

CONSERVATION OF
FALCO CHERRUG IN
NE-BULGARIA, HUNGARY,
ROMANIA AND SLOVAKIA
2010–2014



SUMMARY
REPORT OF THE
LIFE09 NAT/HU/000384
PROJECT



THE PROJECT
WAS FINANCIALLY
SUPPORTED BY THE
EUROPEAN UNION



INTRODUCTION



Saker falcon (*Falco cherrug* Gray 1834) is a typical bird species of open areas, steppes, and semi-deserts. The westernmost limit of its distribution range is in Central Europe. The global population is estimated to 6 400–15 400 pairs, however, the number of pairs is decreasing throughout the distribution range, except for Central Europe. The maximum total population of the European population including the Eastern European pairs was estimated to 7–800 pairs in 2010. It is extremely important, therefore, to conserve the Hungarian-Slovak population, which gives 40% of the European population and more than 80% of the population in the European Union. It is equally important to conserve the smaller populations in the neighbouring countries, as well as creating and maintaining appropriate habitats that can host the expanding Central European population.

Considering the aims above, the second saker falcon conservation LIFE-Nature programme was implemented between 2010 and 2014, with the financial support of the European Union, the Hungarian Ministry of Rural Development and the Slovak Ministry of Environment, and with the co-ordination of Bükk National Park Directorate and contribution of partner organisations from four countries: Bulgaria, Hungary, Romania and Slovakia.

The aim of the programme is to conserve the globally endangered saker falcon also listed in Annex I of the Bird Directive in Hungarian and Slovak core areas, as well as to improve potential habitats for the species in Bulgaria and Romania, and transfer best conservation practice to experts of the latter two countries.



PROJECT DATA



LIFE06 NAT/HU/000384 Conservation of *Falco cherrug* in NE-Bulgaria, Hungary, Romania and Slovakia

Duration of the project: 01.10.2010–31.12.2014

Total budget of the project: 4 032 828 Euro, of which 74,55% is financed by the European Union through the LIFE-Nature fund

Co-ordinating Beneficiary: _____

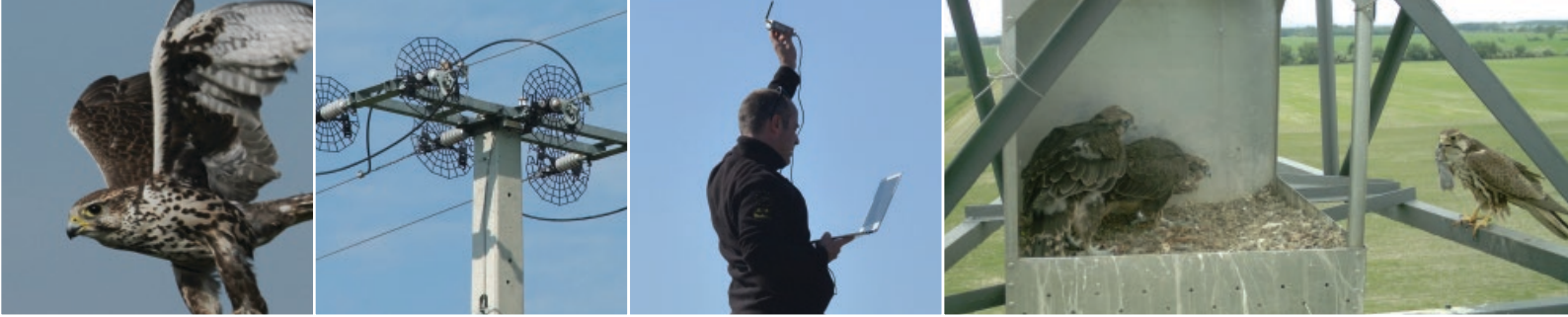


Associated Beneficiaries: _____



Co-financers: _____





WHAT IS **NATURA 2000**?

