

**European Species Action Plan
for the Red-footed Falcon *Falco vespertinus* Linnaeus, 1766**



Prepared by:



on behalf of the European Commission



European Species Action Plan for the Red-footed Falcon *Falco vespertinus*

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Milestones in the Production of the Plan

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Reviews

This Species Action Plan should be reviewed and updated every ten years (first review in 2019). An emergency review will be undertaken if there is a sudden major change liable to affect one of the populations or subspecies.

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Geographical scope of the action plan

This action plan covers the range states of the Red-footed Falcon *Falco vespertinus* in Europe (range states are listed in Table 1) as far as possible due to the very limited information available from Russia. It needs to be implemented in the range states in the European Union, Ukraine, Serbia and the Balkans.

Given the significance of the non-breeding season information from the non-breeding range was collected as far as possible.

Map 1 Distribution of the Red-footed Falcon (red-breeding, blue suspected non-breeding range)



Table 1 European range states of the Red-footed Falcon in 2009 (countries with significant populations where this SAP need implementation are highlighted in **bold**)

Range states	Breeding	Migration	Wintering
Albania	n.a.	yes	no
Armenia	n.a.	n.a.	no
Austria	yes	yes	no
Azerbaijan	n.a.	n.a.	no
Belarus	yes	yes	no
Belgium	no	yes	no
Bosnia and Herzegovina	no	yes	no
Bulgaria	yes	yes	no
Croatia	no	yes	no
Cyprus	no	yes	no
Czech Republic	no	yes	no
Denmark	no	n.a.	no
Estonia	yes*	yes	no
Finland	yes	yes	no
France	yes*	yes	no
Georgia	yes*	yes	no
Germany	no	yes	no
Greece	no	yes	no
Holland	no	yes	no
Hungary	yes	yes	no
Italy	yes	yes	no
Izrael	no	yes	no
Kazakhstan**	yes	yes	no
Latvia	no	yes	no
Liechtenstein	no	yes	no
Lithuania	yes	yes	no
Luxembourg	no	yes	no
Macedonia, F.Y.R. of	no	yes	no
Malta	no	yes	no
Montenegro	no	yes	no
Moldova	yes	yes	no
Poland	no	no	no
Romania	yes	yes	no
Russia (European)	yes	yes	no
Serbia	yes	yes	no
Slovakia	yes	yes	no
Slovenia	no	yes	no
Spain	no	yes	no
Switzerland	no	yes	no
Turkey	no	yes	no
Ukraine	yes	yes	no
United Kingdom	no	yes	no

*data from Birds in Europe II (BirdLife, 2004)

** outside of Europe, with important breeding or migratory population

Table of contents

0 - EXECUTIVE SUMMARY.....	7
1 - BIOLOGICAL ASSESSMENT	8
Taxonomy and biogeographic populations.....	8
Distribution throughout the annual cycle.....	8
Habitat requirements	9
Survival and productivity	10
Population size and trend	10
2 - THREATS	14
General overview	14
List of the most important threats.....	14
Knowledge gaps	17
3 - POLICIES AND LEGISLATION RELEVANT FOR MANAGEMENT.....	20
International conservation and legal status of the species	20
National nature conservation and other related legislation.....	21
Recent and ongoing conservation activities	22
4 - FRAMEWORK FOR ACTION	23
Goal of the action plan.....	23
Objectives of the plan.....	23
Results	23
5 - REFERENCES	32
ANNEX 1 Threats importance at population/ group of countries level	35
ANNEX 2 Key sites for the species in the European Union	37
ANNEX 3	46
National legal status.....	46
Recent conservation measures.....	48
Ongoing monitoring schemes for the species	49
Overview of the coverage of the species in networks of sites with legal protection status.....	50

0 - EXECUTIVE SUMMARY

The Red-footed Falcon *Falco vespertinus* is considered Near Threatened both in Europe and globally, due to its large (>30%) decline over three generations (i.e. from the 1970s). The species is listed in Appendix II of CMS, in Appendix II of CITES, in Appendix II of the Bern Convention and in Annex I of the Birds Directive. This action plan covers the range states of the Red-footed Falcon in Europe. It needs to be implemented in the range states in the European Union, Ukraine, Serbia and the Balkans.

Red-footed Falcons inhabit steppe, pseudo-steppe, wooded steppe and extensive agricultural habitats. The core of the EU population breeds in the Carpathian Basin which form the western border of the range. A small but stable number of Red-footed Falcons breed in northern Italy.

Red-footed Falcons are trans-equatorial migrants wintering in the southern part of Africa. The species is highly gregarious both during the breeding and non-breeding seasons, night roosts of up to 21,000 individuals are known to be formed in the non-breeding period. The Red-footed Falcon is a facultative colonial breeder. It does not build a nest; naturally falcon colonies are formed in Rookeries (*Corvus frugilegus*). Solitary pairs occupy variety of nesting facilities such as magpie (*Pica pica*) nests, hooded crow nests (*Corvus corone cornix*), buzzard nests (*Buteo* sp.) as well as cavities in trees. The Red-footed Falcon is a generalist predator the most frequent prey items are invertebrates, amphibians and small mammals.

