



# STRATEGIC MEETING ON THE CONSERVATION OF THE SAKER FALCON CONFERENCE PROCEEDINGS

7<sup>TH</sup> SEPTEMBER 2017 – CHOLPON ATA – KYRGYZ REPUBLIC

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## FOREWARD

The time is ripe to develop a program to enable long-term security for the Saker falcon. Whilst the Saker falcon faces a number of threats and some populations of this species have shown serious declines, there is the possibility to replace illegal unsustainable trafficking in this species with sustainable legal harvesting based on adequate monitoring and the implementation of appropriate conservation measures which will enable sustainability. The IAF Vice-President for the MENA Region, HE Majed al Mansouri, has organized two strategic meetings for falconers from the MENA Region examining the requirements of falconers and the issue of illegal trafficking and killing of raptors. There is broad acceptance within the MENA Region that harvesting must be sustainable and illegal trafficking should stop. The next step is to bring falconers from this region together with communities and conservationists from the Saker range states to enable a plan that will address this.

The International Association for Falconry and the Conservation of Birds of Prey (IAF) organized its Annual General Meeting in the Kyrgyz Republic in 2017. It incorporated the Strategic Meeting for Conservation of the Saker Falcon into the program with the intention of advancing Saker Conservation and specifically address the issues of illegal trade and sustainable legal trade.

The venue was Cholpon Ata town on Lake Issyk Kul in the Kyrgyz Republic, where a broadly representative meeting of all interested parties could be organized. The immigration policies of the Kyrgyz Republic are relatively open, allowing access to representatives from across Asia. Similarly, it is not an expensive venue, so it enabled attendance for delegates from poorer nations.

The IAF is fully committed to conservation of the Saker falcon and implementation of the CMS Saker Global Action Plan (Saker GAP). The IAF has contributed meaningfully to the implementation of the Saker GAP. There are now developments relating to conservation of the Saker which need consideration:

1. Phase I of the Saker Portal (First Saker GAP Flagship Project) is now nearing completion with the presentation of the 2<sup>nd</sup> Annual report. Consideration of Phase II is now necessary.
2. There is a need to consider the future management of the Artificial Nest Box Project in Mongolia, including maintenance of the artificial nests and management of sustainable use of this population.
3. We understand that there is consideration of a further artificial nest program and sustainable use project by China on the Tibetan Plateau. Issues related to this require consideration.
4. The IAF has initiated the second Saker GAP Flagship Project – “One Hundred Satellite Taggers” through the deployment of 10 tags in 2016 and has deployed a further 10 in 2017.
5. The IAF has taken steps to initiate the 4<sup>th</sup> Saker GAP Flagship project as the Proponent of a Motion at the 12<sup>th</sup> IUCN World Congress to address the issue of electrocution (with other Saker Task Force members – BirdLife International and The Environmental Agency of Abu Dhabi – as co-sponsors, amongst others). The IAF booklet to promote this IUCN Recommendation will be released at this Meeting.
6. Two meetings have been organized recently, firstly to develop a falconry strategy for nations in the MENA Region and, second, to address the issue of illegal trafficking in raptors in the MENA Region. Following the success of these two meetings, we believe that the time is ripe to address the issues of illegal trafficking and sustainable legal trade relating to the Saker falcon.

The IAF recognizes that significant threats to the Saker falcon continue to exist and that some populations of this species have shown a significant decline as a result of these. The most significant current and future threats include:

1. Electrocution
2. Illegal trafficking
3. Habitat change and environmental degradation

We know that it is possible to address the problem of electrocution and have already taken steps in this respect through a resolution at IUCN's 6th World Conservation Congress. We also believe that it is possible to address the issue of illegal trafficking and seek to find ways to enable legal managed trade which is linked to sustainable use projects that address the other threats to this species. In combination, awareness-raising through measures on these two fronts, and from work to enhance wild Saker falcon populations for sustainable use in falconry, should promote the local community support needed to reduce changes to ecosystems that are adverse for this and other species.

We fully acknowledge that this is an ambitious proposal, but we believe that no other formula will reverse the current declines seen in some populations of this species. Illegal trafficking is an anathema to conservationists including falconers and is destructive as well as being most likely unsustainable. A legal sustainable trade managed by the range states and coordinated by the IAF could be linked to conservation projects which ensure the survival of this species as well as benefiting biodiversity and human livelihoods throughout the breeding range of this species. We have a unique opportunity to bring together falconers, conservationists and conservation authorities from across Central Asia and the Middle East.

As facilitator of this meeting, the IAF proposed the following:

1. To encourage attendance at the meeting by representatives from the Gulf States and Arabia as well as from Central Asia, Pakistan and China. The IAF would provide some funding towards this. Where possible, national conservation authorities will be encouraged to attend.
2. To encourage attendance at the meeting by representatives of the CMS Raptors MoU as well as IUCN Specialist Groups to assist in deliberations. The IAF would provide some funding towards this.
3. To be responsible for organization and logistics of the meeting

This Meeting provided a unique opportunity to engage falconers, conservationists and conservation authorities to address future conservation of the Saker falcon. Whilst illegal trafficking persists and is unacceptable to the falconry community and constitutes a significant threat to the survival of some populations of this species, we must also recognize that the species is of real cultural significance to many people throughout its range. It can also be seen as a significant natural asset to people within its range and particularly in the breeding range.

There is the potential to replace illegal trafficking with a managed sustainable legal harvest backed by conservation actions to enable sustainability. Appropriate management can satisfy the falconers who utilize this species and benefit the communities who own this asset through income resulting from conservation actions and legal trade. Such management can also develop conservation measures which will benefit this species and possibly many others.

## OPENING ADDRESS AND WELCOME FROM THE IAF BY DR. ADRIAN LOMBARD

Distinguished Guests, Ladies and Gentlemen,

I welcome you all here today to what, I hope and believe, will be a milestone conference in determining the course of conservation for the saker falcon. I would like to make specific welcome to the representatives of the Government of Kyrgyzstan who are our hosts and whom we thank for this opportunity to contribute to conservation within the region. We also wish to welcome the high-level delegation from Pakistan with whom we are forging a special relationship to address raptor conservation in their country. This agreement may become a model for other high-level partnerships across the region.

I would also like to welcome Dr Piet Wit, former Chair of the IUCN Commission for Ecosystem Management from 2008 to 2016. He will provide the key-note presentation and as you will see from our deliberations, ecosystem management may be one of the critical issues in the conservation of the saker falcon. I also wish to welcome the representatives of BirdLife International, the CMS Raptors MoU and of the IUCN Specialist Group on Sustainable Use and Management of the Environment. I would extend this welcome to the other falconers and conservationists who are present and contributing to our meeting today.

The saker falcon is a species which is central to the practice of falconry in a large segment of our falconry community. There is no doubt that this species is in trouble and in need of special conservation measures. It was raised to CMS Appendix I in 2011 with the opportunity for selective down-grading to Appendix II in the event of the development of conservation measures which allow sustainable use.

Subsequent to this, the Global Action Plan for the Conservation of the Saker Falcon was developed under the auspices of the UNEP/CMS Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia (The Raptors MoU). This global action plan (GAP) recognises the essential role of sustainable use in the conservation plan for this species. The Saker GAP was accepted for implementation at the CMS CoP in Quito, Ecuador in 2014. The IAF has given its whole-hearted support to the implementation of this plan and we believe that we have played a significant role in the areas where this plan has been implemented. But time and tide waits for no man. While we wait for implementation of good plans, sakers die in their thousands on the Steppe and illegal trafficking continues unabated. In our work on the saker, we have demonstrated both these things. We would like to work towards a situation where illegal unregulated trafficking is replaced by legal regulated trade based on conservation interventions which allow for sustainable use. These interventions would be measures to monitor populations and regulate trade per se, establishment of new breeding populations using artificial nest site projects, mitigation of medium-voltage electricity distribution lines to halt the appalling attrition that is occurring as we speak, and incorporation of sakers into pest-management schemes that reduce poisoning and encourage environmental improvement. In all of this, we would like to see benefits accruing to local populations to encourage conservation measures.

At this conference, we have the foremost researchers on the conservation of this species, we have representatives of the falconers who would utilize this species and we have representatives of communities where the species is harvested. We also have representatives of the three cooperating partners of Raptors MoU. This provides us with a unique opportunity to discuss and plan the future implementation of the Saker GAP.

We are also very aware that this proposal flies in the face of much of the current conservation sentiment which opposes "commodification" of wildlife and proposes only the intensification of legislation and enforcement. In our opinion, this would be impossible and counterproductive for this species, but we are also well aware that sentiment could win the day. Our recent failure to obtain down-listing of the peregrine falcon at CITES, despite overwhelming scientific evidence for this measure, serves to emphasise the difficulty in reversing measures of this nature once they are imposed. We would need to develop a strong front that can press for sustainable use as well as for increased enforcement measures as a solution for the conservation of this species.

*Adrian Lombard, September 2017*

## Dr Adrian Lombard



Born in Harare, Zimbabwe (then Salisbury, Rhodesia) in 1953, Adrian Lombard had the good fortune to go to the famous Falcon College for his secondary schooling. This was at a time before the school had any association with falconry, but he was fortunate to have an enlightened housemaster who permitted him to practise falconry instead of the more conventional cricket and rugby.

He began medical studies in 1972 and his career eventually took him to the Western Cape, where falconry was at that time prohibited. In 1991, Adrian visited his old school, where Ron Hartley had established the famed Falconry Club. Through Ron he linked up with Ed Oettle, who had found a way to practice falconry legally in the Western Cape. Ed had managed to prise an acceptance of falconry from the conservation

authorities there, and Adrian joined him in negotiating a provincial falconry policy that became a model for falconry policies across the provinces in South Africa.

Adrian then became secretary of the South African Falconers' Association, its representative to the Bird of Prey Working Group of the Endangered Wildlife Trust, and then the South African Delegate to the IAF. Five years as secretary of IAF granted him a rich insight into the status of world falconry with its challenges and virtues. He says he has come to realize that falconry is part of our heritage and that it is one of the special things that define who we are and make us human. Adrian was elected president of the IAF at the 2012 Council of Delegates meeting in Kearney, Nebraska, USA. Adrian flies a black sparrowhawk.

## Piet Wit

Piet Wit is currently Director/owner of Syzygy, a consultancy firm on Conservation-cum-Development registered in The Netherlands. From 2008 – 2016, he was Chair of IUCN's Commission on Ecosystem Management and member of IUCN council. He is a member of the board of the Hustai National Park Trust in Mongolia as well as Member of the board of the Foundation Reserves for the Przewalski Horses in The Netherlands. Other functions include a/o Secretary of the executive council of Daridibó (Guinea Bissau), and Advisor to the Board of the Foundation Chimbo (The Netherlands).



For Mr. Wit, the proofs of things are with what will be achieved in terms of conservation of nature and management of natural resources *in the field*: How many square kilometers of land- and seascapes are sustainably managed or have been restored, how many animals of threatened species have been conserved, etc. Mr. Wit likes to bring together theory and practice, integrating the realities of the field into policy-making and vice versa, identifying and exploiting opportunities, and building synergy between different sectors and actors. He is also the author of an instruction booklet for army-officers that are deployed in reconstruction activities in a context of military operations to control armed conflict.

Piet's professional career brought him to over 50 countries, with a focus on The Netherlands, West Africa and Central Asia. His experience includes long-term missions on biodiversity management projects, including participatory management of protected areas and their buffer zones, integrated water management and integrated rural development. Highlights in this career include his work at the Garoua Wildlife School in Cameroon (training protected areas' staff from francophone Africa), with DELFT HYDRAULICS (integrated water management projects) and with the Hustai National Park Project in Mongolia (reintroduction of the Przewalski Horse). Presently, Piet is spending much of his time and energy on the conservation of Chimpanzees and their habitat together with local communities in South-Eastern Guinea Bissau.

For his work with Przewalski horses in Mongolia, Piet has been awarded the Mongolian Friendship Award (see picture) and has been officially recognized an "Honoured nature conservationist of Mongolia". He is also an Honorary Citizen of the Central Province and of Argalant and Bayankhangai Districts of Mongolia.

## H.E Majid Al Mansouri



His Excellency Majed Al Mansouri came from a family of renowned falconers and has practised falconry since he was eight years old. He is a founding member of the Emirates Falconers' Club (EFC) and currently serves as its chief executive officer. Since its foundation in 2001, EFC has been working on preserving the traditions of falconry through a range of education and conservation initiatives.

Working with CITES to control the trade in endangered species, EFC pioneered the Falcon Passport system and introduced banding for captive-bred falcons. Today, 96% of all falcons used Abu Dhabi are ringed as captive-bred. More than 28,000 falcons have these passports. EFC also supported the international falconry community through the launching of a successful campaign for the listing of falconry as a UNESCO Intangible Cultural Heritage in 2010, an inscription that now includes falconry in 18 countries. Majed served as senior environmental engineer at the Abu Dhabi Oil Company, and later led the transformation of the Environmental Research and Wildlife Development Agency into the Environment Agency Abu Dhabi (EAD) as its secretary general. The EAD is now established as an independent environmental agency with regulatory powers to enact the Emirates' sustainability programme. During his time with the EAD, Majed helped create marine protected areas covering more than a fifth of the Emirates' coastal waters, allowing wildlife to flourish. As a long-standing board member of International Fund for Houbara Conservation, he has also been heavily involved in efforts to conserve the Houbara bustard

## Andrew Dixon



Andrew Dixon has had a lifelong passion for birds. After gaining a BSc (Hons) in Environmental Biology from Queen Mary College, University of London, Andrew worked briefly as a ground engineering consultant before pursuing his ornithological interest by taking up a PhD studentship in Zoology at the University of Leicester. His research involved the use of DNA fingerprinting techniques to investigate the evolution of mating and parental behaviours in birds. Following completion of his PhD, Andrew undertook several short-term research assistant posts to carry out both field and laboratory studies, before taking up a post at the University of Sunderland in 1995. There, he taught undergraduate and post-graduate students in Environmental Science and Environ. Biology, and established research projects on Reed buntings, Peregrine falcons, Ravens and Lapwings. In 2001, he took up a research associate position at Lancaster University in order to study the impact of Peregrine predation on racing pigeons. Subsequently, he has worked as an environmental and

ecological consultant and has provided advice on issues relating to birds of prey and racing pigeons to the UK and Scottish parliaments and was previously Head of Research at International Wildlife Consultants (UK). Andrew is married with two children. He is currently Research Studies Manager at the Emirates Falconers' Club in the UAE.

## Janusz Sielicki



Janusz Sielicki graduated in biology from Lomonosov Moscow State University and has been involved in conservation for a long time: as manager in numerous NGOs, and as author of publications on the conservation of birds of prey – especially the Peregrine and the Saker – falconry, and the history of falconry. He has been a falconer and hunter for 40 years and was formerly on the board of the Polish Falconers Club, 'Gniazdo Sokolników', representing Poland at the IAF since 2000. He has been a member of the IAF board since 2000, serving as the IAF Conservation Officer since 2012 and Vice-president for Europe, Africa and Oceania since 2016. His other positions include: vice-president of Poland's Society for Wild Animals 'Falcon' since 2002; member of the Saker Task Force of the Convention for Migratory Species since 2011; member of

the Steering Committee of EURAPMON (Research and Monitoring for and with Raptors in Europe) since 2010; member of the European Sustainable Use Group (ESUG); and member of the IUCN Sustainable Use and Livelihoods Specialist Group (SULi), and Sustainable Use and Management of Ecosystems Specialist Group (SUME). Janusz was co-editor and contributor to *The Peregrine Falcon Populations – status and perspectives in the 21st century*, based on papers presented at the Third International Peregrine Conference in 2007 – the biggest collection of papers relating to the Peregrine in Europe. He was also chairman of the Organising Committee of the Fourth International Peregrine Conference in 2017. He was the author of the nomination to inscribe falconry as Polish Intangible Cultural Heritage, and chairman of the Scientific Committee of the conference 'Falconry – its influence on biodiversity and cultural heritage in Poland and across Europe' in 2015. Janusz is also a director of the successful Polish Peregrine Project, aimed at the reinstatement of the tree-nesting population.

## Robert Kenward



Robert Kenward is an international conservationist, ecologist and raptor biologist. He Chairs the International Union for Conservation of Nature's (IUCN) Thematic Group for Sustainable Use and Management of Ecosystems, the European Sustainable Use Group and the Science and Technology Advisory Committee for the Langholm project on grouse and raptors. Robert promotes conservation that is motivated by the sustainable use of wild species and their ecosystems, now specialising in multilingual software to inspire and inform practitioners, while bringing together the thinking on conservation of local people from cultures across the world. Robert has enjoyed a 40 year association with the IAF and is author of 200 scientific publications and three books which include a 'Manual for Wildlife Radio Tagging' (2000) and 'The Goshawk' (2006), the

definite work on the Goshawk that includes chapters on all aspects of their biology and conservation, combined with illuminating tales and insightful observations from extensive field research and time spent in the field flying and hunting with Goshawks.

## Mátyás Prommer



Mátyás Prommer completed his M.Sc. in Biology and Ecology at Debrecen University in Hungary in 1999. Recently he has been working at the Herman Ottó Institute Nonprofit Ltd., an environmental and nature conservation organisation of the Hungarian Ministry of Agriculture. Mátyás has been interested in raptors since childhood and became involved in bird conservation programmes through BirdLife Hungary. His work has focused on large falcons (Peregrines and Sakers), but also projects involving other raptors. He is interested in mapping raptor movements, habitat use and migration, as well as the population dynamics of large falcons. He regularly participates in international research and conservation programmes with colleagues in Europe, Asia, and Africa. He has been the national coordinator for the Hungarian Peregrine falcon conservation programme since 2006, is a member of the Hungarian Saker Falcon Conservation Working Group (within BirdLife Hungary), and is co-ordinator for the European Saker Falcon colour-ringing programme. Mátyás is a former member of the board of the Raptor Conservation Group in BirdLife Hungary, and he is an editor of *Heliaca* (the annual journal of Hungarian raptor research and conservation). On an international level, he is a member of both the

Saker Falcon Task Force and the Technical Advisory Group of the Raptors Memorandum of Understanding within the Convention on the Migratory Species or Bonn Convention, an international convention under the auspice of the United Nations Environmental Programme.

## Nick Williams



Nick Williams is the Programme Officer in the CMS Unit for the Memorandum of Understanding (MoU) on the Conservation of Migratory Birds of Prey in Africa and Eurasia and is currently based in Abu Dhabi. Nick has held a lifelong interest in birds, particularly raptors. Whilst still at school, he began voluntary fieldwork with the Royal Society for the Protection of Birds (RSPB) and other non-governmental conservation organizations. He has travelled extensively to study raptors in over 50 countries and has gained practical field experience of a wide range of species. Nick is a qualified bird ringer and has published a range of scientific research papers, mostly related to birds.

In 1997, Nick achieved a Master of Science Degree in Ecology and Management of the Natural Environment at the University of Bristol, having previously an Advanced Diploma in Raptor Biology, University of Kent at Canterbury. For 15 years he was Chief Wildlife Inspector within the Department for Environment, Food and Rural Affairs (DEFRA) in the UK.

In April 2003, on his own initiative, Nick developed the original draft proposal that was later adopted as the Birds of Prey MoU at the 6th World Conference on Birds of Prey and Owls held in Budapest, Hungary. Subsequently, Nick supported the UK-led study to consider the feasibility of an African-Eurasian agreement on migratory birds of prey under the auspices of CMS. He presented the results of the study to the 13th meeting of the CMS Scientific Council and spoke at the final plenary session of the 8th CMS Conference of the Parties.

## Nyambayar Batbayar



Nyambayar Batbayar is a research scientist working at the Wildlife Science and Conservation Center of Mongolia | WSCC - Wildlife. He is considered one of the top raptor scientists in Central Asia and has published or co-published over 60 research items on species such as Saker Falcons, Cinereous Vulture, Bar-headed Goose, White-naped Crane, Swan Goose, Dalmatian pelican, Houbara Bustard, Great Bustard, Whooper Swan, Amur Falcon, Brandt's Vole, Migration studies, Avian Influenza, etc., etc. He is published regularly in the Mongolian Journal of Ornithology.

Dr. Batbayar has been heavily involved in the Mongolian Artificial Saker nest Project and is currently leading a Falconry Heritage Project to restore Mongolia's lost cultural heritage of falconry and secure it for future generations. On this project he is working in co-operation with Department of Anthropology and Archaeology at the National University of Mongolia and with the Mongolian Falconers Association.

## Kamran Khan Yousafzai



Kamran Khan Yousafzai is a traditional falconer who has flown passage goshawks since his childhood in Pakistan. He has been devoted to bird of prey conservation activities for the last 15 years and has extensive experience in unusual and innovative handling of birds of prey. His recent activities include the addition of Pakistan to the states which have inscribed falconry as a UNESCO Intangible Cultural Heritage and working with communities and the Pakistan government authorities on legislative measures to safeguard the living culture of falconry in the region.

Kamran is also a founder director of the Pakistan Falconry Association and works as executive director of the Raptor Centre for Conservation and Rehabilitation, Pakistan. Currently he serves as the Officer for South Asia in the International Association for Falconry and Conservation Birds of Prey.

He is also an active member of the national committees of Pakistan Vulture Recovery, and of Cities Management at the Pakistan Ministry of Climate Change Pakistan. Kamran also helped bring about the signing of the tripartite MoU between the Pakistan Ministry of Climate Change, the International Association for Falconry and Conservation Birds of Prey, and the Raptor Centre for Conservation and Rehabilitation, aimed at maintaining a close working relationship between the parties for the development and implementation of projects to support conservation and sustainable development, as well as preserving bird of prey biodiversity in the region. This will include community mobilization to initiate a village-based conservation programme aimed at protecting and conserving birds of prey while benefiting communities at the same time.

## Baoyong Zhang



Baoyong Zhang was born in Tianjin, China, in 1972. He was only nine years old when he learnt the traditional falconry skills from Master Mr Deshui Yu and Mr Wenkui Fan. He has 36 years of experience training and hunting with hawks. He has trained eagles, falcons, sparrowhawks and merlins for falconry, and has hunted hare with eagles, pheasants in the open fields and plains with falcons, and also hare with greyhounds.

