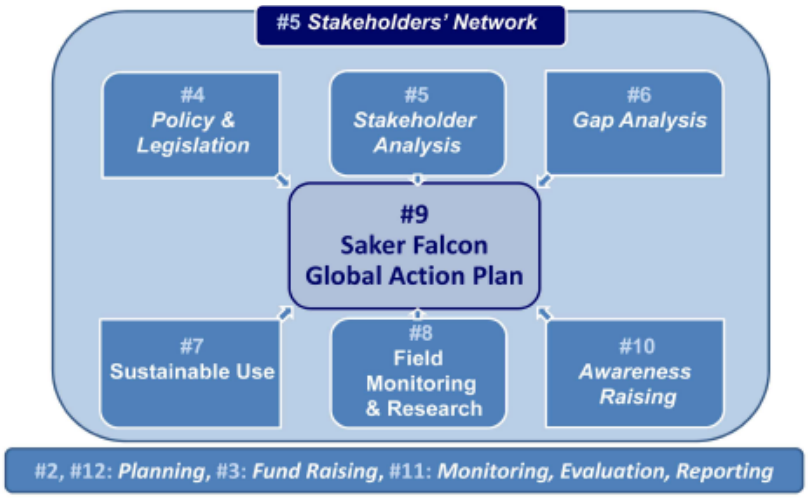
The Global Action Plan outlines robust monitoring and management mechanisms to help ensure that any use of the Saker Falcon is controlled, sustainable and is set within an adaptive management framework. This approach needs to be acceptable to the Parties of CMS potentially using and trading Saker Falcons, 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 all the various stakeholders, including pro-use and conservation organizations, 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 CMS Memorandum of Understanding on the Conservation of Migratory Birds of Prey in African and Eurasia (Raptors 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.

These actions were primarily envisaged to be delivered by individual members of the Task Force and by the wider range of organizations involved. In addition, four short-term Working Groups were established by the Task Force thereby allowing further focussed discussion and collaboration between

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



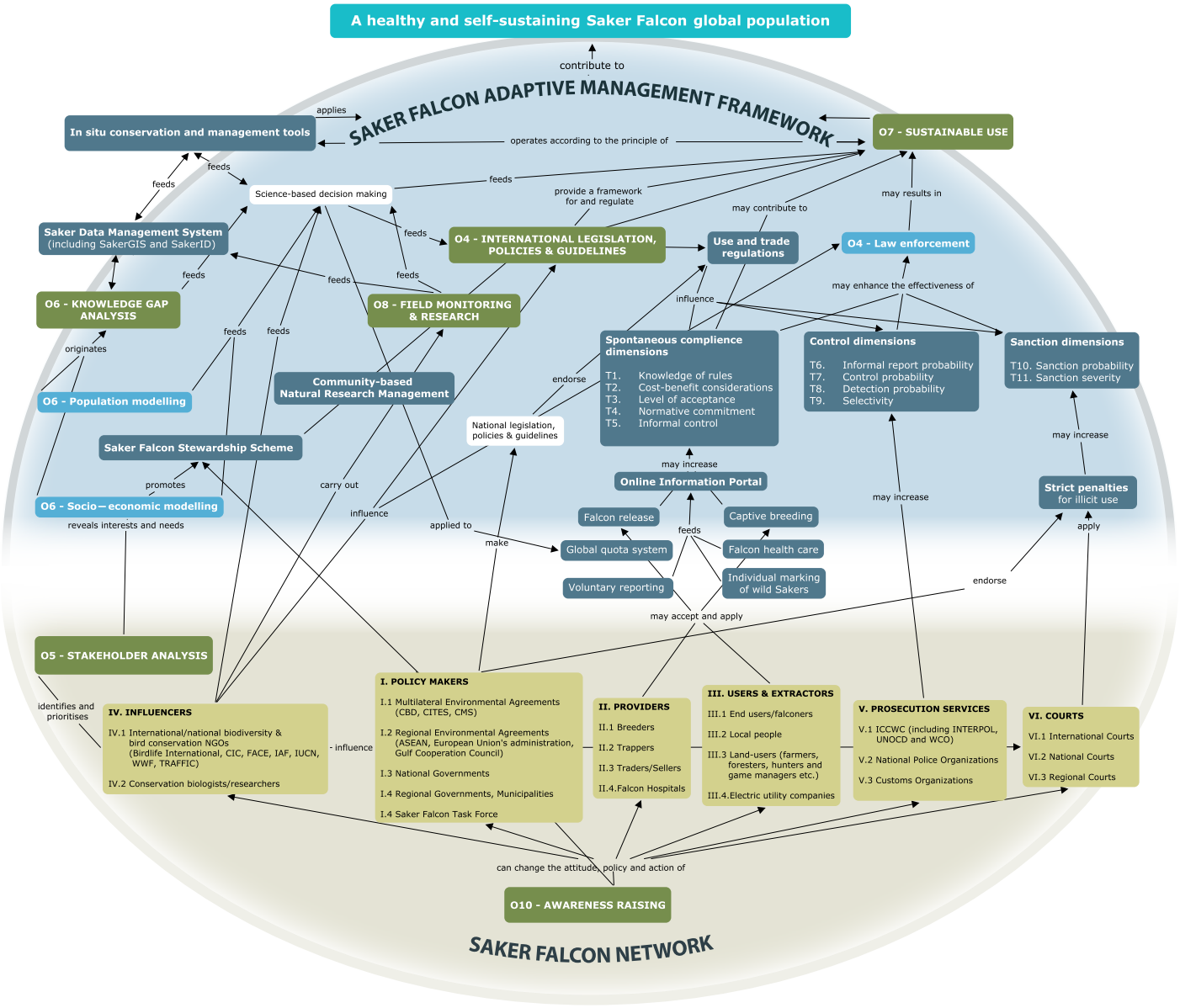
STF members, and the adoption of a common view for further review as part of the Global Action Plan Workshop held in September 2013.

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 summarized in *Figure 8*.

Figure 8. Key factors of the implementation of the SakerGAP (v3, CMS Raptors MOU CU, 2014)



Legend:
- Saker Falcon Task Force WorkPlan Objectives
- Saker Falcon Task Force WorkPlan Objective - specific issue
- Potential means to achieve objectives

A review of international policies and 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 Parties to these MEAs and have enacted legislation that allows them to implement the respective provisions. However, there are differences in the approach between MEAs, Regional Environment Agreements and national laws which may hinder the application of potential conservation tools such as sustainable use. For example, the Saker Falcon as a CITES Appendix II species can be traded internationally for commercial purposes, but within strict regulations, requiring determinations of sustainability and legality. However, sustainable use of the Saker Falcon is not permitted in any EU Member State under provisions within the EC Birds Directive.

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 this 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 where appropriate.

Reducing omissions and potential contradictions between MEAs and national laws, policies and guidelines, while enhancing synergistic inter-linkages between them, is important in 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 habitats that support many other unique and important species.

A review of key knowledge gaps identified

Summary of the STF Objective 6 Working Group Report (Collar *et al.*, 2013)

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

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, the 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 (Islamic Republic of) 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 of habitats to prey declines and the measures needed to address it;
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 power lines on Saker numbers;
i. the measures to mitigate climate change effects on lowland grasslands;
j. the risk level posed by wild Saker Falcons hybridizing 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 the Saker Falcon;
n. the relationships of Saker performance variables with nest availability and food supply. (management and policy decisions will be needed to identify these);
o. the population levels appropriate for Range States to seek to achieve;
p. the scale and extent of trapping of wild Saker Falcons 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 optimize 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 the Saker Falcon 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 Saker Falcons.

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 preservationists 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. Where can birds be taken from?
iv. What age and sex ratio of birds can be taken? How might this vary across the species' range and during different stages of the 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 the 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 Gos-

hawk 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 Saker Falcons from mortality on power-lines, and of harvest for falconry, could also be defined by such tagging provided that trappers cooperate to report tags.

Human resources now exist, in terms of science and technology capabilities and of attitudes and knowledge among local falconers, for a Saker Identity Database (SakerID) including an Online Information Portal to be established in consumer states to estimate harvest rates and, given cooperation with falcon trappers, sizes of trapped Saker Falcon populations. The increasing use of web-sites and mobile communications by falconers and trappers means that the internet can 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 to 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 is important if MEAs are to have any chance of accommodating a complex system for managing conservation of the Saker Falcon through sustainable use. It is already recognized 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 use of wild resource) does not favour patient deliberation needed to inform and converge the thinking of all actors. Those genuinely wishing to conserve the Saker Falcon, 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 Identity Database.

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 Identity Database is beyond the capability of individual falconers. However, there remains the possibility that an organization 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 coordination 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 and 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.

5 - A proposed programme and methods for a Saker Falcon adaptive management framework

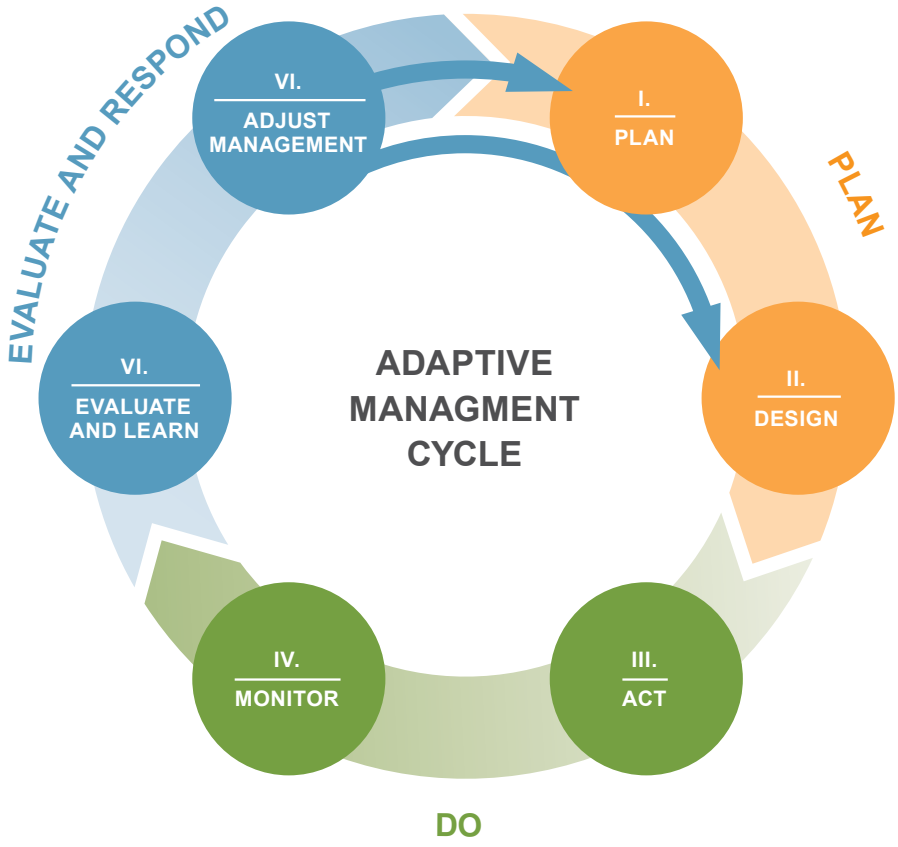
Adaptive management provides a framework which allows resource managers to deal with complex ecological systems in which there are continual changes, hence the available information at any particular point in time incomplete. The strength of adaptive management is that it establishes an experimental 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*).

Management should 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).

Figure 9. The six key steps in the adaptive management cycle



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 4). 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 wider planned actions of the Saker Falcon Global Action Plan (SakerGAP) and indeed is a fundamental building block for its implementation.

Table 4. A proposed Saker Falcon Adaptive Management Framework (CMS Raptors MOU CU, 2014)

Plan (SakerGAP process 2015–2016)	**Step 0: Establish and legitimize a coordination structure, and develop the network of stakeholders** 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 recognize and support. Nominate a core team for coordination. Renew 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. Establish a Saker Falcon Network (see *Figure 11*).
	Step I: Plan the Saker Falcon Adaptive Management Framework 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 the implementation of the SakerGAP 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 2015–2024)	**Step III: Take actions to improve the conservation status of the Saker Falcon** 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 identified 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, Inform and engage stakeholders and the public.

Act
(Implementation of SakerGAP 2015–2024)

Step IV: Monitor to fill critical knowledge gaps and to track the progress of implementation

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; to achieve better understanding of the effectiveness of the SakeGAP implementation process

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 (SDMS).

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

Step VI: Adjust management based on what is learned

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

Modern Arab 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 trade regulated by CITES 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 the existing unregulated, illegal harvest towards a regulated legal one, the overall management goal is to enable controlled, sustainable harvest of the Saker Falcon in parts of its range, while simultaneously decreasing the overall level of harvest globally, and exerting minimal adverse 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 Centralcentral 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 a threshold ofan 80 breeding pair.

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 & 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 from counts where these are available, but also using mark-recapture methods, where populations are too large, widespread or poorly accessible to enable accurate direct counting.

Calculations using the productivity data of European and Central Asian Saker Falcon subpopulations imply a theoretical 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 'consumers and extractors pay' should be considered. This iinvolves consumers and extractors establishing compensatory conservation measures to pay the remedial conservation costs associated with the resources they use or affect directly or indirectly.

The proposed meaning of the term 'consumers and extractors' includes stakeholders that directly use wild-origin Saker Falcons (e.g. falconers, breeders), and also those groups whose activities impose a proven negative effect on Saker Falcon populations (e.g. electric utility companies, or potentially producers of harmful agrichemicals) whereby creating 'negative externalities' or 'external costs'.

Compensatory 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 as in the Mongolian model) may in turn allow increased sustainable harvest quotas, thereby encouraging conservation investments.

Since the origins of Saker Falcons trapped along the species' 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 should

Table 5. Proposed safeguards to ensure sustainable harvest (CMS Raptors MOU CU, 2014)

Essential safeguards	
1	Quota calculations should where possible be based on the *observed or accurately estimated* number of breeding pairs and should also consider the level of taking of the Saker Falcon geographically, i.e. on breeding grounds, migration and in wintering areas.
2	Only *populations or meta-populations exceeding 100 observed or accurately estimated breeding pairs* should be considered as potential sources for harvesting. Estimations should be based on reliable quantitative or representative data through sampling (e.g. mark-recapture) or interpolation for a given period and area.
3	Only *stable or increasing* populations should be considered for harvesting. This requires the monitoring of populations through repeated population surveys. Five per cent is recommended as the *maximum* harvest rate of fledged juveniles and this level should not be seen as a target to reach, rather as a limit on the total numbers that could be taken. Only the harvesting of 1st year (up to nine months old post-fledging individual) Saker Falcons should be considered for falconry purposes. If the figure is based on the observed number of fledged juveniles, then 5% is considered 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 theoretical 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.
4	*Net production* (fledged juveniles) is calculated annually based on the rolling mean annual net production of known breeding pairs in the preceding five 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.
5	*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).
6	*Trapping pressure should be minimized on the most threatened, non-target populations* on breeding grounds and along their entire flyways.
Desirable safeguards	
7	The legal harvest and trade within non-breeding (passage and winter) States should be allowed only if these States fund remedial conservation programmes (e.g. large scale modification of medium-voltage electric lines or support an artificial nest programme), in their own territory or in a breeding range country. This safeguard is to prevent harvesting Saker Falcons without compensatory conservation measures taking place.
8	Mitigation of electrocution on medium-voltage power lines has started in Saker Falcon habitats.
9	At least 300 artificial nests have been established in Saker Falcon habitats within pilot projects to check whether the lack of suitable nest sites is a limiting factor.
10	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.

be restricted to nestlings or recently fledged birds as was recommended for the Prairie Falcon *Falco mexicanus* in Colorado, USA (Millsap & 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 to ensure that harvest does not effect non-target populations.

Clearly managing such a system would 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 benefit the conservation of the species directly), 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, a system could be developed where consumers in non-breeding Range States may be able to 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*).

Table 5 presents the proposed safeguards to be put in place to help ensure sustainable trapping/harvest; many of which also promote population surveys and monitoring.

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 recognizes *inter alia* that the implementation of CITES is better achieved with the engagement of rural communities, especially those that are traditionally dependent on CITES-listed species for their livelihoods. The Resolution recognized 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 MEAs including CITES.

As with 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 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 initially in addressing 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*).

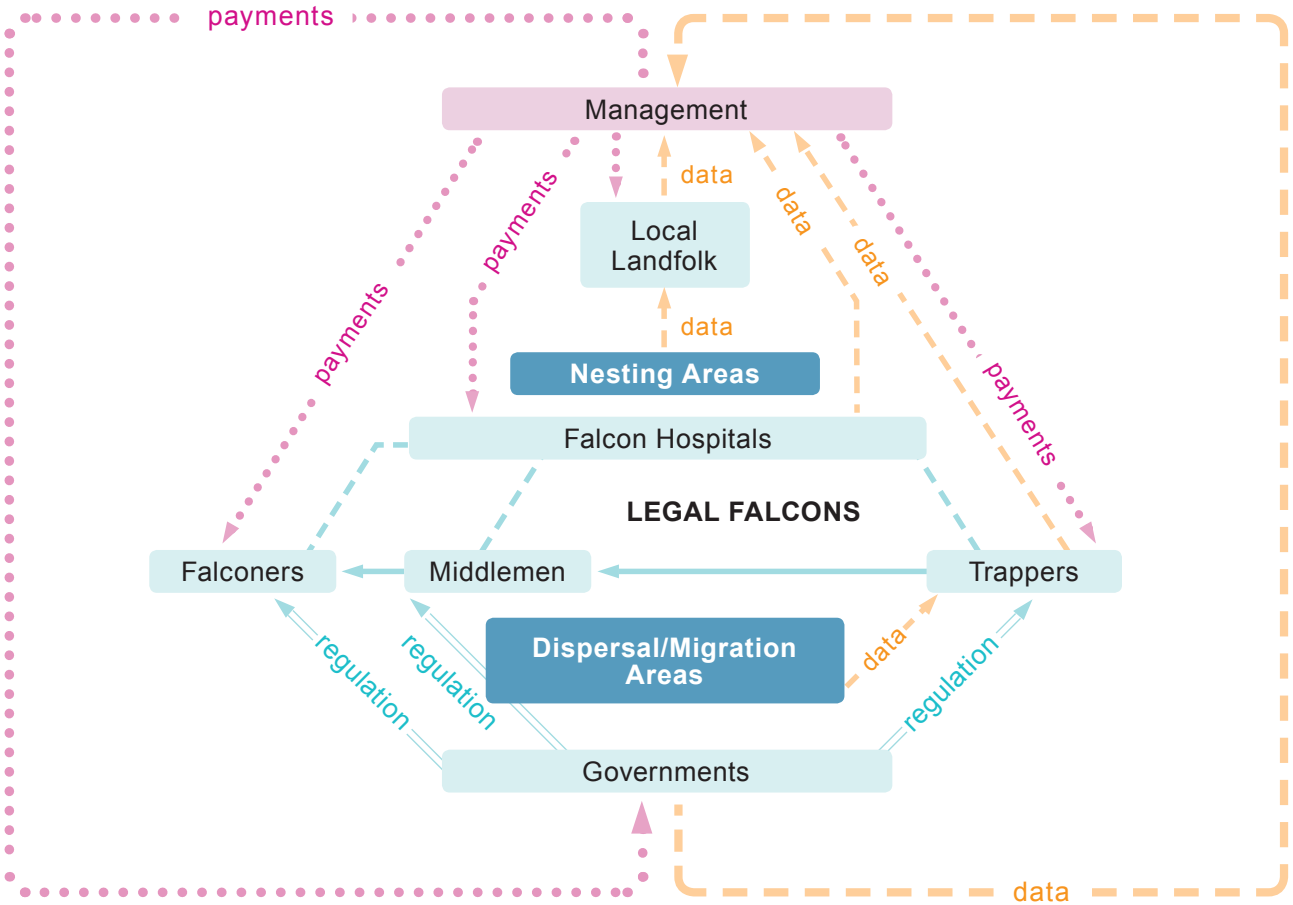
The model currently lacks important data on the numbers of falconers and trappers, although a recent survey undertaken in Saudi Arabia by Al Rashidi (in Kenward *et al.*, 2013) indicated that these knowledge gaps can be overcome if these stakeholders can be effectively engaged. A more detailed and refined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

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 the Saker Falcon the nest box scheme needs to generate an income to pay for 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 opportunity for community-based resource management (Brown, 1999; Brown *et al.*, 2002; Bond *et al.*, 2006) can make a real contribution only through a robust delivery system, including coordination, training for staff, documenting actions and by the monitoring of progress through periodic reviews of effectiveness.

A similar opportunity exists for public engagement and education in the implementation of the current plan. The first estimate of productivity for a harvested Saker Falcon population, made by using mark-recapture methodology indicated that 12,000 pairs may have produced around 36,000 young (Kenward *et al.*, 2001), and mark-recapture esti-

Figure 10. An outline of the data and motivation flows (economic and regulatory) that need to be modelled in a management system for the Saker Falcon (Kenward et al., 2013).



mates for Goshawks in Sweden gave similar results to count-based density estimates (Kenward 2006). Although counts of breeding pairs are likely to be more accurate where the census can be thorough, mark-recapture is convenient for populations where access to remote areas hinders the counting of pairs. Moreover, mark-recapture estimation is especially convenient socio-environmentally, as it can be used to engage and reward those people supplying data, not only falcon trappers but also local people in breeding areas. This provides opportunities both to encourage legal activities among trappers, and to confer value on falcons for local people and thereby motivate conservation through protection and appropriate habitat management.

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 (CMS Raptors MOU CU, 2013)

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 marking scheme for the Saker Falcon. • Reporting on the capture, recapture and re-sighting of all Saker Falcons; 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.

6 - 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 where trapping and other forms of taking Saker Falcons from the wild are legal, they are controlled, and sustainable, thereby encouraging population growth and eventual stabilization
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 stakeholder 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 recognized sustainable management framework to conserve the Saker Falcon is designed and approved by Range States and by CMS and 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 are 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, including bird-friendly pole designs, their application 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 within the Saker Falcon Adaptive Management Framework (see Objective 5)
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 mechanisms 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 Reach agreement on timing and routing of potentially disturbing land-use activities to prevent loss of birds
3.7 Guard threatened Saker Falcon nests in severely depleted sub-populations.
3.8 Establish internet platforms and hot lines for reporting injured or dead raptors including the Saker Falcon
3.9 Promote examination of dead or injured Saker Falcons (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 are disseminated sufficiently to support Adaptive Management.
3.10 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 the Saker Falcon
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 of stakeholders' involvement within a Saker Falcon Adaptive Management Framework

5.1 Establish and legitimize a coordination structure, and develop the network of stakeholders
5.2 Plan the Saker Falcon Adaptive Management Framework
5.3 Design the implementation of the SakerGAP by region
5.4 Take actions to improve the conservation status of the Saker Falcon
5.5 Monitor to fill critical knowledge gaps and to track the progress of implementation
5.6 Evaluate and learn to achieve better understanding of the effectiveness of the SakeGAP implementation process
5.7 Adjust management based on what is learned
5.8 Raise stakeholders' awareness of 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) (CMS Raptors MOU CU, 2014)

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 Saker Falcons 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.
2. Ensure that where trapping and other forms of taking Saker Falcons from the wild are legal, they are controlled and sustainable, thereby encouraging population growth and eventual stabilization.	Increase in the use of captive-bred Saker Falcons compared to the proportion of wild-origin Saker Falcons used. The number of legally and sustainably harvested Saker Falcons 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 recognized by COPs of CMS and CITES) 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.