As the species is protected throughout the EU and the Mediterranean-Basin, weak law enforcement is the root cause of Red-footed Falcon, shooting mainly during migration. The only exception is Ukraine where the species is not protected and shooting is reported. The Red-footed Falcon is intimately linked to the welfare and size of Corvid populations. Hunting or persecution of Corvids - by direct shooting at nest sites, disturbance, and nest destruction, tree logging during the breeding period impact the Red-footed Falcons through direct mortality, nest abandonment, failed breeding and indirectly by nest site availability.

The agricultural intensification that has taken place in the western parts of the breeding range has lead to significant loss of grasslands stemming from the decline of traditional livestock husbandry. This, along with the cultivation of intertilled crops (such as maize and sunflower) has reduced the suitable foraging habitats of the species, making its hunting technique less effective (reduced access to prey) and probably also depleted its prey abundance.

The **goal** of the plan is to move the Red-footed Falcon from the IUCN Red List Near Threatened to Least Concern category. The **objectives** of the plan are to maintain the current range in the EU countries, Serbia and Ukraine; by 2015 increase the population of EU countries and Serbia to 3,500 pairs and fill in the knowledge gaps in distribution, population size and trends, ecology and life-style throughout the species' entire range. By 2020, maintain a population of 3,500 pairs in the EU countries and Serbia of which at least 2,000 pairs breeding in natural nests, therefore no longer conservation dependent.

To this end **actions** are targeted at improving available foraging habitats, ensuring safe nest sites –especially rookeries- and where necessary nest-box colonies, filling in the most important knowledge gaps and reducing direct mortality such as poaching, persecution and electrocution.

1 - BIOLOGICAL ASSESSMENT

Taxonomy and biogeographic populations

Phylum: Chordata
Class: Aves
Order: Falconiformes
Family: Falconidae
Genus: Falco
Species: *Falco vespertinus*, Linnaeus 1766

Monotypic species. Very close relative to the East Asian Amur Falcon (Eastern Red-footed-falcon *Falco amurensis*), but the breeding distribution and possibly the non-breeding grounds are distinct (Ferguson-Lees & Christie 2001; Cramp & Simmons 1977). Previously both species were considered as subspecies.

Distribution throughout the annual cycle

The breeding range extends from Central and Eastern Europe through northern Central Asia to Lake Baikal. The southern limit of the breeding range passes through Serbia, Bulgaria, Ukraine, Southern Russia and northern Kazakhstan (Purger 2008; Cramp & Simmons 1977). Irregularly breeding birds can be found northward to Belarus (Dombrovski & Ivanovski 2005), western Russia north to Moscow, central Russia up to Novosibirsk, Krasnoyarsk and Khantia-Mansia region.

The core of the EU population breeds in the Carpathian Basin (eastern Austria, Hungary, western Romania, and northern Serbia) which form the western border of the range. A small but stable number of Red-footed Falcons breed in northern Italy (Sponza, Licheri, & Grassi 2001; Tinarelli 1997). Occasionally, Red-footed Falcons may breed in small numbers in France (Genoud 2002; Legendre 2006) and Finland. Vagrants were observed in most European countries (Nightingale & Allsopp 1994; Dudley et al. 2006).

Red-footed Falcons are broad-front trans-equatorial migrants that fly individually or in loose groups, at various altitudes (up to ~2500 meters a.s.l.) (Leshem & Yom-Tov 1996; Forsman 1999; Shirihai et al. 2000). The migration route of the EU population is presumed to directly cross the Mediterranean, where birds are possibly utilizing mid-sea islands as stopover and roosting sites (Rossi & Bonacorsi 1998; Roth 2008; Shirihai et al. 2000). Pre-nuptial (spring) migration takes place between March and June, reaching Europe mainly in April/May up until the first half of June. Post-nuptial (autumn) migration takes place between August and late October.

The species is highly gregarious both during the breeding season (see later) and on migration, night roosts of up to 21,000 individuals (Kostenko *et al.* unpublished report) are known to be formed in small forest patches near the breeding grounds.

The known non-breeding range is in Sub-Saharan Africa to South Africa; ranging from Angola and Namibia, through Botswana, Zimbabwe, Zambia to southern Kenya (Ferguson-Lees & Christie 2001). The exact location and habitats are still unknown, therefore the ecology and threats to the species during the non-breeding remain poorly known. Very few observations were recorded despite of annual search efforts in the last 15 years (A. Van Zyl *pers. comm.*). Compared to similar species Red-footed Falcons are considered less sedentary during wintering. They are presumed to follow rain fronts hunting for swarming insects (Harrison et al. 1997).

Habitat requirements

Red-footed Falcons prefer open habitats fringed with small woods, groups of trees or shelter belts that provide nesting and roosting opportunities. They inhabit steppe, pseudo-steppe, wooded steppe and extensive agricultural habitats, where they prefer crop mosaics with presence of fallow land, grasslands or alfalfa. In the Carpathian basin, stable colonies are formed close to grasslands avoiding areas with large forests in the vicinity (Fehérvári et al. 2009). In Africa, Red-footed Falcons can be found in grasslands, savannah and scrublands (Del Hoyo et al. 1992).