Natura 2000 is the ecological network of the European Union. It aims to conserve biodiversity in Europe by designating nature conservation areas of European importance. The base for designation is the Union's two basic pieces of legislation for nature conservation, the so-called Bird Directive (2009/147/EC) and Habitat Directive (92/4/EEC), and the uniform standard criteria applied to all Member States. Management and use of Natura 2000 sites are regulated by Member States on a national level.



WHAT IS **LIFE**?

The abbreviation 'LIFE' stands for the financial instrument for the European Union's environmental policy. This is a fund created in 1992 to support nature conservation and environmental projects of Community interest. Programmes implemented under LIFE-Nature are to base and foster a more efficient conservation of sites of Natura 2000 network designated under Bird and Habitat Directives.

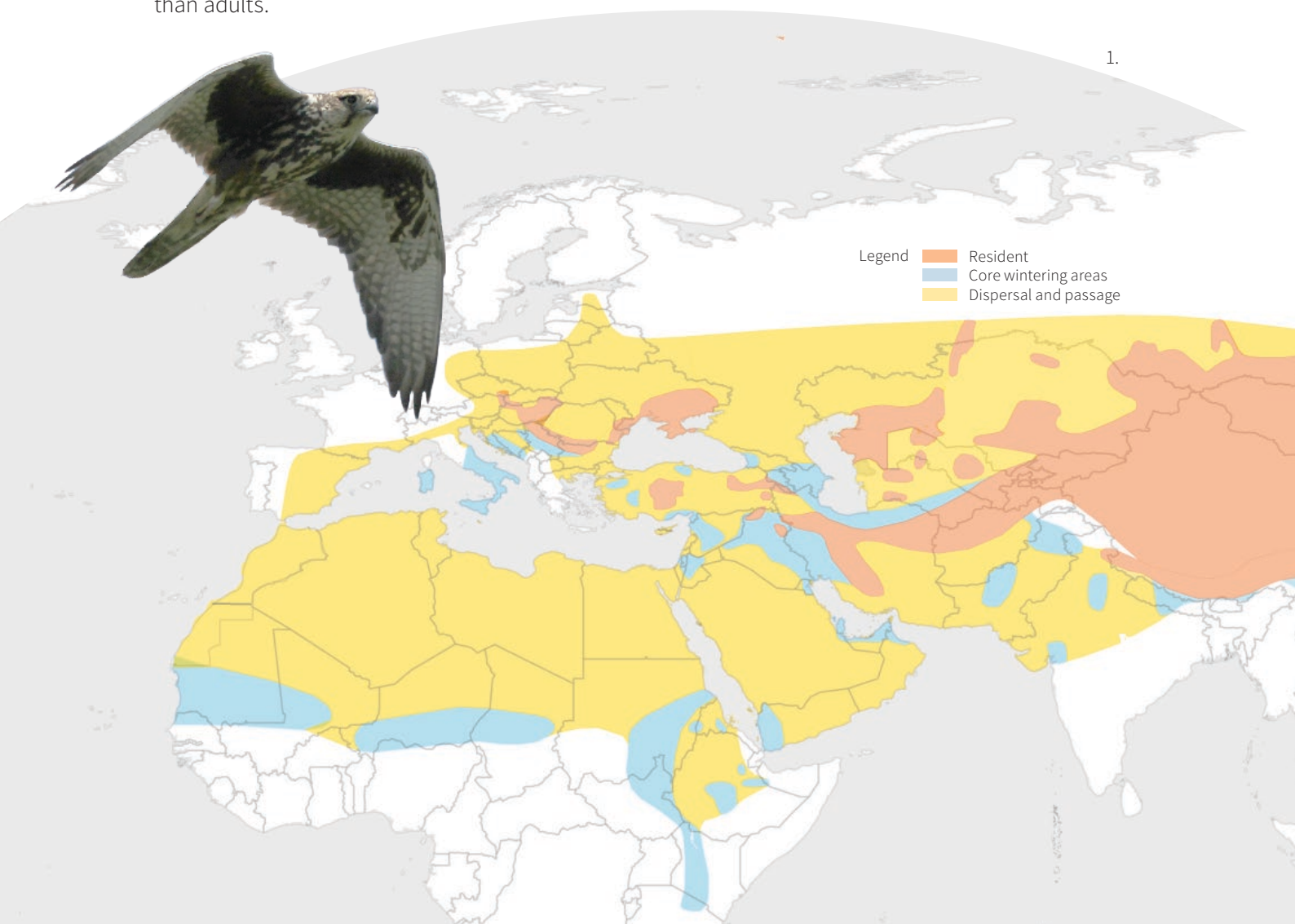




SAKER FALCON

(*Falco cherrug* Gray, 1834)