Table 7. The Logical Framework (Overall Goal, Objectives and Expected Results) cont.

Logical Framework	Monitoring Indicators	Sources of Verification	Assumptions
OBJECTIVES CONT.			
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 with a total of 25,000 nest boxes erected in suitable areas by 2024.	National reports on the implementation of National Biodiversity Strategies and Action Plans. National survey reports and maps on presence/absence, breeding distribution, nest occupancy, breeding success (brood size, nest success, productivity) and prey availability. Reports from Parties to CMS COP and as part of the Raptors MOU.	Legal protection of the main sites and habitats for the Saker Falcon is in place and effectively enforced. Habitat conservation and management activities are implemented by national governments in line with the SakerGAP.
5. Ensure effective stakeholder 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 recognized sustainable management framework to conserve the Saker Falcon is designed and approved by Range States and by CMS and CITES.	Comprehensive records of the numbers of birds taken from the 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 Saker Falcons (wild and captive) in proportion to illegal stock.	CITES Reports on the trade of the Saker Falcon. 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.	Sustainable use schemes for the Saker falcon are endorsed by Range States and by CMS and 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.

Table 7. The Logical Framework (Overall Goal, Objectives and Expected Results) cont.

Logical Framework	Monitoring Indicators	Sources of Verification	Assumptions
EXPECTED RESULTS CONT.			
4. The global breeding population size and productivity are 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. Saker Falcons use artificial nest platforms where provided.
5. The SakerGAP is effectively implemented through strong stakeholder collaboration within the Saker Falcon Adaptive Management Framework.	The Saker Falcon Adaptive 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 stakeholder meetings, workshops and training events. Increase in the number of awareness-raising publications and events. Increase stakeholders' involvement in the conservation and management of the Saker Falcon.	National reports. SakerGAP implementation reports. Steering Group meeting reports. National research and monitoring reports. Peer reviewed scientific journals. Meeting, workshop and training reports.	Stakeholders are willing to 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 (CMS Raptors MOU CU, 2014)

Action	Priority	Timescale	Organizations 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 countires 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.	High	Long	• **Relevant national authorities,** • National governments, • Governmental and • non-governmental • conservation organizations (Conservation GOs/NGOs), • Research organizations, consultants, • National Courts, • Power utility companies and their suppliers.
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 obligations under CMS and Bern Convention 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.			
1.2. Modify existing high-risk medium-voltage poles to be safe for birds with the most cost-effective mitigation measures.	High	Long	• **Relevant national authorities,** • National Governments, • Conservation GOs and NGOs, • Power utility companies and their suppliers, • Research organizations and universities.
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.			

Table 8. Framework for Action cont.

Action	Priority	Timescale	Organizations responsible
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.			
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 where trapping and other forms of taking Saker Falcons from the wild are legal, they are controlled, and sustainable, thereby encouraging population growth and eventual stabilization.			
Result 2: An internationally recognized sustainable management framework to conserve the Saker Falcon is designed and approved by Range States and by CMS and 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 within the Saker Falcon Adaptive Management Framework (see Objective 5) .	High	Short	• **Conservation GOs and NGOs,** • National governments, • Relevant national authorities, • International (CIC, FACE, IAF) and national hunting and falconry organizations, • Research organizations 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 Saker Falcons, incentives for sustainable use, involvement of local communities in conservation management) in existing laws, policies and guidelines and work with law and policy makers to resolve them. 2.1.4. Identify major contradictions (e.g. regarding use of wild Saker Falcons, use of hybrid falcons) in existing laws, policies and 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.			

Table 8. Framework for Action cont.

Action	Priority	Timescale	Organizations responsible
2.2. Improve law enforcement to prevent and convert uncontrolled illegal use to controlled, legal and sustainable use. 2.2.1. Investigate the possibilities of improving law enforcement and develop tools to do so in range countries so as to reduce the level of illegal taking, illegal trapping and illegal trade of wild Saker Falcons. 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). 2.2.8. Promote the organisation of national wildlife enforcement workshops in key Range States to improve implementation of legislation protecting Saker Falcons, including CITES.	High	Medium	• **Relevant national authorities,** • National Police Organizations, • National Customs Organizations, • 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. 2.3.1. Conduct an economic assessment of regional demands and supply to clarify how sustainable wild harvest supported by captive breeding can meet current and anticipated market demands. 2.3.2. Where relevant encourage that wild Saker Falcons are only kept for limited time by falconers and are released/re-introduced through official release programmes. 2.3.3. Establish a genetic bank for wild-origin Saker Falcons for identification of origin within a cooperation of falcon hospitals, breeding centres and falconers.	High	Short	• **Conservation GOs and NGOs,** • Relevant national authorities, • International (CIC, FACE, IAF) and national hunting and falconry organizations, • Research organizations and universities, • Falcon hospitals and rehabilitation centres.

Table 8. Framework for Action cont.

Action	Priority	Timescale	Organizations responsible
2.3.4. Link falcon hospitals, breeding centres, falconers and trappers in the Saker Falcon Network, improve information exchange and maintain regular communication. 2.3.5. Promote and improve captive breeding techniques and release/re-introduction programmes (in line with best practice standards) so as to alleviate the pressure of harvest on wild Saker Populations. 2.3.6. Promote the value of high-quality captive-bred falcons and increase awareness of the frequent poor condition of illegally taken and smuggled wild Saker Falcons for falconry so as to reduce harvest pressure. 2.3.7. Establish regional rescue centres for recovered birds of prey.			
2.4. Ensure that Range States implement regulatory mechanisms 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	
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 CITES Non-detriment Findings for the Saker Falcon. 2.4.3. Define Maximum Sustainable Harvest Rates and biologically sustainable quotas for legal trade by region and by Saker Falcon population applying CITES's Non-detriment Finding assessment and checklist where relevant. 2.4.4. Make CITES Non-detriment Finding assessments available to importing countries. 2.4.5. Implement water-tight system of marking captured wild Saker Falcons. 2.4.6. Ensure that all wild-origin and captive-bred Saker Falcons are individually marked and registered in the Saker Identity Database (SakerID). 2.4.7. 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.			

Table 8. Framework for Action cont.

Action	Priority	Timescale	Organizations responsible
2.5. Awareness-raising and involvement of stakeholders in sustainable use schemes (see Action 5.8 for more).	High	Immediate	
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.			
Result 2: 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 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, • Research organizations and universities, • Falcon hospitals and rehabilitation centres.
3.2.1. Promote the chemical and toxicological analyses of eggs and dead or injured Saker Falcons of all age groups. 3.2.2. Improve control over the storage and marketing of biocides and other substances 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.			
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 organizations 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.			

Table 8. Framework for Action cont.

Action	Priority	Timescale	Organizations responsible
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 organizations 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 organizations and universities.
3.5.1. Promote the existing guidelines of power line and wind farm 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. Reach agreement on timing and routing of potentially disturbing land-use activities to prevent loss of birds.	Medium	Long	• **Conservation GOs and NGOs,**
3.7. Guard threatened Saker Falcon nests in severely depleted sub-populations.	Low	Short	• **Conservation GOs and NGOs,**
3.8. Establish internet platforms and hot lines for reporting injured or dead raptors including the Saker Falcon.	Medium	Short	• **Conservation GOs and NGOs,**
3.9. Promote examination of dead or injured Saker Falcons (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 are disseminated sufficiently to support Adaptive Management.			• Vet laboratories, • Falcon hospitals and rehabilitation centres.
3.10. Awareness-raising of Stakeholders top revent 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.**

Table 8. Framework for Action cont.

Action	Priority	Timescale	Organizations responsible
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 are enhanced through increased suitable nest sites and available food supply in the range of the SakerFalcon.			
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. 4.1.3. Increase level of protection of key sites; take steps for their designation as protected areas with management plans. 4.1.4. Designate important sites (e.g. relevant Important Bird Areas) for the Saker Falcon and other migratory birds of prey as national or regional (e.g. Natura 2000 within the European Union) protected areas.			
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 organizations 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 the Saker Falcon.	Medium	Medium	
4.4. Maintain and improve the area and quality of Saker foraging habitats throughout its range.	Medium	Medium	• **Conservation GOs and NGOs,** • Relevant national authorities, • Research organizations and universities.

Table 8. Framework for Action cont.

Action	Priority	Timescale	Organizations responsible
4.4.1. Improve spatial planning practices to minimise habitat loss and fragmentation of extensive agricultural landscapes and grasslands.			
4.4.2. Use cross-compliance rules and phase out subsidies for afforestation, farm intensification and conversion of e.g. permanent grasslands into intensive arable, livestock and perennial crops in key Saker sites. 4.4.3. Counteract desertification due to anthropogenic factors in the non-breeding range. 4.4.4. Encourage agri-environment schemes and other rural development measures to manage Saker Falcon habitats in favour of key prey species (e.g. to regulate livestock density; to establish appropriate levels of grazing in order to prevent natural succession and overgrazing; and, to maintain habitat features for prey reproduction and shelter). 4.4.5. Study the decline of key prey species (e.g. Suslik *Spermophilus citellus* in Europe) and, based on the results, prepare and implement prey recovery plans, including re-introduction programmes where necessary and appropriate. 4.4.6. Integrate the principles and implementation actions of the SakerGAP into National Biodiversity Strategies and Action Plans (NBSAPs), and/or National or Regional Species Action Plans developed under the Convention on Biological Diversity (CBD). 4.4.7. Seek for synergies with large-scale conservation programmes in order to maintain and develop Saker habitats. 4.4.2. Use cross-compliance rules and phase out subsidies for afforestation, farm intensification and conversion of e.g. permanent grasslands into intensive arable, livestock and perennial crops in key Saker sites. 4.4.3. Counteract desertification due to anthropogenic factors in the non-breeding range.	Medium	Medium	• **Conservation GOs and NGOs,** • Relevant national authorities, • Research organizations and universities.

Table 8. Framework for Action cont.

Action	Priority	Timescale	Organizations responsible
4.4.4. Encourage agri-environment schemes and other rural development measures to manage Saker Falcon habitats in favour of key prey species (e.g. to regulate livestock density; to establish appropriate levels of grazing in order to prevent natural succession and overgrazing; and, to maintain habitat features for prey reproduction and shelter). 4.4.5. Study the decline of key prey species (e.g. Suslik *Spermophilus citellus* in Europe) and, based on the results, prepare and implement prey recovery plans, including re-introduction programmes where necessary and appropriate. 4.4.6. Integrate the principles and implementation actions of the SakerGAP into National Biodiversity Strategies and Action Plans (NBSAPs), and/or National or Regional Species Action Plans developed under the Convention on Biological Diversity (CBD). 4.4.7. Seek for synergies with large-scale conservation programmes in order to maintain and develop Saker habitats.			
4.5. Reduce the impact of mass poisoning of prey species.	Medium	Medium	• **Relevant national authorities,** • Conservation GOs and NGOs, • Plant protection agencies, • Research organizations and universities.
4.5.1. Increase the control of the use of rodenticides and other biocides.			
Objective 5: Ensure effective stakeholder involvement in the implementation of SakerGAP within a Saker Falcon Adaptive Management Framework.			
Results 5: The SakerGAP is effectively implemented through strong stakeholder collaboration within the Saker Falcon Adaptive Management Framework.			
5.1. Establish and legitimize a coordination structure, and develop the network of stakeholders.	High	Immediate	• **CMS COP11,** • **STF,** • **CU of the CMS Raptors MOU.**
5.1.1. Establish a transparent system of coordination related to the overall management of the species. 5.1.2. Nominate a core team for coordination.			

Table 8. Framework for Action cont.

Action	Priority	Timescale	Organizations responsible
5.1.3. Extend the remit of the Saker Falcon Task Force to oversee implementation of the SakerGAP with stakeholders. 5.1.4. Identify key stakeholders and encourage active participation. 5.1.5. Recruit a Coordinator to oversee implementation as soon as funding is available. 5.1.6. Establish a Saker Falcon Network			
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.			
5.2.2. Establish goals and objectives with targets and indicators and set priorities for conservation, monitoring and research by region based on Stahl *et al*., 2013. 5.2.3. Prepare national or regional Saker Falcon or raptor conservation and management strategies.			
5.3. Design the implementation of the SakerGAP by region.	High	Immediate	• **STF,** • CU of the CMS Raptors MOU, • Conservation GOs and NGOs, • Research organizations and universities.
5.3.1. Develop the Implementation Plan, including a timeline, budget and resources needed, for the SakerGAP.			
5.3.2. Design legal, policy, socio-economic, stakeholders' awareness-raising, conservation and management actions (what/where/when/how and who to do?).			
5.3.3. Design a monitoring and research plan (what/where/when/how and who to do?) based on priorities and agree on centralized data collection and analysis.			
5.3.4. Establish Saker Data Management System (SDMS), including a Saker Identity Database (SakerID), an Online Information Portal and a Saker Falcon-specific GIS; and agree on centralized data processing, storage and data safety.			
5.3.5. Develop a catalogue of potential remedial conservation measures by region and by Saker Falcon population.			

Table 8. Framework for Action cont.

Action	Priority	Timescale	Organizations responsible
5.3.6. Design stakeholder engagement in implementation including meaningful and economically viable alternatives of the illegal use of the Saker Falcon.			
5.3.7. 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).			
5.3.8. Develop guidelines and protocols for coordinated action.			
5.4. Take actions to improve the conservation status of the Saker Falcon.	High	Medium	• **STF,** • CU of the CMS Raptors MOU, • Conservation GOs and NGOs, • Research organizations and universities.
5.4.1. Select priority actions based on management objectives and resource conditions.			
5.4.2. Carry out pilot studies to check the effectiveness of conservation interventions.			
5.4.3. Implement legal, policy, conservation, management and public awareness-raising actions with stakeholders towards the favourable conservation status of Saker Falcon populations.			
5.5. Monitor to fill critical knowledge gaps and to track the progress of implementation.	High	Medium	• **STF,** • CU of the CMS Raptors MOU, • Conservation GOs and NGOs, • Research organizations and universities, • All Stakeholder groups.
5.5.1. Implement the monitoring and research plan to 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.			
5.5.2. Implement the monitoring plan to document the progress and effectiveness of implementation and note any deviations to the plan.			
5.6. Evaluate and learn to achieve better understanding of the effectiveness of the SakeGAP implementation process.	High	Medium	• **STF,** • CU of the CMS Raptors MOU, • Conservation GOs and NGOs, • Research organizations and universities, • All Stakeholder groups.
5.6.1. Prepare, analyze, synthesize and evaluate data collected through monitoring within a Saker Falcon Data Management System.			

Table 8. Framework for Action cont.

Action	Priority	Timescale	Organizations responsible
5.6.2. Evaluate the effectiveness of the SakerGAP by comparing the objectives and observed changes in the status of the Saker Falcon. 5.6.3. Share knowledge, communicate current understanding with stakeholders. 5.6.4. Publish results of research and monitoring activities. Note any deviations to the plan.			
5.7. Adjust management based on what is learned	High	Medium	• **STF,** • CU of the CMS Raptors MOU.
5.7.1. Adapt strategic plan and adjust management. Understanding with stakeholders.			
5.8. Raise stakeholders' awareness of 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 organizations 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. Collaborate with key stakeholders within the Saker Falcon Network. 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. Promote the adoption of IAF's Code of Conduct for Falconry with respect to hybrids and exotic species. 5.8.5. Establish conflict resolution procedures for situations where Saker Falcon may have an impact on human activities (e.g. to pigeon fanciers). 5.8.6. Explain shared interests and win-win situations to Stakeholders and facilitate wide access to solutions. 5.8.7. Promote the recognition of donors of potentially dangerous developments so that they only fund those projects that are not harmful for the Saker Falcon.			

Table 8, Framework for Action cont.

Action	Priority	Timescale	Organizations responsible
5.8.8. Develop a school educational programme and teaching resources to inform school children of the status, threats and conservation needs of the Saker Falcon.			
5.8.9. 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 falcons.			
5.8.10. Educate and raise the awareness of local communities about the conservation and sustainable, community-based management of the Saker Falcon.			
5.8.11. Grant an accolade of environmental excellence to those municipalities, organizations and individuals that carry out sound environmental practices in favour of the Saker Falcon.			
5.8.12. Recruit and train volunteers for Saker Falcon monitoring, conservation management and related education.			

Notes

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.

7 - Next steps

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

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

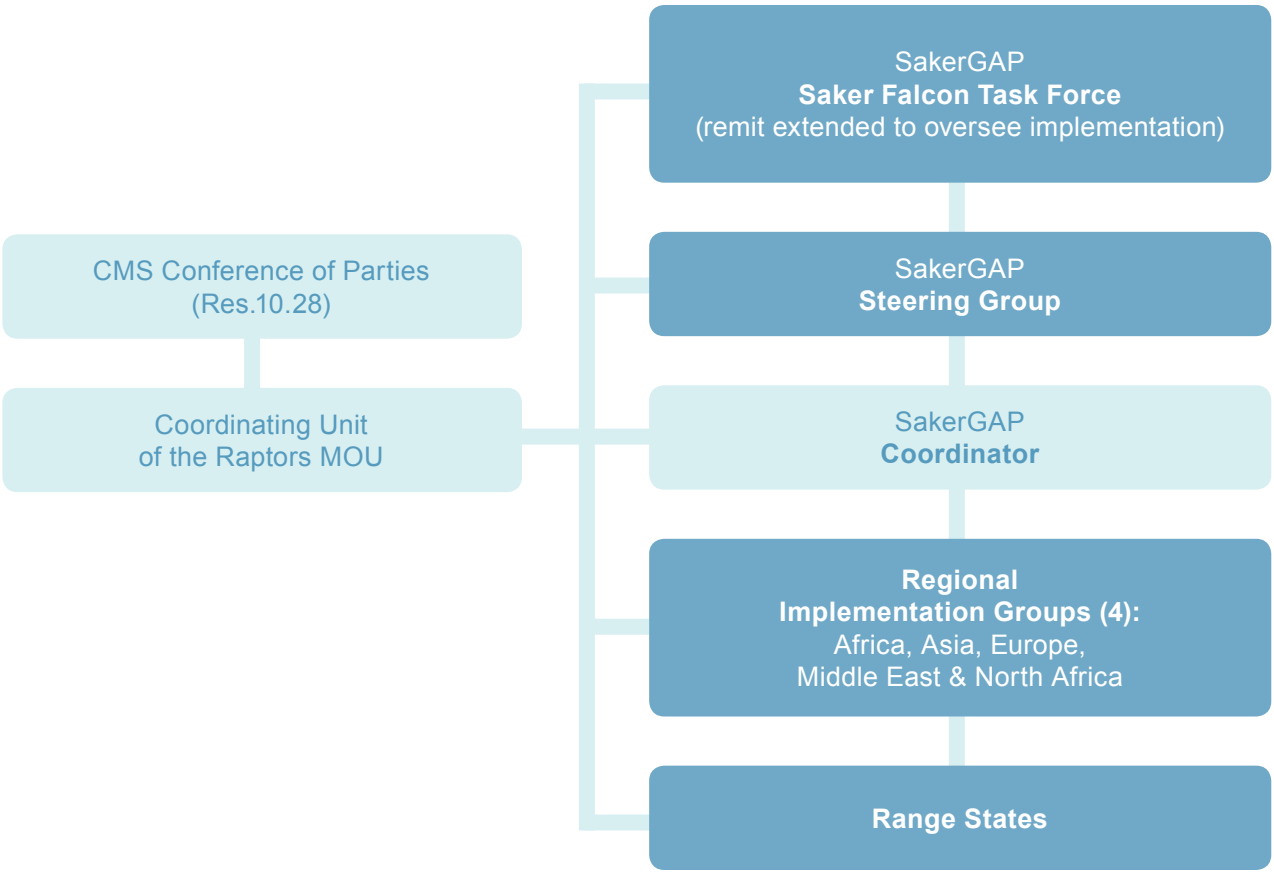
It is envisaged that the SakerGAP will be implemented over a ten-year period (2015–2024), incorporating regular reports to the CMS Conference of Parties, held triennially and scheduled in 2017, 2020, 2023 and 2026. In line with the CMS Resolution 10.28, the Coordinating Unit of the Raptors MOU is expected 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*).

Saker Falcon Task Force (STF)

The STF has functioned very 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. It is proposed that its remit be renewed 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 be held during each triennium.

Figure 11. A proposed coordination structure for the SakerGAP (CU, Raptors MOU, 2014)



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 ten 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 & 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 people, representing the range countries that make up each region. 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 *(Figure 12)*. Brief summaries of each project are presented below.

Create 1 Saker Falcon Online Information Portal and Engaging 10 Falcon Hospitals, Falconers and Trappers within 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 the Saker Falcon. Trappers could be encouraged to register by a prize-linked smart-phone survey.

Deploy 100 Satellite Tags on Saker Falcons

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

Erect 1,000 Artificial Nest Platforms for Saker Falcons

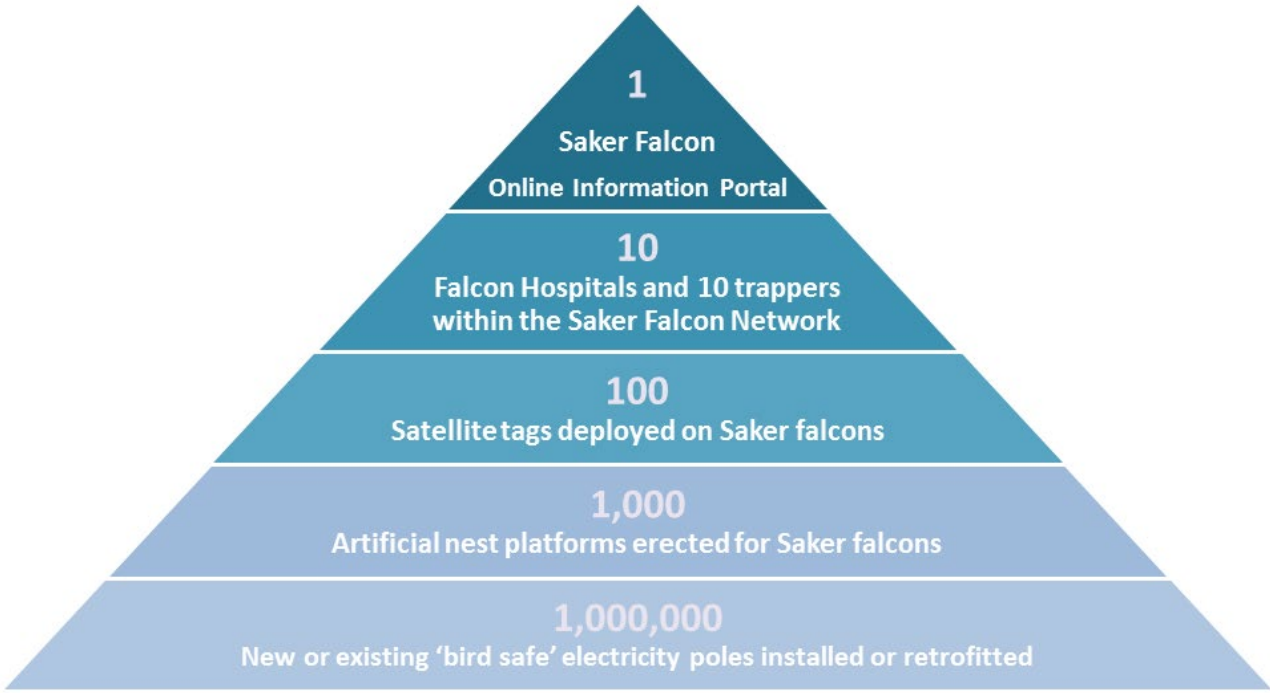
One thousand artificial nests will be erected to increase the breeding population and/or productivity of the Saker Falcon in areas where a shortage of optimal nest sites is limiting the size of the Saker

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 Saker Falcons.