Breeding (including nest site) and non breeding habitats used

The Red-footed Falcon is a facultative colonial breeder (i.e. breeding in colonies and in solitary pairs). It does not build a nest; naturally falcon colonies breed in rook's (*Corvus frugilegus*) nests in their colonies (rookeries) (Horváth 1964; Purger & Tepavcevic 1999) or in loose colonies of magpie (*Pica pica*) nests (Végyvári, Magnier, & Nogues 2001). Due to recent conservation actions aiming to compensate the lack of nesting sites in suitable habitats, the species started to breed in colonies of artificial nest boxes (Fehérvári et al. 2009). In certain areas of the breeding range (e.g. in Hungary) 60% of the population breeds in nest boxes. In Italy, where rooks are missing, nest boxes are occupied and the Red-footed Falcon population seems to remain stable over years.

Solitary pairs occupy variety of nesting opportunities such as magpie nests, hooded crow nests (*Corvus corone cornix*), buzzard nests (*Buteo* sp.) as well as cavities in trees. Breeding in abandoned buildings - as in case of other small falcon species - has not been recorded yet, but some authors mention cliffs and ground nesting substrate (Del Hoyo et al. 1992).

Pre-migration communal roost sites in the Carpathian Basin are found in extensively cultivated agricultural areas with smaller proportion of grasslands compared to the breeding habitats.

Feeding habitats and diet

The Red-footed Falcon is a generalist predator (Cramp & Simmons 1977) the most frequent prey items are invertebrates, mainly Orthoptera, Odonata, Coleoptera (Keve & Szijj 1957; Haraszthy, Rékási, & Bagyura 1994; Purger 1998). However, the majority of prey biomass during the breeding season is possibly from amphibians e.g. Spadefoot toads (*Pelobates fuscus*) and small mammals e.g. common vole (*Microtus arvalis*). Prey may be taken in mid-air, on the ground, from hovering or from a perch.

Typical perches are trees, fences, electric pylons or wires and also small lumps of soil. For hunting they prefer low vegetation cover, on grazed or mown grasslands. A three-year-long radio-telemetry based habitat use analysis showed that in the second half of the nestling stage, Red-footed Falcons prefer agricultural fields (mainly alfalfa and cereal crops) more than previously expected, while intertilled crops are avoided (Palatitz, Fehérvári & Solt *in prep.*).

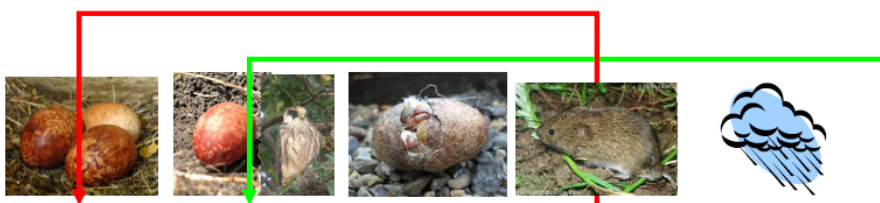
Survival and productivity

The Red-footed Falcons breed in colonies or in solitary nests. As other falcons, they take over empty nests, mainly built by corvids. The clutch is of 3-4 occasionally 5, reddish eggs laid quite late (May-June). Both sexes take part in the incubation which lasts approx. 4 weeks. Both parents take part in parental care. The fledglings leave the nest after 4 weeks. Although 2nd calendar year birds are considered mature they seldom breed in their first breeding season.

The oldest Red-footed Falcon known in the wild was 13 years old (del Hoyo *et al.* 1992). The generation length (the mean age of the breeding cohort) is estimated at 5.7 years and the estimated mean annual survival is 67% (BirdLife International, *unpublished data*). Although colour ringing of the species is taking place in large numbers in Hungary, monitoring of marked birds have not yet lead to more accurate results about the survival rates of the different age classes. Therefore, the information on the survival rates is still incomplete.

Productivity is easier to monitor, especially in nest boxes. As with typical *r* strategist, the main breeding parameters were found to depend on ecological factors such as the annual variations of vole density and weather. Table 2 illustrates this with data from Hungary (Fehérvári, *in litt.*)

Table 2 The relationship of some reproductive parameters to vole density and weather



	Median No. of eggs	Fledging ratio	Success rate	Vole density	Weather
2006	3	28 %	36 %	low	bad
2007	4	51 %	68 %	high	ok
2008	4	60 %	72 %	high	ok

Population size and trend

The Red-footed Falcon has a large global population estimated between 300,000-800,000 individuals (Ferguson-Lees *et al.* 2001), but recent evidence suggests that it is undergoing a large decline in certain parts of its range. The European population of 26,000-39,000 pairs suffered a large decline during 1970-1990 (Tucker and Heath 1994), and has continued to decline during 1990-2000, particularly in the key

populations in Russia and, with overall declines exceeding 30% in ten years (BirdLife International 2004). Recent data, collected for this action plan is presented in Table 2. A national scale survey conducted in Ukraine in 2009, estimated an approximate decline of 23% compared to 1990-2000 (Kostenko, M. *unpubl. report*). Declines have been reported from eastern Siberia, where the species may have disappeared as a breeder from the Baikal region (Popov 2000). In Hungary population estimates have shown a decline from 2,000-2,500 pairs in the late 1980s to 600-700 in 2003-2006 (Palatitz *et al.* 2007). In Bulgaria, the previously estimated 50-150 pairs dropped to 15-50 pairs based on a partial survey conducted in 2009 (Todorov, E. *pers. com.*). However, populations in central Asia appear to be stable, with the species reported as common in suitable habitats in Kazakhstan (especially in forest-steppe zone with Rook colonies), and no evidence of any population declines (Bragin, E. *pers. com.*). The marginal population in Italy is stable or fluctuating (Gustin *et al. pers. comm.*)