The saker is brown and buzzard-sized falcon, but a slimmer bird of prey. Females are larger than males; however the difference is not as obvious as with peregrines (*Falco peregrinus*). Adults are yellowish brown on the back; the head is light cream-coloured, sometimes almost white. The moustache is narrow and less distinct. White breast is typical for adults with brown spots that densify toward the belly. The cere and legs are yellow. Adults are generally lighter coloured than young birds. Newly fledged juveniles are also brown, but the spots on the breast and belly are denser, merging into stripes. The moustache is more distinct and darker than on adults and the head is darker as well. The cere and legs are light blue, starting to become yellow only during the second year. Generally, juveniles are darker than adults.





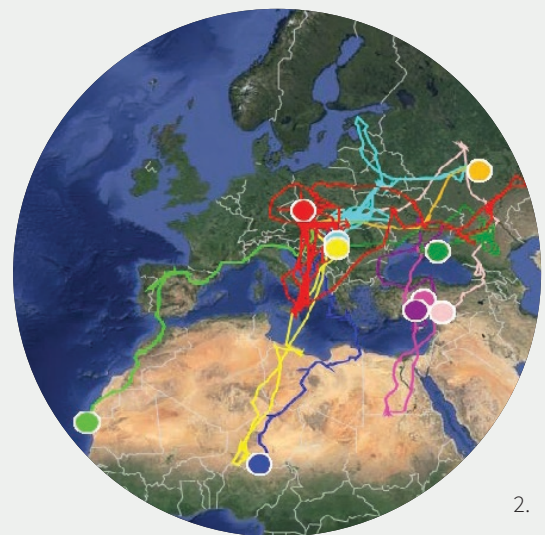
● Distribution and habitat

Sakers prefer open habitats with woods and pastures with susliks. The species is a typical raptor species for the steppes ranging from Central-Europe to China. Saker falcons typical habitats in Europe are wooded steppes in the lowland, agricultural areas, and foothill lowlands. In Asia they live in steppes, semi-deserts, and on mountain plateaux (up to 4000 metres). The distribution area of the sakers more or less overlaps with the distribution area of the susliks, their favourite prey.

● Migration

In Europe, some young birds move South in the autumn with adults staying in the breeding area all year round. Migrating routes and wintering places of Central-European sakers was little known before the saker conservation LIFE project. Due to the project, we now know that Italy and the Sahel region in Africa are the most important wintering areas of the species.

A significant part of the Asian population is migratory. The main direction of migration is South-Southwest. The known migration routes and wintering places cover Northeast-Africa, the Arabian Peninsula, the Middle-East, Pakistan, Kazakhstan, Uzbekistan, Southern parts of Turkmenistan, and some parts of China and the Tibetan Plateau.



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Picture 1.: The global range of the saker falcon compiled using geo-referenced information and expert knowledge (Kovács, A., Williams, N. P. and Galbraith, C. A. 2014. *Saker Falcon Falco cherrug Global Action Plan (SakerGAP), including a management and monitoring system, to conserve the species. Raptors MOU Technical Publication No. 2. CMS Technical Series No. 31. Coordinating Unit - CMS Raptors MOU, Abu Dhabi, United Arab Emirates.*)

Picture 2: Post-fledging dispersal and first autumn migration routes of juvenile saker falcons



● **Breeding**

Sakers prefer nest sites with the possibility of a safe approach and offering a good view of the territory. The lowland nests of Imperial or white-tailed eagles are the preferred choice, but they also breed regularly in buzzard, crow, and goshawk nests. The increasing raven population has started to breed on pylons of high-voltage power lines in the lowlands. Sakers have adapted to this new nesting strategy and are using such raven nests in increasing number. Due to this new strategy, sakers now occupy areas where nesting possibilities used to be limited.