Install or Retro-fit 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 birds, including populations of other birds of prey. The goal of the proposal is to install or to make bird-safe 1 million new or existing electricity poles for the Saker Falcon in priority breeding and wintering areas, as well as along migration flyways in the longer 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 in target areas from 2017 onwards; and c) ensure that existing 'killer' poles (e.g. switch, strain and transformer poles) are modified to be bird-safe and their number gradually reduced by 20% by 2024.

Figure 12. STF Flagship proposals (Saker Falcon Task Force, 2014)



8 - References

Abuladze, A. (2013) Birds of Prey of Georgia. Tbilisi, Ilia State University. 218 pp.

ADB (2004) Mongolia country environmental analysis. Ulaanbaatar: Asian Development Bank.

Al-Sheikhly, O. F. (2011) A Survey Report on the Raptors Trapping and Trade in Iraq. Wildlife Middle East. (6): 1.

AERC TAC (2003) AERC TAC Checklist of bird taxa occurring in Western Palearctic region, 15th Draft. Available at: http://www.aerc.eu/DOCS/Bird_taxa_of_the_WP15.xls

Al Rashidi, M. (2004) An ecological study on hunting falcon species and their protection in Saudi Arabia. Master Thesis (in Arabic), Biology Department, Faculty of Science, King Abdulaziz University, Jeddah, Saudi Arabia.

Angelov, I., Lei, L., Mei, Y., Balázs, I., Ma, M. & Dixon, A. (2006) Possible mixed pairing between Saker Falcon (*Falco cherrug*) and Barbary Falcon (*Falco pelegrinoides*) in China. Falco 28, p. 14–15.

Anonymous Members of the Turkish Bird Research Community (2011) Combatting the illegal trapping and trade of falcons in Turkey. Falco 37: 14–17.

Antonchikov, A. N. (2005) A review of the conservation status of steppe birds of the northern part of the Eastern Palearctic. In: Bota, G., M. B. Morales, S. Manosa & J. Camprodon (eds). Ecology and Conservation of Steppe-land birds. Lynx, Barcelona.

Antonchikov, A.N., Piskunov, V.V. (2003) [A number of nesting birds of prey in the Saratov region]. Materials of the 4th Conference on North-Eurasian Raptors. Penza, pp.127-129 [In Russian]

Bagyura, J., Szitta, T., Haraszthy, L., Viszló, L., Fidlóczky, J. & Prommer, M. (2012) Results of the Saker Falcon (*Falco cherrug*) conservation programme in Hungary, 1980–2010. Aquila 119, p. 105–110.

Bagyura, J., Fidloczky, J., Szitta, T., Prommer, M., Tihanyi, G., Zalai, T., Balazs, I., Vaczi, M., Viszlo, L., Klebert, A., Haraszthy, L., Toth, I., Torok, H.A., Demeter, I., Serfőző, J., Pigniczki, Cs., Kazi, R. & Erdelyi, K. (2010): [Annual Report of the Saker Falcon Conservation Working Group.] – Heliaca 2010: 22–29. (in Hungarian, English summary) Bagyura, J. - Szitta, T. (2009) [Saker Falcon *Falco cherrug* (J.E. Gray, 1834). 46–49 pp. in Magyar madárvonulási atlasz [Hungarian bird migration atlas] (T. Csörgõ, Z. Karcza, G. Halmos, G. Magyar, T. Gyurácz, T. Szép, A. Bankovics, S. Schmidt, & E. Schmidt, Eds.). Kossuth Kiadó, Budapest, Hungary (in Hungarian with English summary).

Bagyura J., Szitta T., Haraszthy L., Fidloczky J. & Prommer M. (2009) Results of the Saker conservation programme in Hungary, 1980–2006. W: Sielicki J.& Mizera T. (red.). Peregrine Falcon Populations – status and perspectives in the 21st Century. Turul – Poznan University of Life Sciences Press, Warsaw–Poznan, s. 749–756.

Bagyura, J., Szitta, T., Haraszthy, L., Kallay, G., Demeter, I., Sandor, I., Dudas, M. & Viszlo, L. (2003) Population trend of the Saker Falcon (*Falco cherrug*) in Hungary between 1980 and 2002. Abstracts of the 6th World Conference on birds of Prey and Owls, Budapest, Hungary, 18–23 May 2003.

Bagyura, J., Haraszthy, L., & Szitta, T. (1994) Methods and results of Saker Falcon *Falco cherrug* management and conservation in Hungary. Pages 391–395 in B.-U. Meyburg & R. D. Chancellor (eds.) , Raptor conservation today. World Working Group on Birds of Prey and Pica Press, Berlin and London.

Balazs, I. (2008) Recent occurrence of Saker Falcons in an urban environment in Hungary. Falco 31:4-5.

Barashkova, A. N., Smelansky, I. E., Tomilenko, A. A., & Akentiev, A. G. (2009) Some records of raptors in the East Kazakhstan. Raptors Conservation 17:131–144.

Barton, N.W.H. (2000) Trapping estimates for Saker and Peregrine Falcons used for falconry in the United Arab Emirates. J. Raptor Research 34(1): 53–55.

Batbayar, N., Batsukh, B., Stacey, J. & Bräunlich, A. (2009) Houbara Bustard and Saker Falcon surveys in Galba Gobi IBA, southern Mongolia. Preliminary technical report to the World Bank and Bird-Life International. Wildlife Science and Conservation Center of Mongolia, Ulaanbaatar, 41 p.

Baumgart, W. (1998) Bestehen ernährungsmäßige Voraussetzungen für die dauerhafte Ansiedlung des Sakerfalken im zentralen Mitteleuropa? Orn. Mitt. 51: 156–163.

Baumgart, W. (1994) Saker *Falco cherrug*. In: Tucker, G.M.; Heath, M.F. (ed.), Birds in Europe: their conservation status, pp. 198–199. BirdLife International (Conservation Series 3), Cambridge, UK.

Baumgart, W. (1991) Der Sakerfalke. [The Saker Falcon *Falco cherrug*]. Neue Brehm-Bücherei 514:1–159.

Baumgart, W. (1991) Der Sakerfalke. Wittemberg Lutherstadt.

Beaman, M., & Porter, R. F. (1985) Status of birds of prey in Turkey. Birds of Prey Bulletin 2:52–56.

Belik, V.P. (1999) [Some results of field studies in 1999 under the IBA Program for the South of European Russia]. Important Bird Areas, Information Bulletin, No 10. Russian Bird Conservation Union, Moscow, pp.24–26 [In Russian]

Beran, V., Škorpíková, V., Valášek, M., Horal, D. & Horák, P. (2012) The breeding population of Saker Falcon (*Falco cherrug*) in the Czech Republic between 1999–2010. Aquila (2012), Vol. 119, p. 21–30

Bevanger, K. (1998) Biological and Conservation Aspects of Bird Mortality Caused by Electricity Power Lines: a Review. Biological Conservation, 86: 67–76.

Bécsy, L., & Keve, A. (1977) The protection of birds of prey in Hungary. Pages 125–129 in R. D. Chancellor (ed.) , World Conference on Birds of Prey: report of proceedings, Vienna 1975. International Council for Bird Preservation, London.

BirdLife International (2013) Species factsheet: *Falco cherrug*. Downloaded from http://www.birdlife.org on 27/05/2013. Recommended citation for factsheets for more than one species: BirdLife International (2013) IUCN Red List for birds. Downloaded from http://www.birdlife.org on 27/05/2013.

BirdLife International (2012) Methodology for bird species recovery planning in the European Union. Final Report. Available at: http://ec.europa.eu/environment/nature/conservation/wildbirds/action_plans/docs/final_report.pdf

BirdLife International (2011) Saker Falcon conservation status and research requirements. A Final report to the Saudi Wildlife Commission. Available at: http://www.cms.int/bodies/ScC/17th_scientific_council/inf_06_saker_falcon_bli_report_e_onl y.pdf

BirdLife International (2008a) Revised Format for the AEWA International Single Species Action Plan. Brussels, Belgium. http://www.unep-aewa.org/sites/default/files/document/mop4_36_revised_ssap_format_corr1_0.pdf

BirdLife International (2008b) Safer powerlines for Hungary's birds. Presented as part of the BirdLife State of the world's birds website. Available from: http://www.birdlife.org/datazone/sowb/casestudy/240

Birdlife International (2008c) Minimising threats from hybrid falcons (originating from captive-bred birds) on wild European falcon populations. Position statement adopted by the BirdLife EU Birds and Habitats Directive Task Force on 23 April 2008.

Birdlife International (2007) Position statement on birds and power lines. Birdlife Birds and Habitats Directives Task Force adopted position papers. Available at: http://www.birdlife.org/action/change/europe/habitat_directive/index.html

Boev, Z. N. & Dimitrov, S. S. (1995) On the Lanner Falcon (*Falco biarmicus* Temminck, 1825) in Bulgaria. Acta Zool. Bulgarica 48, p. 105–112.

Bond, I., Davis, A., Nott, C., Nott, K. & G. Stuart-Hill (2006) Community-based Natural Resource Management Manual. WWF, Southern African Regional Office. Harare, Zimbabwe. Available at: http://assets.wwf.no/downloads/cbnrm_manual.pdf

Bragin, E. A. (2000) Diet and breeding rate of Saker Falcons in the Naurzum State Nature Reserve, Kazakhstan. Pages 171–177 in Anonymous, Proceedings of the II MEFRG international conference on Saker Falcon and Houbara Bustard, 1–4 July, 2000, Ulaanbaatar, Mongolia. Middle East Falcon Research Group, Carmarthen, UK.

Braun, B., & E. Lederer (1996) Kleptoparasitism by a Saker Falcon (*Falco cherrug*), robbing food from Marsh Harriers (*Circus aeruginosus*). Egretta 39:116.

Brown, D. (1999) Principles and Practice of Forest Co-Management: Evidence from West-Central Africa. EU Tropical Forestry Paper No. 2. London: Overseas Development Institute (ODI).

Brown, D., Malla, Y., Schreckenberg, K. & O. Springate-Baginski (2002) Community Forestry, From Supervising 'Subjects' to Supporting 'Citizens': Recent Developments in Community Forestry in Asia and Africa. Natural Resource Perspectives 75. Overseas Development Institute (ODI), London.

Braun, B., & E. Lederer (1996) Kleptoparasitism by a Saker Falcon (*Falco cherrug*), robbing food from Marsh Harriers (*Circus aeruginosus*). Egretta 39:116.

Brown, L. H. & Amadon, D. (1968) Eagles, hawks and falcons of the world. Vol 2. New York, McGraw Hill Book Co.

Cade, T.J. (1982) The falcons of the world. London, William Collins Sons.

Convention on Biological Diversity, The Secretariat of the CBD (2004) Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity (CBD Guidelines) Montreal: Secretariat of the Convention on Biological Diversity 21 p. Available at: http://www.cites.org/eng/res/13/addis-gdl-en.pdf

CBD (2004a) The Ecosystem Approach. (CBD Guidelines) Montreal: Secretariat of the Convention on Biological Diversity 50 p. Available at: http://www.cbd.int/doc/publications/ea-text-en.pdf

CBD (1992) Convention on Biological Diversity. Available at: http://www.cbd.int/doc/legal/cbd-en.pdf

CCASG (2009) Convention on the Conservation of Wildlife and their Natural Habitats in the Countries of the Gulf Cooperation Council. Cooperation Council of the Arab States of Gulf. Available at: http://sites.gcc-sg.org/DLibrary/index-eng.php?action=ShowOne&BID=335

CE (1979) Convention on the Conservation of European Wildlife and Natural Habitats. Council of Europe. CETS No.: 104 Available at: http://conventions.coe.int/Treaty/Commun/QueVoulezVous.asp?NT=104&CM=8&DF=&CL=ENG

Chavko, J. & Deutschová, L. (2012) Population of Saker Falcon (*Falco cherrug*) in Western Slovakia between 1976 and 2010. Aquila (2012), Vol. 119, p. 57–64

Chavko, J. (2010) Trend and conservation of Saker Falcon (*Falco cherrug*) population in western Slovakia between 1976 and 2010. Slovak Raptor Journal 2010, 4: 1–22.

Chernobay, V.F. (2004) [Birds of the Volgograd region].Volgograd, 287 p.

Convention on International Trade in Endangered Species of Wild Fauna and Flora, CITES (2013a) Resolution Conf. 16.7 Non-detrimental findings. Available at: http://www.cites.org/eng/res/16/16-07.php

CITES (2013b) Resolution Conf. 16.6 CITES and livelihoods. Available at: http://www.cites.org/eng/res/16/16-06.php

CITES (2011) Review of Significant Trade in specimens of Appendix-II species. Programme for the Conservation and Sustainable Use of *Falco cherrug* in Mongolia. AC25 Doc. 9.7. Available at: http://www.cites.org/eng/com/ac/25/E25-09-07.pdf

CITES (2009) Implementation of Resolution Conf. 12.8 (Rev. CoP13) on Review of Significant Trade in specimens of Appendix-II species. Notification of the Standing Committee. Available at: http://www.cites.org/eng/notif/2009/E032.pdf

CITES (2006) Review of Significant Trade. Trade in *Falco cherrug*. Notification to the Parties, No. 2006/061. Geneva. Available at: http://www.cites.org/eng/notif/2006/E061.pdf

CITES (2004a) Review of Significant Trade in specimens of Appendix-II species (Resolution Conf. 12.8 and Decision 12.75). Available at: http://www.cites.org/eng/com/ac/20/E20-08-1.pdf

CITES (2004b) Conf. 9.24 (Rev. CoP13). Criteria for amendment of Appendices I and II. Available at: http://www.cites.org/eng/res/all/09/E09-24R13.pdf

CITES (2004) Summary Record. Consultative meeting on trade in falcons for falconry. Abu Dhabi, 16–19 May 2004. Available at: http://www.cites.org/common/prog/falcon_sum.pdf

CITES (1979) Convention on International Trade in Endangered Species of Wild Fauna and Flora. Available at: http://www.cites.org/eng/disc/E-Text.pdf

Clark, W. S. (1999) A field guide to the raptors of Europe, the Middle East, and North Africa. Oxford University Press, Oxford.

Convention on the Conservation of Migratory Species of Wild Animals, CMS (2011) Saker Falcon *Falco cherrug*. UNEP/CMS/Resolution 10.28. Available at: http://www.cms.int/bodies/COP/cop10/resolutions_adopted/10_28_saker_e.pdf

CMS (2008) Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia (Raptors MOU). Available at: http://www.cms.int/species/raptors/index.htm

CMS (2003) Convention on the Conservation of Migratory Species of Wild Animals. Available at: http://www.cms.int/sites/default/files/instrument/cms_convtxt_english.pdf

Collar, N. *et al.* (2013) A review of key knowledge

gaps concerning the biology and ecology of the Saker Falcon *Falco cherrug* and the socio-economic factors affecting its use. Saker Falcon Task Force Objective 6 Working Group Report. In: Williams, N.P., Galbraith, C. & Kovács, A. (eds.) Compilation Report on WorkPlan Objectives 4–8, including a modelling framework for sustainable use of the Saker Falcon *Falco cherrug*. CMS Raptors MOU Coordinating Unit, Saker Falcon Task Force, Abu Dhabi.

Corso, A. & Harris, P. (2012) Status of the Saker Falcon (*Falco cherrug*) in Italy: past, present and future. Aquila 119, p. 47–55.

Cramp, S. & Simmons, J. E. L. (1980) Handbook of the Birds of Europe, the Middle East and North Africa. Volume 2. Oxford University Press, Oxford, United Kingdom.

Deinet, S., Ieronymidou, C., McRae, L., Burfield, I.J., Foppen, R.P., Collen, B. & Böhm, M. (2013) Wildlife comeback in Europe: The recovery of selected mammal and bird species. Final report to Rewilding Europe by ZSL, BirdLife International and the European Bird Census Council. London, UK: ZSL.

De Juana, E. (2006) Observaciones de aves raras en España, 2004. Ardeola 53(1), p. 163–190.

Dementiev, G. P., Gladkov, N. A., Spangenberg, E. P. & Sudilovskaya, A. M. (1951) Birds of the Soviet Union. "Sovetskaya Nauka" Press. Moscow, Russia.

Demeter, I. (2004) Medium-Voltage Power Lines and Bird Mortality in Hungary. Technical Document. MME/BirdLife Hungary.

Dereliev, S. & Ruskov, K. (2005) Diurnal visual migration between Balchik and Albena, NE Bulgaria in the autumn of 2003: A pilot case study at a site of a planned wind farm located on a major - 19 - T-PVS/Inf (2006) 2 revised Palearctic – African flyway. In: Dereliev, S., K. Ruskov, P. Iankov (sc. ed.). Results of the study of the migration of birds and bats in a location of a planned windpower plant near the town of Balchik, north-eastern Bulgaria. BSPB/BirdLife Bulgaria Technical Report Series No2/2005, Sofia, 43 pages

Dixon, A., Maming, R., Gungaa, A., Purev-Ochir, G. & Batbayar, N. (2013) The problem of raptor electrocution in Asia: case studies from Mongolia and China. Bird Conservation International DOI: http://dx.doi.org/10.1017/S0959270913000300

Dixon, A. (2012a) International falcon research conducted on behalf of the Environment Agency-Abu Dhabi in 2012. Falco 40, 4–11.

Dixon, A. (2012b) Conservation of *Falco cherrug* and the use of hybrids for falconry. Aquila (2012), Vol. 119, p. 9–19.

Dixon, A. (2011) The problem of raptor electrocution at electricity distribution lines. Falco 37:10–13.

Dixon, A., Batbayar, N., Purev-Ochir, G. & Fox, N. (2011) Developing a Sustainable Harvest of Saker Falcons (*Falco cherrug*) for Falconry in Mongolia. In: Gyrfalcons and Ptarmigan in a Changing World. Available at: http://peregrinefund.org/subsites/conferencegyr/proceedings/315-Dixon.pdf

Dixon, N., Munkhjargal, B., Shijirmaa, D., Saruul, A. & Purev-Ochir, G. (2010) Artificial nests for Saker Falcon II: progress and plans. Falco 35:6–8.

Dixon, A. & Batbayar, N. (2010) Artificial nests for Saker Falcon I: their roles in CITES trade and conservation in Mongolia. Falco 35:4–6.

Dixon, A., Ragyov, D., Ayas, Z., Deli, M., Demerdzhiev, D., Angelov, I, Kmetova, E. & Nedyalkov, N. (2009) Population status of breeding Saker Falcons (*Falco cherrug*) in Turkey. Avian Biol. Res. 2: 213–220.

Dixon, A. (2009) Saker Falcon breeding population estimates. Part 2: Asia. Falco 33: 4–10.

Dixon, A., Batbayar, N., Etheridge, M., Gankhuyag, P-O. & Gombobaatar, S. (2008) Development of the Artificial Nest Project in Mongolia. Falco 32, 8–10. Available at: http://www.wscc.org.mn/raptor/falco33_page4-10.pdf

Dixon, A. (2007) Saker Falcon breeding population estimates. Part 1: Europe. Falco 29: 4–12.

Dixon, A. (2005) Falcon population estimate: how necessary and accurate are they? Falco 25/26:5-8.

Dixon, A. (2005) Saker Falcons in north-east Africa. Falco 25/26: 9.

Drandui L. (1996) A comparative study on the animal husbandry of Qinghai and Tibet. China Tibetology 4: 31–42.

Eastham, C.P., Nicholls, M.K. & Fox, N.C. (2002) Morphological variation of the saker (*Falco cherrug*) and the implications for conservation. Biodiversity and Conservation 11:305-325.

Eastham, C. (1998) Satellite tagging sakers in the Russian Altai. Falco 12: 10–12.

Eastham, C. P. & M. K. Nicholls (1999) (Abstract) Morphological variation of the Saker Falcon (*Falco cherrug*) and the implications for conservation. Buteo Supplement:25.

Eastham CP (1999) Species concepts and their relevance to the taxonomy of the desert falcons. Falco, 13, 18–20.

EC (2009) Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds. European Community. Available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:020:0007:0025:EN:PDF

EC (1992) Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. European Community. Available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1992:206:0007:0050:EN:PDF

Ellis, D. H., I. Kitowski & T. B. Roundy (2011) Nomadism in large falcons: lessons from the Saker Falcon in Mongolia. Pages 291-306 in R. T. Watson, T. J. Cade, M. Fuller, G. Hunt & E. Potapov (eds.), Gyrfalcons and ptarmigan in a changing world. The Peregrine Fund, Boise, ID. http://www.globalraptors.org/grin/researchers/uploads/476/2011_gyr_conf_saker_nomad.pdf

ERWDA (2003) The Status of the Saker Falcon (*Falco cherrug*) and Assessment of Trade. In: CITES (2004a) Review of Significant Trade in specimens of Appendix-II species (Resolution Conf. 12.8 and Decision 12.75). Environmental Research and Wildlife Development Agency, Abu Dhabi.

Fan N., Zhou W.,Wei W.,Wang Q. & Jiang Y. (1999) Rodent pest management in the Qinghai–Tibet alpine meadow ecosystem. In: Singleton G., Hinds L., Leirs H. & Zhang Z. (eds), Ecologically-Based Rodent Management. Australian Centre for International Agricultural Research, Canberra, Australia, pp. 285–304.

Ferguson-Lees J, Christie DA (2001) Raptors of the World. Christopher Helm, London.

Fleming, L., V., Douse, A., F. & Williams, N. P. (2011) Captive breeding of peregrine and other falcons in Great Britain and implications for conservation of wild populations. Endangered Species Research, Vol. 14: 243–257.

Forsman, D. (1999) The raptors of Europe and the Middle East. A handbook of field identification. T & AD Poyser, London.

Fox, N. (2004) Editorial. Falco. The newsletter of the Middle East Falcon Research Group 23:2.

Fox N., Barton N. & Potapov E. (2003) [Conservation of the Saker and Falconry]. Steppe Bulletin, No 14, pp.28–33 [In Russian].

Fox, N. & Potapov, E. (2001) Altai Falcon: subspecies, hybrid or colour morph? Proceedings of 4th Eurasian Congress on Raptors, Seville, Spain, 25–29 September 2001, Abstracts 66–67.

Fox, N. (1995) The ethics of hybrids. Falco 2: 7–8.

Galbraith, C. *et al.* (2013) Progress report of the Working Group on sustainable use of the Saker Falcon *Falco cherrug*. Saker Falcon Task Force Objective 7 Working Group Report. In: Williams, N.P., Galbraith, C. & Kovács, A. (eds.) Compilation Report on WorkPlan Objectives 4–8, including a modelling framework for sustainable use of the Saker Falcon *Falco cherrug*. CMS Raptors MOU Coordinating Unit, Saker Falcon Task Force, Abu Dhabi.