Baoyong follows the ancient Chinese falconry tradition of releasing falcons back to the wild in the spring of the second year, to let them return to nature to breed, meaning that during the non-hunting season he does not keep falcons.

In his spare time, he travels extensively in China observing the survival of wild falcons. He also investigates falconry activities in the different regions and different ethnic groups in China. In 2016, Baoyong set up the China Tian Dao Falconry Association and is currently its secretary-general.

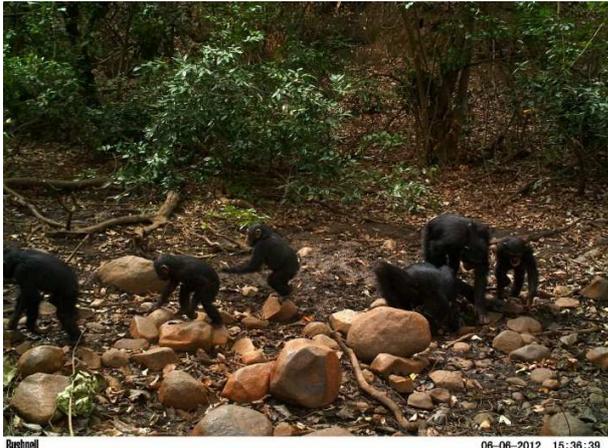
### Introduction

Conservation of a species – Red-listed or not – can only be achieved in its full extent when it can thrive and evolve in its natural habitat. The example of Przewalski's horse has demonstrated that there is a risk of creeping domestication when wild species are only preserved in artificial environments such as zoos or botanical gardens. After 13 generations in captivity, brain-size of Przewalski's horses had shrunk compared to the skulls from zoological collections taken from the wild. It is therefore important to keep a studbook as a necessary instrument to maintain the genetic resource base of animals in captivity as broad as possible. The reintroduction project of Przewalski's Horse in Mongolia also learned that bringing back a wild animal to its natural environment is not enough to make its conservation sustainable. Successful reintroduction requires that not only the biological and ecological dimensions are addressed but also the socio-economic and institutional context, and such over a longer period of time. The cultural aspects in particular were key for the success: all stakeholders were supportive for the return of this symbol of Mongolia's rebirth after ages under Chinese rule and decades of Russian paternalism. For more information, see for instance [www.hustai.mn](http://www.hustai.mn).



In order to make conservation sustainable, all major stakeholders should benefit. A good example was found in Northern Cameroon. A sound legal framework provided for a network of protected areas as core zones linked by hunting zones surrounding them. Realistic quotas based on scientific insights were set for the hunting zones that were handed out as concessions to professional hunters. These hunters made sure that there were good populations of animals like Lions,

Derby's Eland or Roan Antelope to be hunted by their clients from Europe and elsewhere. In fact, conservationists like Hubert Planton or Jean Thal claimed that the best wildlife was found in these hunting zones. For instance, the Black Rhinos of Cameroon were best seen in the hunting zone managed by Mr. Dupeley, a hunter famous for his tame lion that would greet his customers coming to his *Campement des Eléphants*. A win-win situation in many respects: The hunting zones provided a shelter against illegal poaching activities from outside the National Parks that had limited funding to effectively protect their natural richness; the Cameroonian government received good income from the lease of the hunting zones and the trophy-fees against very little investments, the local communities benefited substantially from their work as guides, porters, cooks, etc.. (although they regretted to be restricted in their own hunting activities, most of the meat of the hunted animals would go to them). Unfortunately, this model did not survive the change of government in the 1980's. Human greed caused the concessions to be handed out to unscrupulous international poachers that depleted the hunting zones within a decade without any respect for the regulatory framework; Xavier Fouelefack, the effective conservator of Benoué National Park, was sent into exile to the South. The Black Rhino was the first to go extinct...



The Chimbo Foundation ([www.chimbo.org](http://www.chimbo.org)) works actually on Chimpanzee protection in Guinea Bissau. In this case the Chimpanzee is the flagship species to conserve the ecosystems on which both animals and people depend. Like with Przewalski's Horse, cultural values are very important for conservation (e.g. local views on chimpanzees, sacred forests). Awareness activities about actual and potential benefits for local communities are an essential part of Chimbo's programme.

Flagship species, cultural values, benefit-sharing and reinvestment of benefits in conservation, awareness among key-stakeholders, respect for the genetic resource base, etc., all are relevant considerations for the conservation of falcons and the recognition of falconry as an important cultural heritage. Conservation of Saker falcons goes hand in hand with the conservation and proper management of the ecosystems on which they depend, across their range, with priority for the Eurasian Steppes as their major breeding environment.

The next sections will reflect on the interactions of Saker falcons and ecosystems, followed by some reflections about international conventions and about the guidance for conservation of falcons by going through the 12 principles for Ecosystem Management of the Convention of Biological Diversity. These thoughts are not intended to be the final words to be said about this topic, on the contrary. Hopefully it will give some orientations and generate innovative ideas and actions for conservation and management of falcons and ecosystems, with the community of falconers united in the IAF and beyond.

#### 4. Ecosystem services and the Saker Falcon



As a flagship species, Saker falcons are important for the conservation of steppe ecosystems. They are an indicator of pristine steppe ecosystems that appeal to many people, not only ornithologists and falconers. (Inter-)national tourism and local recreation are important sources of income for conservation of ecosystems and of the animals and plants composing them. For instance, the relatively small Hustai National Park (50,000 ha) attracts 20,000 visitors annually, about half from Mongolia itself.

*Saker Falcon taking off from electricity pole in Mongolia. Photo: P. Wit*

At this moment, there is an outbreak of Brandt's Vole around Hustai National Park in Mongolia. These small rodents thrive in degraded steppe environments such as overgrazed areas and steppes converted for crop growing. The voles maintain the steppe in a degraded state and damage the crops. Saker falcons and other raptors, such as the Upland Buzzard, are arriving in important numbers to feast on the voles, thereby strengthening the resilience of the steppe ecosystems.

Another less ecologically motivated but still important example is the role that falconers and their trained raptors play when keeping airfields free of other birds and rabbits. The economic benefits of this role of falcons has not been calculated, but is without doubt very, very considerable.

Raptors like Saker falcons are at the end of the food chain. Continued presence of Saker falcons therefore reflects the status of the ecosystems. Sakers are indicators of ecosystem health and resilience.



In their turn, Saker Falcons depend on a number of ecosystem products and services, which are essential for their survival. These include notably the presence of prey and safe nesting and perching sites (including artificial nests!). As top predators they are also vulnerable to pollutants, especially those that may accumulate in the food chain, such as pesticides or heavy metals. A healthy steppe environment means an absence of harmful agrochemicals.

Although they depend equally on healthy ecosystems, human beings frequently make use of natural resources that are detrimental to the well-being of Saker falcons. These include in the first place the conversion of steppe ecosystems, mostly for agriculture: IUCN is actually developing a Red List of Ecosystems and steppes will be on it. The situation is aggravated by some agricultural practices such as the use of rodenticides that not only eliminate important prey but may also poison the falcons.

Ecosystems also offer supportive services for human infrastructure. The installation of powerlines is a major factor of mortality for many raptors, being electrocuted when they nest or perch on the ill-designed poles. More will be said about this topic by other contributors to this congress.



Overhunting of certain prey-species affects the food situation for falcons negatively. Some "sportive" hunters may go for the very last bustard in a region, and when they cannot hunt it with falcons, they shoot it. Obviously, removing the prey of falcons does not help the survival of falcon populations in the wild. The falcon itself is an ecosystem product that may be the object of unscrupulous capture beyond the rate of sustainable use.

*Agricultural fields in Siberia, photo: P. Wit*

##### 5. International agreements of relevance for falcon and falconry conservation

On the Red List of Threatened Species by SSC/IUCN, the Saker Falcon has been "uplisted to Endangered because a revised population trend analysis indicates that it may be undergoing a very rapid decline". What actions are needed to promote sustainable use of falcons and of the ecosystems they depend on? As the Saker Falcon is a

migratory species, this section will present a short analysis of international agreements with some entry points mentioned that may be of importance for falcons and conservation through falconry.

Table 1 gives an overview of multilateral environmental agreements, with some short comments for each of those that falconers and other falcon-conservationists should be aware of and that may provide a framework for necessary action. Much more can be said about these conventions than is mentioned here. Interested readers are referred to the websites of each of these agreements.

CITES and CMS are very much species-oriented, and here the falconry community already has good connections. The other conventions are more ecosystem-oriented. Important decisions are made at the COPs of these conventions that may affect falcons and falconry. This is very much evident in the Aichi targets of the CBD, the most relevant of these are summarised in table 2.

**Table 1:** Multinational environmental agreements relevant for falcons and falconry

<b>International Convention</b>	<b>Entry points for falcons and falconry</b>
Convention on Migratory Species ( <b>CMS</b> )	Saker Global Action Plan developed; Saker Falcons on Annex 1, with an exception made for Mongolia; Habitat conservation mentioned as important.
Convention on International Trade of Endangered Species ( <b>CITES</b> )	Species- and trade-oriented; Saker Falcons on Appendix 2, with Peregrines & Gyrs on 1; There is a need for a "CITES" on ecosystem services from threatened ecosystems.
Convention on Biological Diversity ( <b>CBD</b> )	Adoption of the Ecosystem Approach to achieve CBD's goal; 12 principles of Ecosystem Management endorsed (see below); Aichi targets adopted (see below). At this moment, a consultation round is going for input into the Post-2020 Global Biodiversity Framework.
United Nations Convention to Combat Desertification ( <b>UNCCD</b> )	New initiative under this convention is the "Degradation Neutrality Goal". Sakers could possibly be considered an indicator whether this goal is achieved or not.
Convention on Wetlands ("Ramsar" convention)	Sakers are typical to drylands but wetlands form a key biotope for ecological functioning of a much larger and more arid area surrounding it.
United Nations Framework Convention on Climate Change ( <b>UNFCCC</b> )	At this forum, Ecosystem-based adaptation is promoted by partners like CEM/IUCN. Again, Saker falcons might be mentioned as an indicator of ecosystem health and resilience.
Intergovernmental Panel on Biodiversity and Ecosystem Services ( <b>IPBES</b> )	IPBES follows a topical agenda. When ecosystem services like plague control or cultural values are on the agenda, the falconry community should be ready to contribute.

Most of the Aichi targets speak for themselves. All threats for Sakers identified above, are mentioned and as such the Aichi Targets provide an excellent framework for actions based on good ecosystem management with explicit considerations for species conservation (e.g. target 12). Targets 1, but especially 14 and 18 implicitly recognise the importance of cultural services offered by the ecosystems.

**Table 2:** Aichi Strategic Goals and underlying Targets of special relevance for falcons and falconry

Target	Relevance for falcons and falconry
<i>Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society</i>	
1	People are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.
4	Sustainable production and consumption well within safe ecological limits.
<i>Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use</i>	
5	The rate of loss of all natural habitats is at least halved... and degradation and fragmentation is significantly reduced.
7	Areas under agriculture... are managed sustainably, ensuring conservation of biodiversity.
8	Pollution has been brought to levels that are not detrimental to ecosystems...
<i>Strategic goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity</i>	
12	The extinction of known threatened species has been prevented and their conservation status has been improved and sustained.
<i>Strategic goal D: Enhance the benefits to all from biodiversity and ecosystem services</i>	
14	Ecosystems that provide essential services, are restored and safeguarded, taking into account the needs of local communities
<i>Strategic goal E. Enhance implementation through participatory planning, knowledge management and capacity building</i>	
18	The traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected.

Outreach by conservationists beyond the environmental community has been advocated at every Assembly of IUCN over the last decades. It turns out to be a hard game. For instance, the more activist and often more dogmatic members of the IUCN community do not like any involvement with the private sector, and demonstrate distrust against the larger financial institutions such as the World Bank. It has not stopped IUCN to collaborate with enterprises such as Shell or Rio Tinto, with important and solid positive outcomes for conservation. However, IUCN is cruelly absent in the WTO (World Trade Organisation), despite the attention to environmental aspects, as formulated on the WTO's website: "The WTO's agreements permit members to take measures to protect not only the environment but also public health, animal health and plant health."

WTO annual report 2016 states: "...the WTO is not just about opening markets, and in some circumstances its rules support maintaining trade barriers – for example, to protect consumers and the environment ...". In the annual report, it's mentioned that an Environmental Goods Agreement is under development: "The trading system should be in a position to make a positive and meaningful contribution towards tackling environmental degradation."

Even if falconry is a small sector, its members can be found at all levels, including the highest decision-taking ones. Therefore, the falconry community may set an example to other sectors of the environmental community by

engaging with WTO, setting an international standard in trade of products and services of ecosystems beyond CITES, e.g. Saker falcons from non-degraded ecosystems only.

On the other hand, IUCN has been/is very much present in the identification and strategies for implementation of the 17 Sustainable Development Goals (SDGs) of the United Nations. Sound ecosystem management underlies all of these goals. Table 3 presents an overview of these goals with some observations of possible relevance for the conservation of falcons and for falconry.

The title and targets of the SDGs are self-explanatory. Like for the Aichi Targets, the concerns of falconers and conservationists appear to be well covered, but the SDGs provide an extraordinary opportunity for outreach to non-environmental sectors. Obviously, Target 15 is the most relevant for the conservation of falcons and of their habitat, but the others may be more important to get in contact with people and organisations whose primary concerns are not necessarily environment-oriented. Given the massacre under low-voltage powerlines, the community of falconers together with conservationists should make a massive effort to influence the decision-makers that will take this particular SDG for guidance. SDG 17 (partnerships) provides another handle to deal with this issue.

**Table 3:** Sustainable Development Goals

SDG no.	(Short) SDG title	Observations
3	Good health and well-being	<i>It is not explicitly mentioned but should include psychological income/inspirational returns from cultural values/ identity</i>
7	Ensure access to affordable, reliable, sustainable and modern energy for all	Targets include: Expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries <i>Entry point to promote Saker-friendly technologies!!</i>
11	Sustainable cities and communities	Targets include protecting and safeguarding the world's cultural and natural heritage
12	Responsible consumption and production	Targets include: Implement programmes on sustainable consumption and production Achieve the sustainable management and efficient use of natural resources Ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production

15	Life on land	<p>Targets include:</p> <p>Ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems</p> <p>Combat desertification, restore degraded land and soil ... and strive to achieve a land degradation-neutral world</p> <p>Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and protect and prevent the extinction of threatened species</p> <p>Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed</p> <p>Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products</p> <p>Integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts</p> <p>Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems</p> <p>Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities</p>
17	Partnerships for the goals	<p>Targets include:</p> <p>Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed.</p>

6. Inspirational guidance from the 12 principles for Ecosystem Management

In this section, the 12 Principles of Ecosystem Management (also called the Malawi Principles as they were formulated by participants at an expert workshop in that country) are presented with some observations for falcon conservation and for falconry.

***Principle 1: The objectives of management of land, water and living resources are a matter of societal choice***

Awareness at all levels is key: sound management of steppes is in the interest of nations, people living in these ecosystems and Saker Falcons alike. Sakers fulfil the role of flagship species and are an indicator of healthy steppe ecosystems.



Participants in stakeholder meeting for Hustai National Park. The lady to the right is Ms. Ulaamsaikhan, representing the government of Bayankhangai Sum. photo: P. Wit

***Principle 2: Management should be decentralized to the lowest appropriate level***

The lowest appropriate level for the ecosystems that the Saker Falcons depend on, can be diverse.

Obviously, the international level is involved when considering the full range of this migratory species. The ecosystems themselves are managed at the local level, but often conditions are set at the national level for their appropriate management

***Principle 3: Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems.***

Given the important role of birds of prey for keeping ecosystems healthy, it is important not to deplete areas of their falcons. Similarly, important prey species like bustards should not be hunted to the brink of local extinction (neither at home, nor in other countries) and culprits should be controlled regardless of their social position.

Planners and decision-makers should consider the impact of their interventions on the functioning of the adjacent ecosystems. In the case of falcons, this means a/o that conversion of steppe to agricultural land should be organised on the basis of a spatial planning that respects a minimal ecological infrastructure of connected natural areas, the ecological backbone of that zone.

Powerlines need to be designed and constructed in such a way as to minimise impacts on Falcons.

Agricultural practitioners need to:

7. Strengthen the role of falcons and other birds of prey in plague control;
8. Use technologies that make the environment less attractive to pest and plagues, e.g. keep the soil covered to control Brandt's Vole;
9. Avoid use of pesticides and chemicals that poison natural enemies and/or accumulate in the food-chain.

Wood resources are scarce in steppe ecosystems. Local stakeholders should respect the often few trees that are growing in the steppe and should be stimulated to create alternative nesting sites

**Principle 4: Recognizing potential gains from management there is usually a need to understand and manage the ecosystem in an economic context. Any such ecosystem management programme should:**

10. **Reduce those market distortions that adversely affect biological diversity**
11. **Align incentives to promote biodiversity conservation and sustainable use**
12. **Internalise costs and benefits in the given ecosystem to the extent feasible**

This is another way of saying: "what pays, stays" or "use it or lose it" (in the phrases of the sustainable use community). Payments for ecosystem products like Saker falcons should be used to maintain or improve the ecosystem in a more favourable condition for these birds (e.g. adaptation of electricity poles).



**Principle 5: Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach.**

Consideration of this principle for Saker Falcon conservation includes:

13. Safe nesting places in the steppe ecosystems where reproduction takes place;
  14. Safe roosting and perching sites (disturbances, notably trapping, to be controlled);
  15. Presence of prey species should be ensured, which requires its own set of habitat management measures, on food, shelter, and others;
16. Pollution-control.

**Principle 6: Ecosystems must be managed within the limits of their functioning**

Overgrazing is a problem especially where so-called well-doers "help" herdsmen to recover their animal numbers quickly after nature has taken its toll on livestock in bad condition because of overgrazing their range. Animal numbers should be adapted to keep the range healthy. However, if things get out of hand, falcons may help to restore the desired status of the steppe. They are therefore an important element of resilience. Falcons should be legally trapped from well-managed steppe-ecosystems only. A certificate scheme like IUCN's green list of ecosystems (in preparation) could be of help.

**Principle 7: The ecosystem approach should be undertaken at the appropriate spatial and temporal scales.**

The EA should apply through the entire range of ecosystems where falcons spend their life time: breeding sites, hibernating sites and others. Requirements to be considered are mentioned under principle 5. Losing a top-predator like the Saker falcon, increases the risks of ecosystems galloping to an undesirable state of degradation, such as with the Brandt's Voles that keep the steppe ecosystem in a degraded state once degradation has hit. Monitoring the state of ecosystems often gives a more timely signal about negative trends in biodiversity than species conservation alone (pers. info J.P.Rodriguez, present Chair of SSC-IUCN).

***Principle 8: Recognising the varying temporal scales and lag effects that characterise ecosystem processes, objectives for ecosystem management should be set for the long term.***

Long-term sustainability in Saker falcon conservation cannot be reached by emphasising ecological processes alone. The sustainability of financial, social and inspirational dimensions need to be addressed.

***Principle 9: Management must recognise that change is inevitable.***

Ecosystems are changing rapidly under the influences of climate change and a number of other drivers of change (e.g. invasive species). Falcons are important to strengthen the resilience of ecosystems to a number of degradations that may favour plagues. Presence of top-predators like falcons often is also an indicator that the ecosystem is still in good health.

***Principle 10: The ecosystem approach should seek the appropriate balance between, and integration of conservation and use of biological diversity***

Surprisingly enough, all international treaties, conventions etc., ask for innovative ways of funding conservation, but very little (if anything) is mentioned about conservation measures that generate income other than through tourism. A properly managed and monitored falcon trade has the potential to become a shining example for others, taking the sting out of too many dogmatic and emotional discussions.



*Board of Hustai National Park Trust, 2014. With representatives from different stakeholders (from left to right) Mr. Uuld (Buffer Zone Council representing the local population), Ms. Erdenechimeg (for the Ministry of Nature, Environment and Tourism), Mr. Enkhbold (Independent Chair, Member of Parliament and former Minister of Foreign Affairs), Ms. Badamkhand (Chair NGO MACNE- Mongolian Association for Nature and the Environment, and Mr. Wit (Foundation Reserves for Przewalski's Horse, The Netherlands). photo: P. Wit*

***Principle 11: The ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.***

As far as falcons are concerned, IAF brings together a wealth of expertise and knowledge from the different stakeholders: falconers, scientists, herdsmen, etc. Relevant information for the conservation of the ecosystems on which Saker falcons depend (steppes in the first place), may be called upon through groups of experts like IUCN-CEM's thematic Group on Holarctic steppes or on Drylands. Local resource users, such as the herdsmen from Mongolia, also are an important source of information on steppes, their reactions to stress and how to manage changes in their environment.

***Principle 12: The ecosystem approach should involve all relevant sectors of society and scientific disciplines.***

The different users of ecosystem services of the steppes and other habitats used by Saker Falcon are important partners. Obviously, falconers and nomadic herdsman are key-stakeholders to be involved. Others include politicians, planners, etc.