Table 3 Population size and trend by country

Country	Breeding pairs	Quality	Year(s) of the estimate	Breeding population trend in the last 10 years (or 3 generations)	Quality	Maximum size of migrating or non breeding populations in the last 10 years (or 3 generations)**	Quality	Year(s) of the estimate
Austria	2-11	Good (observed)	Yearly from 2004 to 2008	Large increase	Good, (observed)	Scarce (common in some parts 200	Good, (estimated)	Yearly from 2004 to 2008
Belarus	10-30	Poor	2005	Unknown		Rare		2000-2008
Bosnia and Herzegovina	Not breeding					Common 750	Medium (estimated)	2008
Bulgaria	15-50	Medium (estimated)	2006-2009	Large decline	Good (estimated)	Common (max. 809 roosting)	Medium (estimated)	2006-2009
Croatia	Not breeding					Common 250	Medium (estimated)	2007, not continuous
Cyprus	Not breeding					Common 2500	Good (observed)	1958-2008
Czech Republic	Not breeding		Last bred in 1973			Occasional		
Finland	0-5 (irregular)		2009			Scarce 10		
France	irregular							
Germany	Not breeding	Good (observed)	2000-2009			Rare, on average 50 birds per year		
Greece	Not breeding					Common (spring), scarce (autumn)	Medium (inferred)	
Hungary	1300-1400 600-700 900-1000 900-1000 1000-1100	Good (observed)	1997 2006 2007 2008 2009	Large decline, 1997-2006 Small increase (2006-2009)	Good (observed)	Common 6000	Good (observed)	2003-2009
Israel	Not breeding	Good (observed)	1982-2009	-	-	Common (autumn) Scarce (spring)	Good (observed)	1982-2009
Italy	50-70	Good (observed)	2006 (1998-2009)	Large increase	Good (observed)	Common (spring)	Medium (estimated)	2004-2009

Country	Breeding pairs	Quality	Year(s) of the estimate	Breeding population trend in the last 10 years (or 3 generations)	Quality	Maximum size of migrating or non breeding populations in the last 10 years (or 3 generations)**	Quality	Year(s) of the estimate
Latvia	Not breeding	Good (Observed)				Rare	Good (Estimated)	2009
Liechtenstein	Not breeding					Rare		
Lithuania	0-5		2008	Unknown		Rare		2009
Luxembourg	Not breeding		2000 - 2008			Occasional		
Malta	Not breeding					Common (but fluctuating)		
Moldova	70-90	Poor	unknown	Unknown		unknown		
Montenegro	Not breeding		1997-2002			Rare		1997-2002
Romania	1300-1600	Good (Estimated)	2009	Large decline	Good (Estimated)	Common 7000	(Medium, estimated)	2000-2009
Russia	20,000-30,000*			Large decline?				
Serbia	150-200	Medium (estimated)	2009	Large decline	Medium (estimated)	Common 650	Good (observed)	2009
Slovakia	5-20	Good (estimated)	2009	Large decline	Good (observed)	Scarce 14-87	Good (observed)	1996-2009
Switzerland	Not breeding	Good (Observed)	2008			Scarce (spring), rare (autumn)		2009
Turkey	Not breeding					Common 5400		2009
Ukraine	2700	Good (estimated)	2009	Large decline	Good (estimated)	Common 21000	Good (estimated) ?	
Kazakhstan	5000-10000	Poor (Suspected)	1980-2008	Small increase	Good (estimated)	Common	Medium (estimated)	1980-2008

* BirdLife International (2004)

** If quantified without remarks the number provided refers to the maximum number of roosting birds recorded

2 - THREATS

General overview

The known threats can be grouped according to the species life cycle into: 1) threats occurring at the breeding grounds and 2) threats occurring during migration and at the wintering grounds.

In the former group, habitat changes and loss of nest sites are most important. The species is intimately linked to the welfare of the rook. This often-persecuted Corvid species provides the most important natural breeding conditions for the Red-footed Falcon. Where rookeries are no longer available, artificial nest-box colonies provide productive alternatives, however making the species heavily dependent on recurring conservation management. Thus, the ecological bottle-neck of Red-footed Falcon populations is the number of available rookeries in suitable habitats.

The agricultural intensification that has taken place in the western parts of the breeding range has led to significant loss of grasslands associated with the decline of traditional livestock husbandry. This, along with the cultivation of intertilled crops (such as maize and sunflower) has reduced the suitable foraging habitats of the species, making its hunting technique less effective (reduced access to prey) and probably also depleted its prey abundance. The effect of the latter factor is not confirmed through studies.