Galtbalt, B. & Batbayar, N. (2012) Saker Falcon research and conservation management in Mongolia. Falco 40:5–7.

Galushin, V.M. (2012) An overview of the most significant recent (1990–2012) raptor monitoring studies in European Russia. Acrocephalus 33 (154/155): 315−319.

Galushin, V.M. (2003) [Problems of the Saker save]. Important Bird Areas, Information Bulletin, No 2 (18). Russian Bird Conservation Union, pp.46–47 [In Russian]

Galushin, V., Moseikin, V., Sanin, N. (2001) Saker Falcon breeding range and populations in European Russia. Proceedings of the II International Conference on the Saker Falcon and Houbara Bustard, Mongolia, 1–4 July 2000. Galushin *et al.* 2001: 34–43.

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, Vol. 119, p. 65–78.

Gombobaatar, S., C. Uuganbayar, D. Sumiya, E. Potapov & N. Fox (2006) Diet studies of breeding and wintering Saker Falcons *Falco cherrug* in central Mongolia. Populationsökologie Greifvogel- und Eulenarten 5:203–214.

Gombobaatar, S., Sumiya, D., Shagdarsuren, o., Potapov, E. & N. C. Fox. (2004) Saker Falcon (*Falco cherrug* milvipes Jerdon) mortality in central Mongolia and population threats. Mongolian Journal of Biological Sciences 2:13–22.

Gombobaatar S., Sumiya D., Samiya R. & Bayarlhagva D. (2003). Current research and future trends of cooperative raptor research between Korea and Mongolia. In: Proc.

Symposium on Cooperation between Korea and Mongolia for Wildlife Conservation. Seoul, South Korea. 17–32.

Gombobaatar, S., D. Sumiya, O. Shagdarsuren, E. Potapov & N. Fox (2001) Diet studies of the Saker Falcon (*Falco cherrug*) in Mongolia. Pages 116–127 in E. Potapov, S. Banzragch, N. Fox & N. Barton (eds.), Proceedings of the II International Conference on the Saker Falcon and Houbara Bustard, Ulaanbaatar,1–4 July 2000 Ulaanbaatar, Mongolia. http://www.falcons.co.uk/mefrg/PDF/gomboo.pdf

Haas, D., Nipkow, M. (2006) Caution: Electrocution! NABU Bundesverband. Bonn, Germany.

Haas, D., Nipkow, M., Fiedler, G., Schneider, R., Haas, W., Schürenberg, B. (2005) Protecting birds from powerlines. Nature and Environment, No. 140. Council of Europe Publishing, Strassbourg.

Haines, G. (2002) An assessment of the impact of trade on the Saker Falcon.

Haldane, J.B.S. (1922) Sex-ratio and unisexual sterility in hybrid animals. J. Genetics 12, 101–109.

Ham, I. (1980) Značaj i potreba hitne zaštite i unapređenja uslova opstanka najugroženijih vrsta ptica i sisara u predelu Deliblatske peščare. II međunarodni simpozijum o zaštiti i unapređenju Deliblatskog peska, Pančevo, zbornik radova, IV:281–286.

Harness, R. & Gombobaatar, S. (2008) Raptor electrocutions in the Mongolia steppe. Winging It 20 (6) p.1, 4–6.

Harness, R., S. Gombobaatar & R. Yosef. (2008) Mongolia distribution power lines and raptor electrocutions. Institute of Electrical and Electronics Engineers 52:1–6.

Harness, R.E. (1997) Raptor electrocutions caused by rural electric distribution power lines. Ft. Collins: Colorado State University; 110 p. M.S. thesis.

Heindenreich, M. (1997) Birds of Prey: Medicine and Management. Blackwell, Oxford.

Heindenreich, M., Kuspert, M., Kuspert, H. J. & Hussong, R. (1993) Falkenhybriden. Die Zucht, zum Verwandschaftsgrad verschiedener Falkenarten sowie zum Thema der Faunenverfälschung durch Hybridfalken. Beitrage zur Vogelkunde 39: 205–206.

del Hoyo, J., Elliot, A. & Sargatal, J. (1994) Handbook of the Birds of the World, Vol. 2. Lynx Ediciones, Barcelona.

International Assosciation for Falconry and Conservation of Birds of Prey (IAF) (2014) Position Statement and Code of Conduct for Falconry with respect to Invasive Alien Species. Available at: http://www.iaf.org/download/Exotic/IAF%20IAS%20march%202014-1.pdf

Iankov, P., Stoyanov, G. &, Ragyov, D. (2013) Action Plan for Conservation of the Saker Falcon (*Falco cherrug* Gray, 1834) in Bulgaria. Ministry of Environment and Waters, Sofia, 91 p.

Iankov, P. & Gradinarov, D. (2012) Conservation strategy of the Saker Falcon (*Falco cherrug*) in Bulgaria, Aquila, 119, 31–45.

Issaka, H. & Brouwer, J. (2010) Field observations of a Saker Falcon (*Falco cherrug*) holding a satellite transmitter on its wintering ground in Niger. Aquila 119, p. 79–90.

International Union for the Conservation of Nature and Natural Resources - IUCN (2013a) The IUCN Red List of Threatened Species – *Falco cherrug*. Available at: http://www.iucnredlist.org/details/22696495/0

IUCN/SSC (2013b) Guidelines for Reintroductions and Other Conservation Translocations. Version 1.0. Gland, Switzerland: IUCN Species Survival Commission, viiii + 57 pp. Available at: http://www.issg.org/pdf/publications/RSG_ISSG-Reintroduction-Guidelines-2013.pdf

IUCN (2012) IUCN Red List Categories and Criteria: Version 3.1. Second edition. Gland, Switzerland and Cambridge, UK: IUCN. 32pp. Available at: http://jr.iucnredlist.org/documents/redlist_cats_crit_en.pdf

Ivanova, M. & Roy, J. (2007) "The Architecture of Global Environmental Governance: Pros and Cons of Multiplicity," (PDF) in Global Environmental Governance: Perspectives on the Current Debate, (Lydia Swart and Estelle Perry, eds.), New York: Center for UN Reform Education. Available at: http://www.centerforunreform.org/system/files/GEG_Ivanova-Roy.pdf

Kamp, J. (2012) Post-Soviet land-use change and conservation of avian biodiversity across the Eurasian steppe belt. PhD Thesis. University of Münster. Available at: http://www.uni-muenster.de/imperia/md/content/landschaftsoekologie/oekosystemforschung/pdf/lit_j.k._download_4.pdf

Kemp, A. & Kemp, M. (1998) Birds of Prey of Africa and its Islands. Sasol. New Holland Publishers (UK) Ltd.

Kanie, N. (2007) Governance with Multilateral Environmental Agreements: A healthy or ill-equipped fragmentation? In: Global Environmental Governance: Perspectives on the Current Debate, (Lydia Swart and Estelle Perry, eds.), New York: Center for UN Reform Education. Available at: http://politicalscience.case.edu/green/Week6_Kanie.pdf

Karyakin I.V., Nikolenko E.G. (2013) Saker Falcon in North Eurasia: past and present, but is there the future? Reports presented on the International Conference "Conservation of steppe and semidesert ecosystems in Eurasia". Available at: http://issuu.com/rc_news/docs/sakerfalcon_2013/17?e=6470848/2059790

Karyakin I.V., Levin A.S., Nikolenko E.G., Kovalenko A.V., Moshkin A.V., Barashkova A.N., Smelansky I.E., Vazhov S.V. & Bachtin R.F. (2012) Distribution and population status of the Saker Falcon (*Falco cherrug*) in Russia and Kazakhstan based on results of surveys in 2005–2012. – Russian Raptor Research and Conservation Network. Available at: http://rrrcn.ru/en/archives/13822

Karyakin, I. V. (2011) Altai Gas Pipeline –a Threat to the Welfare of the World's Largest Population of Eastern Imperial Eagle. Raptors Conservation 23: 33–43.

Karyakin I.V., Nikolenko E.G. (2011) Results of Monitoring of the Saker Falcon Population in the Altai-Sayan Region in 2011, Russia. Raptors Conservation, 23, 152–167.

Karyakin I.V., Nikolenko E.G., Barashkova A.N. (2011) The Saker Falcon in Dauria, Russia. Raptors Conservation, 23, 168–181.

Karyakin I.V. (2011) Subspecies Population Structure of the Saker Falcon Range. Raptors Conservation, 21, 115–171.

Karyakin I.V., Nikolenko E.G., Vazhov S.V., Mitrofanov O.B. (2010) Results of Monitoring of the Saker Falcon Population in the Altai-Sayan Region in 2009–2010, Russia. Raptors Conservation, 19, 136–151.

Karyakin, I. V. (2008) Problem "Birds and power lines": some positive effects exist. Raptors Conservation 12:11–27.

Karyakin, I. V. & Nikolenko, E. G. (2008) Monitoring results on the Saker Falcon Population in the Altay-Sayan Region in 2008, Russia. Raptors Conservation 2008, 14: 63–84.

Karyakin, I. V. (2005) Problem of Number. Raptors Conservation 2:12–16.

Karyakin, I. V. (2005) Project for restoration of the nesting places of the Saker Falcon and Upland Buzzard in the Tuva Republic, Russia. Raptors Conservation 1:28–31.

Karyakin, I. V., Nikolenko, E. G., Potapov, E. R. & Fox, N. (2005) Preliminary results of the project on migration studies of the Saker Falcon in Russia. Raptors Conservation 2, p. 56–59.

Karyakin, I. V., Levin, A. S., Novikova, L. M. & Pazhenkov, S. A. (2005) Saker in the North-Western Kazakhstan: results of the 2003–2004 surveys. Raptors Conservation 2005, 2: 42–55.

Kashkarov, R.D., Lanovenko, E.N. (2011) Action Plans on Conservation of the World`s Endangered Bird Species in Uzbekistan. Uzbekistan Society for the Protection of Birds. Tashkent. Pp. 56.

Kenward, R., AlRashidi, M., Shobrak, M., Prommer, M., Sielicki, J. & N. Casey (2013) Elaboration of a modelling framework to integrate population dynamics and sustainable use of the Saker Falcon *Falco cherrug*. In: Williams, N.P., Galbraith, C. & Kovács, A. (eds.) Compilation Report on Work Plan Objectives 4–8, including a modelling framework for sustainable use of the Saker Falcon *Falco cherrug*. CMS Raptors MOU Coordinating Unit, Saker Falcon Task Force, Abu Dhabi.

Kenward, R., Katzner, T., Wink, M., Marcström, V., Walls, S., Karlbom, M., Pfeffer, R., Bragin, E., Hodder, K. & A. Levin (2007) Rapid Sustainability Modeling for Raptors by Radiotagging and DNA-Fingerprinting. Journal of Wildlife Management 71: 238–245.

Kenward, R.E. 2006. The Goshawk. T. & A.D. Poyser / A. & C. Black, London, U.K.

Kenward, R. E., Pfeffer, R. H., Al-Bowardi, M. A., Fox, N. C., Riddle, K. E., Bragin, Y. A., Levin, A. S., Walls, S. S. & Hodder, K. H. (2001) Setting harness sizes and other marking techniques for a falcon with strong sexual dimorphism. Journal of Field Ornithology 72: 244–257.

Kleinschmidt, O. (1901) Der Formenkreis Hierofalco und die Stellung des ungarischen Würgfalken in demselben. Aquila 8, p. 1–48.

Klute, D. (2010) Recommended Falconry Harvest Levels for Ferruginous Hawk and Prairie Falcon in Colorado. Wildlife Conservation Section Colorado Division of Wildlife, Denver, Colorado, US.

Kovács, A., Galbraith, C., Heredia, B., Kenward, R., Klaimi, D., Meulenaer, T. D., Morgan, D., Schiffer, K., Spina, F. & Williams, N. P. (2013)

A review of international policies & legislation in connection with the conservation, management and sustainable use of the Saker Falcon *Falco cherrug*. Saker Falcon Task Force Objective 4 Working Group Report. In: Williams, N.P., Galbraith, C. & Kovács, A. (eds.) Compilation Report on WorkPlan Objectives 4–8, including a modelling framework for sustainable use of the Saker Falcon *Falco cherrug*. CMS Raptors MOU Coordinating Unit, Saker Falcon Task Force, Abu Dhabi.

Kovács, A., Williams, N. P. & Galbraith, C. (2013) SakerGAP Stakeholder Analysis. Saker Falcon Task Force Objective 5 Report. In: Williams, N.P., Galbraith, C. & Kovács, A. (eds.) Compilation Report on WorkPlan Objectives 4–8, including a modelling framework for sustainable use of the Saker Falcon *Falco cherrug*. CMS Raptors MOU Coordinating Unit, Saker Falcon Task Force, Abu Dhabi.

Kovács, A. & N.P. Williams (2012) Guidelines for Preparing National or Regional Raptor Conservation and Management Strategies. CMS Technical Series. Abu-Dhabi, UAE. Available at: http://www.cms.int/species/raptors/pdf/guidelines_nat_reg_cons_manage_strat.pdf

Lai, C. H. & Smith, A.T. (2003) Keystone status of plateau pikas (Ochotona curzoniae): effect of control on biodiversity of native birds. Biodiversity and Conservation 12: 1901–1912.

Lasch, U., Zerbe, S. & Lenk, M. (2010) Electrocution of raptors at power lines in Central Kazakhstan. Waldökologie, Landschaftsforschung und Naturschutz 9: 95–100.

Launay, F. J. (2008) Case studies – Saker Falcon. NDF Workshop case studies WG6 CS5. Mexico. Available at: http://www.conabio.gob.mx/institucion/cooperacion_internacional/TallerNDF/Links-Documentos/WG-CS/WG6-Birds/WG6-CS5%20Falco/WG6-CS5-S.pdf

Laurie, A., Jamsranjav, J., van den Heuvel, O. & Nyamjav, E. (2010) Biodiversity conservation and the ecological limits to development options in the Mongolian Altai: formulation of a strategy and discussion of priorities. Central Asian Survey: Vol. 29, No. 3, September 2010, pp. 321–343.

Lehman, R.N., Kennedy, P.L., Savidge, J.A. (2007) The state of the art in raptor electrocution research: A global review. Biological Conservation, 136, 2: 159-174.

Levin, A. S. (2011) Illegal trade and decrease in numbers of the Saker Falcon in Kazakhstan. Raptors Conservation 23: 64-73.

Liu, Y.Y., Evans, J.P., McCabe, M.F., de Jeu, R.A.M., van Dijk, A.I.J.M., Dolman, A.J. & Saizen, I. (2013) Changing Climate and Overgrazing Are Decimating Mongolian Steppes. PLoS ONE 8(2): e57599. doi:10.1371/journal.pone.0057599

Li, Y. M., Gao, Z., Li, X., Wang, S and Niemela, J. (2000) Illegal trade in the Himalyan region of China. Biodiversity and Conservation 9: 901–918. Ma M. & Chen Y. (2007) Saker Falcon trade and smuggling in China. Falco 30: 11–14.

McCarthy, E. M. (2006) Handbook of avian hybrids of the world. Oxford University Press, 608 p.

Medzhidov, R. A., M. V. Pestov & A. V. Saltykov (2005) [Birds of prey and powerlines – results of project in the Republic of Kalmykia, Russia]. Raptors Conservation 2:25–30.

Middle East Falcon Research Group, MEFRG (2013) Mongolian Artificial Nest Project. Available at: http://www.mefrg.org/manp.asp

Millsap, B. A. & G. T. Allen (2006) Effects of falconry harvest on wild raptor populations in the United States: theoretical considerations and management recommendations. Wildlife Society Bulletin 34:1392–1400.

Milobog, Y.V., Vetrov, V.V., Strigunov, V.I., Belik, V.P. (2010) The Saker (*Falco cherrug* Gray) in Ukraine and adjacent areas, Branta: Transactions of the Azov-Black Sea Ornithological Station, 13: 135–159. [In Russian]

MME/BirdLife Hungary (2013) Breeding results of Saker Falcons in Hungary in 2012. Available at: http://sakerlife2.mme.hu/sites/default/files/2012%20Saker%20Breeding%20Results%20in%20Hungary.pdf

MME/BirdLife Hungary (2011) "Power lines and bird mortality in Europe" International Conference. Available at: http://www.mme.hu/budapest-conference-13042011

Molnar, L. (2004) Treatment of lead poisoning in hunting falcons. Falco 24:6–17.

Molnar, L. (2000) [Saker Falcon protection in Eastern Europe] Falco 2000, 17: 7.

Moseikin, V., Ellis, D. (2004) Ecological aspects of distribution for Saker Falcons *Falco cherrug* and Altai gyrfalcon F. altaicus in the Russian Altai. In: Raptors Worldwide (eds Chancellor RD, Meyburg B-U), pp. 693–703. WWGBP/MME, Berlin/Budapest.

Mrlik, V. (1997) Problematika cizorodych latek ve

vejcich dravcu na prikladu raroha velkeho (*Falco cherrug*) v Ceske republice a Slovenske republice [Survey of PCB´s and other organochlorine pesticides in the eggs of the Saker Falcon (*Falco cherrug*) in the Czech and Slovak Republics]. Buteo 9: 43–50.

Muller, M.G. (2013) H.H. The Late Sheikh Zayed Falcon Release Program (SZFR). Saker Falcon Task Force – Stakeholders' Action Planning Workshop. 10 September 2013. Abu Dhabi Falcon Hospital.

Muller, M.G. (2009) Practical handbook of falcon medicine and husbandry. Nova Science Publishers.

Nagy, S. & Demeter, I. (2006) Saker Falcon: European Single Species Action Plan. Bern Convention: T-PVS/Inf (2006) 2 revised

Naoroji, R. (2006) Birds of prey of the Indian subcontinent. Om Books International, New Delhi, India.

Newton, I. (1979) Population Ecology of Raptors. T & A D Poyser, London.

Nikolenko, E. & Karyakin, I. (2013) Outcomes of the round table discussion on the Saker Falcon at the Conference 'Conservation of Steppe and Semidesert Ecosystems of Eurasia', 13 March 2013. Unpublished.

Nikolenko E.G., Karyakin I.V. (2013) Disastrous situation with Saker Falcon in Siberia ? Reports presented on the International Conference "Conservation of steppe and semidesert ecosystems in Eurasia". http://issuu.com/rc_news/docs/poster/9?e=6470848/2093118

Nikolenko, E. G. (2007) The results of the project on illegal falcon trade research in the Altai-Sayan region in 2000–2006. Raptors Conservation 8:22–41.

Nittinger, F., E. Haring, W. Pinsker, M. Wink & A. Gamauf (2005) Out of Africa? Phylogenetic relationships between and the other hierofalcons (Aves: Falconidae). Journal of Zoological Systematics and Evolutionary Research 43:321–331.

Nittinger, F., A. Gamauf, W. Pinsker, M. Wink & E. Haring. (2007) Phylogeography and population structure of the Saker Falcon (*Falco cherrug*) and the influence of hybridization: mitochondrial and microsatellite data. Molecular Ecology 16:1497–1517.

Noakes, D. (1990) Wing spread of raptors. Australian Raptor Association News 11: 12:15.

Olendorff, R. R., R. S. Motroni & M. W. Call (1980) Raptor management – the state of the art in 1980. U.S. Department of the Interior, Bureau of Land Management, Habitat Management Series for Endangered Species, Technical Note 345:1–56.

Papp, G. & Balázs, I. (2010) Occurence of Saker Falcon pairs in urban environment in Hungary. – Heliaca 2010: 113. (in Hungarian, English summary)

Pfeffer, R. J. (1994) Some aspects of feeding behavior of Saker Falcon. Selevinia 2:85–89.

Potapov, E. & Sale, R. (2005) The Gyrfalcon. Poyser Species Monographs. A & C Black Publishers, London.

Potapov, E., Fox, N. C., Sumya, D. & Gombobaatar, S. (2002a) Migration studies of the Saker Falcon. Falco 19, p. 3–4.

Potapov, E., D. Sumya, S. Gombobaatar, O. Shagdarsuren, S. Tuya, L. Ochirkhuyag & N. Fox. (2002) First documented clutch and brood of six in Saker Falcon (*Falco cherrug*). Falco 20:14–15.

Potapov, E., N. Fox, O. Shagdarsuren, D. Sumya & S. Gombobaatar (2000) Home ranges of Saker Falcons in Mongolia. Falco (Koper) 15:10–11.

Prinsen, H.A.M., Boere, G.C., Píres N., Smallie J.J. (Compilers) (2011) Review of the conflict between migratory birds and electricity power grids in the African-Eurasian region. CMS Technical Series No. XX, AEWA Technical Series No. Bonn, Germany.

Prommer, M., Bagyura, J., Chavko, J. & Uhrin, M. (2012) Migratory movements of Central and Eastern European Saker Falcons (*Falco cherrug*) from juvenile dispersal to adulthood. Aquila (2012), Vol. 119, p. 111–134

Prommer, M. (2011) Electrocuted Sakers. Saker LIFE, BNPI, Hungary. http://sakerlife2.mme.hu/en/content/electrocuted-sakers

Puzović, S. (2008) Nest occupation and prey grabbing by Saker Falcon (*Falco cherrug*) on power lines in Vojvodina Province, Serbia. Archives of Biological Sciences 60: 271–277.

Puzović, S. (2003) Breeding of Saker (*Falco cherrug*) on Power-line Poles in Vojvodina (Serbia). VI World Conference on Birds of Prey and Owls, Budapest, Book of abstracts.

Puzović, S. & Grubač, B. (2000) Federal Republic of Yugoslavia. Pp. 725–745 in M.F. Heath and M.I. Evans, eds. Important Birds Areas in Europe: Priority sites for conservation 2: Southern Europe.

Cambridge, UK: BirdLife International (BirdLife Conservation Series No 8).

Puzović, S. (1988) Dalekovodi kao strukturni faktor stanista ptica - Electrical power lines as new structural factor in bird habitats. IV Kongres Ekologa Jugoslavije, Ohrid, knjiga plenarnih referata i izvoda saop{tenja, 474–475.

Rajković, D. & Tucakov, M. (2013) Survey of the Saker Falcon (*Falco cherrug*) population in Serbia in 2013. Bird Protection and Study Society of Serbia (in prep.)

Ragyov, D., G. Stoyanov, V. Kojchev & A. Stanchev. (2011) Attitudes of pigeon keepers to the reintroduction of Saker Falcons in Bulgaria. Falco 37:6–9.

Ragyov, D., Kmetova, E., Dixon, A., Franz, K., Koshev, Y. & N. Nedialkov (2009) Saker Falcon *Falco cherrug* reintroduction in Bulgaria. Feasibility study. SESN. Sofia, 2009.

Riddle, K. E. & Remple, J. D. (1994) Use of the Saker and other large falcons in Middle East falconry. Pp.415–420 in B.-U. Meyburg & R. D. Chancellor, eds. Raptor conservation today. Berlin: World Working Group on Birds of Prey.

Rosser, A.R. & Haywood, M.J. (Compilers) (2002) Guidance For CITES Scientific Authorities: Checklist to assist in making non-detriment findings for Appendix II exports. IUCN, Gland, Switzerland and Cambridge, UK. xi + 146pp. Available at: http://data.iucn.org/dbtwwpd/ edocs/ SSC-OP-027.pdf

Ruskov, K. (1998) Wild Bird Legislation in Bulgaria. In: Wild Bird Legislation in Europe. Eurogroup Against Bird Crime publication.