*Businessmen and economists are not the bad guys. We need them to be our allies in order to make conservation sustainable.*

17. Concluding remarks

**GOOD PEOPLE ARE KEY TO SUCCESS, therefore:**

- **Never give up**
- **Be pragmatic, not dogmatic**
- **Be realistic, not naïve**
- 



*Female members of a herders' group singing about the environment during one of their social meetings, P. Wit*

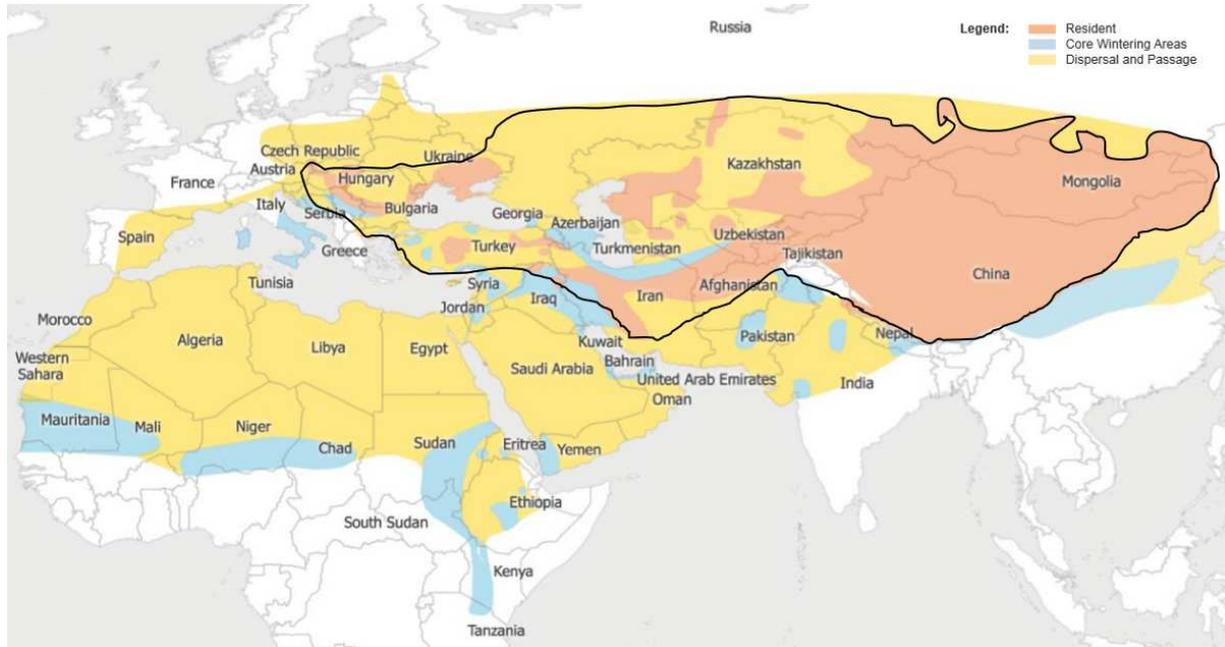
18. Acknowledgements:

I would like to thank the IAF, and in particular president Dr. Adrian Lombard and former Advisory Committee chair Prof. Robert Kenward, for the honour of inviting me as keynote speaker to the Strategic Meeting for Conservation of the Saker Falcon in the Kyrgyz Republic. I was warmly welcomed by all the members of the IAF, they quickly made me feel part of their inspirational family. To all of you, therefore I would like to cite my Mongolian friends and colleagues: BAYARLALAA!!

*Presentation by Piet Wit,*

*Chair of IUCN's Commission on Ecosystem Management 2008-2016; Board member Hustai National Park Trust, Mongolia, 2002 – 2016; Advisor Chimbo Foundation 2007 - present)*

## THREATS AND CHALLENGES TO THE SAKER FALCON – AN OVERVIEW OF CONSERVATION MEASURES BY DR ANDREW DIXON



Former saker falcon breeding distribution (outlined) and present distribution (resident); adapted from CMS SakerGAP

The breeding distribution range of the Saker falcon at the turn of the 20<sup>th</sup> Century, prior to most modern anthropogenic population impacts, was largely continuous from Central Europe in the west, to eastern China in the east and from Southern Russia in the north to Iran and the Qinghai-Tibetan Plateau in the south. This continuity of distribution is reflected in modern genetic analyses of population structure, which indicates little differentiation across its entire range. The current breeding distribution range shows contraction, regional extinction and fragmentation in Europe, Russia and the CIS states of the former USSR. There is still a large and continuous population extending across the Mongolo-Tibetan plateaus in the east.

While conservation activities can serve to ‘maintain’ healthy populations, most conservation measures tend to be activities directly designed to ‘halt declines or to restore Saker populations at a favourable conservation status’. In this overview, I do not regard research as a conservation measure, even it is designed to fill knowledge gaps or inform conservation activities. Thus, I have not touched on genetic studies or satellite tracking studies here. A common mistake is to assume that threats, real or imagined, are responsible for population declines. Unfortunately, we do not know causal factors for most population declines, so we must assess potential impact of different Threats. This assessment was undertaken at a Saker Task Force workshop meeting in Abu Dhabi. Threats can result from human activity, both direct and indirect, and they can be natural threats, some of which are exacerbated by human actions (climate change, desertification).

For the western Saker breeding population, only two fragments now exist in Europe. This population historically was the primary source of migratory birds reaching the falconers of the Middle East and North Africa region. Nowadays, only around 750 pairs remain from what was a large continuous population. Current threats facing the European population are not necessarily the causal factors for historical decline in Europe, some of which may now be irreversible, particularly large-scale habitat change. An additional factor that could impede restoration is a lack of founders to re-establish breeding populations in regions or countries where they are currently extinct.

Conservation measures in Europe are almost exclusively restricted to the European Union, with limited activity in the wider European regions of Ukraine, Russia and Caucasus. In the EU, recent activity has mainly been related to EU-funded LIFE projects, particularly those building on earlier efforts by NGO's in Slovakia and Hungary. These projects address several of the high priority threats identified in the SakerGAP. For example, electrocution. LIFE projects have developed previous work undertaken by NGO's in Hungary by extending power line mitigation work to other Saker range countries. Nevertheless, still only a small fraction of dangerous lines have been mitigated and there has been little assessment of its efficacy or durability.

Another identified threat is the loss of prey. Work has focussed primarily on sousliks, a formerly important prey of the Saker in Europe. Disappearance of sousliks is thought to be at least partly responsible for loss of Sakers from many European uplands. The value of this activity for Saker conservation is not known, as most Central European Sakers now breed in areas with very few sousliks and thus they are no longer a major component of the diet.

The provision of artificial nests is an aspect of LIFE project work that again builds on prior work undertaken in Hungary and Slovakia. Numbers of Sakers increased when artificial nests were provided and most birds in Europe now breed in artificial nests. But the recent increase in population size in Hungary has been modest - associated mainly with range expansions, with birds now colonizing Romania. In Serbia, the provision of artificial nests has coincided with a recent population decline, and very few have been used by Sakers as there is no shortage of Raven nests on the power lines. In Bulgaria, no artificial nests were occupied, indicating that this technique is not successful at facilitating colonization of an area where the breeding population is extinct. To date, in Europe, there has been no assessment of the contribution of artificial nests to population increases or research into the existing phenomenon of having a breeding population largely dependent on artificial boxes on power infrastructure.

A project has been established in Bulgaria to restore the breeding population in Southern Balkans to connect populations in Central Europe, Eastern Europe and Turkey. This study was initiated on behalf of Emirates falconers as this population historically important as source for migrants to the MENA region. It started with a Feasibility Study, and then a captive breeding population was established as translocation was considered to be biologically and politically problematic. A series of pilot releases were conducted with satellite tracking of released birds to study survival and natal philopatry. Beginning in 2015, the reintroduction project aims to release at least 100 individuals over a 5-year programme.



Young saker falcons at their hack site in Bulgaria

Regarding conservation measures for the population in west Asia i.e., in Russia and the Commonwealth of Independent States of the former USSR. This population has declined and fragmented relatively recently, particularly in the last 25-30 years since the collapse of the Soviet Union. Many conservation measures have been conducted or coordinated by the Russian Raptor Research and Conservation Network. Other projects have focused on releasing Sakers. Most of the work has been undertaken in Russia, and generally the size of the projects tends to be small in relation to the scale of the problem in the region. The critical threat posed by trapping and trade is not easy for conservation NGO's to address, with work centred mainly on advocacy and awareness-raising, resulting in strengthening of legislation in Russia and training for customs and border patrols to increase enforcement effort.

In relation to the threat posed by Electrocutation, awareness-raising has led to legislation making power distribution companies financially liable for killing protected species at power lines. This has created incentive for mitigation and work undertaken with Russian manufactured materials. However, only a small proportion of poles has been mitigated and there has been little work to assess efficacy and longevity of the mitigation.

A shortage of suitable nest sites has been addressed in a small-scale project in Tuva. A variety of different sites and platforms were used but very few were adopted by Sakers. This suggests that lack of nest sites was not main factor limiting breeding population in this region.

In contrast to the fragmented population of west Asia, there is a more or less continuous population across the plateaus of Mongolia and Qinghai-Tibet. Conservation measures in this region are largely aimed at maintaining healthy populations (as opposed to halting declines or restoring depleted populations).

Conservation measures in Mongolia have been initiated by Emirati falconers, while in China the conservation measures have been mainly initiated by government and arise indirectly from activities with broader objectives.

In Mongolia, an artificial nest project was established to address the issue of unsustainable trapping. The 5,000 artificial nests erected under this programme produced a large numbers of breeding pairs, in fact it resulted in a managed and monitored population larger than that in whole of Europe. A managed population like this can be used to support a sustainable harvest, but the Mongolian nests are not currently used for this purpose. In addition, the high productivity of newly created local populations can act as a buffer against high mortality, and contribute to conservation capacity building. Further applications, such as terrestrial pollution monitoring and potential biological control of rodents, are areas that need future research.



Saker Falcons at an artificial nest in Mongolia

Electrocution is a major threat in the eastern Asian population. Trials of mitigation methods have shown that the brush deflectors that are commonly used in Mongolia have no effect in reducing electrocution rates, whereas rotating mirrors and insulation significantly reduced electrocution rates. The cheapest option identified in trials was a new mount for the pin insulator at the top of the pole and an unconnected porcelain pin insulator on the crossarms, thus only reduces electrocution rates and does not eliminate the problem.

China is establishing protected areas to limit infrastructure development and habitat loss. In these areas, management activities are taking place to protect alpine grassland ecosystems. Recently, there have been many artificial nests erected for management of the plateau grasslands, to assist in the biological control of Plateau Pikas and replace mass-poisoning as a method of control.

Sakers occur mainly as passage and wintering birds in the Middle East and North Africa region. Initiatives to tackle illegal trade in MENA region, include training and awareness raising for border authorities, captive breeding as an alternative source of falcons and education and awareness for falconers about the conservation implications of purchasing wild sourced birds. Furthermore, falconry in the region is a major driver for conservation projects across the globe. The Saker is linked to the region by migration and trade from across its whole distribution range. Falconry supports international agreements and workshop meetings such as the one we are attending now. Conservation initiatives will be formalized in a conservation strategy for the MENA region.

Conservation challenges include access to funding as conservation is expensive. To date, major funding has come from a limited number of sources. Most conservation depends on small grants yet significant projects require large funds over a long term (>5 years). However, Sakers are a valuable commodity and potentially can pay for their own conservation if the political will exists to tap into the conservation potential of sustainable use.

Other challenges include identifying exactly what factors are causing population declines to accurately target conservation funding and actions. This requires focussed research. Research also needs to be undertaken into the efficacy of conservation actions to ensure veracity of methods and conclusions. Too little published to date, which reflects limited input from academic institutions in practical conservation.

How can we address big issues like climate change? Conservation organizations generally do not have capacity or ability to tackle issues at this scale. Similarly, they have no remit or authority to directly tackle issues like illegal trade. This is for governments and their law enforcement agencies. Also, we have the challenge of establishing sustainable trade and falconry, which requires input from many actors and agencies.

On an optimistic note, the Saker is not at high-risk of extinction in the wild, and I say that knowing that that is what its IUCN globally endangered status means. There are large healthy populations that can be managed to maintain them in that state. In Europe, there is a much smaller population than a century ago as the landscape has irrevocably changed, but this does not prevent restoration of Saker populations to reach a favourable conservation status. The same is true for populations in Russia and the CIS. We can halt declines and restore populations to levels that the landscapes can support. In my opinion, restoring the Saker to a favourable conservation status is more likely than the species going extinct.

*Andrew Dixon, Research Studies Manager, Emirates Falconers' Club, Abu Dhabi*

## THE SIGNIFICANCE OF THE SAKER FALCON IN THE MENA REGION BY H.E MAJED AL MANSOURI



The significance of the Saker Falcon in the MENA region can be broadly categorized under three headings: its cultural value, ecological value and socio-economic value. The Saker Falcon is the emblematic species of falconry in the region making it a significant component of Arabian cultural heritage. In addition, the species is an important component of the biodiversity of the region. Sakers, are mostly transient visitors to the MENA region, occurring mainly on migration or as winter visitors. This ecology of temporary residency together with the ancient custom of falconry has also endowed the Saker with a socio-economic value. There is a long tradition of trade of Saker both within the countries of the MENA region, and from countries outside, to supply birds for falconry.

Falconry in the MENA region can be traced back at least 5,500 years and the Saker Falcon was the species most favoured by the Bedouin nomad falconers. Traditional falconry relied on trapping Sakers on autumn passage, or else acquiring them via ancient trade routes. Falcons were quickly and skilfully trained to be used over winter for subsistence hunting, mainly for other visiting birds such as Houbara and Karrowan, or Desert Hares. After the winter hunting season, the falcons were subsequently released in spring. Sakers are thus intimately linked with falconry and are a key component of cultural heritage in the region.

The Saker Falcon is categorized as globally Endangered by the World Conservation Union, making it a significant component of the biodiversity of the MENA region. A small, resident population breeds in Iran but the species mainly occurs on passage during migration or as a winter resident. On passage, Sakers can be found anywhere in the region as they move through to sub-Saharan wintering areas. Smaller numbers of Sakers winter here, mainly in mountainous regions of the Middle East and Arabian Peninsula.

Nowadays, most Saker Falcons used in Arabian falconry are acquired through trade, either from outside the MENA region or from countries within the region. The Sakers can be bred in captivity or sourced from the wild. The number of captive breeding centres in the region is increasing although relatively few produce Sakers. Presently, many Sakers are obtained either legally from within the MENA region or from countries outside

such as Mongolia, or they can be illegally trapped smuggled into the region. The commodification of Sakers has endowed them with a socio-economic value that has implications for their conservation and cultural value.

Arabian Falconry can benefit conservation as it provides the motivation, skilled personnel, resources and finances required for preserving the Saker. In return, conservation activities can ensure that Sakers continue to be a sustainable and genetically diverse resource for use falconry. The conservation role of falconry reflects the cultural, ecological and socio-economic significance of the Saker Falcon.

As Saker Falcons are mainly transient visitors to the MENA region, most of the birds used for falconry come from breeding populations elsewhere. Those that are trapped in the traditional way are derived mainly from breeding populations in Europe, Turkey and the western steppes of Russia and Kazakhstan. These birds arrive in the region during autumn migration. Nowadays, many Sakers are imported into the region, both legally and illegally, mainly from the larger eastern breeding populations in Russia, Kazakhstan, Mongolia and China. These birds are typically trapped during post-breeding dispersal or on autumn migration. Consequently, conservation activities to preserve the Saker need to be taken both within and outside the MENA region.

The Emirates Falconers' Club is currently leading the development of a regional conservation strategy for falconry species in the MENA region. This strategy aims to identify the main threats faced by species that are important for falconry in the region. By understanding the scale and distribution of these threats it will be possible to develop initiatives to address them. This meeting is part of the process in developing this regional strategy.

The objective of the strategy document is to identify activities that can halt the decline of Saker Falcon populations and restore them to a healthy condition. Initial scoping studies have identified illegal trade and electrocution as two threats that particularly impact Sakers; these impacts can take place both within and outside the MENA region. In the following slides, I will outline some of the strategic initiatives that can be developed to address the issue of illegal trade and electrocution.

The strategy document is still under discussion and the strategic initiatives outlined here can be further refined and modified in future. In the case of illegal trade, this can relate to activities that occur wholly within the MENA region and to trapping that takes place outside with subsequent smuggling into the region. As we saw earlier the socio-economic significance of the Saker includes not only those population that naturally migrate to and through the MENA region but also to additional eastern populations that act as a source for the falconry trade. Initiatives to address illegal trade can be targeted at legislation, enforcement, rehabilitation and release, sustainable harvests and education. The different initiatives are expected to show outcomes in the short, medium and long term.

With respect to legislation, activities can include harmonization of legislation across different countries such that they enact the aims of international treaties such as CITES and CMS. Countries should be encouraged to increase penalties for those involved in illegal trade to act as a deterrent. Legislation should also facilitate the cross-border movement of confiscated Sakers so that they can be admitted to rehabilitation centres and included in coordinated release projects.

Along with better legislation the strategy will develop activities to improve enforcement of the law in relation to illegal trade. Staff in key agencies such as border control should be provided with the information and

intelligence required to intercept illegally smuggled falcons. This information can be provided in the national language via websites, published documentation and targeted workshop meetings.

Increased enforcement will result in more illegally smuggled falcons being confiscated. However, there are few facilities available in the MENA region to take these birds, thus holding facilities will need to be developed in key areas across the region. This will also involve training of staff to run these facilities. Regional centres would simplify this process and thus a streamlined regulatory process needs to be developed to allow birds to be deposited at such centres. Alongside the rehabilitation centres protocols for the subsequent release of the birds need to be developed. The deterrence value of enhanced enforcement is augmented if confiscated birds can be successfully released back to their regions of origin.

In addition to law enforcement it is also possible to address the problem of unregulated illegal trade by replacing it with a sustainable regulated legal trade. Initiatives will be developed to explore the viability of management systems that would enable the sustainable harvest of wild Sakers. Such initiatives include using artificial nests to create new, monitored populations that can support an offtake quota to be used in falconry. Other activities can include quotas that are issued in exchange for funding the remediation of dangerous power lines: a power line that kills over 100 Sakers per annum can potentially be fixed for the cost of harvesting less than 20 birds. Furthermore, a scheme that uses microchips to estimate population sizes and harvesting rates can potentially be coordinated via an electronic management system. The viability and potential application of these various methods is likely to differ across countries.

Education can be used to increase falconer awareness of conservation issues and the nature of threats facing Sakers in the MENA region. Education can be delivered at falconry schools or academies that provide knowledge to falconers of all ages. Furthermore, a wider understanding of the significance of the Saker for falconry and the conservation threats faced by the species can be introduced to mainstream schools via the curriculum. Other activities can include developing regional workshops and meetings about falconry and Saker conservation, as well as producing information materials for a wider audience across the region.

Electrocution is another threat identified as impacting Saker populations. Electrocution of Sakers at dangerous electricity distribution lines occurs in all regions from Europe through Central Asia to Mongolia and China. Mortality levels can be extremely high and the number of dangerous lines is increasing in developing areas of the world. Techniques to mitigate dangerous power poles exist, yet they are not routinely implemented. Initiatives to raise awareness of the electrocution problem, together with activities that promote the mitigation of dangerous lines are likely to have conservation benefits for Sakers and a range of other raptor species that are affected by the same problem.

In summary, the conservation strategy for MENA region is targeted at key species important for falconry in the region. The strategy document will act as road map for the implementation of strategic initiatives that promote activities with measurable outcomes. For example, it will be possible to quantify changes in confiscation rates of smuggled falcons, the number of falcons that are rehabilitated and released, or the reduction in electrocution rates at mitigated power lines. Furthermore, the initiatives targeted at falconry species will have wider benefits for other raptors in the MENA region, including smaller falcon species that are trapped as bait to catch larger falcons, and hawks or eagles that also suffer high rates of electrocution.

### Introduction

For more than 4,000 years, falconers have been using wild hawks, falcons and eagles sustainably – sometimes in very large numbers, as in the time of Genghis and Kublai Khan, whose hunting campaigns included as many as 5,000 falcons.



*Petroglyph at Golpaygan, near Isfahan, Iran*

### Falconry and Conservation

Laws protecting the nests of birds of prey used for falconry were amongst the first laws of nature protection. Falcons, together with large ungulates, belonged to the rulers. Such laws in medieval Europe, called *falcatio*, obliged peasants to protect falcon nests. If they failed, they had to pay a significant penalty.

Falconers mostly used first season birds. These are easier to train. First season birds in nature survive at circa 20-30% rates in their first year. The use of young birds in falconry is sustainable and does not affect their populations, being outnumbered by natural mortality. Traditionally in some cultures birds of prey used in falconry are released after the hunting season, or in other traditions kept for many years. Both minimise any effects of falconry on the wild populations.

Falconry techniques are widely used in conservation and in the rehabilitation of birds of prey. They have proved, through millennia, to be effective in taming birds and keeping them healthy and in good condition – especially in maintaining their plumage, which is crucial for raptors. In the mid-20th century, falconers started to breed falcons. The first person ever to breed a bird of prey was Renz Waller, a German falconer, in 1944. The next was Prof. Tom Cade, an American falconer, who also started work on the reintroduction of Peregrines. In Europe, the first to breed and release Peregrines was Prof. Christian Saar, another German falconer. Later, in Poland, breeding projects were started by Prof. Zygmunt Pielowski and Czesław Sielicki. Their methods for intensive breeding, incubation of eggs, and reintroduction of Peregrines, were later adapted to other species of birds of prey.

That work came at just the right moment. In the 1960s there began an unprecedented crisis in bird of prey populations, especially in the large falcons. The reason was the widespread use of new pesticides of the organochlorine group, especially DDT. DDT and its derivatives accumulated in the food chain. A long-term effect of DDT on falcons was the deregulation of their calcium economy, resulting in the thinning of eggshells; eggs were crushed under incubating females. This resulted in dramatic declines of Peregrine populations worldwide and the extinction of this species in many areas of the world: in most of Europe, including Central Europe, and most of North America. Decline was also observed in many other species of birds of prey.

Falconers were the first to notice the decline of Peregrine numbers in Britain and in other countries. They also started the studies to unveil the reasons for this decline. A ban on DDT was enforced in the early 1970s and some populations slowly recovered. Large projects for the breeding and reintroduction of Peregrines were started by falconers in the USA, Canada, Germany, and later also in Poland. These projects used falconry techniques, even in countries where falconry was not practised, like Sweden.

Falconers in the USA organised the largest bird of prey protection organisation in the world – The Peregrine Fund. Since then, many projects on all continents have been financed by this organisation. One of these projects is California Condor Rescue. In the mid-1980s, the last eight wild condors were captured and put into a breeding project which also included all captive birds from zoos. Altogether, only 22 California condors were alive at that time. Now there are more than 400 condors in captivity or living free in several areas of the southwest USA. Many other projects on bird of prey conservation have been conducted or are ongoing in the Americas, Africa and Asia.