There are still significant gaps in knowledge in the Red-footed Falcon ecology and population parameters, much in contrast to other close relatives. This fact is reflected in the scarcity of some basic data such as the population size, range and trend in the eastern part of the range. Only very recent information exists on the species' non-breeding quarters, thus limiting the knowledge on threats and ecology during this period.

List of the most important threats

From the known part of the range, the most significant threats are the following:

1. Loss and degradation of foraging habitats

The loss and degradation of suitable habitats can be broadly linked to the intensification of agriculture in the past (Böhning-Gaese & Bauer 1996). In the case of the Red-footed Falcon the conversion of grasslands to arable fields in particular was the factor which led to homogenisation of habitats into large monocultures. Being a highly gregarious species, even small scale habitat alterations may have a considerable effect on the population.

Even grasslands that are not lost, but managed more intensively become less suitable for the species. The development of intensive agricultural techniques pushed back extensive farming resulting in the decrease in traditional livestock husbandry (especially extensive grazing) which is presumed to be one of the key elements in Red-footed Falcons' habitat choice. For example, while the proportion of grasslands has not changed significantly in the past decades in Hungary, the extent of traditional

livestock grazing has generally declined. Sheep numbers decreased by 65% during the fifty years preceding 1990, while another two-fold decrease was documented since 1991 (Dobos 1997).

Red-footed Falcons may suffer from habitat loss even if seemingly minor or no land use change has been carried out. If the percentage of intertilled and industrial crops (e.g. maize, sunflower, sugar beet etc.) increases in the arable fields surrounding the colony, the birds may lose potential foraging habitats thus lowering the number of breeding birds and/or reproductive success.

Their hunting efficiency seems to be largely influenced by prey detectability and less by prey abundance, at least in Hungary (Fehérvári et al. 2009). Certain landscape scale cropping schemes and grassland management techniques may interact and result in temporal shortage of foraging patches with high prey detectability (e.g. delayed mowing, low percentage of grazed pastures, intensive cereal fields and low percentage of fallow land) in critical stages of breeding, thus lowering breeding success.

Although, hunting success of Red-footed Falcons is predominantly influenced by prey detectability, the general prey depleting effects of the increased use of pesticides probably also influences the overall population and may partly contribute to the global decline of the species.

Impact: High

2. Loss of nesting sites

Probably one of the most important limiting factors for the breeding population is the number of available aggregated nests in suitable habitats. As Red-footed Falcons primarily use rookeries for colonial breeding throughout their breeding range, the threats that affect rook colonies also apply to Red-footed Falcons. For example, in Hungary both the number of traditional, high-density Red-footed Falcon colonies and the mean number of pairs per colony has decreased significantly in the past few decades (Bagyura & Palatitz 2004). These changes can partially be attributed to the collapse of the rook population during the 1980-2006 period (from 320 000 to 23 000 pairs). This population crash is attributed to the use of targeted poisoning scheme for Corvids, widely implemented in the 80's and early 90's, in Hungary. Therefore, the number of rookeries suitable for Red-footed Falcon nesting drastically declined resulting in the contraction of breeding range in Hungary.

Common direct threats to rookeries are illegal logging, deliberate destruction, and disturbance of nests. Moreover, in some range states rooks are officially hunted (Romania), or are considered as pests and persecuted (Ukraine) and therefore all direct persecution activities (primarily shooting and disturbance) are allowed.

Even if rook populations in some range states are stable (BirdLife International 2009) certain proportion of rooks have moved to settlements. This shift in habitat selection of rooks may affect the Red-footed Falcon negatively (Fehérvári et al. 2009).

Impact: High

3. Persecution on the breeding grounds and during migration

Persecution in the breeding range may be direct (illegal shooting and or disturbance) or indirect (persecution of rooks). Although, Red-footed Falcons are not a hunted species, shooting is reported (e.g. in the Ukraine, where the species is not even legally protected). The scale of shooting is not known, but it should not be underestimated and is qualified as 'High' by Ukrainian ornithologists (Kostenko, M. *et al.*, unpubl. report). Two out of eight satellite tagged individuals from Hungary were located in

the southern part of the Ukraine for more than a month before the autumn migration, suggesting that shooting in the area may have an impact on the breeding population of EU range states as well. Illegal shooting of Red-footed Falcons also occurs in the Mediterranean on migration. For example, 52 Red-footed Falcons were shot at a roosting site at Phasouri, Cyprus in October 2007 (BirdLife, 2007). In Malta Red-footed Falcons are potential targets of poachers (BirdLife Malta, *pers. com.*). An extreme case of mass shooting was revealed on the 29th of May 1987, when hundreds of Red-footed Falcons were shot and some hunters were reported bragging bags of over 50 birds each (A. Raine *pers. comm.*).

Persecution of rooks is known to take place widely either by direct shooting at rookeries, disturbance, and nest destruction during the breeding period. All these activities indirectly impact the Red-footed Falcons causing direct mortality, nest abandonment and failed breeding.

As the species is protected throughout the EU and the Mediterranean-basin, weak law enforcement is the root cause of Red-footed Falcons shooting during pre- and post-nuptial migration.