Ruskov, K. (1998b) Bulgaria. Eurogroup Against Bird Crime. Bulletin Four.

Ruskov, K. (1995) Bird crime in Bulgaria. Eurogroup Against Bird Crime. Bulletin Three.

Sanchez-Zapata, J. A., M. Carrete, A. Gravilov, S. Sklyarenko, O. Ceballos, J. A. Donázar & F. Hiraldo. (2003) Land use changes and raptor conservation in steppe habitats of eastern Kazakhstan. Biological Conservation 111:71–77.

Samjaa, R., Zöphel, U., & Peterson, J. (2000) The impact of the vole *Microtus brandti* on Mongolia steppe ecosystems. Marburger Geographische Schriften, 135, 346–360.

Shagdarsuren, O. (2001) The Saker in Mongolia: numbers and distribution. In: Potapov E., Banzragch, S., Fox N. & Barton N. (Eds) Saker Falcon in Mongolia: Research and Conservation. Proceedings of the 2ND International Conference of the Middle East Falcon Research Group. pages: 25–33.

Shirihai, H., Yosef, R., Alon, D., Kirwan, G. M. & Spaar, R. (2000) Raptor migration in Israel and the Middle East. A summary of 30 years of field research. Israel, International Birding & Research Centre.

Shirihai, H. (1996) The birds of Israel. Academic Press, London, 692 p.

Shobrak, M. & Pallait, P. (1998) Studies on the Migration of Birds of Prey in Saudi Arabia. Proceedings of the first Symposium on Raptors of South East Asia. Japan. 346–353.

Sielicki, J., Prommer, M., Gamauf, A., Kata, M. (2009) Saker Falcon *Falco cherrug* in Poland (2008–2009). In: Wiacek J., Polak M., Kucharczyk M., Grzywaczewski G., Jerzak L. (eds.) Ptaki – Srodowisko – Zagrozenia – Ochrona, Wybrane aspekty ekologii ptakow, LTO, Lublin: 273–285.

Simmons, T.; Nadel, D. (1998) The avifauna of the early epipalaeolithic site of Ohalo 2 (19.400 years BP), Israel: species diversity, habitat and seasonality. Int. J. Osteoarcheol. 8, 79–96.

Smelansky, I. E. & Tishkov, A. A. (2012) The Steppe Biome in Russia: Ecosystem Services, Conservation Status, and Actual Challenges. In: Werger, M.J.A., van Staalduinen, M.A. (eds.): Eurasian Steppes. Ecological Problems and Livelihoods in a Changing World. Springer Science&Business Media B.V. pp. 45–103.

Smelansky, I. E.(2005) Altai Kray: the future of the largest raptorial diversity hotspots depends on urgent conservation measures. Raptors Conservation 3:18–51.

Snow, D. W.; Perrins, C. M. (1998) The Birds of the Western Palearctic vol. 1: Non-Passerines. Oxford University Press, Oxford.

Stahl, J., Kachelriess, D., Kovács, A., Prommer, M., Kenward, R.E., Sielicki, J. (2013) A review and synthesis of current Saker Falcon (*Falco cherrug*) field monitoring and research activities. Saker Falcon Task Force Objective 8 Working Group Report. In: Williams, N.P., Galbraith, C. & Kovács, A. (eds.) Compilation Report on WorkPlan Objectives 4 – 8, including a modelling framework for sustainable use of the Saker Falcon *Falco cherrug*. CMS Raptors MOU Coordinating Unit, Saker Falcon Task Force, Abu Dhabi.

Starikov, S.V. (1997) The mass death of birds of prey on electric lines in Zaisan depression (Eastern

Kazakhstan). Slevenia 233–234 (in Russian).
Sumya, D., Gombobaatar, S., Shagdarsuren, O., Potapov, E. & Fox, N. (2001) Wintering of Saker Falcon in Mongolia. Research and conservation. In Potapov, E., Banzragch, S., Fox, N. & Barton, N. (eds.): Proceedings of the 2nd International Conference of the Middle East Falcon Research Group on Saker Falcon and Houbara Bustard. Ulanbaatar, 1–4 July 2000. p. 138–143.
TRAFFIC (2010) TRAFFIC Bulletin, March 1997 – December 2010. Available at: http://www.traffic.org/traffic-bulletin/traffic_bulletin_seizures_1997-2010.pdf
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 p.
Udvardy, M.D.F. (1975) A Classification of the Biogeographical Provinces of the World. IUCN Occasional Paper No.18., Switzerland. Available at: http://cmsdata.iucn.org/downloads/udvardy.pdf
UNEP-WCMC (2012) Promoting synergies within the cluster of biodiversity-related multilateral environmental agreements. Available at: http://www.unep-wcmc.org/medialibrary/2012/04/27/8b832e8c/Final_MEA_synergies_27April2012_cover.pdf
UNESCO (2012) Inscription Falconry, a living human heritage on the Representative List of the Intangible Cultural Heritage of Humanity. Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage. Decision 7. COM. 11.33. Available at: http://www.unesco.org/culture/ich/index.php?lg=en&pg=00011&RL=00732
U.S. Fish and Wildlife Service (2007) Draft Environmental Assessment and Management Plan. Take of migrant Peregrine Falcons from the wild for use in falconry. Division of Migratory Bird Management, Arlington, Virginia.
USFWS (2006) Migratory Bird Permits; changes in the regulations governing falconry and raptor propagation; draft environmental assessment on take of raptors from the wild for falconry and raptor propagation. Federal Register 71(119):35599. USFWS (2008) Final Environmental Assessment and Management Plan: Take of Migrant Peregrine Falcons from the Wild for use in Falconry, and Reallocation of Nestling/Fledgling Take. Arlington, VA. 55 pp.
Vaisman, A. (2009) Saker in Russia: Trapping and Trade. TRAFFIC Europe – Russia. Specialist Meeting on the Conservation of the Saker Falcon. 5–7 April, 2009, Abu Dhabi, UAE.
Vaurie, C. (1961) Systematic Notes on Palearctic Birds. No. 45. Falconidae: The Genus Falco (Part 2). – Am. Mus. Novitates. 2038. P. 1–24.
Vazhov S.V., Karyakin I.V., Nikolenko E.G., Barashkova A.N., Smelansky I.E., Tomilenko A.A., Bekmansurov R.H. (2011) Raptors of the Ukok Plateau, Russia. Raptors Conservation, 22, 153–175.
Váczi M., Prommer M. (2010) Ornithological surveys in the Mosonszolnok-Levél Wind Farm (In Hungarian with English summary) Heliaca 7: 78–86.
Watson, M. & Clarke, R. (2000) Saker Falcon diet: the implications of habitat change. British Birds 93:136–143.
World Bank (2008) Mongolia. Livestock Sector Study. VOLUME I – SYNTHESIS REPORT. Sustainable Development Department East Asia and Pacific Region, World Bank.
Wildlife Conservation Society, WCS (2013) The Eastern Steppe Living Landscape (Mongolia). Wildlife Conservation Society. Ulaanbaatar, Mongolia.
Williams, N.P., Galbraith, C. & Kovács, A. (eds.) (2013) Compilation Report on WorkPlan Objectives 4–8, including a modelling framework for sustainable use of the Saker Falcon *Falco cherrug*. CMS Raptors MOU Coordinating Unit, Saker Falcon Task Force, Abu Dhabi.
Wilson, A.D. & MacLeod. N.D. (1991) Overgrazing: present or absent? Journal of Range Management 44: 475–482.
Wink, M. & H. Sauer-Gürth (2004) Phylogenetic relationships in diurnal raptors based on nucleotide sequences of mitochondrial and nuclear marker genes. Pages 483–495 in R. D. Chancellor and B.-U. Meyburg (eds.) , Raptors worldwide. World Working Group on Birds of Prey/MME-BirdLife Hungary, Berlin and Budapest.
Wink M, Sauer-Gürth H, Ellis D, Kenward R (2004) Phylogenetic relationships in the hierofalco complex (saker-, gyr-, lanner-, laggar falcon). In: Raptors Worldwide (eds Chancellor RD, Meyburg B-U), pp. 499–504. MME/WWGBP, Budapest/Berlin.
WSCCM & BI (2011) Key endangered species in Galba Gobi: status and provisional impact assessments of regional development scenarios. Wildlife Science and Conservation Center, BirdLife

International. Ulaanbaatar, Mongolia. Available at (29/06/2013): http://www.wscc.org.mn/pubs/Galba%20Gobi%20Project%20March%202011_FINAL.pdf

Zimmerman, D.A., Turner, D.A., Pearson, .D.J. (1996) Birds of Kenya and northern Tanzania. Russel Friedman Books.

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 power lines	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 rankings 1–4 in key Range States

List of Saker Falcon Range States	Priority Ranking
Russian Federation (Asia)	1
Kazakhstan	1
China	1
Mongolia	1
Serbia	2
Uzbekistan	2
Afghanistan	2
Hungary	2
Turkmenistan	2
Ukraine	2
Iran	2
Iraq	3
Republic of 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
The FYR Macedonia	4
Poland	4
Romania	4
Saudi Arabia	4
Pakistan	4
Bahrain	4
Kuwait	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 global conservation outcomes.

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

Status

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

Breeding Population Size

4 - 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. Current 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 historical 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 bird species for the benefit of the Saker Falcon.	Yes	Yes	N/A	Low
	Relocation/reintroduction of Susliks as food source.	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, degradation and disturbance.	Yes	Yes	?	Low
	Prevention of habitat pollution (e.g. banning harmful rodenticides and insecticides).	Yes	Yes	?	?

Annex 3. Current activities for the conservation of the species cont.

	Conservation actions	Europe	Asia	Middle East & Africa	Effectiveness
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 framework of a Saker Falcon Working Group, sharing best practice.	Yes	?		
	Public awareness, education and training programmes (customs, 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 A. 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	n/a
Bulgaria	Yes (occasional or in very low numbers)	Yes	Yes	There is no 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	n/a
France	No	Yes (occasional)	Yes (occasional)	n/a
Georgia	Yes (regular)	Yes	Yes	No
Germany				
	Last breeding in Germany 1997-2001	Occasionally in D – cf. encl. Article	No	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)
Iran, Islamic Republic of	Yes (regular/occasional)	Yes	Yes	No
Israel	No	Yes	Yes	n/a
Italy	No	Yes	Yes	No
Kazakhstan	Yes (regular)	Yes	Yes	No
Kenya	No	Yes	Yes	n/a
Kyrgyzstan	Regular	Yes	Yes	No
Mali	No	Yes	Yes	n/a
Malta	No	Yes (Rare)	No	It should be noted that the species was never documented as a breeder locally

Table A. The status of the Saker Falcon in Range Countries cont.

Country	Breeding	Migration	Wintering	Extinct as breeder
Mongolia	Yes	Yes	Yes	No
Montenegro	No	Yes	No	?
Niger	No	Yes	Yes	n/a
Pakistan	No	Yes	Yes	?
Poland	Yes (occasional)	Yes	No	?
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)
Serbia	Yes (regular)	Yes	Yes	?
Slovakia	Yes (regular)	Yes	Yes	No
Somalia	Yes	Yes	No	n/a
Sudan	?	?	?	n/a
Syrian Arab Republic	Rare	Yes	No	Yes
The FYR Macedonia	Yes (indications)	Yes	Yes	Yes(year)/No
Tunisia	NO (A case of breeding evidence in 1922 is dubious)	Yes	Yes	n/a
Ukraine	Yes (regular)	Yes	Yes	No
United Arab Emirates	No	Yes, mostly on passage	?	n/a
Yemen	?	?	?	?

Table B. Populations and trends 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 three generations)	Data Quality	Estimated minimum number of passage and wintering Sakers	Data Quality	Year of the latest estimate
Armenia	-	2013	-	GO	2013	-	-	2	ME	2013
	References: K. Aghababyan, unpublished									
Austria	?	2013	25–30 pairs	GO	2013	Increasing	GO	-	-	-
	References: 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	?	?
	References: 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	ME	2013	Steep declining until 2006. After 2006 unknown breeding trend, probably stable.	ME	During migration: 80-100 individuals passing through Bulgaria During the winter: at least 5–10 individuals	GE	2012
	References: http://sakerlife2.mme.hu/en http://www.saveraptors.org									
	0	2013	0–3 bp	GE	2013	Large decline	GE	10–100	P	2012
	References: 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
	References: 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
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	-	-
	References: 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.									

Table B. Populations and trends of the Saker Falcon in Range Countries cont.

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 three generations)	Data Quality	Estimated minimum number of passage and wintering Sakers	Data Quality	Year of the latest estimate
Germany	None in the last years	Ongoing	-	-	-	-	-	0	-	-
	References: Cf. enclosed article									
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
	References: 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. http://sakerlife2.mme.hu/hu/content/kerecsensolyom-monitoringja: Breeding results of Saker Falcons in Hungary in 2012. Prommer, M., Bagyura, J., Chavko, J., Uhrin, M. (2012): Migratory movements of Central and 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
	References: Rishad, Naoroji: 2006									
Iran, Islamic republic of	1	2014	Several pairs	MI	2014	Stable/ declining	MI	45–119 According to 5 years counting	MI	2014
	References: Department of Environment									
Iraq	0	June-July 2012	U	P	June-July 2012	Mo	P,U	80-167 individual/ year (2007-2012)	GO, GE	2012
	References: 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
	References: Salim, M.A. et. al. 2006 And based on the data collected from the hunters and falconers in different places in Iraq									
	None observed	No dedicated surveys	Not known, probably no longer breeds	P	2012	Probably a severe decline	P	Probably <50	P	2012
	References: during KBA and site surveys 2005–2012, only one Saker was seen on passage.									
Israel	0	2013	0	GO	2013	0	GO	3	GO	2013
Italy	-	-	No breeds	-	-	-	-	Few individuals 10–80 (0–50 in 1970)	ME	2012
	References: Brichetti & Fracasso, 2013; Corso & Harris, 2012									

Table B. Populations and trends of the Saker Falcon in Range Countries cont.

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 three generations)	Data Quality	Estimated minimum number of passage and wintering Sakers	Data Quality	Year of the latest estimate
Kazakhstan	About 700 since 1995	2011	Less than 1,000 pairs	GE	2011	Large decline	GE	More than 1000 individuals	MI	2011
	References: 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)	700–1,400 pairs	ME	2012	general declining for at least 66%–75%; some local breeding populations disappeared	ME	-	-	-
	References: 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 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
	References: Zimmerman *et al* 1996									
Kyrgyzstan	2-5 years ago, 2-3 nesting pairs is known	2011	Stable low	Question-naires and personal observations CO, H	2007	Large decline at the end of 90s	CO, H	U	H	2007
	References: Red Book of Kyrgyzstan (2007) Systematic list of vertebrates (2010)									
Mali	No	-	-	-	Unknown	-	-	-	-	U
Malta	0	2008 (reference 1)	0	GO	2008 (reference 1)	0	GO	1-5 annually	GO	2005 (reference 3)
	References: Raine, A; Sultana, J. & Gillings, G. (2009) Malta Breeding Bird Atlas 2008. Malta: BirdLife Malta, 94pp. 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.									
Mongolia	-	2010	6,800 individuals	ME	2010	Stable	ME	U	-	-
	References: Unpublished report of Saker falcon population assessment in 2010									
Montenegro	0	-	-	GO	1990/ 2013	0	GO	3	ME	2011
	References: 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									
Niger	U	2010	U	U	2010	U	U	U	U	U
Pakistan	-	-	-	-	-	-	-	-	U	-
Poland	1	1998	Only 1 case known	GO	2009	U Only one case known in history	GE	20	ME	2009
	References: Sielicki *et al* 2009									
Serbia	15	2013	12–16	GO	2013	Large decline	GO	50 individuals	MI	2013
	References: 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	-
	References: Puzovic, 2000 Puzovic *et al,* 2003 Puzovic & Tucakov, 2007 Tucakov & Puzovic, 2008 Rajkovic & Tucakov, 2013									

Table B. Populations and trends of the Saker Falcon in Range Countries cont.

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 three generations)	Data Quality	Estimated minimum number of passage and wintering Sakers	Data Quality	Year of the latest estimate
Slovakia	45 pairs	2013	48 pairs	GO	2013	Large increase	GO	100 individuals	GE	2013
	References: Chavko, 2013									
Somalia	MI	P	GO	-	2009 and 2010	Stable	-	Stable	-	2009 and 2010
Sudan	-	-	U	P	-	Decreasing due to habitat destruction	-	-	-	-
	References: Birds sector. Information data									
Syrian Arab Republic	Unknown	-	5–6	P	2009	30X3=90	p	60	p	2001
	References: A. Dixon Saker Falcon breeding population estimates. Part 2: Asia. International Wildlife Consultants (UK) Ltd., PO Box 19,Carmarthen, SA33 5YL, United Kingdom. E-mail: falco@falcons.co.uk									
The FYR Macedonia	-	2007	1-2 pairs	P	2013	Unknown	P	20	P	2013
Tunisia	0	-	0	-	-	-	-	20	GE	1974-1975
	References: Thiollay (1977)									
Ukraine	251	2010	350–400	GE	1993	Small increase	ME	Passage–1400-1800 Wintering – 40-50	ME	2010
	References: Milobog *et al.*, 2010; Prokopenko, 1994									
United Arab Emirates	U	2012	U	-	2012	U	-	<5	ME	2012
Yemen	10 individuals	2011	U	U	U	U	U	U	U	U
	References: 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 no discernable changes),
  - 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 C. 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 country.
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: 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.)	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.)
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.

Table C. Habitat use and diet of the Saker Falcon cont.

Country	Habitat use	Diet
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 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)

Table C. Habitat use and diet of the Saker Falcon cont.

Country	Habitat use	Diet
Hungary cont.	Extensive open areas, mostly steppes and agricultural areas.	*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 (*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*.
Iran, Islamic Republic of	Breeding habitats consists of mountainous areas with fewer 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. Open country sites, crop fields, cultivated areas, coastal lands, large open flatlands, hilly areas.	Feral or domestic pigeons, insects, reptiles.
Kazakhstan	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.	Great 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	Nests exclusively in the mountainous part of the country at an altitude of 1,300 m above sea level, at least up to 3000 m. On wintering are used mountain valleys, on nesting are used gorges.	Relict ground squirrel, partridge, pigeon, sparrow.
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
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.

Table C. Habitat use and diet of the Saker Falcon cont.

Country	Habitat use	Diet
Romania	Lowland steppe, agricultural area and mountain foothills.	Terrestrial rodents especially ground Squirrels (*Spermophillus citellus*) of open grassy landscapes such as steppes, voles (*Microtus arvalis*) and birds such as pigeons (*Columba livia*), starlings (*Sturnus vulgaris*)
Russian Federation	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.
Serbia	Agriculture land near settlements with high power lines, open steppe grasslands, mosaic landscape with natural-agicultural habitats, mountain plateaus with open pastures. Saker Falcon had inhabited steppe and forest-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 the 20th 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 – deforestation, 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 along power line linear structure, there is not possible to establish adequate protected zones around the nests and officially 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 tasks 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 stole 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 performed predominantly by the male, while from May it was sometimes done by the female, too. Taking into account the results of the research of feeding ecology of Saker Falcon in Srem and Central Europe, the great part of the stolen prey is Common Vole (*Microtus arvalis*) (Puzovic, 2008).
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.	Mice.
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 Eritrea.	Pigeons, grasshoppers, mice.

Table C. Habitat use and diet of the Saker Falcon cont.

Country	Habitat use	Diet
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, Ger, and many other rodents and small birds.
The FYR Macedonia	Step areas with rocks.	Unknown
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	Open area, sandy gravel; islands	-
Yemen	-	-

Table D. 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	3,300	Ararat & Armavir regions	2	5	-	2013	Winter	ME
Austria	Feuchte Ebene, Marchfeld, Weinviertel (all Lower Austria), Parndorfer Platte (Burgenland)	6,000 (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	1,468	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	1,666	Central part	0	2 pair	0,1	2008–2013	Breeding	Medium Estimated (ME)
	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)

Table D. Most important areas or sites for the Saker Falcon cont.

Country	Area or Site name (in English please)	Area or Site size (km²)	Location in the country	Estimated population size		Estimated density	Year	Season	Data quality
				Min	Max				
	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	1,830	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	1,000	SE	8	15	-	2013	Br, wi	GO
	Eastern and Central Bohemia	1,000	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
India	Changthang Wildlife Sanctuary	4,000	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

Table D. Most important areas or sites for the Saker Falcon cont.

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				
	Permagroon Mountain	10.4	Sulaymaniyah – Northern Iraq	1	-	=	2012	Wintering	GO
	Jebel Makhool	35.2	Salahadin- Central Iraq	2	-	=	2012	Wintering	GO
	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 its rarity	-	-	-	-	-	-		-
Iran, Islamic Republic of	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	1	2	-	2002–2012	winter	medium

Table D. Most important areas or sites for the Saker Falcon cont.

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				
	Strait of Messina	?	NE Sicily	1	3				GO
	Catania Flatland	?	SE Sicily	1	5				MI
	Ragusa Province	?	SE Sicily	1	3				MI
	Siracusa Province	?	SE Sicily	1	4				ME
	Maccarese, Roma	?	Lazio	1	3				GO
Kazakhstan	Plateau Usturt	Chinks of about 200,000	Western Kazakhstan	200 pairs	300 pairs	0,1–0,15 per 100 km^2	2011	summer	ME
	Betpak-Dala desert	75,000	Central Kazakhstan	50 pairs	100 pairs	0,07–0,13 per 100 km^2	2011	Summer	ME
	Pine forest	5,440	Northern Kazakhstan	30 pairs	50 pairs	0,54–0,92 per 100 km^2	2008	Summer	ME
	Tarbagatai ridge area	30,000	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 *	40,000	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**	5,860 (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	-	-	-	-
Kenya	Ol Donyo Sabache	10	North, Samburu district	No data	No data	Unknown	-	Rainy (October – March)	P

Table D. Most important areas or sites for the Saker Falcon cont.

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				
Kyrgyzstan	Western Tien Shan	-	-	-	-	-	-	Nesting	H
	Internal Tien-Shan	-	-	-	-	-	-	Nesting, Wintering	H
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
	Nguigmi	-	Diffa region	1	-	1	2009-11-13	Migration	U
	Tahoua (South sector)	-	Tahoua region	-	1	1	2009-01-15	Migration	U
	Tahoua (SE sector)	-	Tahoua region	-	1	1	2008-11-15	Migration	U
Pakistan	1. Kirthar National Park	3,087.3	Sindh: 25.650 N 67.540 E	No data	No data	No data	-	-	U
	2. Hingol Deosai	6,190.4	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

Table D. Most important areas or sites for the Saker Falcon cont.