In 2004, the latest mysterious crisis with the vultures of Asia was also explained thanks to projects financed by the Peregrine Fund. The reason for the catastrophic decline of vulture populations was diclofenac, a non-steroidal anti-inflammatory drug widely used in human and animal medicine. Its effect was a disorder of the kidneys and rapid death. The decline was recorded as 99% by 2008. Again, falconers are working to help restore the vulture population through breeding and reintroduction projects.

Currently we see a large decline in another species in Asia – the Saker falcon. Again, falconers are working to find out the reasons for the decline. Large studies undertaken in Mongolia have proved that at least 5,000 Sakers are killed annually by electrocution on mid-voltage lines. The IAF, together with its partners, has been actively looking for possible funders of the mitigation works necessary on the most dangerous lines in Mongolia. The aim for the next few years is to properly mitigate the dangerous lines in the other countries of the Saker's range, including migration routes and wintering areas.

A Saker management project is currently being carried out in Mongolia. Five thousand artificial nests are to be built in the steppe, where there are no natural nest sites for Sakers. In 2014, almost 800 nests were actively producing more than 3,000 chicks. In exchange for that, up to 300 licences for trapping wild Sakers are issued in Mongolia. This is an example of a sustainable use project. An additional project connected to the artificial nests project is the School Links Programme, aimed at promoting knowledge of Sakers and birds of prey, and their conservation.

The Saker Global Action Plan (SakerGAP) recognizes sustainable use as one of the key elements in Saker conservation. The IAF is actively working towards the implementation of its flagship projects, having funded the first of them – the Online Information Portal. This involves the monitoring and measurement of the use of Sakers by falconers, as well as information on their biology and migrations, and veterinary support, and is in cooperation with UNEP, BirdLife and IUCN. Towards the second flagship project, the IAF began a survey monitoring migrations of Sakers in 2016 and 2017. The latest initiative was proposing an IUCN recommendation on the electrocution of birds, which was adopted by World Conservation Congress in 2016. The IAF has prepared a special booklet on electrocution of birds, which has been translated into 14 languages. A dedicated website has been created – [birdelectrocution.org](http://birdelectrocution.org) – to provide information about the problem, and where all language versions of the booklet are available.

Another example is the Polish Peregrine Project, which started in the 1980s with breeding centres in Czempin and Wloclawek. The first reintroductions started in 1990 and the first breeding attempt was in Warsaw in 1998, with the first success a year later in Wloclawek and Torun. The main aim of this project – to bring Peregrines back into the fauna of Poland – was achieved. In subsequent years reintroductions were continued, and at the end of the first decade of the 21st century there were circa 20 pairs of Peregrines in Polish cities and mountains.

In 2010 a new, intensive, project was started, for the reintroduction of Peregrines in forests. Traditionally, Peregrines in Central Europe nested on trees, but this ecotype was lost during the DDT crisis. In the eastern part of Germany, a similar project on the restitution of tree-nesting Peregrines was started in 1990 and resulted in circa 20 pairs in 2010. The Polish intensive reintroduction project is run by the Society for Wild Animals 'Falcon'. Since 2010, almost 600 Peregrines have been released in Polish forests at four release sites. In 2013, the first nest in a forest was confirmed in Barlinek, near the release site. In 2014, a first nest in Mazury region was found in the reintroduction box, the result of a three-year release project in this area. In 2015, we had already five Peregrine nests in forests, all near the release sites. An important part of the project is an awareness campaign among foresters. Each forestry in Poland has a brochure and poster on Peregrines and, in areas close to the release sites, two-hour courses for foresters were arranged. Those who find the new nests of tree-nesting Peregrines win a special prize of high-quality optics.

### **Falconry and Quarry Species**

The ancient art of falconry, a hunting tradition, is defined as “taking quarry in its natural state and habitat by means of trained birds of prey”. Falconers are deeply involved in the conservation of birds of prey, but quarry species are also within our interest. One of the first large-scale quarry species programmes was the establishing of the North American Grouse Partnership by falconers in 1999. The aim of this organisation is the protection of the habitats of the North American grouse species and their sustainable use.

A recent initiative of the IAF is the Perdix Portal. Similar to the American project, it is aimed at the restoration of habitats for the Grey partridge (*Perdix perdix*), sharing knowledge on their management and best cases of sustainable use. Falconers promote sustainable use on a daily basis. The Scottish moors are one example. While most of them are aimed at shooters, those which are less productive are run for falconry use. That does have economical value, but more important are the landscape and biodiversity conservation effects.

### **How Can We Measure Whether A Sustainable Use is Sustainable?**

Modelling raptor populations allows us to predict a safe level of chick loss through various causes, including wild use. The simple arithmetical model includes the available population data and allows us to measure the population growth/decline and the acceptable level of mortality and sustainable use. It can be adjusted to any population data available to predict future population dynamics, and was used for modelling Saker populations in the preparation of the SakerGAP (Kenward et al 2013, Kovacs et al 2014). It also allows the possibility of

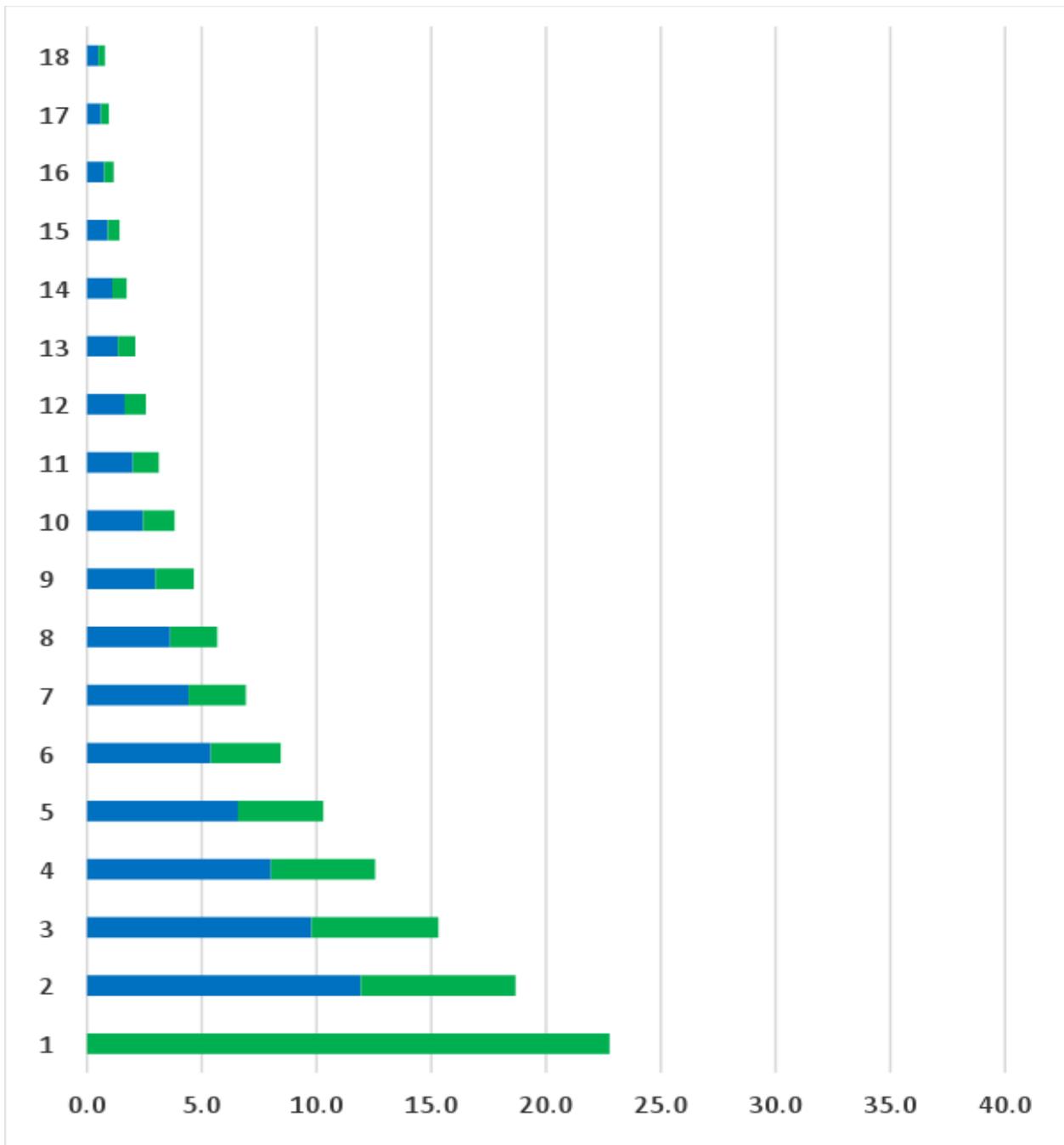
estimating population age structure, and of calculating other indices necessary for stochastic models. To confirm results for Ireland, stochastic modelling in Vortex 10 was used.

Mathematical modelling of large raptors provides the possibility of optimizing conservation strategies and eventual sustainable-use levels, but is very difficult. The most commonly used programs for modelling are prepared for rodents, but large birds of prey hold larger territories, live in pairs, start breeding at a later age, have small numbers of offspring, and live longer. An additional difficulty is that population data for birds of prey is usually only the number of breeding pairs, not the whole population size, as in most mammal studies and models.

There is not much data on Saker populations – especially regarding productivity, mortality and population size over time. For the Saker population model there are few assumptions concerning population size, mortality rates and productivity. In the current model the habitat capacity was not included, as it seems the population has not reached its limit yet.

The following indices were assumed, based on the literature, for two populations – Asiatic and European – for the stable populations in the modelling for SakerGAP:

General assumptions:		European	Asiatic
The initial structure of population is estimated a stable population from survival rates		Pop. 1	Pop. 2
Accurate survival estimates should be collected from nature especially for 1 <sup>st</sup> and 2 <sup>nd</sup> year falcons		European	Asiatic
An assumption is that Sakers can start breeding at two years old, with the probability of breeding the same for birds of all ages		Stability	
		AgreeLow	AgreeOpt
Survival rate 1 year	for healthy population from literature or observation	36%	36%
Survival rate 2 years	for healthy population from literature or observation	58%	58%
Survival rate 3+ years	for healthy population from literature or observation	80%	80%
Breeding rate for single adult	rate for population stability	89%	65%
Expected young per pair	from observation	2.20	3.00
Maximum capacity in number of pairs	for each population must be declared, the level of population reserve depends on it	150	150
Negative impact, risks (-) on 1-year-old birds	Effects from other mortality factors, like electrocution, etc.	0%	0%
Positive impact, improvements (+) on 1-year-old birds	Conservation effects, like feeding or protecting nests, etc.	0%	0%
Negative impact, risks (-) on 2+ y.o. birds	Effects from other mortality factors, like electrocution, etc.	0%	0%
Positive impact, improvements (+) on 2+ y.o. birds	Conservation effects, like feeding or protecting nests, etc.	0%	0%
Additional loss rate of juveniles (impact on one-year-old birds)	Assumption that when bird is taken from nature it has positive effect on other birds – so it is not like death of the bird, but more like x times death	100%	100%
Additional loss rate of juveniles	Rate for population stability	0%	0%



The Asiatic population age structure modelled shows that circa 45% of the population are non-breeders (green). That means that if the known number of breeding pairs is  $X$ , then pre-breeding population size is  $1.8 \cdot X$ , almost twice the size.

European and Asiatic populations were crosschecked with Vortex modelling. Vortex has the ability to vary parameters stochastically (at random) in order to investigate the risks of extinction from annual variations, and this capability was used to investigate the population sizes that would be needed to avoid risk of extinction from stochastic events. Although the Vortex model operates stochastic rules that are considered realistic, it takes no account of density-dependent feedback effects that may compensate with increased survival or productivity at low population levels. It therefore over-estimates the risk of extinction from chance events and provides a precautionary approach to modelling safe population sizes. Vortex modelling suggested that an Asian Saker population could be considered safe at 200 pairs, while a European population needed 325 pairs for the extinction risk to become negligible. Higher productivity gives the Asian scenario greater resilience.

N=	Probability of extinction	
	Europe	Asia
325	0	0
300	1	0
275	1	0
250	2	0
225	4	0
200	5	0
175	7	3
150	20	8
125	37	9
100	50	26

The relatively high resilience of the Asian scenario was further tested by varying the survival rates and applying harvest pressures. With a conservative survival rate, the Asian population could sustain a 22% harvest of juveniles with 85% of adults breeding. This is the breeding rate considered practical in other raptor yield models.

The effect of changes in survival rates on the rate of possible additional loss of juveniles is also examined. A three-point increase in adult survival, from 80% to 83%, enables a 50% increase in potential additional loss of chicks to 33% of young at an 85% breeding rate (column 2), whereas a decrease in adult survival of three points halves the estimate for the sustainable additional loss rate of juveniles (column 3). Greater changes in the survival rate of juveniles (columns 6 and 7), and especially of sub-adults (columns 4 and 5), are needed for the same changes in sustainable additional loss of juveniles. Accuracy of estimation of adult survival is clearly very important for this modelling, with estimates for second-year birds allowing the greatest leeway. A further conclusion is that added losses of adults, whether through trapping, electrocution or other factors, are a much more severe threat to Sakers than the harvest of juveniles. In effect, they are drawing on 'capital' rather than 'interest'.

	Asian Conservative Survival						
Survival rate to 9 months	36%	36%	36%	36%	36%	42%	31%
Survival rate 10-21 months	58%	58%	58%	67%	51%	58%	58%
Survival rate 3+ years	80%	83%	77%	80%	80%	80%	80%
Breeding rate for single adult	85%	85%	85%	84%	84%	84%	84%
Expected young per pair that lay eggs	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Additional loss rate of juveniles	22%	33%	11%	33%	11%	33%	10%

### Discussion

Modelling shows how important the protection of breeding adults is. Additional mortality, or the illegal taking or killing of adults, is the most damaging for the population. With a healthy population the level of safe chick loss, including harvest, is very high: in the arithmetical model it is even 20%. Testing the same population data with the stochastic effects in Vortex gives the safe figure at ten per cent. With this level, the probability of decline of the population is close to zero. With the same model, if the estimated level of death by electrocution is added, the populations of Saker in Asia have a very high probability of decrease or even extinction.

## MEASURING POPULATIONS AND MANAGING HARVESTS BY PROFESSOR ROBERT KENWARD

Nineteen seventy-six was the year of the first International Falconry Festival. It was an interesting time for falconry because it took place a year after:

1. A journal started in 1970 on Captive Breeding of Diurnal Birds of Prey, by UK falconers and supported by IAF, stopped publishing because it had gathered enough data to show how raptors could be bred.
2. The International Council for Bird Preservation (ICBP, the BirdLife fore-runner) drew back from trying to ban falconry, because such breeding might be a solution for raptor populations decimated by pollutants.

It seemed that falconry was approaching a crossroads, with two viable futures other than a ban (although prohibition remained the aim of some countries). One was for falconers in a country to be licenced as individuals, on condition that they procured raptors responsibly. The second was to register each raptor that was legally obtained, primarily by domestic breeding. As different countries took different routes, they tested what are now called "demand reduction" approaches for reducing trade pressure on wildlife.

Modern 'demand reduction' tends to mean both making supplies illegal and making use unfashionable (think of rhino-horn). However, if rarity makes supplies more valuable, severe pressure on enforcement of legality can lead to ugly situations (think of elephant poaching). One better approach is therefore 'supply substitution', as happened for humans with development of agriculture, followed thousands of years later by domestic breeding of many species that were becoming rare in the wild. However, in other cases the best approach for conserving wildlife may be wild supply enhancement, as that can result in conservation of ecosystems which are important for many other species. As in wild fisheries, that requires the assessment of populations, and often their restoration, followed by management of harvests.

The Convention on Conservation of Migratory Species has accepted this last approach in the Global Action Plan for the Saker Falcon (SakerGAP). This is a wise decision for two reasons. Firstly, although United Arab Emirates (UAE) has discouraged use of wild Sakers and use of domestic-bred falcons has been widely adopted by wealthy falconers in the Gulf States, surveys show that a majority of falconers outside UAE prefer wild Sakers. Secondly, problems with power-lines, and potentially with agriculture in steppe ecosystems, can benefit from engagement of falconers to help wild Sakers.

This means that population sizes need to be measured sufficiently accurately to estimate whether they meet the SakerGAP's proposed threshold of 80-100 pairs for a 5% harvest. Saker populations in Europe are monitored quite effectively by BirdLife partners by recording nests. However, in Asia as a whole there is a much lower density of birdwatchers and very poor access to many areas where Sakers breed. Two alternative methods for assessing Saker populations were explored with funding by Abu Dhabi and the International Association for Falconry and Conservation of Birds of Prey in Kazakhstan during 1993-7.

One method was to count Saker nests in sample areas of 500-1000 km<sup>2</sup>, and then extrapolate that to the similar areas in the country. This approach assumes similar availability of prey and nest sites across similar areas. Sakers usually require cliffs that are reasonably inaccessible to mammalian predators, or trees in which other raptors have built nests. Although Sakers can also nest on a great variety of human-built structures, large areas of Kazakhstan had few nest sites. Therefore, not only was an area-extrapolation method likely to be unreliable for Sakers, but there could also be much scope for enhancing the population by placement of artificial nests in those areas, as pioneered by Andrew Dixon in Mongolia.

Mark-recapture was the second method tested for assessing Saker populations. Young falcons were marked with micro-transponders (small Radio Frequency Identification Devices) and rings in nests across their distribution. Reports were then sought of the RFIDs from falcon hospitals, which scanned each bird for RFIDs because they also used these to identify their patients. Rings too were reported by trappers, but only one in four birds detected by hospitals also had its ring reported, so appreciable numbers of rings were being removed unreported. Nevertheless, the approach worked well enough to estimate the level of harvest and to know that the wide estimates for the harvested population size included estimated sizes from other methods. Moreover, estimates had been for another raptor, the Goshawk, using on one hand the ringing of nestlings followed by trapping in winter and on the other hand area-extrapolation across regions without shortage of nests sites. The two methods gave good agreement, both for the whole of Fennoscandia and on the Baltic island of Gotland (where about 25% of the nests had been found already).

Cooperation between different interests is required to make a mark-recapture system effective. Biologists and local people need to cooperate to mark birds in nests. Trappers and falcon hospitals need to engage with the monitoring system to report birds trapped, especially those with markers. Falconers need to help falcon hospitals distinguish birds from the wild and from domestic breeding. The system is practical, not only because of successful cooperation in the past, but also because of recent favourable response by veterinarians. This coincided with strong interest in the Sakernet I portal by falconers and trappers, who also responded well to survey when encouraged by club organisers and motivated by prizes.

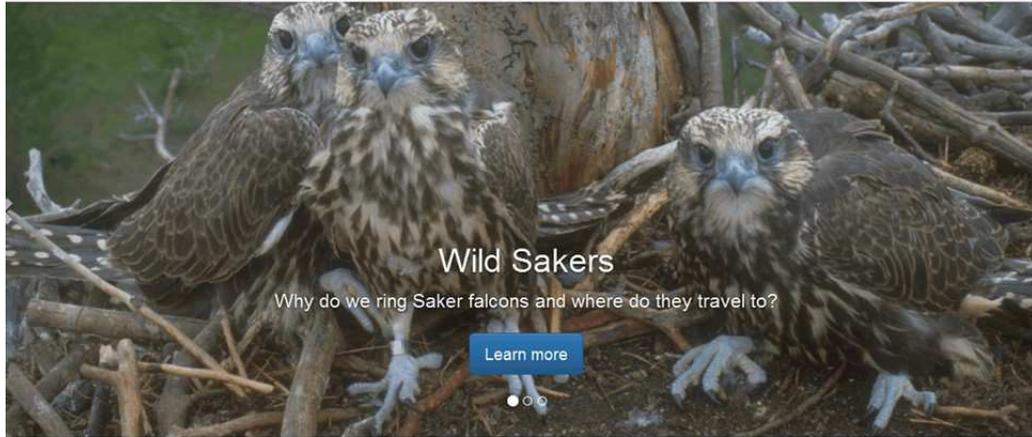
The basic principle is that if (a) 300 young birds are marked in 100 nests, and then (b) 30 of them are recaptured, then the average productivity was 3 young birds per nest, from (a), and the harvest rate was 10%, from (b). Moreover, if the 30 captures of marked birds were among 1200 total captures, then they also estimate a total of  $300 \times 1200/30$  young birds (i.e. 12,000 young birds), which would represent 4,000 nests. A complication for Sakers is the need to obtain adequate samples for estimating populations in different parts of their distribution, where both productivity and recapture rates may differ. Fortunately, tracking by satellite, which has already been started by Mátyás Prommer and Janusz Sielicki to estimate migration routes, can assess catchments initially. Eventually, research on genetic traits or stable-isotopes should help identify origins of trapped falcons. For this and forensic purposes, practitioners need also to agree for small feathers to be banked when birds are marked.

As well as agreeing with practitioners how best to mark Sakers, plans for a monitoring system should also estimate how many young wild falcons need to be marked for estimating sizes of source populations. To show with statistical confidence that a population with 3 young/nest is at least 40% beyond a baseline, would require marking 500 young with a 5% recapture rate, or 250 young if the recapture rate was around 10% (as estimated in the 1990s) but with only the female half of the population harvested. Four years of marking in this way would detect that a population was at least 20% greater than an original estimate.

This RFID-based approach has the advantage that, as well as enabling the monitoring of wild Saker populations and harvests, it is already being used by veterinarians for their own benefit and could relatively easily also provide e-passports to simplify legal movement of raptors between owners and countries, and for quota-based trapping. This would make it simple for enforcers to detect illegally held raptors, while also making procedures easier (i.e. less paperwork), for responsible trappers and falconers. It would deter the illicit while benefitting those within the law.