Impact: High

4. Electrocution

Certain medium voltage electric pylons currently used in many countries may cause electrocutions to birds larger than starlings (*Sturnus vulgaris*). Diurnal raptors of steppe-type habitats where trees are scarce are especially exposed to this threat since pylons provide good perching and resting points. In the case of the Red-footed Falcon, the probability of electrocution is high, where such power-lines run close to colonies, since both adults and freshly fledged juveniles favor these tall objects for perching. Medium voltage power-lines in the vicinity of autumn roost sites are also dangerous, as large concentrations of birds use cables and pylons before roosting. However, precise data to quantify this threat are missing.

Impact: Medium

5. Collision with vehicles

Red-footed Falcons breeding or roosting close to busy roads are threatened by collision with vehicles. In the past years, several road-kills were found near roadside colonies and roost-sites in Hungary. Locally aircraft collision may also be a possible threat e.g. each year varying number (20-100 ind.) of Red-footed Falcons are observed sitting on the runways of the Athens International Airport (N. Fokas *pers. com.*) during the full length of spring migration, and at a small inland airports in Hungary. Apart from a potential direct threat to Red-footed Falcons, this phenomenon is a potential threat to flight safety. The reason why Red-footed Falcons are present at airstrips are unknown, but may be related to the availability of mowed grasslands and air thermals.

Impact: Low

Knowledge gaps

1. Population size and trends from the entire breeding range

The large margin of the national breeding population estimates indicate that these numbers are based on inaccurate estimations rather than precise counts. The precise distribution, population size and trend are crucial prerequisite for evaluation of the species conservation status and for further implementation of conservation actions.

For example, a few indications of Red-footed Falcon population dynamics are available in Russian literature but there is a knowledge gap on overall distribution and population size. However, in addition to the lack of precise population monitoring protocol, even the existing monitoring schemes differ in methods thus hindering direct comparison of population trends on even large spatial scales.

Importance: High

2. Relationship with rooks

The reasons of local declines in Rook populations and the altered nest-site choice of these Corvids should be revealed (see details above). Only by solving this problem in the long term can the achievement of the plan objectives be guaranteed.

Importance: High

3. Ecology and survival in the non-breeding range

Red-footed Falcons are long-range trans-Saharan migrants. To-date no precise information is available on their exact migratory routes and location of their wintering grounds in Africa. Being a gregarious species during migration -and presumably on the wintering grounds- makes large number of birds vulnerable to even small scale and/or local threats. Therefore, it is of high importance to identify the location of these Red-footed Falcon hot-spots (critical stop-over sites, roost-sites).

Importance: High

4. Post breeding biology

After the breeding period but still within the breeding range the Red-footed Falcons form pre-migration roosts. Large number of birds may aggregate in a small wood-patch, but even then the phenomena may be overlooked, due to the fact that gathering for roosting takes place at dusk. Therefore, important roosting sites are presumably overlooked in most of the range-states where no specific efforts have been made to locate them. A thorough search and monitoring of these congregations may facilitate the monitoring of major population trends.

Importance: Medium

5. Breeding output

Quantifying the breeding output is necessary to assess overall population viability. Monitoring schemes should take into account the reproductive parameters of the species. Research on the factors that affect the breeding outputs may provide information important for the population management. For example, being a facultative colonial species, the significance of the breeding strategies (i.e. colonial, solitary), and their relation to environmental factors (e.g. weather, prey population dynamics) may guide conservation measures. Little is known on the biological limiting factors of breeding performance of Red-footed Falcons, however there are indications of e.g. viral diseases and zoonoses (Erdélyi et al. 2008) or mammalian and avian predation.

Importance: Medium

6. Additional mortality factors

Red-footed Falcons are predominantly insectivorous species, and as such are possibly exposed to primary and secondary poisoning of a wide selection of pesticides used in the agricultural sector. Primary poisoning may derive from aerial spraying of pesticides around colonies or roost-sites, while secondary poisoning may happen when the chemicals are accumulated through the food chain. As Red-footed Falcons winter in sub-Saharan Africa - where chemical usage regulations are more permissive compared to Europe- they are presumably exposed to dangerous pesticides banned from the European breeding-range. The single study of chemical analysis of Red-footed Falcon eggs available shows DDE (a metabolite of DDT) in all eight eggs studied (Henny et al. 2003). However, there still is a large gap of knowledge on the extent and effect of these pesticide residues on population output parameters and survival rate, which has to be investigated.

The intensive usage of insecticides is also known to reduce prey density (Newton 1998). For example, between 1888-1958 swarms of the *Dociopterus maroccanus*, known to be a favoured prey of Red-footed Falcons (Horváth 1964), caused extensive agricultural problems. Effective chemical pesticide preventions used in modern agriculture stopped large swarms; the last documented regional Orthoptera gradation in Central Europe was in the late 60's.