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				
	6. Deosai National Park	3,626.0	Gilgit-Baltistan: 34.98 N 75.40 E	No data	No data	No data	-	-	U
Poland	Sakers are observed in the whole country	-	-	-	-	-	-	-	-
Romania	Babadag Forest	524 ha	South-East	-	-	-	2011–2013	Breeding	GE
	ROSPA0100 Casimcea Steppe	22,226.10ha	South-East	-	-	-	2011–2013	Breeding	GE
	ROSPA0073 Măcin Niculiţel	67,361,1 ha	South-East	-	-	-	2011–2013	Breeding	GE
	ROSPA0040 Old Danube-Braţul Măcin	18,759.2 ha	South-East	-	-	-	2011–2013	Breeding	GE
	ROSCI0123 Măcin Mountains	18,546 ha	South-East	-	-	-	2011–2013	Breeding	GE
	ROSPA0069 Lunca Mureşului Inferior	17428,3 ha	West	-	-	-	2011–2013	Breeding	GE
	ROSPA0015 the Plain of Crişului Alband Crişului Negru	39,499 ha	West	-	-	-	2011–2013	Breeding	GE
Russian Federation	Altai-Sayan Region	149,364.7[1]	Southern Siberia	1196	1440	-	2011	Breeding	GE
	Baikal Region and Dauria	44,027.47[2] 76,690.1[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
	Shuaibah	?	south of Jeddah at the coast of the Red Sea,	?	?	?	?	?	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

Table D. Most important areas or sites for the Saker Falcon cont.

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				
	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	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
	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	-	South-eastern Serbia	2	3	-	2000–2013	probable breeding	ME
Slovakia	Lowlands of Western Slovakia	6,917	West	33	35	-	2013	Breeding	GO
	Lowlands of Eastern Slovakia	1,388	East	12	13	-	2013	Breeding	GO
Somalia	1. nugal site	40	North Somalia	min	-	-	2010	migration	u
	2. sarar site	35	North Somalia	min	-	-	2009	migration	u
Sudan	1-Kassala 25 km south	700	Eastern sudan	-	-	-	-	-	-
	2-Moulih north of Omdurman about 15 kilos	400	Khartoum state	-	-	-	-	-	-
	3-Seddon near Atbara	20,000	River Nile state	-	-	-	-	-	-

Table D. Most important areas or sites for the Saker Falcon cont.

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				
	4-Buttana areas till Fao	100,000	Gedarif	-	-	-	-	-	-
	5-Red Sea north of the state	90,000	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 Valley	-	South-west	1	2	1	2005	Autumn	p
	Abdulaziz Mountain	-	North-East	1	3	1	2008	Autumn	p
The FYR Macedonia	Central Macedonia	3,000	Central	1	2	2pa	-		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	ca. 1,000	AR Crimea	14	16	1.5	2010	Breeding	GE
	Tarchankut peninsula	ca. 900	AR Crimea	11	13	1.3	2010	Breeding	GE
	Siwash	ca. 2,000	AR Crimea	9	11	0.5	2010	Breeding	GE
	Belogorsky Rajon	ca. 1,000	AR Crimea	10	12	1.1	2010	Breeding	GE
	Ochakiv Rajon	ca. 1,000	Mykolaiv Oblast	5	10	0.7 (ind.)	2011	Postbreeding period	ME
United Arab Emirates	Jarnein Island	-	-	-	-	-	2010	-	GE
Yemen	-	-	-	-	-	-	-	-	-

Annex 5. Threats

Table A. 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 are the 20 kV powerlines that consist of pylons with upright (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: susliks 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 6. Electrocution
Cyprus	Habitat loss (due to development), collision with antennae installations (Akrotiri peninsula) and disturbance
Finland	No threats
France	Collision with electric power lines.
Georgia	Unknown
Germany	-

Table A. General overview of threats cont.

Country	What are the most important threats to the Saker Falcon in your country?
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. c) afforestation: low 1. d) tree felling: medium 1. e) infrastructure development: high (wind farms) medium to high 1. f) 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 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 practices – mainly using of pesticide) 3. Residential and commercial development (urbanization, commercial developments, and tourism & recreational activities). 4. Human intrusion and disturbance.
Iran, Islamic Republic of	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 is no evidence for it.
Italy	Illegal hunting activity, impact with power lines and windfarms, degradation and fragmentation of wintering habitats, pesticides.
Kazakhstan	1. Trapping, illegal shooting 2. Destruction of breeding habitats 3. Electrocution The most important threat for Saker Falcon 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. Degradation of habitats due to human activities 3. Destruction of nests 4. Trapping for sale during migration

Table A. General overview of threats cont.

Country	What are the most important threats to the Saker Falcon in your country?
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
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
Romania	Power lines which could increase the mortality caused by electrocution 1. Wind turbines 2. The loss and 3. Pesticide use
Russian Federation	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 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

Table A. General overview of threats cont.

Country	What are the most important threats to the Saker Falcon in your country?
Saudi Arabia	Based on similar levels of annual trapping effort, the number of Saker Falcons caught during migration has fluctuated (see the table below) which may suggest population declines due to threats elsewhere, perhaps in the breeding areas. However, if the species population continues to decline, the impact of trapping could be an increasing threat in the future.
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 medium voltage power lines 5. Agriculture negative impact 6. Nest robbing
Slovakia	Nest robbery was in 1970s and 1980s one of the major factors endangering the Saker population in Western Slovakia. Only by intensive guarding of the nests between 1990 and 1995 was it possible to maintain the population. 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 nests. 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 desertification 2. Hunting and trafficking
Sudan	1. Pesticide spraying aimed at vermin such as grasshoppers, pigeons, weavers 2. Destruction of roosting trees of its prey
Syrian Arab Republic	1. Shooting 2. Poisoning by pesticides or chemicals 3. Trapping 4. Nest robbing 5. Disturbance
The FYR Macedonia	Maybe hunting and habitat destruction but we need reliable information
Tunisia	1. Wind farms 2. Habitat loss
Ukraine	Habitat change and 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 B. 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 robbed 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 summarized 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 played a part in the historical decline of the Saker Falcon, and still may have a potential medium effect on its population. In addition, most of the recent breeding pairs are only vaguely connected to natural grasslands.

Table B. The impact of threats on populations cont.

Country	What is their impact on the population?
Hungary	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 are restoring 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 grounds, if the wind turbines spread all around the eyries and there will not be alternative areas. In addition, turbine blades pose immediate risk to 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. A 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. Capture of another two females marked by ornithological rings was confirmed by Libyan 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 the local and 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 first-calendar- year 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 population. 3. a) No hybrid falcon is permitted to be kept in Hungary, but hybrid falcon escapees may come 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).
Iran, Islamic Republic of	Considerable. Regarding with the above mentioned issue, possibly the population will be declining in the future.
Israel	Negligible
Italy	Unknown

Table B. The impact of threats on populations cont.

Country	What is their impact on the population?
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
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.
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
Romania	1. Disturbance of species 2. Unnatural death for birds, collision victims 3. Increase the mortality
Russian Federation	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.
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 – suslik. 3. Destruction (ruination) of nests during power line (pylons) regular maintenance, electrocution 4. Mortality increase and breeding success decrease 5. Reduction of breeding success

Table B. The impact of threats on populations cont.

Country	What is their impact on the population?
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 desertification continue for a long time they may cause disaster that affect the population of living things including birds (falcons),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.
The FYR Macedonia	Nobody knows
Tunisia	-
Ukraine	The impact of habitat change and habitat loss is difficult to estimate due to lack of research. Trapping and nest robbing are the most important from known threats. There are 30-50 Sakers taken every year for use in falconry. Sakers can be electrocuted on medium-voltage power lines. There are several such incidents 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 results in lack 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 are 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 Falcon.
United Arab Emirates	Small, as Saker Falcon occurs in the country as an irregular visitor and on passage and hence it is expected that local trapping is insignificant for the species.
Yemen	1. Decreasing numbers Falcons 2. Changing migration path

Table C. 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 its most important areas) 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 and blowing up rocks etc. including in very remote and distant places. Importance: high Direct persecution Brief description: shooting and setting poisonous baits by pigeon fanciers (currently this is quite spread in the country, there is illegal gambling with pigeons with big turnover of money and thus all the birds of prey that can cause harm to 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 upright (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

Table C. List of critical and important threats cont.

Country	Please follow a descending priority order of threats, starting with the most important. Importance: (critical, high, medium, low, local, unknown)
Croatia	Poaching and illegal taking of eggs and young Brief description: One confirmed and one suspected case in the period 2007-2011 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
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
Finland	-
France	-
Georgia	-
Germany	-
Hungary	See above.
India	Possible Loss of habitat The Saker falcon is a winter visitor to India where it occurs in open country. These sites in Gujarat and Haryana are 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.

Table C. List of critical and important threats cont.

Country	Please follow a descending priority order of threats, starting with the most important. Importance: (critical, high, medium, low, local, unknown)
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 by 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 in habitat destruction. Mainly represented by rapid urbanization and commercial developments, at the former wintering grounds of Saker Falcon especially in northern and central Iraq. Tourism and recreational 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 practices – 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 in 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)
Iran, Islamic Republic of	1. Trapping (including illicit export for falconry purposes) 2. Habitat destruction (development, over grazing, mining and road construction) 3. Climate change
Israel	-
Italy	1. Hunting: Illegal shooting for all raptors in Italy is a major threat. Skin trading for bird collectors, incidental killing by skylark or rabbit hunters, trapping for falconry. Impact unknown at this stage but may be high (e.g., one satellite tagged Hungarian bird was killed in southern Italy) Importance: (high) 2. Habitat loss: The abandonment of traditional sheep and cattle farming has led to the loss of semi-steppe habitat created by grazing. The planting of non-native trees is causing the loss of additional semi-steppe habitat Importance: (medium) 3. Windfarms: presence of many windfarms within the core wintering areas. Importance: (high)
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	-

Table C. List of critical and important threats cont.

Country	Please follow a descending priority order of threats, starting with the most important. Importance: (critical, high, medium, low, local, unknown)
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 Falcons. 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 power lines Unsustainable harvest Habitat distruction due to mining.
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	-
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 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 are 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 Falcons. 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

Table C. List of critical and important threats cont.

Country	Please follow a descending priority order of threats, starting with the most important. Importance: (critical, high, medium, low, local, unknown)
Russian Federation	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)
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 poles. 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 many different methods of bird killing, such as poisoning of prey, using sick pigeon bait with a lot of hooks and so on. Importance: critical 3. Name of threat: Disturbance by humans Brief description: Disturbing 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 for the Peregrine Falcon) 5. Name of threat: destruction of natural habitats Brief description: Reduction of traditional prey habitats: Ploughing steppe-pasture habitats, alien species invasion, complexity of infrastructure (highway, railway, power lines, wind farms), cutting of natural trees – deforestation, lack of traditional prey habitats – suslik. Surface of pastures in lowland areas of Serbia (Vojvodina) has reduced more than 10,000 ha in last 15 years and converted into arable land, infrastructure and building ground. 6. Name of threat: Destruction of nests during power line (pylons) regular maintenance, electrocution Brief description: During regular electro companies' maintenance activities on power lines (pylons) some nests have been destroyed (ruined) by workers. After education programme this threat has a downward trend. Electrocution has negative role at lethal medium voltage power lines. There are more than 70,000 km and between 700,000–1,000,000 pylons of medium voltage power lines in Serbia (mainly hazardous)(Puzovic, 2007). 7. Name of threat: Agriculture negative activities (use of chemicals) Brief description: Using of danger biocide (pesticide, rodenticide, fungicide). Mortality increase of adult and young birds, and breeding success decrease. Reduction and contamination of favourite prey (pigeon, dove, rodents, suslik, hamster) 8. Name of threat: Nest robbing Brief description: Various reasons for nest robbing, for example, eggs for private or museum collections; nestlings to rear for falconry or zoo collections, or for taxidermy, including museum skin specimens. 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. 10. Name of threat: Natural nest collapsing by storm Brief description: Have in mind fact that natural nests of Raven on high power line pylons 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.

Table C. List of critical and important threats cont.

Country	Please follow a descending priority order of threats, starting with the most important. Importance: (critical, high, medium, low, local, unknown)
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 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 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.
The FYR 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.
Tunisia	- No Data, but the wind farms seem to be the mean threat. - The wind turbines are located in the fly way.

Table C. List of critical and important threats cont.

Country	Please follow a descending priority order of threats, starting with the most important. Importance: (critical, high, medium, low, local, unknown)
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	1. Trapping – Low 2. Infrastructure development – Medium
Yemen	1. Trapping 2. Nest robbing 3. Infrastructure development 4. Collapsing nests 5. Collision with man-made structures 6. Electrocution

Table D. 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
	a. Theft of eggs and young	Critical
	b. Direct persecution (setting poisonous baits by pigeon fanciers)	Critical
	c. 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	-	-

Table D. Threats' importance at population or country level cont.

Country	Threat Description	Threat Score
Finland	-	-
Georgia	-	-
Germany	-	-
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

Table D. Threats' importance at population or country level cont.

Country	Threat Description	Threat Score
Iraq	Habitat Loss/Degradation (human induced)	-
	Destruction of nesting habitats	Unknown
	Destruction of feeding habitats	Medium
	High mortality/loss	-
	Not measured	-
	Not measured	-
	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

Table D. Threats' importance at population or country level cont.

Country	Threat Description	Threat Score
Iran, Islamic Republic of	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	-
	Insufficient awareness among trappers	-
	Lack of alternative livelihood among local people	-
Israel	-	-
Italy	Habitat Loss/Degradation (human induced)	-
	Degradation habitat (medium)	-
	High mortality/loss	-
	Illegal killing (high)	-
	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

Table D. Threats' importance at population or country level cont.

Country	Threat Description	Threat Score
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
Mali	Habitat Loss/Degradation (human induced)	-
	Fraudulent exploitation in the protected areas (tree cutting and mutilation)	-
	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	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.	-
	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.	-

Table D. Threats' importance at population or country level cont.

Country	Threat Description	Threat Score
Malta	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	-
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

Table D. Threats' importance at population or country level cont.

Country	Threat Description	Threat Score
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	-
Romania	HabitatLoss/Degradation(humaninduced)	-
	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*).	High
	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
Russian Federation	-	-
Saudi Arabia	Habitat Loss/Degradation (human induced)	-
	Overgrazing...	Local
	Wood cutting...	Local
	High mortality/loss	-
	Decline in the prey items...	High

Table D. Threats' importance at population or country level cont.

Country	Threat Description	Threat Score
	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
	Lack of management plan for the falconry...	High
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
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	-

Table D. Threats' importance at population or country level cont.

Country	Threat Description	Threat Score
	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 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
The FYR Macedonia	-	-
Tunisia	-	-
Ukraine	Habitat Loss/Degradation (human induced)	-
	Habitat change and habitat loss.	Medium
	Decrease in grazing animal stock.	Low

Table D. Threats' importance at population or country level cont.

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.	-
	Infrastructure development.	Low
Yemen	-	-

Annex 6. Policies and legislation relevant for management

Table A. National policies, legislation and current 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 is covered by national hunting laws, in which it is officially protected year round. Saker Falcons breed 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 include 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 better control of legal trade which will further ensure 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 current projects with the active support and participation of the Ministry of Environment and Water.
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 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 (OG 94/13) 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 Ecological Network (OG 124/13) 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
Czech Republic	The Saker is listed among critically endangered animals in the Czech Republic, 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 the wild etc. of Sakers is a criminal offence It is included in related national legislation implementing CITES as well.
Finland	The species is protected by law as are all the other birds of prey.
France	Inter-ministerial Decree of 29 October 2009 establishing the list of protected birds on the entire national territory and their means of protection (Official Journal December 5, 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 indigenous, 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

Table A. National policies, legislation and current activities relevant to the Saker Falcon cont.

Country	National nature conservation and related legislation
	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.
Iran, Islamic Republic of	• 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 Migratory Species signed in 2007
Iraq	There is no legislation that tackles the protecting of this bird species in Iraq directly, but it is included, however generally, under different legislation. 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.
Israel	In Israel, all terrestrial vertebrates are fully protected by law since 1955. Less than 10 species are declared as pests in agriculture and only 5 waterfowl species are game birds, in the hunting season. So Saker Falcons as all raptors are strictly protected. In Israel falconry is illegal and raptors are not allowed to be kept in captivity.
Italy	The species is fully protected by the Italian Law No 157/92 of 11 February 1992. This law is the national measure to implement the provisions of Directive 2009/147/EC. In article 2 (L.157/92) the Saker falcon is listed among the particularly protected species. In article 30 (L.157/92), penalties for breaking this protection regime is stated as “imprisonment from two to eight months or a fine ranging from €774 to €2,065 for those who strike, capture or hold mammals or birds included in the list referred to in Article 2. The Ministry of Environment Decree 184, 17/10/2007, stated the minimum measures for the conservation of sites along flyways, agricultural habitats, steppes and mixed habitats for the conservation of Mediterranean SPAs.
Kazakhstan	The Saker Falcon is included in the Red Data Book of Kazakhstan as an endangered species The 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”
Mali	The Act No. 95 – 031 setting the conditions for the management of wildlife and its habitat, classifying all birds of prey (*Falconidae*) 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.

Table A. National policies, legislation and current activities relevant to the Saker Falcon cont.

Country	National nature conservation and related legislation
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	Law 98-07 of 29 April 1998 concerning the regimes of hunting and protection of wild animals Decree No. 98-295/PRN/MH/E of 29 October 1998 setting out the procedures for the implementation of Law 98-07 of 29 April 1998
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
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. • Ministerial Order No. 2387/2011 for amending the Ministerial 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 “Natura 2000” in Romania. • Government Decision No. 971/2011 for amending the Government Decision No. 1284/2007 regarding the designation of Special Protection Areas as an integral part of the European ecological network “Natura 2000” in Romania.
Russian Federation	• 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

Table A. National policies, legislation and current activities relevant to the Saker Falcon cont.

Country	National nature conservation and related legislation
	• 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.
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 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).
Slovakia	• Act No. 543/2002 Collection (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 God given birds specially the falcon. 2. Customs and police authority control airports, ports, and the regional boundary to prevent illegal exports of falcons.
Sudan	The new constitution is expected to provide stronger conservation measures A new wildlife act will be proposed 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.
The FYR Macedonia	Law on hunting does not mention this species at all- so it is not protected by any means
Tunisia	Protected by the Tunisian legislation under article 7.
Ukraine	• The Saker Falcon has been 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);

Table A. National policies, legislation and current activities relevant to the Saker Falcon cont.

Country	National nature conservation and related legislation
	• 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 • 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 Local • 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 • 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 B. 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 (US$600)	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 has been under protection since 1962; after 2002 it is protected under nature protection legislation (with the highest possible penalties.)	Yes (up to US$3,380 and up to 5 years in prison)	MOEW (Ministry of Environment and Water)
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

Table B. National conservation and legal status cont.

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
Hungary	Directly threatened (Red Data Book 1989); Conservation dependent (MME red list 1999).	Yes (taking, killing)	1954	Imprisonment and fine of up to US$4363 (100,000 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 US$400 or both)	Ministry of Environment & Forests
Iran, Islamic Republic of	Critically Endangered	Yes (taking, killing)	1967	Yes US$10,000	Department of Environment
Iraq	Provisionally assessed as Critically Endangered	No protection	No protection	No penalties	Iraqi Ministry of Environment
Israel	Not relevant	Yes	-	-	Israel Nature & Parks Authority/ Ministry of Environment
Italy	-	Yes (keeping, killing, catching)	since 1977 with a national law (968) and then from 1979 with the Bird Directive (CEE)	Yes (from US$1,046 to US$2,792)	yes
Kazakhstan I.	Endangered	Yes (taking, killing)	-	-	Committee of forest
Kazakhstan II.	1-st (the highest) category of threat, “critically threatened”	Fully protected since 1995	Yes (up to the court. 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
Mali	Threatened	-	-	-	Directeur National des Eaux et Forêts
Malta	-	Constantly	Yes	-	Malta Environment and Planning Authority
Mongolia	-	-	no	-	-

Table B. National conservation and legal status cont.

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
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 protection status (since year): Yes. Current penalties according to L.N. 79 of 2006 as amended include: First time offence: €232.94-€4,658.75 (that is, approximately US$302– US$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: €465.87-€9,317.49 (that is, approximately US$604-US$12,070) fine or/and to an imprisonment term of 2 months–2 years and the revocation of the hunting licence 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 0.5 million rupees or more than 1 million rupees.	Forestry Wing, Climate Change Division, Government of Pakistan, Islamabad

Table B. National conservation and legal status cont.

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
				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.	
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 (US$20 000)	Russian Ministry of Nature
Saudi Arabia	The draft document (A)	Yes	2006	No	Saudi Wildlife Authority and Ministry of Inertial
Serbia	No official national Red Data Book In national Atlas of Birds of Prey (Puzović *et al,* 2000) this species listed as - EN in Serbia.	Yes (taking, killing) / No Strictly protected wild species under the law in Serbia. But, there are a few falconers and Falconry NVO, with several Sakers as captivity birds, originally from artificial reproduction.	Strictly protected wild species (since 2010)	Yes (in US$) /No 20,000 EUR	Ministry for energy, development and environmental protection Institutes for nature Conservation - Provincial 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

Table B. National conservation and legal status cont.

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
The FYR Macedonia	No red data book	since 1996	Yes, about US$ 8,000 per specimen of any age killed or taken; for 1 nest – about US$115, and for every egg – about US$4,000 (50% of the fine for taking a falcon)	-	-
Tunisia	No Red Data Book	Yes	Protected by Tunisian legislation under article 7	Yes	General Directorate of Forests
Ukraine	Vulnerable	Yes (taking, killing)	2009	Yes (US$11,200)	Ministry of Ecology and Natural Resources of Ukraine (Legal Framework) State Ecological Inspection of Ukraine (Enforcement)
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.	Ministry of Environment & Water
Yemen	-	-	-	-	-

Table C. 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
Croatia	Rural Development Programme 2014–2020 Forest management plans
Cyprus	-
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
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) prioritizes Natura 2000 sites by bonus points in the case of agricultural developments that are favourable to nature conservation purposes. Environment and Energy Operational Programme (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 Prioritized Action Framework for the Natura 2000 network.
India	None known
Iran, Islamic Republic of	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
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
Israel	-
Italy	No rural development plans have a sectoral programme to Saker Falcon in Italy Italian National Action Plan for the Lanner Falcon (*Falco biarmicus feldegii*)
Kazakhstan	There is no special programme 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 programme "Zhasyl Damu" (2010–2014) (complex governmental programme for nature and wildlife conservation and sustainable use)
Kenya	Important Bird Areas (IBA) program

Table C. Key sectoral programmes cont.

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.
Kyrgyzstan	Protection in nature reserves and national parks. The concept of forest resources conservation
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 in 2014 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
Romania	The Sectoral Operational Programme Environment 2007-2013, priority axis 4- Implementation of adequate management systems for nature's protection.

Table C. Key sectoral programmes cont.

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.
Russian Federation	1. Federal Program on Agriculture Development and Food Markets Regulation 2013–2017. 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	-
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 programme (2010) - Strategy of national rural development (2008) - Strategy of energy sector (renewable energy, energy transmition)
Slovakia	Rural Development Plans Forestry Development Plans
Somalia	1. Survey programmes 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	Desertification national programme Deforestation national programme Ban of hunting legislation Rural development strategy
The FYR Macedonia	Forestation of Macedonia Rural development
Tunisia	- Forestry Development Plans,
Ukraine	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	1. National Biodiversity Strategy & Action Plan (NBSAP) 2. Important Birds Areas (IBAs) Program 3. Monitoring program within Emirates, 4. International Waterbird Census etc.
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 A. 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 are no data but we consider this as one of the most potentially serious problems for the species.	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.
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	-	-	-	-	-	-	-

Table A. The use of the Saker Falcon cont.