Robert Kenward is an international conservationist, ecologist and raptor biologist. He Chairs the International Union for Conservation of Nature's (IUCN) Thematic Group for Sustainable Use and Management of Ecosystems, the European Sustainable Use Group and the Science and Technology Advisory Committee for the Langholm project on grouse and raptors. Robert promotes conservation that is motivated by the sustainable use of wild species and their ecosystems, now specialising in multilingual software to inspire and inform practitioners, while bringing together the thinking on conservation of local people from cultures across the world. Robert has enjoyed a 40 year association with the IAF and is author of 200 scientific publications and three books which include a 'Manual for Wildlife Radio Tagging' (2000) and 'The Goshawk' (2006), the definite work on the Goshawk that includes chapters on all aspects of their biology and conservation, combined with illuminating tales and insightful observations from extensive field research and time spent in the field flying and hunting with Goshawks.

# SakerGAP Flagship Project: [www.Sakernet.org](http://www.Sakernet.org)



### Get update alerts

We will send you news of when we update the site with new information about Sakers, falconry and conservation. Your registration will be separated from the survey, so that survey information is anonymous.

[Register here](#)

### Do the survey

Please help us by completing the survey. Information that you give in the survey is important for management to maintain Saker numbers in the wild, and thus will help both trappers and falconers to sustain their activities.

[Do the survey](#)

### See the survey results

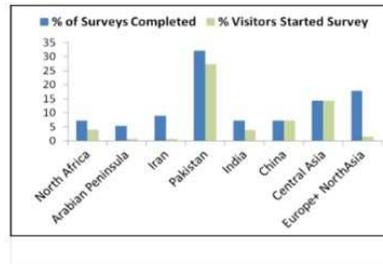
Results of the survey will be presented as simple diagrams. The first diagrams from a previous survey done two years ago will be replaced as your information is added.

[Survey results](#)

## Results of the latest survey

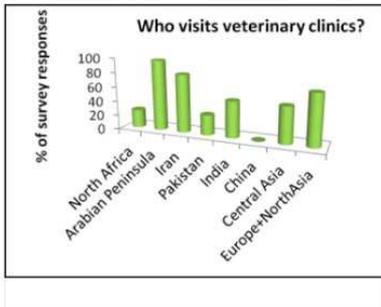
Very many thanks to all who contributed to the survey last year. The first three diagrams on this page show results from the data which you provided. More information, including an Introduction and Summary of the First Year Report, is provided in documents available to you at the bottom of this page.

The first diagram shows that most replies last year came from Pakistan, and that most people who visited the web-site there undertook the survey. As a result, two names for Pakistan were drawn as winners of survey prizes, with the second prize in the United Arab Emirates and the fourth in Turkmenistan. If you were unable to contribute last year, please do the New Survey and have a chance to win a prize this year.

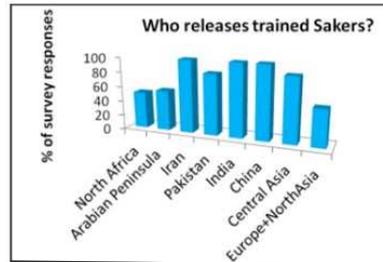


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The second diagram shows that almost all falconers and trappers on the Arabian Peninsula take their falcons to veterinary clinics to check their health. Perhaps that is why the last diagram on this page shows long lives for birds in the first survey from the Arabian Peninsula. More falcon clinics seem to be needed to help the falconers and trappers in China and North Africa and Pakistan.

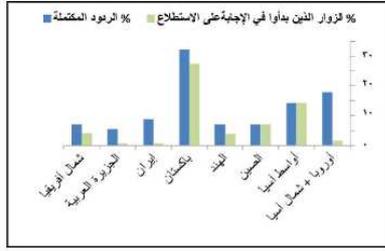


The third diagram shows that falconers in South-Central Asia and China mostly release wild Sakers after hunting with them. They still follow the traditional cultural practices that go back very many generations.



## نتائج الاستطلاع الجديد

الصفحة ا  
الصفور ا  
الهجرة  
الصفور ا  
جيدة  
مستشفيات  
الصفور ا



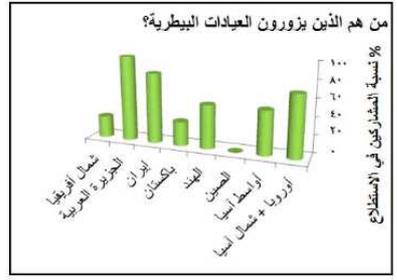
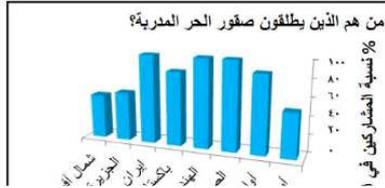
الشكر الجزيل لجميع من ساهم في استطلاع العام الماضي. الرسوم البيانية الثلاثة الأولى في هذه الصفحة توضح نتائج البيانات التي تفضلتم بتوفيرها. وقد تم توفير المزيد من المعلومات، بما في ذلك مقدمة وموجز تقرير السنة الأولى في الوثائق المتاحة في الجزء السفلي من هذه الصفحة.

ويوضح الرسم البياني الأول أن معظم مشاركات العام الماضي جاءت من باكستان. فقد شارك معظم الأشخاص الذين زاروا الموقع على شبكة الإنترنت من تلك الدولة في الاستطلاع. ونتيجة لذلك، تم سحب اسمين لفائزين من باكستان بجوائز الاستطلاع، مع ذهاب الجائزة الثانية إلى دولة الإمارات العربية المتحدة، والجائزة الرابعة إلى دولة أوزبكستان. إذا لم تستطع المشاركة في استطلاع العام الماضي، يمكنك المشاركة في الاستطلاع الجديد، حيث توجد فرصة لك للفوز بواحدة من جوائز هذا العام.

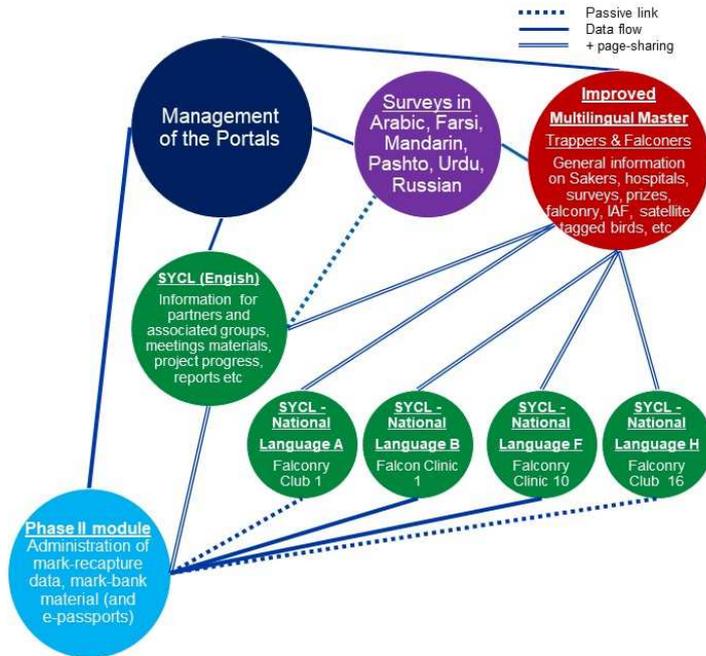
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نتائج الد

ويظهر الرسم البياني الثاني أن معظم الصقارين والصيديين في شبه الجزيرة العربية يأخذون صقورهم إلى العيادات البيطرية للتأكد من سلامتها وصحتها. ولعل هذا هو السبب في طول أعمال الصقور، كما يشير إلى ذلك الرسم البياني الأخير في هذه الصفحة، والمأخوذ من أول استطلاع من شبه الجزيرة العربية. ويبدو أن هنالك حاجة لمزيد من عيادات الصقور لمساعدة الصقارين والصيديين في الصين وشمال أفريقيا وباكستان.

ويبين الرسم الثالث أن معظم الصقارين في جنوب ووسط آسيا والصين يطلقون صقور الحر البرية بعد الصيد بها. فهم لا يزالون يتبعون الممارسات التراثية التقليدية التي تعود إلى العديد من الأجيال الماضية.

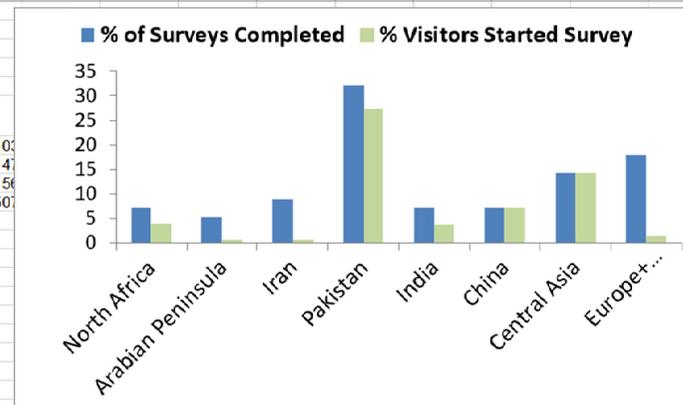


## System design for Sakernet II.

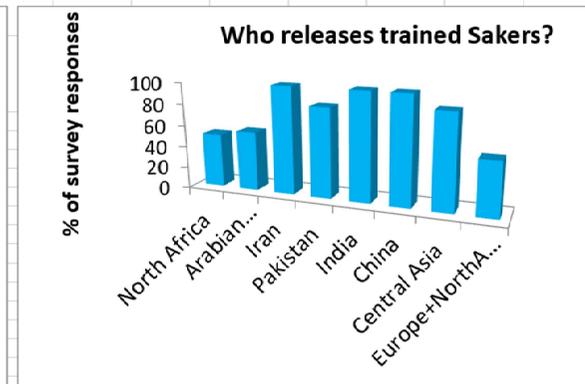
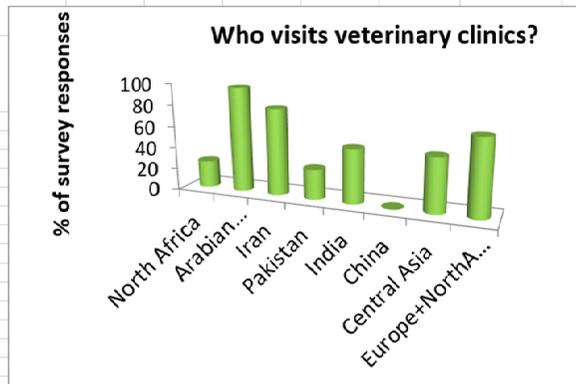


# RESULTS

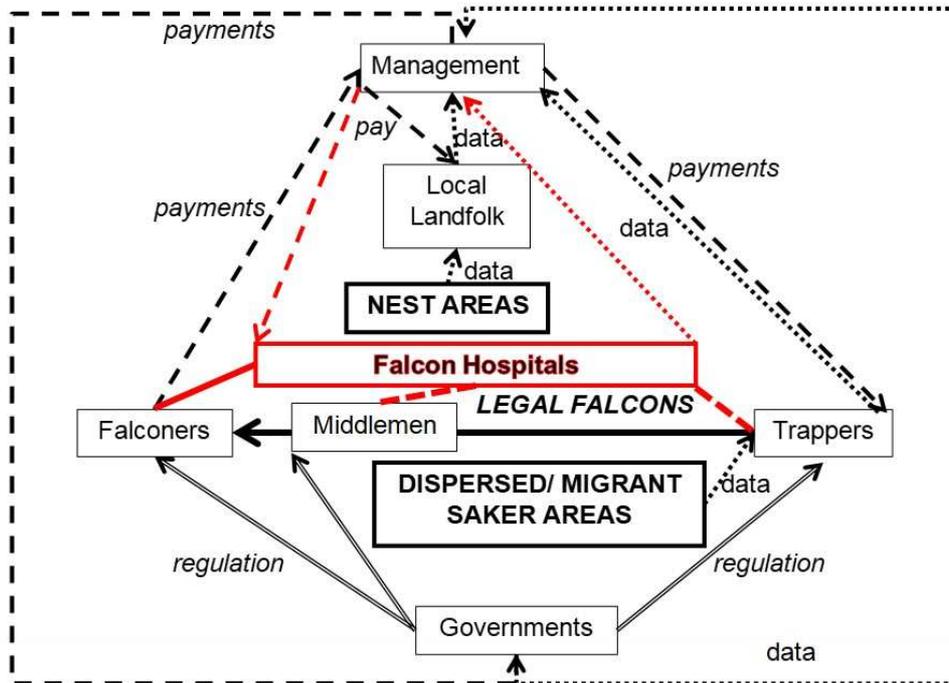
	North Africa	Arabian Peninsula	Iran	Pakistan	India	China	Central Asia	Europe+NorthAsia	
SurveyStart	9.5	9.5	12	23	8	8	15	18	100
Incomplete	5.5	6.5	7	5	4	4	7	8	41
Complete	4	3	5	18	4	4	8	10	56
Web-site	17	73	144	27	15	4	13	214	500
Web-site (N=507)	3.4	14.4	28.4	5.3	3.0	0.8	2.6	42.2	
SurveyStart(N=103)	9.2	9.2	11.7	22.3	7.8	7.8	14.6	17.5	
% of Surveys Completed	7.1	5.4	8.9	32.1	7.1	7.1	14.3	17.9	
% Visitors Started Survey	4.0	0.7	0.7	27.4	3.8	7.1	14.3	1.5	



	% of survey reponses:	
	Who visits veterinary clinics?	Who releases trained Sakers?
North Africa	25	50
Arabian Peninsula	97	55
Iran	80	100
Pakistan	28	83
India	50	100
China	0	100
Central Asia	50	88
Europe+NorthAsia	70	50



## Popn/trade monitoring needs Falcon Hospitals



## Conclusions

- Mark-recapture can monitor numbers, harvest and restoration of remote Saker populations.
- Marking nestlings with 250 RFID's/year for each sub-population by local people minimises costs.
- Trappers, vets (using RFIDs to identify patients already) & falconers have important roles too.
- Sakernet has shown readiness of all to engage and now needs networking for clubs and clinics.
- A system to monitor wild Sakers could also use RFIDs for harvest quotas & electronic passports.

## PRELIMINARY RESULTS OF SATELLITE TRACKING IN SOUTH RUSSIA AND PROPOSAL FOR CONTINUTAIION BY MÁTYÁS PROMMER

### Introduction

In 2014, the Convention on the Conservation of Migratory Species of Wild Animals (CMS) Raptors MoU published the Saker Falcon Global Action Plan (SakerGAP), following extensive discussions and reconciliation between various stakeholders interested in the conservation and sustainable use of the species under the umbrella of the Saker Falcon Task Force (STF). The aim of the process was to find a shared position on the long-term conservation of the Saker falcon considering its enigmatic and at the same time very pragmatic role in the centuries-long tradition of falconry.

The SakerGAP identifies the key knowledge gaps, as well as the most important actions to be implemented for the efficient and effective conservation of the species.

According to the SakerGAP, there are knowledge gaps related to “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” (p. 15). The document also identifies a number of actions to ensure efficient conservation of the species.

In order to gain momentum and for immediate action, the SakerGAP put forward four Flagship Proposals:

1. to create a single Saker Falcon Online Information Portal and engage 10 falcon hospitals and ten trappers within a Saker Falcon Network;
2. to deploy 100 satellite tags on Saker falcons;
3. to erect 1,000 artificial nest platforms for Saker falcons;
4. to install or retrofit 1million new or existing 'bird-safe' electricity poles.

The implementation of the Flagship Proposals started with the Online Portal ([www.sakernet.org](http://www.sakernet.org)) followed closely by the tagging of Sakers in Russia and Mongolia in 2016 and 2017, thanks to kind contributions from various organisations and volunteers. In various range states, actions have been taken addressing also the last two points. Those activities are not necessarily closely related to SakerGAP and CMS Raptors MoU.

### Tagging Saker Falcons in Russia and Mongolia

#### *Aims*

Two expeditions were organized: to Khakassia and Tuva in southern Siberia, Russia in June 2016, and to Mongolia in June 2017, to tag Saker falcon fledglings and fill the knowledge gaps identified in the Flagship Proposal. In Russia, the expedition was also a continuation of the Russian-based non-governmental organisation Sibecocenter's monitoring work in their project areas in Khakassia and Tuva.

#### *Participants & sponsors*

The expedition and the tagging were made possible by financial or in-kind contributions from several organisations:

- Sibecocenter, Russia, provided local knowledge, leading the expedition to control nests and nest sites, supplying a 4x4 vehicle and providing background information to evaluate the situation;
- The Russian Raptor Research and Conservation Network also provided local knowledge by leading the expedition to control nests and nest sites and providing background information to evaluate the situation;
- Wildlife Science and Conservation Center, Mongolia;

- Ecotone Telemetry, Poland, kindly donated 10 telemetry loggers to the project;
- The International Association for Falconry and Conservation of Birds of Prey (IAF) and its member organization Al-Gannas Qatari Society covered the cost of GSM fees for the telemetry loggers;
- Fertő-Hanság National Park Directorate, Hungary;
- Herman Ottó Institute Nonprofit Ltd., Hungary, provided staff for tagging;
- Révir Nonprofit Ltd., Hungary covered travel and subsistence costs for the Hungarian staff.

The participants of the Russian expedition were:

- Elvira Nikolenko, Sibecocenter, Russia;
- Igor Karyakin, Sibecocenter, Russia;
- Mátyás Prommer, Herman Ottó Institute Nonprofit Ltd., Hungary;
- Róbert Kazi, volunteer, Hungary.

In Mongolia:

- Batmunkh Davaasuren, Wildlife Science and Conservation Center, Mongolia;
- Anna Komoszyńska, Ecotone Telemetry, Poland;
- Malgorzata Jakimiak, Ecotone Telemetry, Poland;
- Lech Ilieszko, Ecotone Telemetry, Poland;
- Miklós Vácz, Fertő-Hanság National Park Directorate, Hungary;
- Hunor Török, Bükk National Park Directorate, Hungary;
- Mátyás Prommer, Herman Ottó Institute Nonprofit Ltd., Hungary.

#### *Target areas and previous monitoring & conservation activities*

In Russia, the expedition visited various sites across Khakassia and Tuva republics, where the Russian organisations have been monitoring raptor populations – with special regard to the Saker falcon – since the late 1990s. The primary target areas were in Tuva, home to a significant population of the Russian Saker falcon. In 1999, Russian experts registered about 120 active pairs in the project areas in the Republic of Tuva. Project areas in Tuva consist of three larger and several smaller areas, covering a total of about 7,000km<sup>2</sup>. It is noteworthy that Tuva Republic alone is 168,606km<sup>2</sup> with a population of 315,000 concentrated in the capital, Kyzyl. Both a shortage of local experts and poor infrastructure make fieldwork difficult.

This is also true of western Mongolia, where the work was carried out in the Mongol Altai mountains. Previous projects related to the Saker falcon focussed on the central and southern part of the country and mostly on the establishing and monitoring of artificial nest programmes. Only a few studies dealt with other Saker populations, and no country or region-wide population survey had been done.

The study areas in Russia and Mongolia include such various habitats as steppe, forest steppe, mountain steppe, semi-desert and alpine habitats. According to the Köppen-Geiger climate classification, the study sites within those have three different climate zones: subarctic with permafrost, warm humid continental and cold semi-arid climates. Historically, Saker falcons can be found in all these habitat and climate types.

Sakers in the study areas breed in natural nests on trees, pylons and cliffs, as well as in artificial nest platforms on trees and on stands in tree-less steppes. About 300 artificial nest platforms have been built in Tuva in recent decades.

During the monitoring, all raptor species, population data and locations of new nests were recorded, nestlings were ringed with ornithological and colour rings and, where possible, photos were taken of the adult birds in order to identify the turnover rate of adult birds.

## Results of the Expeditions

### ***Russia, June 2016***

In Russia, the team covered more than 2,000km in Khakassia and Tuva over 14 days, visiting more than 100 sites (most of them in Tuva), more than half of which had already had Sakers successfully breeding previously. It is difficult to tell the exact numbers as some of the sites are able to host several Saker falcon pairs very close to each other in good years.

Unfortunately, the 2016 breeding season proved to be catastrophic in Tuva and it was only slightly better in Khakassia. Not only Sakers, but also other raptor species, failed to breed due to a late winter and thus a lack of available prey. An early spring and then snow in May 2016 practically eradicated rodent populations on an unprecedented scale across large areas in Tuva and Khakassia. As a result, we found only four successful Sakers breeding in Tuva, and a few more in Khakassia. Most nests were abandoned and even adults were not seen nearby. We saw adult pairs occupying eyries without successful breeding only in a few cases. At one site, displaying and copulation were observed in April, but the site was already abandoned in June, with no apparent sign of the presence of adults observed. Inspecting the nests more closely, it seemed that most breeding did not start at all this year.

Other raptor species like Upland buzzards (*Buteo hemilasius*), Black kites (*Milvus migrans*), Steppe eagles (*Aquila nipalensis*) and even Lesser kestrels (*Falco naumanni*) had a very low breeding success. The low breeding success of the latter can be explained by the fact that the arrival of spring and summer was delayed by at least two to three weeks, and this was reflected also in the development phase of *Orthoptera* species – the main prey for Lesser kestrels.

In total, eight active nests were found – four in Tuva and four in Khakassia – and at least 20 juvenile Saker falcons were registered (in one case, one small chick was visible in the cliff-nest, but there could have been more) and all 10 telemetry loggers were successfully deployed in various regions in Khakassia and Tuva (Table 1). Seven loggers were deployed in Khakassia (two chicks in the first two nests and then three chicks in another nest) and three in Tuva (one chick in one nest and two chicks in another). The extremely low rate of successful breeding forced us to tag more chicks in four nests and only one in another nest, but from a research point of view it could turn out to be an advantage, as we can compare birds from the same brood. The tagged birds live in different habitats, from North Khakassia to South Tuva. As for nest types, we tagged fledglings in nests on trees, cliffs and high voltage powerline pylons.

The Ecotone Telemetry GPS-GSM ('Saker L') loggers were deployed on fledglings taken from the nest for ringing; no trapping was done. The loggers were attached in the usual way, using a Teflon harness. The working time of the loggers is set to the calculated daytime, and localisation frequency is set to one GPS coordinate in every two hours (sending data in every eight working hours).