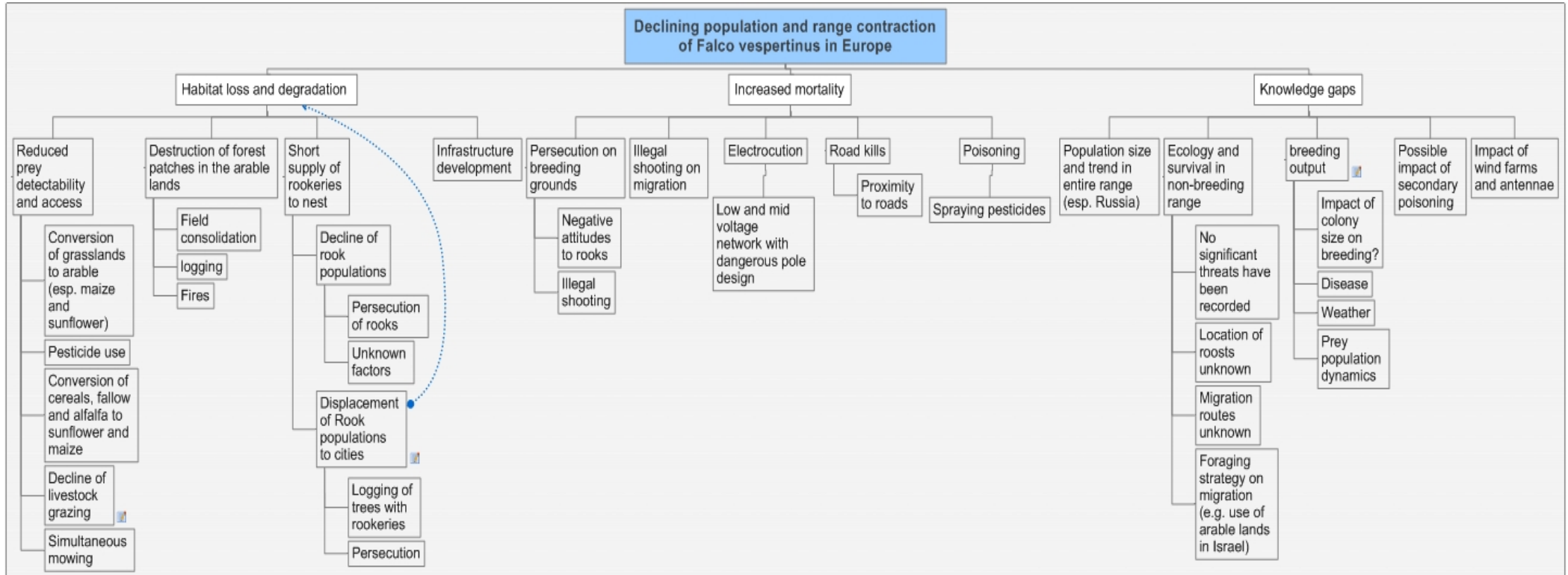
Importance: Unknown

7. Collision with windfarms and tall structures

There are no reported cases of Red-footed Falcons killed by wind farms and antennae so far, but in the same time very limited monitoring is in place along the species flyway.

Importance: Unknown

Figure 2 Problem tree



3 - POLICIES AND LEGISLATION RELEVANT FOR MANAGEMENT

International conservation and legal status of the species

EU Birds Directive - Council Directive on the conservation of wild birds (79/409/EEC)

Category: Annex I

Aim: To protect wild birds and their habitats, e.g. through the designation of Special Protection Areas (SPA). The directive states that species listed in Annex I 'shall be subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution' and that 'Member States shall classify in particular the most suitable territories in number and size as special protection areas for the conservation of these species, taking into account their protection requirements in the geographical sea and land area where this Directive applies'.

Bern Convention - Convention on the Conservation of European Wildlife and Natural Habitats

Category: Appendix II

Aim: To maintain populations of wild flora and fauna with particular emphasis on endangered and vulnerable species, including migratory species. Each Contracting Party shall take appropriate and necessary legislative and administrative measures to ensure the special protection of the wild fauna species specified in Appendix II.

Bonn Convention - Convention on the Conservation of Migratory Species of Wild Animals

Category: Appendix II

Aim: To conserve terrestrial, marine and avian migratory species throughout their range. Appendix II refers to migratory species that have an unfavourable conservation status or would benefit significantly from international co-operation organized by tailored agreements. The Convention encourages the Range States to conclude global or regional Agreements for the conservation and management of individual species or, more often, of a group of species listed in Appendix II.

Bonn Convention - Convention on Migratory Species Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia

Category: Category 1

Aim: To take coordinated measures to achieve and maintain the favourable conservation status of birds of prey throughout their range and to reverse their decline when and where appropriate. To this end, they will endeavour to take, within the limits of their jurisdiction and having regard to their international obligations, the measures specified in Paragraphs 7 and 8 of the MoU, together with the specific actions laid down in the Action Plan (Annex II of the MoU).

Category 1 species are those defined as Globally Threatened or Near Threatened by the IUCN Red List, and listed as such in the BirdLife International World Bird Database. The Memorandum encourages signatories to adopt, implement, and enforce such legal, regulatory and administrative measures as may be appropriate to conserve these bird of prey and their habitats.