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
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
Iran, Islamic Republic of	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)
Iraq	Trading and use for hunting	Yes	50-60, not known	Yes (September – March)	No	No (but illegal)	No (but illegal)
Israel	-	No	0/GO	No	No	No	No
Italy	-	No	No	No	No	No	Yes (only with CITES certificate)
Kazakhstan	Illegal use for export to Arabian markets. Falconry.	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
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

Table A. The use of the Saker Falcon cont.

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
Pakistan	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	-	-	-	-	-	-
Poland	Falconry	No	0	No	No	Yes (captive bred/ hybrid)	Yes (captive bred/ hybrid)
Romania	No	No	-	-	No	No	No
Russian Federation	-	-	-	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) – no 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. numbers: 100 per year	Yes. Not exceeding 300	October to June next year	-	-	-
Syrian Arab Republic	Trade	Yes	5 local and 60 international	Yes (September-November)	No	Yes (captive bred/ hybrid)	Yes (wild/captive bred/ hybrid)

Table A. The use of the Saker Falcon cont.

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
The FYR Macedonia	-	-	-	-	No	No	No
Tunisia	-	-	-	-	-	-	-
Ukraine	-	No	-	-	No	Yes (captive bred)	Yes (captive bred)
United Arab Emirates	Falconry	No	-	-	-	Yes	Yes
Yemen	-	-	-	-	-	-	-

Annex 8. Conservation, research and monitoring

Table A. 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=bg_BG&cat_id=67http://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 the responsible State organization	Yes (no web page)
Finland	-	no	no
France	-	No	No
Georgia	-	-	-

Table A. Conservation background cont.

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?
Germany	-	No	No
Hungary	Respected nationally as the ancient totem animal of Hungarians	No But it is included in the European Action Plan which was initiated and organised by MME/BirdLife Hungary on behalf of BirdLife International	Yes 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
Iran, Islamic Republic of	The highest rate of penalty amongst birds	No (Special attention through the Hunting and Trapping Law)	No (Some NGOs are active in this field)
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
Israel	Fully protected. No special attitude	No	No
Italy	-	No	No
Kazakhstan	Bad	No	No
	People like falcons; but now everybody in Saker breeding and migration areas knows that it is valuable bird (the price is very often overestimated)	No	No
Kenya	Low awareness among the general public	No	Yes – Raptor Working Group
Kyrgyzstan	Positive understanding of the need to protect	National biodiversity conservation plan	No
Mali	National concern for the destruction of the species	No	No
Malta	Positive	No	No

Table A. Conservation background cont.

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?
Mongolia	-	?	?
Montenegro	-	No	No
Niger	Killing or capturing especially local people (village level)	No	Yes
Pakistan	-	No	No
Poland	neutral	No	No
Romania	Protection	No	Yes
Russian Federation	-	-	-
Saudi Arabia	Highly respected	Not yet (in process)	Yes (Saker Falcon committee)
Serbia	Strictly protected wild species	No	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	No
Syrian Arab Republic	Very low	No	No
The FYR Macedonia	Not known species	No	No
Tunisia	-	No	No
Ukraine	-	Yes, Draft, 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 Falcon.	?	?
Yemen	-	?	?

Table B. Current conservation and management actions for the Saker Falcon

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organization(s)
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 the 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	-	-	-	-	-
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
	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

Table B. Current conservation and management actions for the Saker Falcon cont.

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organization(s)
	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 minimize 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
	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 minimize 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

Table B. Current conservation and management actions for the Saker Falcon cont.

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organization(s)
	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
	To investigate the threats, important areas and dispersal movements of the species	Satellite tracking of all the released birds is ongoing	International	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
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
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,

Table B. Current conservation and management actions for the Saker Falcon cont.

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organization(s)
					Ministry of Environment, Czech Society for Ornithology, The regional authority of the 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
Finland	Recorded as vagrant only 8 times in Finland. Only one of those specimens has been considered to be wild.	None	-	-	-
		-	-	-	-
France	-	None	-	-	-
Georgia	-	-	-	-	-
Germany	-	-	-	-	-
Hungary	Population decline halted and reversed.	Species protection	National	1954–recent	Government (Ministry of Rural Development)
		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	Government (Ministry of Rural Development), MME/BirdLife Hungary

Table B. Current conservation and management actions for the Saker Falcon cont.

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organization(s)
				Natura 2000 sites for the species, a site extension also in 2010	
		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
		Nest guarding	Local	1977–2006	national park directorates, MME-BirdLife 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 Suslik 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
		Purchasing land	Local	1995–recent	State nature conservation (ministry and national park directorates); MME/Birdlife Hungary & Pro Vértes Public Foundation

Table B. Current conservation and management actions for the Saker Falcon cont.

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organization(s)
	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. Saker Falcon is widely recognised as an important piece of our natural heritage	Studying of food and habitat preference	National	2010–recent	Second LIFE Saker Conservation programme LIFE09 NAT/HU/000384
		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.	International	1986–recent	Government (Ministry of Rural Development); national park directorates, MME-BirdLife Hungary
India	-	-	-	-	-

Table B. Current conservation and management actions for the Saker Falcon cont.

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organization(s)
Iran, Islamic Republic of		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
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 Kurdistan 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	- -	- -	- -
Israel	-	-	-	-	-
Italy	-	-	-	-	-
Kazakhstan	-	Identification of Bird Important Areas for Saker 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 breed captivity	National	Started in 2008	Forest and Hunting Committee of Ministry of Agriculture
	Population decline research Conservation of Saker Falcon population	Monitoring of the breeding population till 80 breeding pairs per year, breeding success	National	Started in 1993	ERWDA (UAE), IWC Ltd (UK)

Table B. Current conservation and management actions for the Saker Falcon cont.

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organization(s)
		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 programme)	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
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
	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

Table B. Current conservation and management actions for the Saker Falcon cont.

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organization(s)
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	-	-	-	-	-
Pakistan	-	-	-	-	-
Poland	Saker is observed sporadically in summer and autumn, only 1 case of breeding	-	-	-	-
Romania	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
		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

Table B. Current conservation and management actions for the Saker Falcon cont.

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organization(s)
Romania cont.		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
		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

Table B. Current conservation and management actions for the Saker Falcon cont.

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organization(s)
Romania cont.		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)
	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

Table B. Current conservation and management actions for the Saker Falcon cont.

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organization(s)
Romania cont.		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
		Organize training workshop to improve skills in the monitoring of Saker Falcon	Regional	2012–2013	Milvus Group Bird and Nature
	Establish best practice for 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 ProtectionAgency Universities, Research Institutes, Ministry of Environment and Climate Change
	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

Table B. Current conservation and management actions for the Saker Falcon cont.

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organization(s)
Russian Federation	Population decline halted	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
		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	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	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
Saudi Arabia	-	-	-	-	-
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)
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	National	1.10.2010–30.9.2014	Raptor Protection of Slovakia, Západoslovenská energetika, a.s.

Table B. Current conservation and management actions for the Saker Falcon cont.

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organization(s)
		juveniles, Guarding of endangered nests, Marking juveniles with PTTs, PR activities			
	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	-	-	-	-	-
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)	-	-	-	-

Table B. Current conservation and management actions for the Saker Falcon cont.

Country	Title of Project/Action				
	Objective	Action	Coverage	Period	Organization(s)
The FYR Macedonia	No such case	-	-	-	-
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
	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	-	-
	Ecological research on Saker Artificial Nest boxes project in Mongolia	To understand ecology and conservation of species; Increase breeding by providing artificial nest boxes to encourage breeding Artificial nest boxes project	International	Since 2005 2009-2013	Environment Agency- Abu Dhabi, through International Wildlife Consultants & Government of Mongolia (for the Artificial nest boxes project)
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
	Monitoring and regulating the hunting	Develop a program to monitor the hunting regulation	National	Oct. 2013	EPA

Table C. 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 Datadata 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 aim proving 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). 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 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 the goals of the project and vi) develops population models to determine requirements of releases. 3. Assessment of attitudes of target groups to the reintroduction of Saker Falcons 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	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 been developed and prepared

Table C. Conservation efforts and research activities over the last ten years cont.

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
	some of the territories and wintering/staging sites Raising public awareness Bird-related crime enforcement work Work with all the relevant authorities (Ministry of Environment and Water, Ministry of Interior, Customs Agency, Ministry of Justice etc.) Establishing of working group with active representatives from all institutions, capacity-building: 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 Saker breeding sites has been designated as protected areas Restocking programme 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	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		-
Georgia	-	-
Germany	None – no breeding in the last 10 years	None – no breeding in the last ten years

Table C. Conservation efforts and research activities over the last ten years cont.

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
Iran, Islamic Republic of	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.	-
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.
Israel	None	None
Italy	-	-
Kazakhstan	Conservation of the Falcons on the IBA.	Monitoring of different populations and important core areas, 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 the 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 the framework of a 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).
Kenya	May benefit from the IBA programme	Raptor surveys at selected sites, Raptor road counts

Table C. Conservation efforts and research activities over the last ten years cont.

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
Kyrgyzstan	Suppression of smuggling illegal exports of the Saker Falcon	Conducting surveys on objects supplying the Saker Falcon.
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.	No research action
Malta	-	-
Mongolia	-	-
Montenegro	no actions	-
Niger	Some conservation efforts targeting Saker Falcon are: Implementation of legal policy on hunting and wildlife (Law 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 Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia (Raptors MOU);	None
Pakistan	None	None
Poland	None	None
Romania	(Too long text, please see the National Questionnaire!)	(Too long text, please see the National Questionnaire!)

Table C. Conservation efforts and research activities over the last ten years cont.

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
Russian Federation	See *Table B* in Annex 8	
Saudi Arabia	Flacon release, establishment of falcon release fund, support the Saker Falcon Task Force, implement CITES rules through marking all falcons needing 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
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 realized 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.
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.
Sudan	None	-
Syrian Arab Republic	No special activity concerning Saker falcon	No research activity known
The FYR Macedonia	In 2007 was undertaken short survey in some part of Macedonia partly supported by International Wildlife Consultants	Only in 2007 a short survey; material taken for DNA analyses from *F. cherrug* from the several museum speciments shoot mainly in winter period but also in Spring...Results still not 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.

Table C. Conservation efforts and research activities over the last ten years cont.

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
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 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 Through the International Wildlife Consultants, the Environment Agency-Abu Dhabi has undertaken ecological research on the species has focused on undertaking movement studies using satellite telemetry, studying diet of the species, carrying out population demographics and population genetics studies. Installation of artificial nest boxes	-
Yemen	-	-

Table D. 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 organizations 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 programme 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- 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 Hungary)
India	No	No	No	No
Iran, Islamic Republic of	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 Data Base.	Wildlife Bureau, Department of Environment

Table D. Ongoing monitoring schemes for the Saker Falcon cont.

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?
Iraq	There is no dedicated monitoring programme, but it is included by our Key Biodiversity Areas monitoring program	There is no dedicated monitoring programme, 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 programme 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
Israel	No	No	No	No
Italy	No	No	No	No
Kazakhstan	Yes (1993/current)* * There is a programme but not at national/ governmental level. It is a programme of monitoring of selected breeding areas supported 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 the framework of a programme supported by UAE. There is no monitoring organization at national level because there is no national monitoring programme or SSAP.	Yes**	No	No***
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

Table D. Ongoing monitoring schemes for the Saker Falcon cont.

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?
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
Romania	Yes	Yes	Yes	BirdLifeRomania
Russian Federation	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 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	? - Generally there are no Saker Falcon breeding pairs inside protected areas. - Maybe there are only a few pairs (not regularly breeding) in Deliblato and Mali pesaksand, Gornje Podunavlje and Staraplanina.	?	Yes Two Institutes for Nature Conservation (in Belgrade for Serbia and in Novi Sad 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.

Table D. Ongoing monitoring schemes for the Saker Falcon cont.

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?
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
The FYR Macedonia	No	No, only for one (Prespa) but completely improperly by dilettantes and without any transparency?	No	No
Tunisia	No	No	No	No
Ukraine I.	No	Yes	No	No
Ukraine II.	No	Yes	No	No
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 – ZagroŜenia – Ochrona Wybrane aspekty ekologii ptakow. LTO, Lublin.
Azerbaijan	No publications, incidental 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. Forktail 9: 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.
Bulgaria	Baumgart, W. 1971. Beitrag zur Kenntnis der Greifvögel Bulgariens. – Beitr. Vögelkd., 17, Baumgart, W. 1966. Der Würgfalke als Brutvogel im Gebirge der Volksrepublik Bulgarien. Falke, 13, 256–260. Baumgart, W. 1977. Der Gegenwärtige 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.

Annex 9. References and publications cont.

Country	Key references about the Saker Falcon in Range States
	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. Stoyanov, G. 2005. Observation of Saker Falcon (*Falco cherrug*). Acrocephalus. 26 (127), 202. Stoyanov, G., G. Kouzmanov. 1998. Nuevos datos sobre la población del Halcón Sacre (*Falco cherrug*) en Bulgaria. - In: Chancellor R., Meyburg, B. U. and J. J. Ferrero, eds. Д Holarctc Birds of Prey, 357–362. The Newsletter of the Middle East Falcon Research Group, 27, 4–8. 1, 33–70.
Czech Republic	Beran, V., Škorpíková, V., Valášek, M., Horal, D. & Horák, P. (2012) The breeding population of Saker Falcon (*Falco cherrug*) in the Czech Republic between 1999–2010. Aquila (2012), Vol. 119, p. 21–30 Beran, V., Horák, P., Horal, D. & Škorpíková, V. (2010) The development of Saker Falcon (*Falco cherrug*) breeding population in the Czech Republic between 1999–2010. Crex (2010), Vol. 30, p. 76–94.[In Czech, with English summary] Horák P. (2000a): [Development of Saker Falcon (*Falco cherrug*) population between 1976–1998 in Moravia (Czech Republic)]. Buteo11, p. 57–66. Horák P. (2000b): [Nesting of Saker Falcon (*Falco cherrug*) in a tree hollow]. Crex16, 110–112. [In Czech, with English summary] Horal D. (2008): [Notes on interesting breeding of a Saker (*Falco cherrug*) pair in 2007]. Crex28, 130–134. [In Czech, with English summary] Horal D., Horák P., Štěpánek P. (2006): [The interesting nesting of the Saker (*Falco cherrug*) in South Moravia in 2006]. Crex26, 73–76. [In Czech, with English summary]
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
Hungary	Bagyura J. & Szitta T. (2009): Kerecsensólyom. In Csörgő T., Karcza Z., Halmos G., Magyar G., Gyurácz J., Szép T., Bankovics A., Schmidt A. & Schmidt E. (eds.): Magyar madárvonulási atlasz. Kossuth, Budapest, p. 246–249. (Hungarian Bird Migration Atlas) 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.

Annex 9. References and publications cont.

Country	Key references about the Saker Falcon in Range States
	Bagyura, J., Haraszthy, L., & Szitta, T. (1994): Methods and Results of Saker *Falco cherrug* Management and Conservation in Hungary; in Meyburg, B.-U.& R. D. Chancellor eds. 1994: Raptor Conservation Today; WWGBP / The Pica Press, 391–395. Bagyura, J., Haraszthy, L., & Szitta, T. (1994): Feeding Biology of the Saker *Falco cherrug* in Hungary; in Meyburg, B.-U.& R. D. Chancellor eds. 1994: Raptor Conservation Today; WWGBP / The Pica Press, 397–401. Bagyura J., Szitta T., Haraszthy L., Demeter I., Sándor I., Dudás M., Kállay Gy., Viszló L. (2004): Population trend of the Saker Falcon *Falco cherrug* in Hungary between 1980 and 2002. In Chancellor, R.D; Meyburg, B.-U. (eds): Raptors Worldwide. Berlin, p. 663–672. Nagy, S. & Demeter, I. (2006): Saker Falcon: European Single Species Action Plan. 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*)? In: Gamauf, A. & Berg, H.-M. (Hrsg): Greifvögel & Eulen – Neue Forschungsergebnisse aus Österreich, pp. 19–24. Verlag Naturhistorisches Museum Wien, Wien. Prommer, M., Bagyura, J., Chavko, J., Uhrin, M. (2013): Migratory movements of Central and Eastern European Saker Falcons (*Falco cherrug*) from juvenile dispersal to adulthood. Aquila 119, p. 111–135.
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.
Iran, Islamic Republic of	• The first complete book on falconry is the Baznameh-e-Naseri written by Teymour Mirza Hesam al Dovleh, in the 12th century commissioned by Naseraddin Shah, the Qajar king. This famous tome has been translated to English, French and German. • Saker Falcon breeding population estimates. Part 2: Asia • www.mefrg.org/images/pdf/asian%20population%20falco%20pdf.pdf • Amini. H, 2012, MS.c Thesis, Genetic Diversity of Birds of Prey (Falconidae) in Iran Using Molecular Techniques. Teheran Azad University Baznameh Nasavi, 11st Centaury, Ali ebn Ahmed Nasavi, Subject: Falconry and Hunting guidelines.
Iraq	Al-Dabbagh, KY. 1998. The birds of semi-desert areas of central Iraq. Sandgrouse 20: 135–141. Allouse, B. 1953. The Avifauna of Iraq. Iraq Natural History Museum, Baghdad. Allouse, B. 1960, 1961, 1962. Birds of Iraq I III Vols. [Arabic]. Al-Rabita Press, Baghdad. Al-Sheikhly, O. F. 2011. A Survey Report on the Raptors Trapping and Trade in Iraq. Wildlife Middle East. (6):1. Al-Sheikhly, O.F. 2012a. Report on the first record of Red –footed Falcon *Falco vespertinus* in Iraq. Falco. (39): 10-11 Al-Sheikhly, O.F. 2012. Some ecological observations on Lesser kestrel *Falco naumanni* in North And Northern West of Iraq. M. Sc, thesis submitted to the University of Baghdad. Baghdad. Iraq. Ararat K, O Fadhil, RF Porter & M Salim. 2011. Breeding birds in Iraq: important new discoveries. Sandgrouse 33: 12–33. Ararat, K.; O. Fadhil; RF. Porter; and M. Salim. 2011. Breeding birds in Iraq: important new discoveries. Sandgouse(33):12–33 BirdLife International. 2011. IUCN Red List for birds. www.birdlife.org. Chapman, EA & JA McGeoch. 1956. Recent field observations from Iraq. Ibis 98: 577–594. Cramp S. and K. E. L. Simmons 1987. The Birds of the Western Palearctic. Volume II. Hawks to Bustards. Oxford: Oxford University Press. Ctyroky, P. 1986. Breeding assemblages of birds in Iraq. Zpravy Moravskeho Ornithologickeho Sdruzeni 44: 7–29. Ctyroky, P. 1987. Ornithological observations in Iraq. Beitr. Vogelkd. 33: 141–204. Ctyroky, P. 1988. Autumn migration of birds in the western desert of Iraq. Beitr. Vogelkd. 34: 230–236. Cumming, WD. 1918. Natural History notes from Fao. Journal of the Bombay Natural History Society 26: 292–295. George, P V & A Mahdi. 1969. Systematic list of Iraqi vertebrates - Aves. Iraq Nat. Hist. Mus. 26: 34–63. George, PV & J Vielliard. 1970. Mid-winter observations on birds of central and south Iraq. Bull. Iraq Nat. Mus. 4:61–85. Harrison, JM. 1959. Notes on collection of birds made in Iraq by flight lieutenant David L. Harrison. Ibis. 78: 9–13, 31–36, 49–50. Jennings, MC. 2010. Atlas of the Breeding Birds of Arabia. Fauna of Arabia 25. Kainady, P.V.G. 1977. Some notable bird records from Iraq. Bull. Basrah Nat. Hist. Mus. 4: 59–64.

Annex 9. References and publications cont.

Country	Key references about the Saker Falcon in Range States
	Kirwan, GM, KA Boyla, P Castell, B Demirci, M Özen, H Welch & T Marlow. 2008. The Birds of Turkey. Christopher Helm, London. Maclaren, P.I. R. 1943. Field notes from Shuaibah and Zubair (Near Basrah). Unpublished report. Marchant, S. & Macnab, J.W. 1962. Iraq bird notes - 1962. Bull. Iraq Nat. Hist. Inst. No 3, Vol 11: 1–48 Marchant, S. 1961. Iraq bird notes - 1960. Bull. Iraq Nat. Hist. Inst.: 1–37. Marchant, S. 1963. Migration in Iraq. Ibis 105: 369–398. Marchant, S. 1963. Notes on the winter status of certain species in Iraq. Ardea 51: 237–243. Marchant, S. 1963. The breeding of some Iraqi birds. Ibis 105: 516–557. Marchant, S. 1962. Iraq bird notes - 1961. Bull. Iraq Nat. Hist. Mus. Vol 11, No 1 McGeoch, J. A. 1963. Observations from Ser Amadia, Kurdistan, Iraq. Ardea 51. 244–50. Moore, HJ & C Boswell. 1956 & 1957. Field observations on the birds of Iraq. Parts I & II 1956, Part III 1957. Iraq Natural History Museum, Baghdad. Nature Iraq database. Porter, R F, M Salim, K Ararat & O Fadhel. 2010. A provisional checklist of the birds of Iraq. Marsh Bulletin 5(1): 56–95. Porter, RF & S Aspinall. 2010. Birds of the Middle East. Christopher Helm, London. Sage, BL. 1958. Field notes on autumn migration in the Khanaqin area in 1958. Iraq Nat. Hist. Publ. 16: 33–48. Sage, BL. 1960. Field notes on some birds of eastern Iraq. Ardea 48: 160–178. Salim, M. A., Al-Sheikhly O. F., Majeed, K. A. & Porter, R. F. 2012. Annotated checklist of the birds of Iraq. Sandgrouse 34(1): 3–44. Salim, M A, R Porter, P Schiermacker-Hansen, S Christensen & S Al- Jbour. 2006. Field guide to the birds of Iraq. [Arabic] Baghdad: Nature Iraq/BirdLife International. Salim, MA. 2002. The first records, including breeding, of the Black-winged Kite *Elanus caeruleus* in Iraq. Sandgrouse 24: 136–138. Salim, MA. 2011. [The illegal hunting and trade increase the threat on Macqueen's Bustard Chlamydotis macqueenii in Iraq]. Nature Iraq Technical Publications NI-1011-02. www.natureiraq.org/site/ar/node/284. [In Arabic] Scott, DA & E Carp. 1982. A midwinter survey of wetlands in Mesopotamia, Iraq: 1979. Sandgrouse 4: 6–76. Stanford, W. 1983. Notes on birds in Iraq. 1919–1921. Adjutant (J. Army Ornithol. Soc.) 13: 41–44. Ticehurst, C. B., Cox, P. and Cheesman, R. E. 1926. Additional notes on the avifauna of Iraq. J. Bombay Nat. Hist. Soc. 31: 91–119. Ticehurst, CB, PA Buxton & RE Cheesman. 1922. The birds of Mesopotamia. Journal of the Bombay Natural History Society 28: 210–250, 381–427, 650–674, 937–956. Vaurie, C. 1965. Birds of the Palearctic Fauna: Non-Passeriformes. HF & G Witherby, London.
Israel	-
Italy	EBN Italia. Annuari dal 2003 al 2012. EBN Italia, Verona. Corso A., 2005. Avifauna di Sicilia. L'EPOS Società Editrrice, Palermo. Andreotti, A., & G. Leonardi. 2007. Piano d'azione nazionale per il Lanario (*Falco biarmicus feldeggii*) - Quad. Cons. Natura, 24, Min. Ambiente-Ist. Nazionale Fauna Selavitica Corso, A. &. P. Harris. 2012. Status of the Saker Falcon (*Falco cherrug*) in Italy: past, present and future. Aquila, 119: 47- 55. Prommer, M., J. Bagyura, J. Chavko, and M. Uhrin. 2012. Migratory movements of the Central and Eastern European Saker Falcons (*Falco cherrug*) from juvenile dispersal to adulthood. Aquila, 119: 111–134. Bondi, S., M. Prommer and M. Sarà. 2013.(Abstract) Habitat preferences and diet of the Saker Falcon overwintering in Sicily. Pag. 79 in D. Campobello, P. Pedrin, M. Ciolli, C. Carere, D. Chamberlain and L. Serra (eds), Atti del XVII Convegno Italiano di Ornitologia, Trento 11–15 settembre 2013. Brichetti , P., Fracasso, G. (2013) Ornitologia Italiana Vol. I - Gaviidae-Falconidae. Alberto Perdisa Editore.
Kazakhstan	I.V. Karyakin, A.S. Levin, T.O. Barabashin, F.F. Karpov. 2005. Results of researches of Steppe Jine Rorests in the Northeast of Kazakhstan in 2005. Raptors conservation 4. P.34–43.