### ***Mongolia, June 2017***

In Mongolia, the expedition covered more than 1,000km in 14 days in western Mongolia, surveying various habitats from river valleys across plains to mountains meadows. Although many seemingly appropriate sites were visited, no more than 21 Saker falcon eyries were identified. Prey availability was very good in the mountain meadows offering large number of rodents (pika, ground squirrel and marmot species), as well as small and medium-sized birds. In the semi-desert areas, prey abundance was lower and mostly pika were found as potential prey. Chicks were found in most of the eyries. However, their age differed significantly, ranging from a few day-old nestlings to full-grown fledglings.

Eight Saker falcons were tagged with Ecotone Telemetry GPS-GSM-UHF ('Crex') loggers: five adults (two males and three females) and three juveniles (two males and one female) (Table 1). As in Russia, we tagged nest-mates in Mongolia too. The adults were trapped near the nest sites. In western Mongolia, the Sakers we found bred

exclusively on smaller or larger cliffs, in the nests of other bird species, mostly built by Upland buzzard, Steppe eagle, Raven (*Corvus corax*), or sometimes Black kite.

We recorded other raptor species including Steppe eagle, Golden eagle (*Aquila chrysaetos*), Bearded vulture (*Gypaetus barbatus*), Cinereous vulture (*Aegypius monachus*), Himalayan griffon vulture (*Gyps himalayensis*), Peregrine falcon (*Falco peregrinus*), Common kestrel (*Falco tinnunculus*), and Lesser kestrel. It was interesting to record Steppe eagle and Common kestrel nests about 3,000m above sea level.

**Table 1.** - List of Saker falcons tagged during the fieldwork in 2016-2017 in Russia and Mongolia

Bird ID	Country	Year	Sex	Age
RUSA01 (name: Tuvin)	Russia	2016	male	juvenile
RUSA02 (Mongolka)	Russia	2016	female	juvenile
RUSA03 (Akemka)	Russia	2016	female	juvenile
RUSA04 (Batya)	Russia	2016	male	juvenile
RUSA05 (Khakasska)	Russia	2016	female	juvenile
RUSA06 (Kamysh)	Russia	2016	male	juvenile
RUSA07 (Sora)	Russia	2016	female	juvenile
RUSA08 (Altaika)	Russia	2016	female	juvenile
RUSA09 (Kyzylka)	Russia	2016	female	juvenile
RUSA10 (Chulym)	Russia	2016	male	juvenile
MNSA01	Mongolia	2017	male	juvenile
MNSA02	Mongolia	2017	female	juvenile
MNSA03	Mongolia	2017	female	adult
MNSA04	Mongolia	2017	male	juvenile
MNSA05	Mongolia	2017	female	adult
MNSA06	Mongolia	2017	male	adult
MNSA07	Mongolia	2017	female	adult
MNSA08	Mongolia	2017	male	adult

### Results of the Satellite Tagging

#### **Saker falcons tagged in Russia**

Only two of the tagged Sakers – brothers from the same nest – made it to the next summer (2017). All the other eight falcons were either trapped, killed or disappeared.

The two survivors were tagged in an old Eastern imperial eagle (*Aquila heliaca*) nest near Abakan, Khakassia in a late brood. *Sora* migrated to south-east Kazakhstan and spent the winter in his temporary settlement area. His typical behaviour was to spend the night in the hills and descend for hunting to the lowland. In late March, he left the wintering area and returned to Russia, crossing China and Mongolia. He spent the summer and the autumn in his fledging area.

His brother, *Batya*, spent the winter in western Mongolia in a hilly area. He returned to Russia only in April, but not for long, as he flew back to the wintering area after a few days. In May, he returned to Russia again and made it as far north as about 470km north of Krasnoyarsk for a few days. After this 'excursion' he returned to his fledging area first and then back to western Mongolia.



**Akemka before release, and the logger that helped to find her**

Other Sakers were not so lucky. In two cases, illegal trapping was proven. Two, named *Altayka* and *Kyzylka*, fledged from the same nest in Khakassia. Soon after fledging, the loggers on both birds started to send signals from one location. When the local staff of the conservation area searched the area, they found both loggers. *Altayka* was entangled in a pigeon noose harness used for trapping falcons. The trappers had not managed to find her, so she perished as she could not get out of the nooses to hunt and eat. *Kyzylka* was 'luckier' in that respect, as she was not found by the conservation staff – they found the logger cut off and hidden under a pile of stones.

Illegal legal trapping likely caused the disappearance of *Khakasska* and *Kamysh* too. They disappeared during the trapping season in an area that is well known for illegal trapping. However, there was no direct proof of trapping. It was the same story with another Saker, *Mongolka*, disappeared in the same period on the Mongolian side of the border.

This means that, in total, five out of ten Saker falcons were lost due to proven or alleged illegal trapping. Although we do not have direct proof in three cases, the time and place, the intensity of illegal trapping in those areas, as well as the lack of dangerous power lines in the area, and the reliability of loggers, leave few other options. In addition, in the trapping season of 2016, two teams of illegal falcon trappers were detained in those areas in Russia.

*Chulym*, nest brother of *Altayka* and *Kyzylka*, survived the critical season and started to winter in northern China, not far from Urumqi. Unfortunately, he was killed by another high-risk mortality factor for Sakers: electrocution. Chinese colleagues found his body under a 'killer pole' near an agricultural area.

The story of *Akemka* is one of the most interesting ones. She established a temporary settlement area in Kyrgyzstan, near the Kazakh border. At some point, however, the signals started to come from a village. After a few days of emailing, with help from German and Kyrgyz colleagues, we managed to get the police out to investigate the suspected houses. They did not find anything at first. The signals, however, were still coming from the same spot. So they went out again, and this time they found *Akemka*. They also found a man, who confessed that he had caught the bird, which was very weak. According to him, he had rescued her, and wanted to keep and feed her until she was strong enough for release. Ultimately, she was confiscated by the police, and was released a few days later without the logger, which was returned to us for re-use.

Of all the Sakers, *Tuvin* made it the farthest – reaching central China – but unfortunately, he disappeared on the border of Gansu and Qinghai provinces due to unknown reasons.

### **Mongolia**

As tagging in Mongolia was carried out in June 2017, we have less information than in the case of the Russian Saker falcons. Of the eight birds tagged in Mongolia, three (MNSA04, MNSA05 and MNSA06) have never given information. One explanation is that the birds are still moving but outside GSM coverage, and hence communication is not possible. Indeed, MNSA05 and MNSA06 are a pair of adults living in a narrow valley abundant with prey, and further away from GSM communication towers. MNSA04, however, is a juvenile bird, so is expected to roam larger distances during the dispersal period. Thus, in his case, it is likely that either the logger broke or the bird perished for an unknown reason.



**Chulym's body, found under a power line pole, leg and beak badly burnt due to electrocution – he was still holding a freshly caught gerbil**

All the other birds' loggers sent information. Unlike the Sakers tagged in Russia, we have less data on the Mongolian tagged Sakers, because GSM coverage is significantly poorer in Mongolia than it is in Russia. Even so, we have valuable data on the tracked birds.

MNSA01 and MNSA02, two nest-mates, dispersed north-west and north-east, and migrated south-east to China. MNSA01 returned and established a temporary settlement area for the winter in south-west Mongolia. His sister, however, migrated more than 1,900km from the nest, settling herself in the border region between Qinghai and Sichuan provinces, at an altitude of about 4,000m above sea level. MNSA03, an adult female, migrated also to Qinghai province in China.

MNSA05 and MNSA08, an adult female and a male tagged about 100km apart, were still in their eyries in October, probably due to their proper prey base. The latter, however, started migration on 15 November 2017 and he had already crossed the Mongol-Chinese border at the time of writing (late November 2017).

#### Conclusions of Fieldwork and Satellite Tracking

Satellite tracking of Saker falcons in Russia and Mongolia provided valuable information about habitat use, migration, and factors impacting on the species at population level. Preliminary evaluation of the data confirmed that there are direct and indirect factors that need to be considered when planning regional conservation activities. In addition, direct human pressure on the Russian population in Khakassia and Tuva may be stronger than in western Mongolia. However, the situation may be different in other parts of Mongolia, and at the moment there is not the appropriate amount of data for statistical analysis.

#### *Electrocution*

The problem of electrocution in Mongolia is well known by now from other studies, and recent tracking showed that Russian birds were also affected. Russian raptor specialists suggest that in extremely poor years, Saker falcons from Tuva and Khakassia move to Mongolia already in the failed breeding season, exposing themselves to the killer poles in Mongolia. It is very likely that electrocution is a major risk to Russian Sakers. Unfortunately, in Russia, new and dangerous distribution lines were being built in Saker areas, as we witnessed on the expedition. Retrofitting of dangerous lines, and building poles in a bird-friendly way, is more advanced in Russia, but there is still a lot to do in this field in both countries.

#### *Illegal trapping*

In Russia, illegal taking from the nest and trapping were obvious: ladders left at Saker nests; clear, fresh car tracks in the grass leading to the nest in uninhabited steppe in Tuva, in a period when taking from the nest is optimal; and trappers and smugglers caught and detained almost every year in certain areas of Khakassia, as well as at international airports in neighbouring republics. These all suggest that the illegal falcon business is thriving in Altai region, Altai Republic, and in Khakassia and Tuva republics. Our satellite tracking study also confirmed this fact. Authorities do their best, but more training and proper equipment are necessary to help fight illegal activities targeting falcons.

Another problem is that illegal trapping occurs in Mongolia just on the other side of the Russian border. According to information from trappers, and records from falcon auctions in the Middle East, the larger and often darker northern forms of Saker from Russia (especially those earlier considered as subspecies: *F. c. altaicus*, *F. c. saceroides*) are more valuable than Sakers from central and southern Mongolia – a good incentive to trap Sakers close to the Russian border. As illegal trapping focuses on females, it may affect natural population dynamics in the affected populations, as Russian Saker experts suggest.

#### *Weather and climate change*

2016 was a bad year for rodents, and thus for most raptor species in the visited areas. The warm spring and then frost and snow in May eliminated rodent populations, including the main prey species: the Daurian pika (*Ochotona*

*daurica*), the Mongolian pika (*Ochotona pallasii*) and the Long-tailed ground squirrel (*Spermophilus undulatus*). Of course, similar situations occur from time to time and affected populations have evolved to handle those events. In 2014, for example, the spring was similarly cold and wet as in 2016, however on a smaller scale.

During the expedition in 2016, we did not find successful Saker falcon breeding in the Uvs-Nuur basin (the southernmost part of the expedition), nor in the Tannu-Ola mountains. Only a few pairs were breeding in the Tuva Depression. The reason was a lack or extremely low density of prey, which – according to our Russian colleagues – had not been observed since they had started monitoring.

Rodents have their natural cycles, which is also influenced by weather. In order to put the findings into context, it is important to understand that, according to Russian raptor specialists:

- in Uvs-Nuur basin, the Daurian pika provides about 90% of prey for Saker falcons, and shows two- to three-year peaks followed by a collapse of the population;
- in the Tannu-Ola mountains, Saker falcons have a mixed diet composition. Daurian pika, Mongolian pika and Long-tailed ground squirrel make up more than 90% of the menu, thus (so far) always providing some sort of available prey at suitable density;
- in the Tuva Depression, Daurian pika is again the major food source (>90%). However, in that region, cycles apply on a more local scale: colonies are born, grow and vanish, always providing an available food source on some part of the Depression;
- in the neighbouring Altai region, Mongolian pika is the most important prey species, showing eight- to nine-year peaks.

The different population dynamics ensure that prey is usually available in some of those regions. That is why it is so unusual to have various species of rodents absent from such a vast area.

It is likely that the situation could get back to normal, unless those extreme weather conditions become regular and frequent. That is the point when climate change enters and may have an impact on steppe ecosystems. As for Saker falcons, the most important mid- and long-term impacts of climate change may be:

- extreme cold and precipitation (snow or rain) in the spring and early summer, which eradicate rodents, making breeding impossible and additionally also damaging the clutches themselves;
- steppe and forest fires (of which signs could be seen everywhere across Khakassia and Tuva) in late summer, which can destroy the source of pikas' winter reserves, decreasing their chances of surviving the winter; also ground squirrels will face problems not being able to build up enough fat reserves;
- warmer winters, which prevent ground squirrels from hibernating properly. Their warmer body temperature and faster heart-beat cause them to use up their fat reserves faster, thus forcing them to wake up earlier, when there is still no new food;
- that in some areas (e.g. in the Tannu-Ola mountains), if bears are not able to put up proper fat reserves, they do not hibernate, but keep looking for food – most likely rodents – throughout the winter, decreasing prey populations by spring;
- that in the longer term, with climate change, vegetation and thus rodent-fauna changes could also negatively affect Saker falcons.

It is not possible, of course, to predict precisely the outcome and impacts of such complex processes as climate change. However, it is important to monitor Saker populations along with the populations of their key prey species. In addition, parallel to population monitoring, the most important environmental factors must also be recorded in order to understand the trends and possibly to take the necessary measures.

### Future tasks

During the two expeditions in 2016 and 2017, only a small part of the Central Asian distribution range was explored and only a few individuals were tagged. Still, valuable data was gathered and recorded in the field with the help of those Saker falcons. It is important, however, to continue the survey in areas where no specific research on Saker movements, population dynamics and biology has been done, for example Kyrgyzstan, Uzbekistan, Turkmenistan, Iran, India and some parts of Kazakhstan, China and Mongolia. In those areas, it is necessary to do fieldwork to get a first impression of the current situation.

After collecting data in the field, Saker maps must be analysed against environmental data and threats, to reveal threats, to map the areas favourable for Sakers, and establish the reasons why they are favourable. Sites used by tagged Sakers for a longer period possibly should be visited, and environmental data must be recorded. Should any of the loggers stop, cease of data transmission should be investigated and its reasons clarified. Any problematic area en route must be investigated further to reveal the scale of the problem.

Of course, parallel to that work, regional conservation plans and targeted conservation measures must be started. Establishing regional cross-border cooperation for Saker falcon conservation is of the utmost importance. Activities in that field must be started as soon as possible, especially because, as the Russian example proves, it will be possible to conserve the northern populations only through international cooperation. In order to achieve that, any ongoing research projects in the region, and possibly all experts working in the region, need to be involved. A common platform must be created for recent and planned projects in Russia, China, Kazakhstan and Mongolia, which must be the primary task for the CMS Raptors MoU SakerGAP coordinator. Main findings should be discussed by the experts involved, and regional conservation strategies must be drafted. Possibly, drafts must be refined and approved by the conservation authorities of the given region.

### Acknowledgments

I would like to express my thanks for the kind support of Adrian Lombard and Janusz Sielicki (International Association of Falconry and Conservation of Birds of Prey), without whom we would not have been able to implement this work. Similarly, I would like to thank Lech Ilieszko and Ecotone Telemetry for generously providing the loggers, and the Ecotone Telemetry team – Anna Komoszyńska and Malgorzata Jakimiak – for assisting with the fieldwork in Mongolia. Completing the fieldwork and understanding the local situation would have been impossible without the support of our local colleagues: Elvira Nikolenko and Igor Karyakin in Russia, and Batmunkh Davaasuren and his father, and Nyambayar Batbayar, and our car driver, in Mongolia, to whom I owe a debt of gratitude. I highly appreciate their help, and most of all their friendship. My colleagues from Hungary – Róbert Kazi, Miklós Váczi and Hunor Török – also strongly contributed to our successful work.

I also thank colleagues, organisations and authorities in various countries for help in searching for, finding and collecting dead or weak Sakers and the loggers: colleagues of Khakasskiy Reserve, Russia; Professor MaMing and his colleagues in Xinjiang, China; and Askar T. Davletbakov, Rolf Nessing, and the local police in Kyrgyzstan.

# FUTURE PLANS FOR IMPLIMENTATION OF THE SAKER GLOBAL ACTION PLAN BY NICK WILLIAMS OF CMS RAPTORS



**Implementation of the  
Saker Falcon Global Action Plan  
(SakerGAP) – September 2017**

Nick P Williams, MSc (Ecology)  
Head of the Coordinating Unit of the CMS Raptors MoU

Saker Conference, 7 September 2017  
48<sup>th</sup> Annual IAF Council of Delegates Meeting,  
3-9 September 2017, Cholpon-Ata, Kyrgyzstan




## SakerGAP – Summary



- Holistic, inclusive approach which incorporates sustainable use for falconry purposes
- Covers whole range, life cycle and seasons
- Focuses on threats, knowledge gaps and actions
- Incorporates an Adaptive Management Framework
- Goal: to re-establish a healthy, self-sustaining wild Saker Falcon population throughout its range

## SakerGAP – Development timeline



## CMS Resolution 11.18

- Adopts the 10-year SakerGAP (2015 – 2024)
- Continues the overall Concerted Action process
- Continues Task Force with revised remit to facilitate implementation
- Establishes reporting requirements (CMS ScC, Raptors MoU, COPs)
- Promotes widespread support for the work of the Task Force
- Seeks to mobilise resources to support the implementation of SakerGAP
- Suggests integrating the SakerGAP into national biodiversity and other plans

## SakerGAP – Progress to date



- SakerGAP endorsed by Signatories of the Raptors MoU at their Second Meeting (MoS2), held in Trondheim, Norway in October 2015
- Translated into both Arabic and Russian, and published on the Raptors MoU website alongside the English version
- Development of the first STF Flagship Project – Saker Online Information Portal [www.sakernet.org](http://www.sakernet.org)
- Recruitment of consultant Coordinator to drive forward implementation of the SakerGAP suffered delays but contracts poised to be signed

## SakerGAP – Flagship Projects



## SakerGAP – First Flagship Project



### Saker Falcon Online Information Portal

- Aims to build trust, raise awareness and encourage husbandry best practice by linking falconers, trappers, falcon hospitals, conservationists and researchers to exchange information, eventually enabling estimation of sustainable harvest levels for Saker Falcon populations
- Sponsored by International Association for Falconry and Conservation of Birds of Prey (IAF) with support from Coordinating Unit – implemented by IUCN Sustainable Use and Livelihoods Specialist Group (previously ESUG)
- Portal launched in April 2015 in four languages (Arabic, Farsi, Pashto and Russian) at [www.sakernet.org](http://www.sakernet.org); English page at [www.saker-staging.net/](http://www.saker-staging.net/)
- Initial results exceeded expectations with twice the target number of visits within the first 9 months – demonstrably attracted attention from a wide spectrum of people in different countries and language groups
- Report of Phase I of the project ready for publication
- Plans for Phase II of the project – ‘Establishing an Electronic Management System’ due to be presented at this Conference

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## SakerGAP – Other Flagship Projects



- **Deploy 100 satellite tags on Saker Falcons**
  - Several tags deployed in 2015-2017, more are planned to be fitted
- **Erect 1,000 artificial nest platforms for Saker Falcons**
  - A groundbreaking project led by International Wildlife Consultants UK Ltd created a managed breeding population in Mongolia occupying artificial nests (produced ca. 2,500 fledgling Saker Falcons in 2014)
  - Plans to extend this proven approach into other areas, particularly steppe habitats in Kazakhstan (and in China?)
- **Install or retro-fit 1,000,000 new or existing ‘bird-safe’ electricity poles**
  - Coordinating Unit contributed to a meeting of representatives from all the power distribution companies in Mongolia to raise awareness of the risks posed to birds by power lines – December 2014
  - MME (BirdLife Hungary) hosted an international conference on the threat posed to birds by power grids in Hungary – November 2016

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## SakerGAP – Financing



- No specific funding was made available by CMS Parties at COP11 in November 2014 to implement the SakerGAP
- Significant funds were received from IAF to support the first Flagship Project, which enabled excellent progress to be made to develop and launch the Online Information Portal
- Coordinating Unit has financed production and translation costs of the SakerGAP to date, and will fund the SakerGAP Coordinator position, initially for two years
- **Substantial funding gap remains to be filled to ensure anticipated progress to implement the SakerGAP**

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## SakerGAP – Next Steps



- SakerGAP Coordinator – finalise recruitment process
- Issue Questionnaire to all Range States seeking update on progress implementing the SakerGAP and future plans
- Draft WorkPlan and circulate to Saker Falcon Task Force (STF)
- Host STF Telecom to finalise WorkPlan for next two years
- Task Force to submit update report to CMS COP12 (Oct 2017)
- Fundraising!



Photo by Galina Papp

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The work to construct and monitor artificial nests in Mongolia was carried out on behalf of the Emirati falconers and has been implemented by partners at the Wildlife Science and Conservation Centre. In China, the lead has been taken primarily by regional government bodies as part of a programme to control small mammal pests.

In contrast to China, the driver for developing the artificial nest project in Mongolia was not control of rodents, but the conservation management of Saker Falcons and their sustainable harvest for falconry. The background was an unregulated trade being operated by the Mongolian government receiving national and international criticism; there were unsubstantiated claims that this trade was driving a population decline in the country.

By erecting artificial nests in nest site-limited areas where Sakers existed as non-breeders, it was possible to create a new breeding population. This population could be easily and accurately monitored. The aim was to create a population large enough to sustain a Saker harvest of ca. 300 females per annum. Preliminary research indicated that around 5,000 artificial nests would be required. This preliminary work involved identifying the optimal design for artificial nests, assessing potential nesting densities, assessing influence on the neighbouring, unmanipulated breeding population and comparing breeding success at artificial nests and natural sites. This work was completed over 3-years from 2007 to 2009.

When developing the 5,000 nests project, we were aware that sustainable trade should incorporate socio-economic benefits for local communities. We engaged local communities from the initial planning stage in deciding where to erect nests. We selected 20 districts of central Mongolia and erected 250 artificial nests in each one. Nests were of the 'closed box' design preferred by Saker Falcons and erected in grids at 1.5 km intervals to facilitate optimum nesting densities. Potential community benefits included capacity building, local employment, income generation and education.

Once the nests were up, teams of biologists monitored them recording occupancy, clutch size, brood size and nesting success. Feather samples were collected from nestlings for DNA and chicks were marked with microchips and coloured rings. Moulded feathers from breeding adults were also collected for DNA analysis.