Display flights begin at the end of January and the beginning of February, depending on the weather. Females lay 3–5 eggs in mid to late March. Breeding lasts 32 days and starts after the laying of the second egg. Small chicks are fed by the female; prey is brought by the male only. Young birds fledge after 42–47 days, but adults teach them to hunt after an additional 2–3 weeks. Females become adults at the age of one year; males can start to breed at age two. Pairs stay together for a lifetime.



● **Diet**

Suslik (*Spermophilus citellus*) is the sakers' favourite, but only seasonal prey, as susliks are dormant in the winter. Birds, therefore, are important part of their diet throughout the year. In Early spring they feed on migratory birds, mostly starlings (*Sturnus vulgaris*) for weeks. Common vole (*Microtus arvalis*) also plays an important part of sakers' diet and sakers whether hunt on them or they are robbing vole prey from other, smaller raptors. Pairs stay together outside of breeding season as well, and they regularly hunt in pair.

● **Conservation status**

The species is listed in Annex I. of Bird Directive of the European Union, Annex II. of Bern Convention, Annex II of the Convention of the Migratory Species (CMS or Bonn Convention), Annex II. of CITES, and it is listed as "Endangered" on the Red List of IUCN. The Office of Raptor MoU of CMS prepared a global conservation plan for the species (Saker Falcon Global Action Plan), in which results of the two saker falcon conservation LIFE projects were integrated. The saker falcon has a special protection status in all project countries.

Picture 3: Suslik is the most preferred prey of saker falcon





THREATS TO SAKER FALCONS



- **Disappearance of natural nest sites**

The saker falcon population in the Pannonian Basin has been increasing due to the conservation efforts and it will expand to south or south-easterly direction. Falcons do not build nest, and in those areas there are not enough nests to breed, because there are less common buzzards (*Buteo buteo*) and less corvids breed on pylons of transmission lines. The old, natural nests are not safe enough anyway, used nests often fall down during the sakers' breeding.

- **Decrease or disappearance of hunting areas and food sources**

After the change of the communist regime, the number of grazing livestock decreased significantly throughout the country. As a result, traditional use of meadows and pastures ceased. Many areas became targets of building constructions, ploughing or photovoltaic power plant development. As a result, sakers' favourite prey, suslik disappeared from those areas and also abundance of other prey species declined significantly.

- **Electrocution**

Poles of distribution (mid-voltage electric power) line grid across saker falcons' habitats pose lethal threats not only to saker falcons, but also to other bird species. In flat, treeless habitats, birds usually choose to perch on the cross-piece of poles that offers good view on the surrounding habitat. Birds, however, landing on or taking off from the cross-pieces close the circuit between the cross-piece and the energized wire by touching both at the same time with their legs and wings. That leads to electrocution, which threatens both adult and juvenile birds.



Picture 4. Movements of a satellite-tracked adult male saker falcon tagged in the immediate vicinity of a wind farm (orange star = wind turbine, blue circles = position of the tagged bird)

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● Bird crime

Beside Bulgaria and Romania, also Slovakia faces the problem that hunters not knowing the biology of saker falcons consider birds of prey as enemies and they are shooting in the nests or at the individual birds. Illegal poisoning, unfortunately, is increasing in the area, and carrions treated with illegal chemicals are intentionally left in the countryside mostly to kill foxes, martens, and dogs in order to protect small game species. Sakers can be poisoned directly by feeding to poisoned carrion, or indirectly when they rob a piece of poisoned carrion from buzzards, harriers or kestrels. Nest robberies – when eggs or chicks are stolen from the nest – represent another serious threat to sakers in Slovakia.