Annex 9. References and publications cont.

Country	Key references about the Saker Falcon in Range States
	I.V. Karyakin, A.S. Levin, L.M. Novikova, A.S. Pazhenkov. 2005. Saker in the North-Western Kazakhstan: results of the 2003–2004 surveys. Raptors conservation 2. P.42–55. A. Levin, F. Karpov. 2005. Notes of Breeding the Saker Falcon in Central Kazakhstan. Raptors conservation 4. P.52–57. Levin A.S., Karyakin I.V. 2005. Results of expedition in Mangishlak and Usturt in 2004. Kazakh ornithological bulletin 2004. Almaty. P.14–19. A. Levin, S. Shmigalev, A. Dixon, T. Kunka. 2007. The Saker Falcon in pine forest of north-eastern Kazakhstan. Raptors conservation 8. P.48–52. Levin A.S. 2007. Experiment on Saker Falcon restoration in Kazakhstan //Abstracts of international conference «Biodiversity of fauna in Kazakhstan, problems of conservation and using» Almaty. P.127–129. Levin A.S. 2008. Conservation Problems of the Saker Falcon in Kazakhsan. Raptors conservation 12. P.48–55. Levin A.S. 2008. Saker Falcon in Kazakhstan: recent condition of populations//«Selevinia». P.211–222. 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 2010, 18, pp. 167-174. Sklyarenko S. 1995. The illegal capture of Saker Falcons in Kazakhstan. – Newsletter of the World Working Group on Birds of Prey and Owls. 21/22. P. 14–15. Брагин Е.А., Брагин А.Е. 2009. Многолетний мониторинг популяции балобана в Наурзумском заповеднике и на сопредельных территориях // Экология, эволюция и систематика животных: Мат-лы Всероссийской науч.-прак. конференции с межд. участием. Рязань. 189–190. Карякин И.В. 2004а. Балобан в Волго-Уральском регионе и на прилегающих территориях // Степной Бюллетень, № 5: 32–39. Карякин И.В. 2004б. Балобан на плато Устюрт: краткие результаты экспедиции 2003 г. // Степной Бюллетень, № 5: 40–41. Карякин И.В., Паженков А.С., Коваленко А.В., Коржев Д.А., Новикова Л.М. 2007. Крупные пернатые хищники Мугоджар, Казахстан // Пернатые хищники и их охрана, № 8: 53–65. 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. Корелов М.Н. 1962. Птицы Казахстана. Т. 2. Отряд хищные птицы *Falconiformes*. Алма-Ата, С. 488–707. Левин А.С. 2008. Проблемы охраны балобана в Казахстане. – Пернатые хищники и их охрана. № 12. С. 48–55. Левин А.С. 2008. Балобан в Казахстане: современное состояние популяций // Selevinia: 211–222. Левин А.С. 2011. Нелегальная торговля и снижение численности балобана в Казахстане // Пернатые хищники и их охрана, № 23: 64–73. Мошкин А.В. 2010. Обосновано ли научно снижение природоохранного статуса балобана? // Пернатые хищники и их охрана, № 19: 37–74. Паженков А.С., Коржев Д.А., Хохлова Н.А. 2005. Новые сведения о крупных хищных птицах Мугоджар, Казахстан // Пернатые хищники и их охрана, № 4: 58–60. Пфеффер Р.Г. 1987. Сокол-балобан. Алма-Ата, 143 с. Пфеффер Р.Г., Карякин И.В. 2010. Чинковый балобан – самостоятельный подвид, населяющий северо-запад Средней Азии // Пернатые хищники и их охрана, № 19: 164–185.
Kenya	Bennun L. A. and Njoroge P. (1999). Important Bird Areas of Kenya. Nairobi. The east Africa Natural History Society.
Kyrgyzstan	-
Mali	Thierry Helsens : Faucons en pagaille (use the Google search engine) Bourama Niagate et Bill Clark : 2004 - Mammifères-Reptiles et Oiseaux du Mali. 209 pages.
Malta	Raine, A; Sultana, J. & Gillings, G. (2009): Malta Breeding Bird Atlas 2008. Malta: BirdLife Malta, 94pp. 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.

Annex 9. References and publications cont.

Country	Key references about the Saker Falcon in Range States
Mongolia	1. Amartuvshin, P., Gombobaatar, S., Harness, R. 2010. The assessment of high risk utility lines and conservation of globally threatened pole nesting steppe raptors in Mongolia. In proceedings of the 6th International Conference on Asian Raptors. Ulaanbaatar, Mongolia. 23–27 June 2010. Asian Raptor Research and Conservation Network and Mongolian Ornithological Society. p. 58 (in English) 2. Banzragch, S., D. Shijirmaa, Shagdaruren, O., Sumiya, D., Gombobaatar, S., Batzol, B. 1998. Status, number and population of Saker falcons in Mongolia. International Symposium on Conservation of Houbara Bustard and Falcons,.Lahore, Pakistan. (In English) 3. Dixon, A., Nyambayar, B., Etheridge, M., Gankhuyag, P. and Gombobaatar, S. 2008. Development of the artificial nest project in Mongolia. Falco 32:8-10 (In English) 4. Gombobaatar, S., Sumiya, D., Potapov, E. 2010. Biology, Ecology and conservation of Saker falcon *Falco cherrug* in Mongolia. In proceedings of the 6th International Conference on Asian Raptors. Ulaanbaatar, Mongolia. 23–27 June 2010. Asian Raptor Research and Conservation Network and Mongolian Ornithological Society. p. 80 (In English) 5. Ellis, D.H., Ellis, M.H., Tsengeg, P. 1997. Remarkable Saker Falcon (*Falco cherrug*) breeding records for Mongolia. J. Raptor res. 31:234–240 (In English)
Niger	-
Pakistan	-
Poland	Sielicki J, Prommer M., Gamauf A., Kata M. 2009. Saker Falcon *Falco cherrug* in Poland (2008–2009). Wiacek J., Polak M., Kucharczyk M., Grzywaczewski G., Jerzak L. (eds.) Ptaki – Srodowisko – Zagrozenia – Ochrona, Wybrane aspekty ekologii ptakow, LTO, Lublin: 273-285 Tomialojc L., Stawarczyk T. 2003. Awifauna Polski, Rozmieszczenie, liczebnosc i zmiany. PTPP „pro Natura", Wroclaw. Komisja Faunistyczna 2000. Rzadkie ptaki obserwowane w Polsce w roku 1999. Not. Orn. 41: 293–315.
Romania	Doroşencu, A. Saker Falcon in Romania, 2008
Russian Federation	Karyakin I.V., Nikolenko E.G. (2013) Saker Falcon in North Eurasia: past and present, but is there the future? Reports presented on the International Conference "Conservation of steppe and semidesert ecosystems in Eurasia". http://issuu.com/rc_news/docs/sakerfalcon_2013/17?e=6470848/2059790 Nikolenko E.G., Karyakin I.V. (2013) Disastrous situation with Saker Falcon in Siberia ? Reports presented on the International Conference "Conservation of steppe and semidesert ecosystems in Eurasia". http://issuu.com/rc_news/docs/poster/9?e=6470848/2093118 Karyakin I.V., Nikolenko E.G. (2011) Results of Monitoring of the Saker Falcon Population in the Altai-Sayan Region in 2011, Russia. Raptors Conservation, 23, 152–167. Karyakin I.V., Nikolenko E.G., Barashkova A.N. (2011) The Saker Falcon in Dauria, Russia. Raptors Conservation, 23, 168–181. Vazhov S.V., Karyakin I.V., Nikolenko E.G., Barashkova A.N., Smelansky I.E., Tomilenko A.A., Bekmansurov R.H. (2011) Raptors of the Ukok Plateau, Russia. Raptors Conservation, 22, 153–175. Karyakin I.V. (2011) Subspecies Population Structure of the Saker Falcon Range. Raptors Conservation, 21, 115–171. Karyakin I.V., Nikolenko E.G., Vazhov S.V., Mitrofanov O.B. (2010) Results of Monitoring of the Saker Falcon Population in the Altai-Sayan Region in 2009–2010, Russia. Raptors Conservation, 19, 136–151.
Saudi Arabia	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 Shobrak, M. and Pallait, P. (1998) Studies on the Migration of Birds of Prey in Saudi Arabia. Proc. Of the first Symposium on Raptors of South East Asia. Japan. 346–353.

Annex 9. References and publications cont.

Country	Key references about the Saker Falcon in Range States
Serbia	Ham, I., Puzovic, S. (2000): Stepski soko, *Falco cherrug*. In Puzovic, S. (eds): Atlas ptica grabljivica, pp171–176. Zavod za zastitu prirode Srbije, Beograd. Puzović, S. (2007): Power lines as structural element in bird habitats. Ph.D. theses, University of Novi Sad, Faculty of Science, Department of Biology and Ecology, 297pp. (in Serbian, with short English summary) Puzović, S., Krnajski, V. (2007): Meeting the needs of reliable electricity supplay and protection of Birds of Prey at Power pylons and Substations in Serbia. 28. Conference, Juko-Cigre, 125–132. . (in Serbian, with short English summary) Puzović, S. (2008): Breeding of Birds on high power lines in Serbia. Nature protection, Belgrade, 58(1–2): 141–155. (in Serbian, with short English summary) Puzović, S., (2008): Nest occupation and Prey grabbing by Saker Falcon (*Falco cherrug*) on power lines in the Province of Vojvodina (Serbia). Arch.Biol. Sci., Belgrade, 60(2): 271–277. (M24=3) . (in English) Puzović, S. (2012): Forest certification and Protection of the bird fauna in Serbia. IUFRO and Institute of Forestry Belgrade, International Scientific Conference, papers, 89–97. (M33=1) . (in English) Puzović, S. (2007): Konflicts of Saker Falcon (*Falco cherrug*) with other Bird species along high power line in Vojvodina (Serbia). I Serbian Biological Congress (KobiS), book of abstracts, Palić, 180–181. (in Serbian) Puzović, S. (ed.)(2000): Atlas of Birds of Prey of Serbia – distribution maps and population estimation, 1977–1996. Institute for Nature Conservation of Serbia, Belgrade, 268 pp. (in Serbian, with large English summary) Puzović, S. (ed.)(2009): Important Bird areas in Serbia – IBA. Ministry of environment and spatial planning, Institute for nature Conservation of Serbia, Provincial Secretariat for environmental protection and sustainable development. Belgrade, 280pp. (in Serbian, with English summary) Puzović, S. *et al.* (2003): Birds of Serbia and Montenegro – breeding population estimates and trends, 1990–2002. Ciconia, Novi Sad, 12: 35–120. (in Serbian, with large English summary) Puzović, S., Tucakov, M. (2007): Survey of the Saker Falcon (*Falco cherrug*) population in Serbia in 2007. Bird Protection and Study Society of Vojvodina and IWC, Novi Sad, 10pp. (in English) Tucakov, M., Puzović, S. (2008): Survey of the Saker Falcon (*Falco cherrug*) population in Serbia in 2008. Bird Protection and Study Society of Vojvodina and IWC, Novi Sad, 9pp. (in English) Rajković, D., Tucakov, M. (2013): Survey of the Saker Falcon (*Falco cherrug*) population in Serbia in 2013. Bird Protection and Study Society of Serbia, (in preparation) EU expert team (2011): National Environmental approximation Strategy for Serbia. (EU funded project)(in English) Mijović, A. *et al.* (2012): Biodiversity of Serbia – status and pespectives. Institute for nature Conservation of Serbia, Belgrade, 127pp (in Serbian)
Slovakia	Adamec, M., 2004. Birds and power lines – status in the Slovak Republic, in: Chancellor, R.D., Meyburg, B.-U. (Eds.), Raptors Worldwide. World Working Group on Birds of Prey and Owls/MME BirdLife Hungary, Berlin and Budapest, Hungary, pp. 417–421. Brtek, V., 1956. Zpráva o hniezdení rároha veľkého (*Falco cherrug*) v Bratislavskom kraji. Sborník krajského múzea v Trnave 2, 77–80. Danko, Š., Diviš, T., Dvorský, J., Dvorský, M., Chavko, J., Karaska, D., Kloubec, B., Kurka, P., Matušík, H., Peške, L., Schropfer, L., Vacįk, R., 1994. [The status of breeding birds of prey (*Falconiformes*) and owls (Strigiformes) in the Czech and Slovak Republics as of 1990 and their population trends in 1970–1990]. Buteo 6, 1–89. Danko, Š., 1976. Správa o činnosti Skupiny pre výskum dravého vtáctva a sov za r. 1975. Danko, Š., 1981. Správa o činnosti Skupiny pre výskum a ochranu dravého vtáctva a sov v ČSSR za rok 1981. Skupina pro výzkum dravých ptáků a sov, Zprávy 2, 1–13.

Annex 9. References and publications cont.

Country	Key references about the Saker Falcon in Range States
	Danko, Š., 1982. Správa o činnosti Skupiny pre výskum a ochranu dravého vtáctva a sov v ČSSR za rok 1982. Skupina pro výzkum dravých ptáků a sov, Zprávy 3, 1–13. Danko, Š., 1987. Správa o činnosti Skupiny pre výskum a ochranu dravcov a sov v ČSSR za rok 1985. Skupina pro výzkum dravých ptáků a sov, Zprávy 6, 1–25. Danko, Š., 1988. Správa o činnosti Skupiny pre výskum a ochranu dravcov a sov v ČSSR za rok 1986. Buteo 1 [1986], 3–31. Danko, Š., 1989. Správa o činnosti Skupiny pre výskum a ochranu dravcov a sov v ČSSR za rok 1987. Buteo 2 [1987], 1–36. Danko, Š., 1990. Správa o činnosti Skupiny pre výskum a ochranu dravcov a sov v ČSSR za rok 1988. Buteo 3[1988], 1–34. Danko, Š., 1991. Správa o činnosti Skupiny pre výskum a ochranu dravcov a sov v ČSFR za rok 1989. Buteo 4[1989], 1–28. Danko, Š., 1992. Správa o činnosti Skupiny pre výskum a ochranu dravcov a sov v ČSFR za rok 1990. Buteo 5[1990], 1–30. Danko, Š., n.d. Správa o činnosti Skupiny pre výskum a ochranu dravcov a sov v ČSSR za rok 1984. Skupina pro výzkum dravých ptáků a sov, Zprávy 5, 1–20. Danko, Š., n.d. Správa o činnosti Skupiny pre výskum a ochranu dravého vtáctva a sov v ČSSR za rok 1981. Skupina pro výzkum dravých ptáků a sov, Zprávy 2, 1–13. Danko, Š., n.d. Správa o činnosti Skupiny pre výskum a ochranu dravého vtáctva a sov v ČSSR za rok 1983. Skupina pro výzkum dravých ptáků a sov, Zprávy 4, 1–15. Danko, Š., n.d. Správa o činnosti Skupiny pre výskum a ochranu dravých vtákov a sov v ČSSR za rok 1980. Skupina pro výzkum dravých ptáků a sov, Zprávy 1, 3–12. Chavko, J., 2010. Trend and conservation of Saker Falcon (*Falco cherrug*) population in western Slovakia between 1976 and 2010, Slovak Raptor Journal. Volume 4, Issue -1, Pages 1–22, ISSN (Print) 1337–3463, DOI: 10.2478/v10262–012–0040–4, May 2012 Chavko, J., 1995. Hniezdenie sokola rároha (*Falco cherrug*) v r. 1993 a 1994 na Slovensku. Buteo 7, 175–181. Chavko, J., 2002. Sokol rároh (*Falco cherrug*), in: Danko, Š., Darolová, A., Krištín, A. (Eds.), Rozšírenie Vtákov Na Slovensku. Birds Distribution in Slovakia. Veda, Bratislava, pp. 214–216. Chavko, J., 2003. Program záchrany sokola rároha (*Falco cherrug*, J. E. Gray, 1834) 26 pp. Chavko, J., 2008. Sokol rároh (*Falco cherrug*). Správa za rok 2007. Dravce a Sovy 4, 8. Chavko, J., Deutschová, L., 2013 (in press). Population of Saker Falcon (*Falco cherrug*) in Western Slovakia between 1976 and 2010 in connection to the actions implemented within the LIFE06 NAT/H/000096 project, Aquila. Chavko, J., Lipták, J., 2007. Sokol rároh (*Falco cherrug*). Správa za rok 2006. Dravce a Sovy 3, 9. Chavko, J., Mihók, J., 2005. Sokol rároh (*Falco cherrug*). Správa za rok 2004. Dravce a Sovy 1, 7. Chavko, J., Mihók, J., 2006. Sokol rároh (*Falco cherrug*). Správa za rok 2005. Dravce a Sovy 2, 16. Mošanský, A., 1959. O priestorovom spolčení krkavca čierneho (*Corvus corax*) so sokolom sťahovavým (*Falco peregrinus*) a rárohom veľkým (*Falco cherrug*). Sylvia, Praha 16, 97–103. Mošanský, A., 1968. Medzidruhové vzťahy *Falco peregrinus Tunstall* a *Falco cherrug Gray*. Biologia, Bratislava 23, 351–356. Nemček, V., Chavko, J., Deutschová, L., Noga, M., Maderič, B., Uhrin, M., 2010. Habitatová charakteristika dočasne osídlených území a aktivita mláďat sokola rároha (*Falco cherrug*) v pohniezdnom období a počas migrácie, in: Ornitologická Konferencia Vo Zvolene. Zvolen, p. 14 pp. Obuch, J., Chavko, J., 1997. Potrava sokola rároha (*Falco cherrug*) na juhozápadnom Slovensku. Buteo 9, 77–84.

Annex 9. References and publications cont.

Country	Key references about the Saker Falcon in Range States
	Prommer, M., Bagyura, J., Chavko, J., Uhrin, M., 2012. Migratory movements of Central and Eastern European Saker Falcons (*Falco cherrug*) from juvenile dispersal to adulthood. Aquila 119, 111–134. Uhrin, M., Chavko, J., 2008. Mení sa obraz poznatkov o migrácii sokolov rárohov? Dravce a Sovy 4, 12–14. Uhrin, M., Chavko, J., Deutschová, L., Latková, H., Noga, M., 2008. Pohyby mláďat sokola rároha (*Falco cherrug*) po vyletení: prvé výsledky satelitnej telemetrie v roku 2008, in: Stloukal, E., Kautman, J. (Eds.), Kongres Slovenských Zoológov a Konferencia 14. Feriancove Dni – Zborník Abstraktov. Kongresové Centrum SAV, Smolenice. 1.–3. December 2008. Faunima, pp. 43–44.
Somalia	1. Somali wildlife department birds sector 2. Sacker trainers.
Sudan	None
Syrian Arab Republic	Frey H. & Senn H. 1980. Zur Ernährung des Würgfalken (*Falco cherrug*) und Wanderfalken (*Falco peregrinus*) in den niederösterreichischen Voralpen. Egretta 23: 31–38. Potapov, E., Fox, N.C., Sumya, D., Gombobaatar, B. (2002): Migration studies of the Saker Falcon. Falco 19: 3–4. Serra, G. *et al.* (2005) A long-term bird survey in the central Syrian desert (2000–2003) – Part 1. Sandgrouse 27:9–23.
The FYR Macedonia	- no reference - only Report by Micevski 2007 Regarding Status and distribution of *Falco cherrug* in Macedonia
Tunisia	Thiollay J.M. (1977) – Importance des populations de rapaces migrateurs en Méditerrannée occidentale. Alauda, 47 : 253–294 Isenmann P., Gaultier T., El Hili A., Azafzaf H.,Dlensi H. & Smart M., 2005 Oiseaux de Tunisie. Birds of Tunisia. SEOF Editions. Paris. France. 432p
Ukraine1	Milobog, Yu.V. (2009) Saker Falcon (*Falco cherrug*) , The Red Data Book of Ukraine, Kyiv: 436. [In Ukrainian] Milobog, Yu.V. (2012) *Falconiformes* of the steppe zone of Ukraine: species composition, territorial distribution, number dynamics and conservation. Thesis of Dissertation , Kyiv: 1–24. [In Ukrainian] Milobog, Yu.V., Vetrov, V.V., Strigunov, V.I., Belik, V.P. (2010) The Saker (*Falco cherrug* Gray) in Ukraine and adjacent areas, Branta: Transactions of the Azov-Black Sea Ornithological Station, 13: 135–159. [In Russian] Prokopenko, S.P. (1994) Saker Falcon (*Falco cherrug*) , The Red Data Book of Ukraine, Kyiv: 337. [In Ukrainian]
United Arab Emirates	Terrestrial Environment of Abu Dhabi Emirate (2008) Environment Agency – Abu Dhabi. Barton, N. W. H. (2000). Trapping estimates for Saker and Peregrine Falcons used for falconry in the United Arab Emirates. Journal of Raptor Research 34: 53–55 ERWDA. 2003. The status of the Saker Falcon (*Falco cherrug*) and assessment of trade. Environmental Research and Wildlife Development Agency, Abu Dhabi, UAE. The web site of the Middle East Falcon Research Group, http://www.savethesaker.com/manp.asp
Yemen	1. All Most references Saker Falcon issued by the Birdlife 2. local People 3. Environment Protection authority

Coordinating Unit of the CMS Raptors MOU
Convention on Migratory Species Office - Abu Dhabi
United Nations Environment Programme
c/o Environment Agency - Abu Dhabi
P.O.Box 45553
Abu Dhabi
United Arab Emirates
Tel: +971 2 6934 437
Email: cmsoffice.ae@cms.int
Website: www.cms.int/raptors

UNEP/CMS Secretariat
UN Campus
Platz der Vereinten Nationen 1
53113 Bonn
Germany
Tel: +49 228 815 2401/02
Email: secretariat@cms.int
Website: www.cms.int

RAPTORS
MOU

UNEP

CMS