Numbers increased year on year to 2014 – indicative of recruitment from non-breeding population rather than immigration. In 2015, the population declined, as did productivity. This was related to a decline in rodents in the

eastern steppe. Raptor populations declined at artificial nest grids in eastern districts but remained stable or increased at western districts where rodent numbers did not decline.



Saker chicks at artificial nest in Mongolia

Data collected on nesting success and fledged brood sizes indicates breeding productivity was high at artificial nests, better than at natural sites, while post fledging survival in the first month after fledging was lower. Nevertheless, overall artificial nests were more productive overall than natural nests. There was also a great deal of annual and spatial variation in productivity.

To calculate sustainable harvest quotas, we also require data on adult and juvenile survival. We have collected this data via direct observation of visual markers (rings) and by DNA genotyping. We can also identify breeding recruits from their rings, which informs us about natal dispersal and their subsequent survival rates as breeding adults. DNA analysis allows us to identify breeding turnover events i.e., when a breeding bird fails to return the following year. Turnover can be due to death, dispersal or non-breeding. Our analyses indicated turnover is a proxy for mortality rates. An PhD project at the Institute of Zoology, Chinese Academy of Science, Beijing will develop a realistic dynamic population model that incorporates spatial and temporal variation in vital rates.

Another important aim for our project was international endorsement by CITES. This was achieved in 2011, allowing Mongolia to proceed with a Saker Falcon harvest based on the development of the artificial nest project. To maintain 'synergy' between international conventions the Mongolian Saker population was subsequently excluded from Appendix 1 listing in CMS.



The final aim of our work was to get the Mongolian government to engage and develop a transparent management system for a sustainable Saker Falcon harvest. We developed a schematic model for administration at various levels from local to international. There was some initial engagement from the Mongolian government, such as the designation of trapping districts and marking of trapper's vehicles, but little engagement in other areas such as microchipping. A combination of factors, including ministerial opposition to the falcon trade resulted in a ban on commercial trade when a new government was established in 2011. The key word in this ban is 'commercial', as the trade still continues under the guise of 'diplomatic' trade, but it has now become less transparent, with little oversight within Mongolia or internationally from organizations such as CITES and CMS.

Our research work tracking the movements of Mongolian Sakers by satellite indicated that a significant proportion of the population is migratory. The Mongolian migrants primarily spend the winter on the Qinghai-Tibetan Plateau (QTP). On the QTP, artificial nests have been erected by local rodent control departments of the state forestry service. The objective is to control small mammals that are thought to degrade pasturelands. Over 10,000 have been erected but there is little monitoring by state agencies. Emirates falconers and zoologists at CAS have initiated a project to assess efficacy of this scheme. The project will also utilize artificial nests to examine predator-prey relationships in the steppe grasslands of Mongolia.

We have introduced Mongolian style artificial nest grids to compare with existing Chinese designs. Recent discussions with CITES authorities in China and the State Forestry Administration have opened the possibility of developing a sustainable use project similar to that established in Mongolia on the QTP. By developing a system



of governance through active state involvement at the outset it is hoped that the problem of establishing transparent administration can be overcome in China.

At present, the 5,000 nests in Mongolia are not being monitored and are not being managed to support a sustainable Saker Falcon harvest. Attrition of the nests, as they fall over or are deliberately removed, means that there are now approximately 3,000 nests still standing. The investment made by Emirati falconers in the Mongolian artificial nest project has demonstrated that where there is a will great strides can be made in conservation of the species. The hope is that the work of the biologists and researchers at WSCC and Institute of Zoology, CAS can continue to move the projects forward.

*Andrew Dixon, Research Studies Manager, Emirates Falconers' Club, Abu Dhabi*



Geographically, Pakistan lies at the very heart of important migration routes on the Central Asian Flyway (CAF). The number of migratory birds wintering and breeding in Pakistan is simply mind-blowing. A number of birds of prey and game bird species arrive in the country with the onset of the autumn season.

It is no wonder, then, that the art of falconry has strong roots in Pakistan and, like anywhere else, it has been practiced with great fanfare by the locals since time immemorial. The field sport of falconry has a long history in South Asia in general and in Pakistan in particular. The hawk or falcon has been glorified for its great qualities in poetry and literature by renowned men of letters. There are a great many miniature paintings depicting kings and princes with hawks and falcons on their fists.

Amritsar used to be a great falcon market in the Subcontinent. After the partition, Lahore became the bastion of falconry equipment and of the trading of falcons admired throughout the world for their high quality. Of late, however, the field sport has been under considerable pressure from some quarters, which begs for a dispassionate approach and realistic policy.

To begin with, there are certain species of raptor that are included in the Third Schedule of the wildlife laws by the state – a decision that dates back to the 1980s. Among them, the peregrine (*Falco peregrinus*) and the saker (*Falco cherrug*) are noteworthy, which are winter migrants and are highly valued in falconry. Inclusion of these species in the Third Schedule means that there is a complete ban on their trapping, training and dealing.

Looking at the reality on the ground, however, the scenario is quite the opposite. Not only are hundreds of birds of prey captured on their migration routes every season, but they are also routinely smuggled out of the country across the Iran and Afghanistan borders for hefty sums. As far as the trapping of birds of prey is concerned, it takes place all over Pakistan. Due to the lack of a viable policy and effective management, at present there is a vicious circle consisting of falconers, trappers, dealers, and smugglers. And this is what that has given the otherwise noble sport a bad name. During the process, the trappers get exploited at the hands of the middlemen.

Many birds also die due to the ill-treatment they suffer during the smuggling process. Even when these birds are caught at airports or on the road by customs or wildlife officials, the authorities have little or no falconry knowledge

about the proper handling of the birds of prey, their diet, flying weight, releasing sites and methods etc. Furthermore, the smugglers transport more birds than they need, in order to allow for the wastage of birds during transit. All this results in more suffering to the birds. The picture is quite dismal; on the one hand, there is a lot of illegal trapping and smuggling taking place; on the other, the government is absolutely powerless to regulate the activity in a meaningful way.



*Falcon trapping camp*

Trappers and falconers from different regions are sheltered and supported in their falcon trapping by local villagers, who provide food, shelter and also cover from legal and regulatory agencies. Such local support makes certain sites an ideal choice at which to trap migratory falcons year on year, to be sold to dealers and smugglers.

Each bird trapped is offered to groups of dealers and smugglers for the highest bid, which is then divided 50/50 between the trapper and local. The amount paid by dealers for a wild falcon is much less than the price of a legal wild-take falcon on the international market.

There are two ways to cope with the situation: either to close our eyes to the foul practice and keep on with the *status quo*; or to devise an innovative and pragmatic policy with the aim of sustainable biodiversity, local livelihood and revenue generation.

A case could be made with the Markhor trophy hunting model in mind. It should be noted that the Markhor is also a Third Schedule animal species. But still, international wildlife organisations like the World Wildlife Fund (WWF) and the International Union for Conservation of Nature (IUCN) not only



*Falcon dealer in Peshawar*

endorse the practice but also encourage governments to embrace it for the preservation and conservation of endangered animal species. The basic concept of trophy hunting is to discourage illegal hunting and poaching by involving the locals in a meaningful way and directing their energies toward a positive end. This is done by allocating a certain annual hunting quota through transparent bidding. A major chunk of the funds thus generated goes to the local population where the hunting activity takes place, and the government also receives a share of the revenue. The trophy hunting is a success story since the locals have a livelihood stake. So not only do the locals diligently protect the concerned wildlife in their areas in the breeding season, but they also inform the authorities of any illegal poaching.



Some rural communities are traditionally dependent on CITES-listed species for their livelihood. In the case of Pakistan, this is absolutely true, with the trapping and trade of falcons – including the saker – rooted in economic, social and cultural drivers. To ensure the interest of rural communities, and without affecting their traditional source of livelihood, communities should be awarded quotas for the legal trapping and trade of falcons.

The need of the hour is to take the local falconers on board, benefit from their knowledge and experience, and direct their energies toward a positive end. The involvement of the local falconer community by the government in the formulation of a viable policy has multiple and manifold advantages. First of all, it would bring into the loop the hitherto undocumented number of trappers, who are otherwise exploited by the spineless dealers and smugglers. On a tentative basis, a survey programme could be formulated in which a census would be carried out of the falconers, trappers, trapping sites, dealers, and breeding areas throughout the country, along with mapping. This survey should also record the whole spectrum of existing migration routes. DNA banking, data justification, population genetics, rehabilitation and conservation of endangered species of raptors are also some of the areas where knowledge of the local falconers could be utilised. Trappers/falconers could provide the government with credible counts of the migrating birds and help it with data collection, which so far has been a great handicap. Secondly, the trappers and falconers will have a legitimate source of livelihood through government incentives and the legal trade of birds in the international market. Third, by streamlining and legalising the sport and wild take of

birds of prey, there will be less and less chance of illegal trade and smuggling, which is a stigma on our national pride.



*Pakistan falconers with sparrowhawks*

To sum up, in order to preserve the centuries-old tradition of falconry and to conserve bird of prey species, the involvement of the actual stakeholders is vital and every step should be taken to get them on board. Community mobilisation to initiate village-based conservation will support initiatives aimed at protecting and conservation of birds of prey and associated biodiversity while benefiting humans at the same time. Limited licences may be sold to trappers, with revenue from trapping fees returning to the communities. This yearly trapping of falcons in Pakistan is anticipated to be highly valued by local communities and would act as a major economic and conservation incentive. The value of trapping to conservation lies in the fact that trappers are prepared to pay relatively large amounts of money for the privilege of trapping falcons, and falconers are prepared to pay relatively large amounts for birds legally traded.

The community may trap an allotted number of birds to sell on the national and international market, and the Wildlife Department can be involved in the allocation of annual quotas after careful assessment of the inventory of birds of prey. The services rendered by the community may be rewarded with a licence for a certain percentage of trapping and trade of falcons on the national and international market.

In this Bird of Prey Trapping Programme, the legally trapped birds may be offered for sale on the international market, and the plan includes some portion of this money to be utilised to conserve the population or area from which the falcons are taken, which will bring sustainability to the programme. The revenue from the sale of the birds may be shared among stakeholders in the following ratio: community 70%, government 20%, and NGOs 10%. The community share may be spent by village organisations for social sector development, such as education, health, community infrastructure, safe drinking water etc. Some percentage of the community share may be given to the Village Conservation Fund (VCF). The intended purpose of the VCF is to pay for conservation actions and

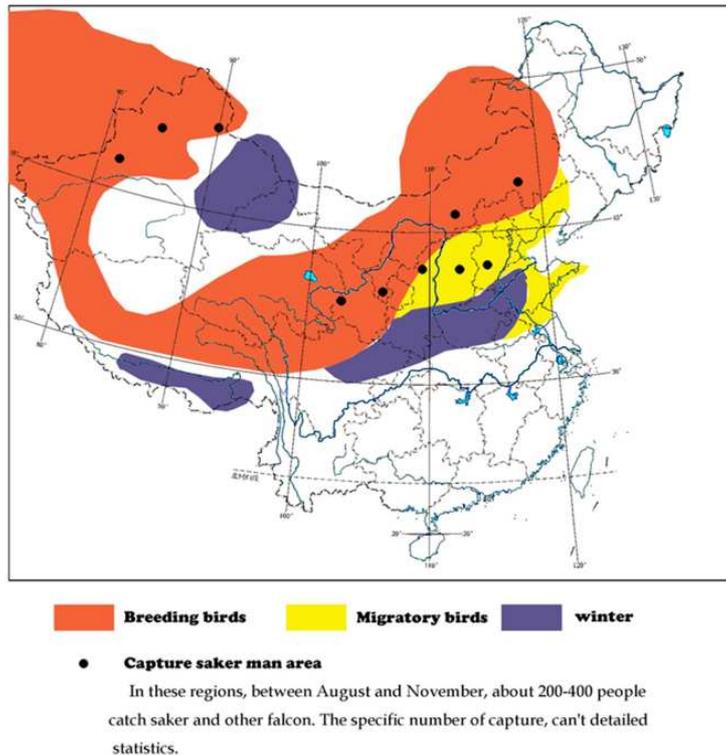
social benefits that foster community support for conservation of biodiversity. The upshot is that if governments come up with and support a concrete programme, then the knowledge of the falconry community could be utilised in a positive way and their energies directed towards the goal of conservation and protection. This will guarantee not only livelihoods for locals but also revenues for the state and respect from global wildlife entities.

A tripartite Memorandum of Understanding (MoU) was signed between the Pakistan Ministry of Climate Change, the IAF and Pakistan falconers during the 2017 IAF Council of Delegates Meeting. The salient features of the future course of action in Pakistan related to birds of prey, under the MoU, shall be to:

- Ensure that trapping/snaring and other forms of taking raptors from the wild are legal, controlled, and sustainable, thereby encouraging population growth and the eventual stabilisation of raptor populations;
- Maintain, restore and expand the range of raptors by ensuring suitable breeding and foraging habitats and by reinforcing prey populations;
- Ensure the effective involvement of all stakeholders in the implementation of the action plan, within an adaptive management framework;
- Establish a modern raptor veterinary facility equipped with modern lab technology, radiology/X-ray, endoscopy, surgical instruments, medicine and staff;
- Initiate the estimation of raptor population sizes and population modelling to establish potential raptor harvests and encourage a sustainable wild take of birds of prey for legitimate falconry.

A close working relationship will be maintained between the parties for project development, financing, and implementation to support conservation and sustainable development-related objectives, and for the expected outcomes of the raptor biodiversity strategy and action plan, and the implementation of multilateral environment agreements.





The Saker Falcon is a species that can be found in a wide range of areas in China, with its breeding distribution across nine provinces and autonomous regions, including Xinjiang, Qinghai, Tibet, Ningxia, Inner Mongolia, Hebei, Liaoning and Sichuan. After the breeding season, the falcons fly further south to spend winter in Henan, Sichuan and other provinces through Shanxi, Shanxi, Hebei and Shandong.

Today, I will talk about five main dangers facing raptors in China.

**Wind Farms**

On the wind farms near Urumchi in Xinjiang, thousands of windmills are erected on the birds' migratory pathway across Tianshan Grand Canyon. These windmills pose a potential threat, especially to those birds migrating at night. I estimate that the wind turbines at Atamont Pass kill 1,766 to 4,271 birds every year, including 880 to 1,330 raptors such as Saker Falcons, Golden Eagles and owls. And this is just the figure from one wind farm.

Let's look at what actions we should take in response:

1. We should analyse how wind farms will possibly affect nearby natural reserves. Windy spots are usually taken by wild raptors as pathways of inhabitation and migration.
2. We should learn about the existing migratory flight paths near the wind farms.
3. We should find traces of nesting and egg-laying. Beaches, forests, grasslands, broad valleys and lakes are the places where such evidence can be easily found.
4. We should find historical evidence or proof of birds hitting wind turbines.

**High-voltage Power Lines**

Power lines may kill multiple species. My own findings are that 11 species of raptors have been documented to be killed in this way, accounting for 20% or so of the total 54 raptor species in China. As for the electrocution rate, a recent study in Western China (Mei, Ma, Dixon and Hu, 2008) found that 1.36 raptors were electrocuted per

thousand meters of power line, with 12.53% of the transmission line towers classified as 'dangerous'. Ordinary towers pose little threat to the lives of raptors. However, the large steel frames will put the birds in jeopardy. According to this same study, not every tower attracts raptors to nest on it; only H-frame structures are dangerous. For every kilometre of power line, on average, 0.37 nests were found. Birds often choose a variety of materials to build their nests, such as tree branches, rags, iron wires, iron pieces and auto parts. Among those, steel-made materials can lead to electrocution.

Raptors prefer to perch high, so they are more likely to be electrocuted. The mortality rate is about 1.36 per kilometre. Qinghai-Tibet Plateau boasts large open lands, a geographical situation that makes power line towers a good place on which to perch, nest and hunt from. Different tower structures and voltages may hurt the raptors to different degrees. Raptors are frequently electrocuted by 10 kV towers, so we can find few nests on these structures. As for the 35 kV towers, nesting or alighting on them can also cause death. Most of the ordinary power lines are safe for the raptors large steel frames will put the birds into jeopardy.

### **Human Activity**

At present, I would estimate the number of raptor hunters in China to be about 200-400, all of whom are living in the breeding or migration ranges of the raptors. The hunters concentrated in Hebei, Shanxi, Ningxia and Gansu account for 70% of the total in China. After visiting these locations in my spare time over 15 years, my records show that 50% of the hunted raptors are goshawks, 20% are Saker Falcons and 20% are Peregrine Falcons.

Since the training skills are mastered by few people, Saker Falcons are trained only in Heibe and Shanxi Province. Moreover, the Saker Falcons find it hard to adapt to the humid climate in southern China, so the south is the training ground mainly for Peregrine Falcons and Goshawks. Currently, there appear to be about 50-100 Saker Falcon trainers in China who use them to catch hares. In most cases Saker Falcons will be flown in a cast of two or three. Every year, about 200 Saker Falcons are used for hunting.

Meanwhile, we cannot ignore the issue of smuggling. Every year, China's customs authorities seize smuggled Saker Falcons. The situation is most severe in southern Ningxia. The barren lands there bring little income for people, so trafficking Saker Falcons has become an important way to make more money. (No concrete data acquired)

### **Taking Nestlings**

In recent years, I have detected that the taking of nestlings is on the rise. Since many novices believe nestlings are easier to tame, a huge market is being created. Using data collected via software such as WeChat, I have found that in the breeding season many people (traditional hunters not included) head for raptor breeding grounds to look for their nests. They poach almost every species of raptor, among which Goshawks, Saker Falcons and Peregrine Falcons occupy the highest proportion. These birds will then be traded across the country. By the beginning of the hunting season in October, the survival rate of nestlings is as low as 15%.

### **Other Causes**

In China's traditional falconry culture, Goshawk, Peregrine, Merlin, Sparrowhawk and Besra (*Accipiter virgatus*) are seen as the only species that can be trained. (Golden Eagles are trained only in Xinjiang.) Some other raptors are illegally traded as food for restaurants. According to my own interviews with vendors, among those species, Golden Eagles, Tawny Eagles and Eagle Owls sell best, accounting for 30% of those captured.

Just now, I've introduced the basic situation of raptors in China. Since China is a large country with a huge population, accurate data is difficult to obtain. The falcons are all caught in the wild. (Raptors are listed as key national protected animals.) In China, falconry is heavily restricted, and our respondents are sometimes unwilling to disclose their personal information. This report is therefore written on an evaluation basis for reference purposes.

Reference MEI Yu, MA Ming, Andrew DIXON, and HU Bao-Wen (2008) 'Investigation on Raptor Electrocution along Power Lines in Western China', Chinese Journal of Zoology 43(4), p.114-117. <http://www.doc88.com/p-4983475172975.html>

## SAKER CONSERVATION IN MONGOLIA BY NYAMBAYAR BATBAYAR

The Wildlife Science and Conservation Center of Mongolia (WSCC) is a registered non-governmental organization based in Ulaanbaatar, established in 2004 and officially registered in January 2005 (Registration No. 1045806). The WSCC is dedicated to preserving Mongolia's wildlife and their habitat through research, conservation, and public education. **Our motto is "Conserving wildlife and their habitats through science and public**

Projects include: rare and threatened species conservation and scientific studies on:

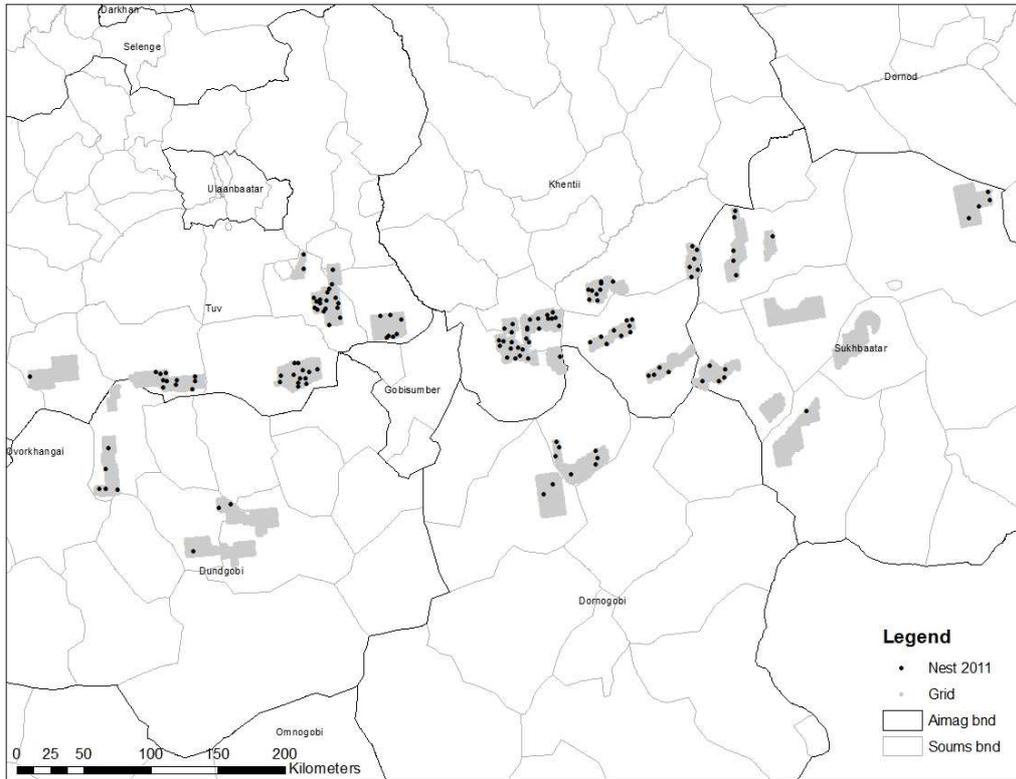
1. Saker Falcon
2. Cinereous Vulture
3. Bar-headed Goose
4. White-naped Crane
5. Swan Goose
6. Dalmatian pelican
7. Houbara Bustard
8. Great Bustard
9. Whooper Swan
10. Amur Falcon
11. Brandt's Vole
12. Migration studies
13. Avian Influenza
14. Falconry Heritage

We have produced more than 60 items of research, including 8 MSc & BA theses, 4 books, 7 large reports, 2 proceedings and 6 documentary films.