● Disturbance and increasing mortality on migration routes and wintering areas

Unintentional human disturbance resulting from lack of knowledge is not rare. In such cases, usually breeding fails because of work being done in an immediate vicinity of a nest. In the first saker falcon conservation project a good quantity of data were collected on the migration routes and wintering areas, as well as on the reasons and rate of mortality. Those data show that threats described above are present on an increased level outside of the Pannonian Basin and also other problems like trapping for falconry appears that are unknown here.

Pictures 5–6. Electrocutated satellite-tracked saker falcon



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AIMS AND ACTIVITIES OF THE SAKER FALCON CONSERVATION LIFE PROGRAMME

THE AIM OF THE PROGRAMME

The programme aims to conserve the European core population and to transfer the knowledge of Hungarian and Slovak experts gained from the previous project LIFE06 NAT/H/000096 to Bulgarian and Romanian colleagues, thus to support the establishment of the best saker falcon conservation practice in the areas that have the potential to host the expanding core population in the future.

The project LIFE06 NAT/H/000096 brought revolutionary novel knowledge about the threats, survival rate, as well as about the distribution and migration habits of juvenile birds. It became clear that survival rate could be higher, than we had thought initially. Juveniles roam on vast areas from Spain to Kazakhstan, but they spend significant time in Bulgaria, Romania and Serbia, where they find appropriate habitats. According to our recent knowledge, those areas may be the targets for future expansion of the core population, in case having enough sites for breeding and having threat factors decreased – that were the aims of this second LIFE project.

In addition, the project contributed to ceasing or decreasing threats in the core areas.

METHODS AND ACTIVITIES

One of the major elements of the project was to provide nesting places on the potential areas in Bulgaria and Romania. On one hand, it meant the conservation of habitats, and on the other hand nest boxes and nest platforms were installed in the appropriate areas. The programme made efforts to better understand the species' prey and habitat preference, experimental suslik friendly habitat management was introduced on some Natura 2000 sites, and agri-environmental schemes were prepared and proposed to support habitat management more beneficial to the target species.

In order to restore the prey base of saker falcon, suslik was reintroduced in some habitats in Hungary, Romania and Slovakia.

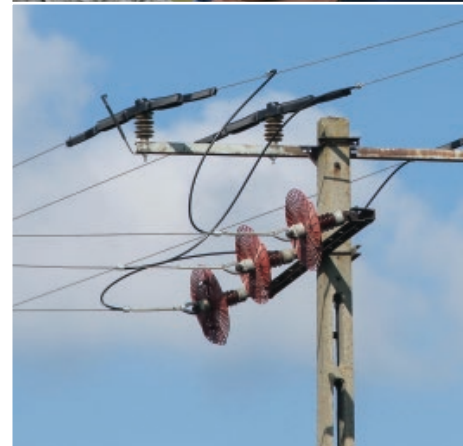
Decreasing key mortality factors was also among the project activities. Insulation of a number of dangerous poles of distribution lines was done in all project countries, and additionally, nest guarding was carried out in Slovakia.

Exploration of migration routes and wintering areas, as well as threats and juvenile mortality continued by using satellite-received transmitters.

Also by using satellite-received transmitters, habitat use of adult birds was mapped focusing on existing or planned wind farm areas, in order to better understand the impact of wind farms on saker falcons. Based on the results, a guideline was prepared to provide a saker falcon conservation approach for the wind farm authorization processes.

Communication programme was launched for farmers, gamekeepers and decision-makers on local and national level, and also information boards were installed. The aim was to raise public awareness of the stakeholders.

The comprehensive monitoring programme to follow closely the changes in the saker falcon population continued and also suslik was included in the monitoring during the project period.



RESULTS OF THE PROJECT

As results of the LIFE programme, number of appropriate nesting sites increased significantly, as well as the area of prey base expanded. Due to insulation of dangerous poles, large areas became safe for birds, proposal was made to resolve conflicts between wind farms and saker falcons and other birds of prey species, activities like co-operation with other stakeholders, raising public awareness about the conservation actions focusing on the species and habitats continued and cages were built to host injured birds for the recovery period or for good, if recovery was not expected.

● Providing nesting sites

In total, 20 wooden nest platforms and 133 aluminium nest boxes were installed in the frame of the project. Three of them were installed as demonstration in Hungary, the rest were installed in Bulgaria and Romania to support breeding success of the expanding population in the future.

Table 1: Installed nest boxes by countries

Type of artificial nest	Bulgaria	Hungary	Romania	Slovakia	Total
Wooden nest platform (on tree)	10	0	10	0	20
Aluminium nest box (on pylons of transmission lines)	10	3	120	0	133
Total	20	3	130	0	153





● Prey analysis and providing prey base

In Bulgaria: Supporting saker falcon habitats were integrated into the Aquila heliaca agri-environmental scheme, by supporting the maintenance and creation of favourable habitats for prey species.

In Hungary: One online web camera, working 24-hour/day in the breeding season and 14 camera traps helped analysing prey items. 235 susliks were re-located from airfields and airports to potential habitats.

In Romania: An agri-environmental support scheme proposal was prepared to support saker falcon. 350 susliks were relocated to safe sites from the endangered habitats at Sannicolau Mare and Arad.

In Slovakia: 5 camera traps deployed in each year helped the identification of prey species, and protecting the breeding from human disturbance and nest robbing. Besides, one video camera was installed at two nests in 2011 and 2013, explicitly to help the identification of prey species.

Agri-environmental measures for conserving suslik habitats was tested.

450 susliks were relocated to two Natura 2000 sites.



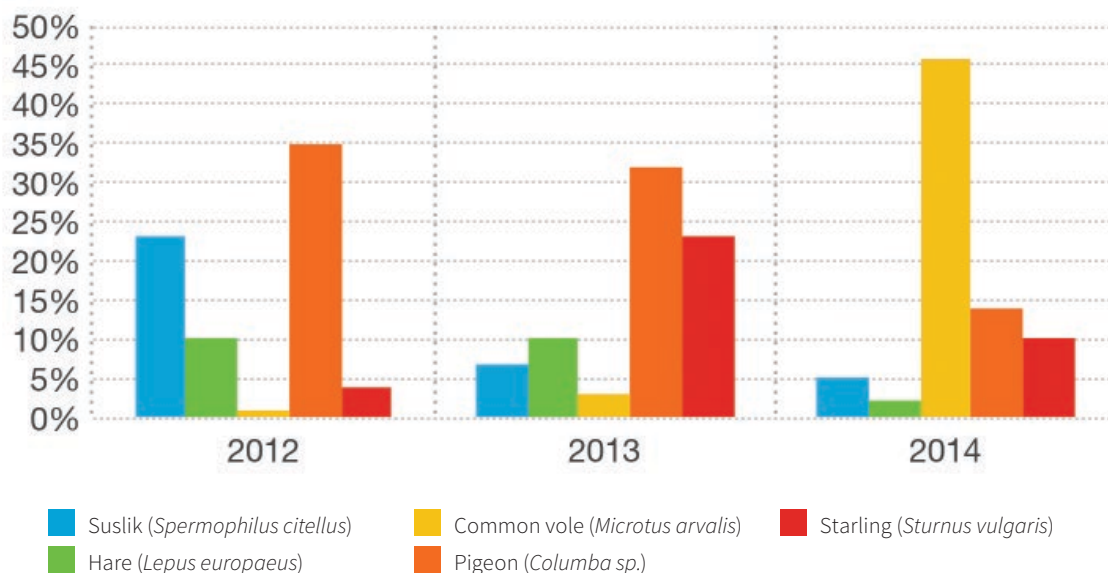
Composition of saker falcons' prey species and changes in it was evaluated by analysing the photos taken by camera traps installed at nests in the breeding season. Installed camera traps per country and year:

In 2011 two camera traps, in the period 2012–2014 one online web camera and 9–14 camera traps were used in the breeding season. Due to technical reasons, only 70% of the camera traps provided usable data. Prey items belonging to various species were identified based on the photos. Results are based on the identification of 2589 individual prey items (94,2% Hungary, 3,2% Slovakia, 2,6% Romania):