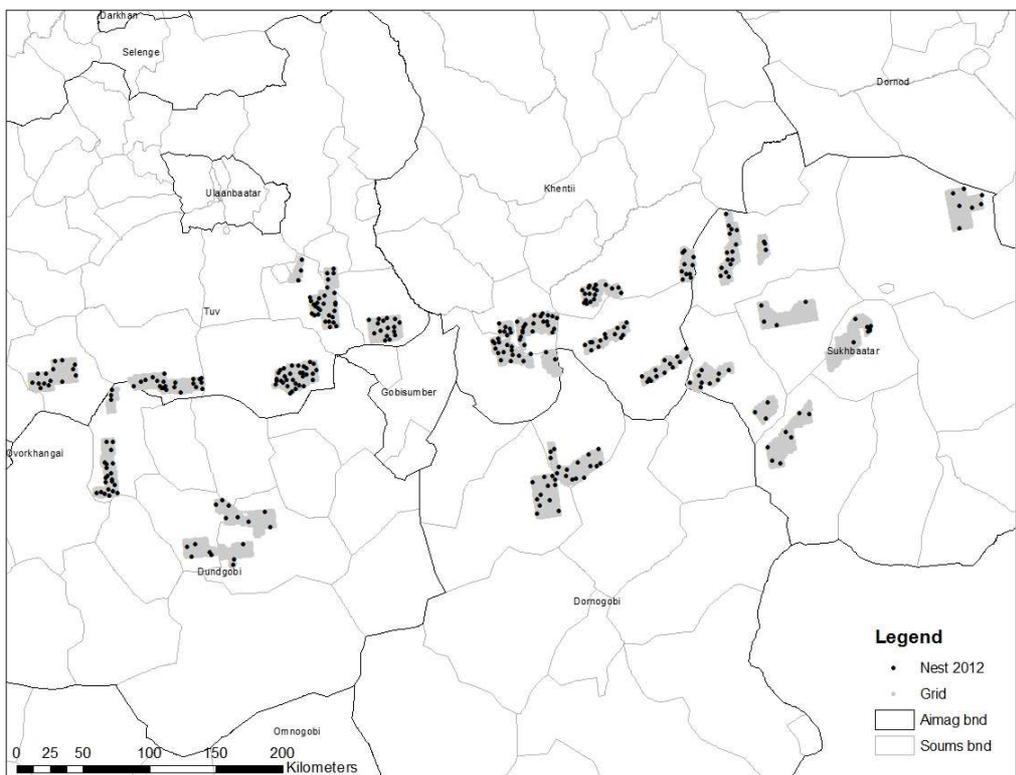
### **Saker Falcon Conservation and Artificial Nest Project**

Saker falcons are highly sought after in Middle East countries and it threatens the wild population in Mongolia. The Artificial Nest Project is a way to save this species with sustainable use in mind. It is the largest wildlife management project in Mongolia.

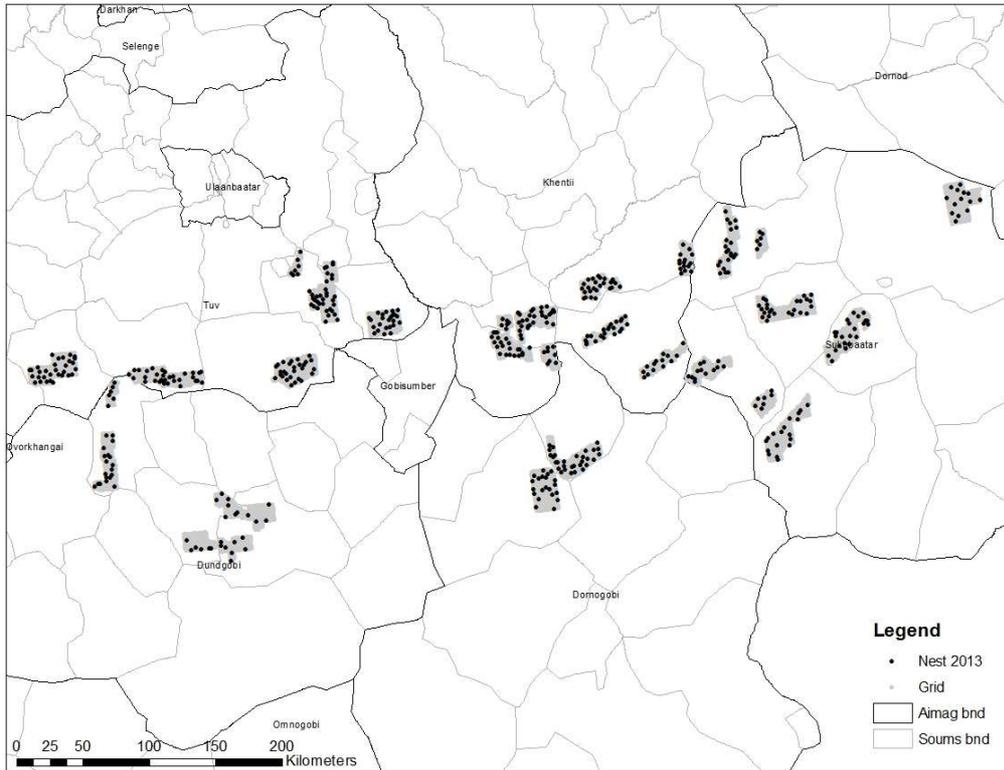




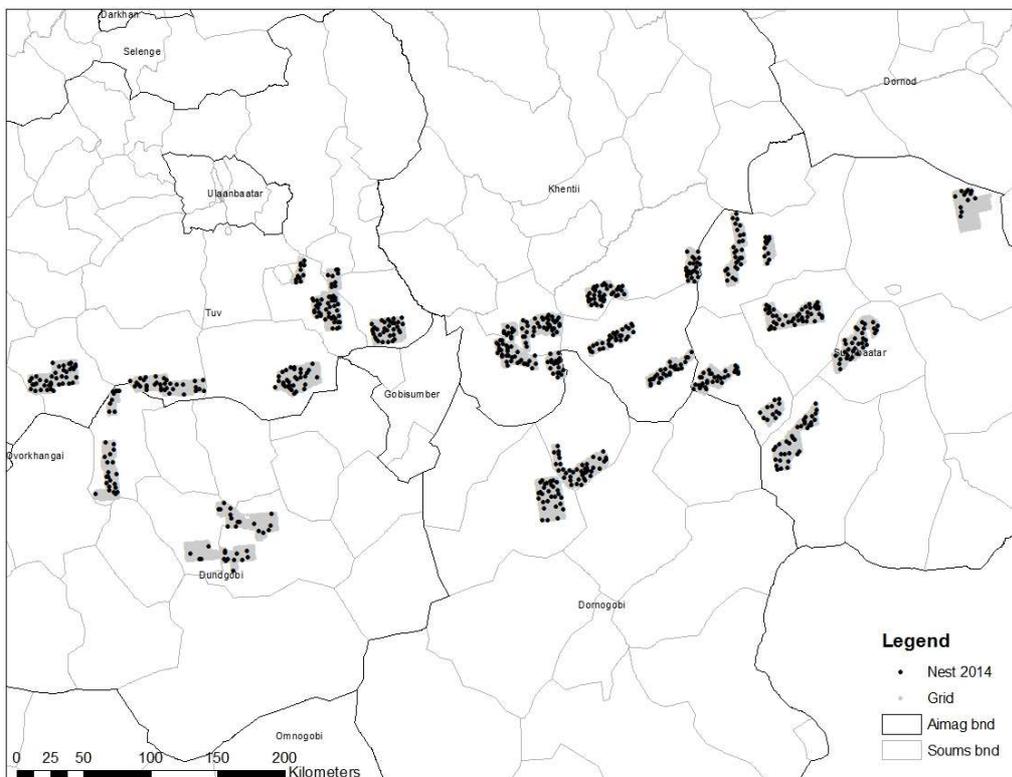
200 Saker  
breeding  
pairs in  
2011



380 Saker  
breeding  
pairs in  
2012



568  
Saker  
breeding  
pairs in  
2013



766 Saker  
breeding  
pairs in  
2014

### Mongolian saker falcons are far from safe!

1. Electrocutation
2. Uncontrolled harvest
3. Illegal trapping
4. Increasing use of pesticide

### Actions needed and progress

#### Electrocutation – current issues

- A very high rate of raptor electrocution documented in Mongolia
- Percentage of saker falcon mortality due to electrocution is higher than any other species
- Problem persists with mainly on medium voltage lines (15kV)
- Problem is not local, it is a nationwide problem
- Lack of legal instruments to ensure the prevention of birds from faulty powerline design and construction
- Now, the question is: *How to fix over 4,000km of faulty 15kV lines erected throughout Mongolia?*

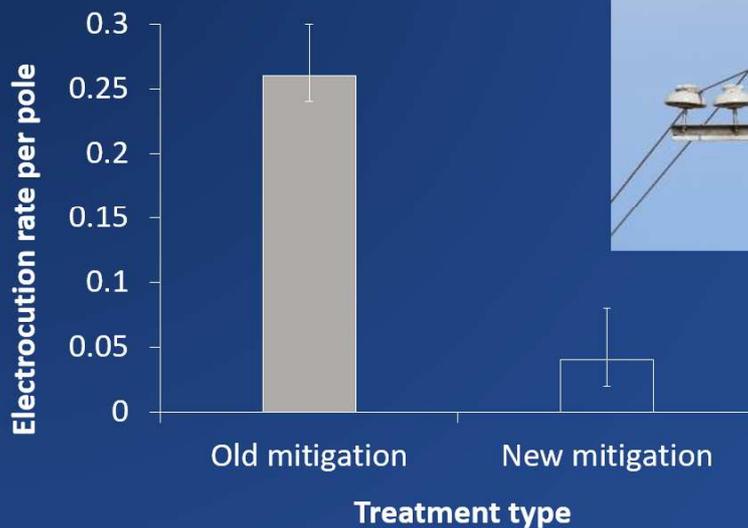


#### Electrocutation – actions taken

- Established a working group to develop national standards and guidelines for bird-safe powerline structures
- Organized the first national workshop on raptor electrocution risks and potential solutions, raising awareness
- Conducted a trial project on the effectiveness of cheaper and low-maintenance mitigation methods
- Established an informal expert group to exchange ideas and experiences on mitigation and offset options
- Oyu Tolgoi Project agreed to mitigate about 300km of lines in several key areas
- Organized a powerline and electrocution study trip to Europe (unfortunately, stopped at the last minute due to new regulations).

The first national workshop on avian electrocution risks was held in Ulaanbaatar on 14 March, 2017. Over 60 delegates from 34 organizations participated. Biologists and engineers met for the first time. Resolutions with a list of urgent recommendations was adopted and submitted to the Mongolian Government (GoM) and relevant agencies. Maybe we will repeat this event every two years.

# 1. Electrocutation



- Cheaper to install
- Low maintenance cost
- Reduced mortality significantly
- Did not eliminate the problem

## Uncontrolled harvest – actions taken

- Expressed our concerns about uncontrolled Saker falcon harvest in Mongolia with the officials at [MET \(?\)](#)
- Submitted the Artificial Nest Project concept to the new administration for their review
- Raised international awareness through CMS Raptors MOU
- Raised public awareness on this issue through media and press conference
- Collecting data from secondary sources

## Illegal trapping – current issues

- Number of illegal foreign and local trappers is increasing
- Very little control on trapping area and groups
- Low-cost falcon (300-500\$) sales are increasing
- 2015 was the year with the highest number of Saker falcons confiscated in the history of Mongolia (N=110)
- Confiscated falcons are released without any rehabilitation and many of them end up dying during transportation or after release back to the wild

## Illegal trapping – actions taken

- WSCC team worked as experts to investigate confiscated falcons
- Discussions are underway with the police team to record and report illegal falcon trade and smuggling incidents
- Carrying out non-systematic observations on poachers and smugglers
- Collecting information from secondary sources to monitor legal and illegal trapping activities

### **Increasing use of pesticides – current issues**

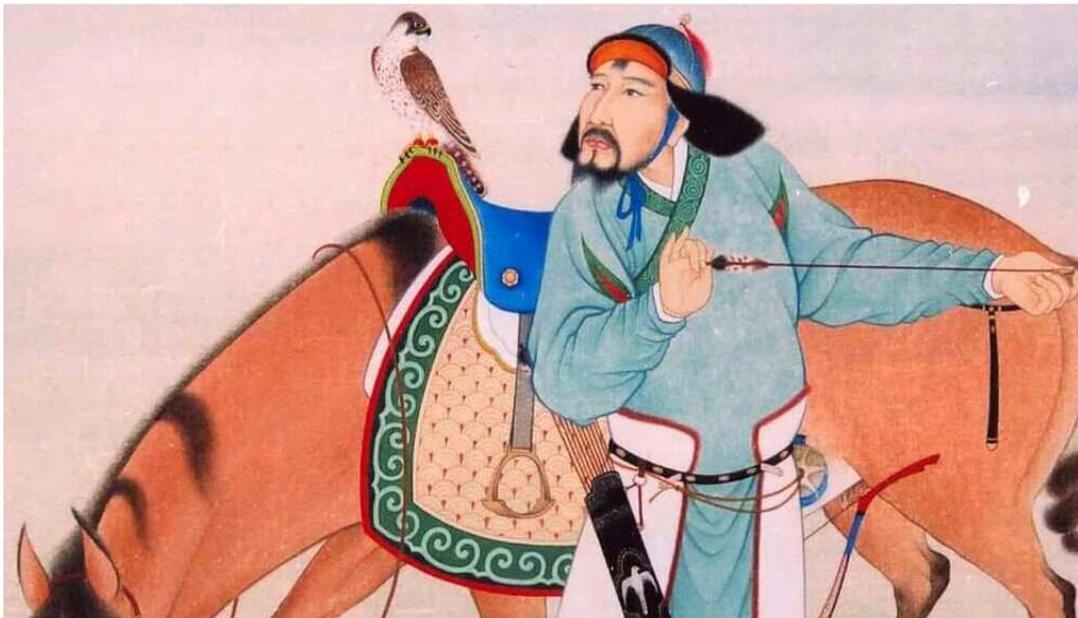
- Use of various pesticides is increasing
- Insufficient control and regulation on the use and registration of chemicals used in pasture and agricultural area
- Poses a high potential risk in the near future

### **Increasing use of pesticides – actions taken**

- Started discussions with the Ministry of Agriculture on the use and control of pesticides, especially rodenticides
- Making regular observation in one area in the northeast
- Collecting blood samples from trapped birds for analysis

### **Key recommendations**

- Mitigate and retrofit poles in all 15kV lines in Mongolia
- Adopt the sustainable harvest model developed by the Artificial Nest Project
- There is an urgent need from international community to press the GoM on sustainable falcon trade and electrocution issues
- Confiscated birds must go through rehabilitation before release back to the wild (facility and vet issues)
- Establish a control mechanism on falcon trappers and areas



### **A new project proposal - Mongol Falconry – restoration, conservation, and securing the intangible cultural heritage of Mongols**

Main objective is to restore Mongolia's lost cultural heritage of falconry and secure it for the future generation.

### **Expected outcomes**

- Mongol Falconry as a cultural heritage will be restored
- Historical artefacts related to Mongol falconry collected, inventoried, renovated, and protected
- Public understanding and knowledge about Mongol and Kazakh falconry greatly increased

- Understanding of sustainable use of Golden Eagles among Kazakh falconers in Bayan-Olgii province increased
- Population status of Golden Eagles in Bayan-Ulgii determined
- Information on Mongol and Kazakh falconry heritage made accessible to the public online and in book format

**Component A. Restoring Mongol falconry heritage**

- **Component A-1.** Document and collect historical records related to falconry culture among Mongols
- **Component A-2.** Collect and restore historical archaeological artefacts related to Mongol falconry
- **Component A-3.** Organize study tour to collect documents related to Mongol falconry and falconry history in the world
- **Component A-4.** Improve public knowledge about Mongol and Kazakh falconry heritage in Mongolia

**Component B. Sustainable use of Golden Eagles in Kazakh falconry**

- **Component B-1.** Document Kazakh falconry tradition with Golden Eagles
- **Component B-2.** Ensure a healthy Golden eagle population in Bayan-Olgii province

**Project implementation**



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The project is supported by the Ministry of Culture,  
Science, and Sport of Mongolia and the Mongolian  
National Commission for UNESCO.

### Conference background

The Saker falcon (*Falco cherrug*) has undergone a significant population decline in the past 20 years largely due to electrocution, habitat degradation, and illegal trade. This conference will build on the work and outcomes of two previous conferences held in Abu Dhabi: *The Future of Falconry in the MENA Region* (October 2016) and *Combating Illegal Trade in Falcons in the Middle East and North Africa* (April 2017).

### Conference aims

This conference has been a unique opportunity to bring together important stakeholders from across the Saker range, including the Gulf States, Central Asia, Pakistan, and China. Falconers, scientists and researchers have come together to agree on the next steps for saving the Saker.

The IAF believes it is especially important to involve local communities, especially when it comes to illegal trade. We also believe that it is important to find ways to replace unsustainable illegal trade with a sustainable legal harvest of this species. Such legal harvest is important for Saker conservation and would also benefit local communities financially and culturally.

The aim of this conference is to advance Saker falcon conservation, and specifically address the issues of illegal trade and sustainable legal trade building.

### Saker conservation and the IAF

The IAF is committed to conserving the Saker through the implementation of the Saker Global Action Plan (SakerGAP) of the Convention on the Conservation of Migratory Species of Wild Animals (CMS), and has already contributed meaningfully to this effort with several projects:

1. The *Sakernet* web portal to enhance trust and communication between various Saker interest groups: <http://www.sakernet.org/>
2. Saker habitat management and education programmes in Mongolia through the Artificial Nest Project and School Links Programme: <http://schoollinksprogramme.org/english/>
3. Supporting scientific research by financing satellite tags to monitor Saker population migration and to help combat illegal trade
4. Standing as a proponent of a Motion at the 12<sup>th</sup> World Congress of the International Union for Conservation of Nature (IUCN) to address the critical issue of electrocution
5. Taking part in two strategic meetings for falconers from the Middle East and North Africa (MENA) Region examining the requirements of falconers and the issue of illegal trafficking and killing of raptors, organised by the IAF Vice-President for the MENA Region, H.E. Majed Ali Al Mansouri.

The IAF also recognises that while illegal trade is a significant threat to the survival of some populations of this species, the Saker is of real cultural significance to many people including those who practise the UNESCO-recognised ancient art of falconry.

### Discussion notes

Discussion by participants and experts recognized the various threats currently faced by the Saker in its range states and the need to expand and promote conservation efforts beyond just conservation/protected areas and the conservation sectors mentioned. Given that sound management of the species and a comprehensive approach to address existing threats requires the coordination, commitment and engagement of many sectors (e.g. energy sector, among other), interconnectedness will be important. The IAF is undertaking a wide-angle approach but a lot more is required.

Some ideas were mentioned, such as the potential role of IUCN to act as a convening organization that could engage the energy sector to take steps to mitigate electrocution.

The importance of reaching out to politicians and decision-makers to keep momentum and support conservation/sustainable-use work was stressed in cases such as Mongolia. To this end, the IAF said that it would be good to go back to the CMS Raptor MoU, and push for its implementation, asking them to take this SakerGAP beyond direct stakeholders and involve high-level policy makers. In addition, the IAF mentioned the need to send a letter in support of continuing sustainable-use practices of Saker falcons to Mongolian authorities.

Piet Wit indicated that a concern was that even if international trade under CITES is allowed under an Appendix II, all individuals in international trade would be claimed to have originated in Mongolia given existing trafficking from diverse countries where legal trapping (unless under exceptional circumstances such as research) is prohibited. Related to this, it was said that linking an individual to its source population was very difficult as the use of markers to identify source populations was very limited to a few populations from which information does exist.

Participants at the Conference also highlighted the need to strengthen capacities to enforce existing legal frameworks to combat trafficking of Sakers, with Andrew Dixon expressing his interest in enhancing such efforts in the MENA region and emphasizing the need for these to be continuous.

In most countries (e.g. Pakistan) sustainable use has to be supported by scientific data on species populations which is currently lacking.

Several comments indicated the need to raise the profile of the issue and the need to develop a good news story on the Saker falcon. Adrian Lombard shared with participants that there were ongoing conversations with the National Geographic magazine to develop an article. In addition, the idea to explore the involvement of specialized investigative journalism agencies/groups (e.g. Mongabay) was expressed to gather information and develop stories that could then be widely distributed through diverse media outlets. The value of holding specialized meetings such as this Conference in different regions and countries within the Saker distribution range was also brought up as a tool for the topic to be reflected in international media.

Participation in/holding of side events at international conferences in which the Saker falcon situation can be presented was also discussed, recognizing that in such international fora (e.g. CITES, CMS, CBD, etc.) decision-makers do not always participate but are still relevant because in many instances the issues discussed and presented are brought back to their own countries.

Another important topic of discussion was the lack of information on Saker falcon populations and movements and how to improve the success of recovering data from tagged/radio-tracked birds. Some experiences with other species (e.g. Common buzzard) were shared (Robert Kenward) in which through communication campaigns and outreach, people were asked to leave either the tag/transmitters when/where killings occurred, or perhaps offer a larger reward for birds brought safely to a falcon hospital. Mention of rewards offered to those providing tags/transmitters to researchers could also be considered, but concern was expressed as this could also be an incentive to kill birds with marks/tags, transmitters on them as a potential economic benefit could exist. Andrew Dixon indicated that tagged birds are more subject to be targeted (trapped/killed).

Interest by Chinese participants on Saker-related research in China was expressed, along with the understanding that most conservation projects were controlled by the government, and no data seemed to be collected on the Saker falcon, nor did they know who they could contact for more information on the subject. The UAE mentioned that they had been working with China and suggested to reach out to the Chinese Scientific Academy.