Táble 2. Number of photo traps per country per year

Year	Bulgaria	Hungary	Romania	Szlovakia	Total
2011	0	2	0	0	2
2012	0	11	0	5	16
2013	0	14	1	5	20
2014	0	10	3	5	18

Figure 1. Prey composition



1. Weather has a significant impact on the composition of available prey items. In wet springs, like in 2013, proportion of mammals decreases dramatically (22%), in contrast to average spring weather, when proportion of mammals is higher (40–55%).
2. In years of vole peak (like 2014), Common vole (*Microtus arvalis*) makes the main food. In those years, proportion of larger mammals and birds decreases; e.g. proportion of hare (*Lepus europaeus*) decreased from 10% to 2% to 2014.
3. No considerable hamster (*Cricetus cricetus*) prey was observed in Hungary between 2011–2014 that can be linked to the continuous decline of the hamster population observed in the last few years.
4. In average years, the proportion of suslik reaches 23%, thus the species is of great importance to saker falcons' diet, despite the suslik has disappeared from many sites by today.

● Preventing electrocution

- In Bulgaria 400 poles of distribution lines were insulated in the area of installed nest boxes.
- In Hungary 6700 poles were changed to bird-friendly poles, out of which 800 poles received new, bird-friendly head part (the rest were only insulated).
- In Romania 700 mid-voltage power line poles were insulated mostly in the area of the nest boxes.
- In Slovakia 1138 poles were insulated
- Efficiency of insulation was surveyed in the monitoring part of the programme

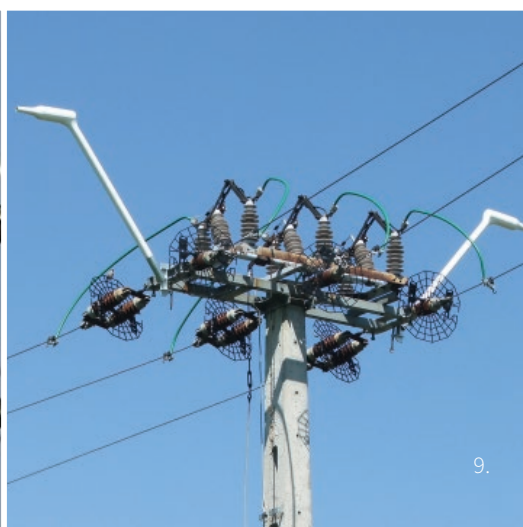
Picture 7. Insulation of distribution line in Bulgaria. 8. Installing bird protection device in Slovakia. 9. Perches installed on a switch gear pole in Hungary. 10. New bird-friendly pole head construction in Hungary



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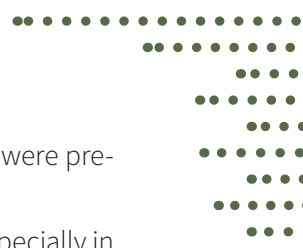


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● **Co-operation with other stakeholders for the benefit of the species**

- In Bulgaria 1000, in Romania 2000 leaflet describing the species conservation programme were prepared and distributed among farmers and gamekeepers
- In Bulgaria and Romania co-operation was established with farmers and other projects, especially in the prevention of bird crime and the preparation of the international saker falcon conservation programme (Saker Falcon Global Action Plan by the Raptor MoU of the Convention on Migratory Species)
- 4x100 guidelines were prepared for authorities to consider saker falcon conservation aspects when assessing wind farm development projects



● **Mapping habitat use, dispersal, migration and mortality of saker falcons**

- In order to explore habitat use and threats – first of all the impacts of wind farms – to saker falcons, in total 42 individuals (21 adult males, 3 adult females, 7 juvenile males, 11 juvenile females), from which in Hungary 30 falcons (18 adult males, 3 adult females, 4 juvenile males, 5 juvenile females), in Romania 8 birds (3 adult males, 3 juvenile males, 2 juvenile females), in Slovakia 4 juvenile females were equipped with satellite-received transmitters.
- Results revealed that the main threat by wind farms were not the collision, but the habitat loss, as birds avoiding wind farms were replaced from their habitats.
- Almost one and a half thousand birds received ornithological ring – 1046 in Hungary, 13 in Romania, 379 in Slovakia.





● Rehabilitation, breeding and repatriating injured birds

- Four injured saker falcons were found in Hungary during the project period, and two of them were successfully released after recovery.
- Two cages were built in Romania to rehabilitate the injured birds, where four saker falcons were treated during the project.
- In West Slovakia also two cages were built, and six injured saker falcons were treated in the new cages during the project.

● Raising public awareness about vulnerability of saker falcon and activities of the project to ensure long term conservation

- 22 (bilingual) information board were installed (in Bulgaria 2, in Hungary 14, in Romania 4, in Slovakia 2)
- A website on five languages was prepared and regularly updated
- 3x1000 poster (in Bulgarian, Hungarian and Romanian) were prepared and disseminated in public places and events
- 4500 leaflets were prepared in Bulgarian, Hungarian and Romanian languages
- 500 brochures in Slovak and 300 T-shirts were prepared
- 3 films about the project work were made and were shown
- 4000 (in 5 languages) DVD were made and distributed
- During the project, more than two-hundred press releases informed the public about the results and interesting issues related to the project





Dynamics of the saker falcon population

The saker falcon populations in the project countries were:

Bulgaria: In spite of the increasing number of observations and more individuals wintering in Bulgaria – including a satellite-tracked Slovak bird – there was no proven record of saker falcon breeding until 2014.

Hungary: The Hungarian population is considered stable. The population, continuously increasing due to the previous project, showed very bad breeding results in 2010 as a result of the extreme spring weather. Unfortunately, the breeding results in 2013 were the worst ever recorded due to the repeated extreme spring weather. It can be seen, however, that in the subsequent years the healthy population is able to compensate the impacts of extreme weather.

Romania: There was no known breeding pair in the country at the start of the project. In 2014, six pairs were known in West Romania and two in Dobrogea, out of which three pairs bred in the nest boxes installed in the frame of the project.

Slovakia: Similarly to Hungary, 2010 and 2013 were very bad years, as the extreme weather destroyed most of the breeding. That population is even more fragile than the Hungarian one. It compensates repeated bad breeding seasons with much more difficulties.

Table 3. Population dynamics of saker falcon in Hungary between 2010 and 2014

Year	Number of known eyries	Number of active pairs	Number of successful pairs	Number of fledged juveniles
2010	220	172	68	176
2011	234	165	144	427
2012	241	164	131	418
2013	253	143	65	149
2014	232	171	140	403

Table 4. Population dynamics of saker falcon in Slovakia between 2010 and 2014

Year	Number of known eyries	Number of active pairs	Number of successful pairs	Number of fledged juveniles
2010	35	35	27	78
2011	43	43	36	110
2012	42	39	30	112
2013	38	34	21	61
2014	36	31	26	96



CONSERVATION AFTER THE LIFE PROJECT



The project financially supported by the LIFE programme of the European Union, the Hungarian Ministry for Rural Development/Agriculture and the Slovak Ministry for Environment closes on 31 December 2014. The results of the project speak for themselves, however the conservation work does not stop. Some of the activities continue, e.g.:

- ringing, installing nest boxes, using photo traps;
- co-operation with other stakeholders;
- closely following the agri-environmental support schemes;
- monitoring and maintaining nest boxes and nest platforms;
- managing suslik habitats;
- developing prey base;
- removing satellite-received transmitters;
- monitoring of the saker falcon and suslik population.



Those activities will be implemented by the project partners in co-operation with other organisations not partners to this project using own and other available financial resources. Some activities related to prey base development will continue in the project LIFE13 NAT/HU/000183.

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János Bagyura
Ervin Hapl
József Fidlóczy
Jozef Chavko
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Csaba Piginiczki
Mátyás Prommer
Tímea Nógrádi
Péter Tóth

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Written by:

**Mátyás Prommer, József Fidlóczy, János
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Anna Staneva

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