CITES - Convention on International Trade in Endangered Species of Wild Fauna and Flora

Category: Appendix II

Aim: Appendix II includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival. Trade may take place provided it is authorized by the granting of a CITES (re)export permit. In the EU Wildlife Trade Regulation the Red-footed Falcon is in Annex A and it is treated as if it was in CITES Appendix I i.e. prohibiting trade in wild specimens for commercial purposes.

Global status ¹	European status ²	SPEC category ²	ETS ³	EU Bird Directive Annex ⁴	Bern Convention ⁵	Bonn Convention ⁶	CITES
NT	NT	SPEC 3	NT	Annex I	Appendix II	Appendix II Category 1	Appendix II

¹ IUCN 2008. 2008 IUCN Red List of Threatened Species. .Categories: EX = Extinct; EW = Extinct in the Wild; CR = Critically endangered; EN = Endangered; VU = Vulnerable; LR = Lower Risk; CD = conservation dependent; NT = Near Threatened; LC = Least Concern; DD = Data Deficient; NE = Not Evaluated.

² BirdLife International (2004a) *Birds in Europe: population estimates, trends and conservation status. Second edition.* Wageningen, The Netherlands: BirdLife International. (BirdLife Conservation Series No. 12). Same categories as above.

³ BirdLife International (2004b) *Birds in the European Union: a status assessment.* Wageningen, The Netherlands: BirdLife International. Same categories as above.

⁴The species shall be subjected to special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution.

⁵ Give special attention to the protection of areas that are of importance (Article 4) and ensure the special protection of the species (Article 6).

⁶ Animals for which agreements need to be made for the conservation and management of these species.

For National Red List status in the range states please refer to Annex 3.

National nature conservation and other related legislation

The Red-footed Falcon is legally protected in all EU range states and in most of the breeding range countries, except for Ukraine. Legal penalties for killing range from 40 US\$ to 17 000 €. In cc. 70% of the European countries penalties include nest destruction and in 50% also disturbance. An overview of the protections status in European countries is presented in Annex 3.

Recent and ongoing conservation activities

The species is included in the Agro-environmental programs of Hungary. Species-specific land management practices are subsidized from 2009 to 2013.

An international LIFE Nature project - aiming to restore favourable conservation status of the Red-footed Falcon- was initiated in 2006, in Hungary and in western Romania (LIFE05 NAT/H/000122). Within the scope of the project, acute nest-site shortage was handled with a large scale nest-box program, while long term nesting tree shortage was addressed by planting small tree patches in suitable habitats. A specific monitoring scheme was developed and is running to provide in-depth data on breeding population size and trend, while a colour-ringing scheme is currently being implemented to assess movements and survival estimates in both countries. Insulation of high-risk electric pylons was carried out at several of the most relevant sites (cc. 400 km). In Hungary, a Red-footed Falcon friendly AEP subsidy scheme was developed to ensure good foraging conditions around major colonies. The elaboration of Corvids induced conflicts has also been carried together with investigating their possible solutions, and compiled in a management plan for stakeholders and authorities.

In, Italy -a country the species recently colonised - a LIFE Nature project is currently implemented to ensure nesting-sites and habitats for the species.

Sporadic irregular population surveys have been carried out and are implemented in Serbia, while a nation-wide census of the species was concluded in 2009, in the Ukraine. Recently, a nest-box programme and a country-wide survey were initiated in Bulgaria.

4 - FRAMEWORK FOR ACTION

Goal of the action plan

To move the Red-footed Falcon from the IUCN Red List from Near Threatened to Least Concern category.

Objectives of the plan

- By 2015, maintain the current range in the European Union countries, Serbia and Ukraine and increase the population of European Union countries and Serbia to 3,500 pairs.
- By 2015, fill in knowledge gaps in distribution, population size and trends, ecology and life-style throughout the entire species' range.
- By 2020, maintain a population of 3,500 pairs in the European Union countries and Serbia of which at least 2,000 pairs breeding in natural nests, therefore no longer conservation dependent.

Results

The successful implementation of this action plan should lead to the following results:

- Result 1.** Improved foraging habitats are available throughout the European range.
- Result 2.** Nest site availability ensured throughout the European range.
- Result 3.** Direct mortality reduced to levels not affecting the population trend.
- Result 4.** The most important knowledge gaps filled by 2015.

Table 4 Actions to be undertaken to achieve the objective of the action plan.

Objective 1: In the short term, maintain the current range in the European Union countries, Serbia and Ukraine and increase the population of European Union countries and Serbia to 3,500 pairs.

and

Objective 3: In the long term, maintain a population of 3,500 pairs in the European Union countries and Serbia of which at least 2,000 pairs breeding in natural nests, therefore no longer conservation dependent.

Results/actions	Priority	Time frame	Responsible organisation
Result 1. Improved foraging habitats are available throughout the European range.			
1.1 Develop and promote habitat conservation strategies for the species aimed at protection of grasslands and surrounding mosaic agriculture. Applicable to: Bulgaria, Greece, Hungary, Italy, Romania, Serbia	High	Medium	Agri-environment authorities
1.2 Promote agri-environmental incentives for maintaining mosaics of grasslands and suitable arable crop rotations (cereals, alfalfa, fallow). Use the species distribution to target these schemes. Discourage industrial crops (e.g. maize, sunflower, sugar beet) in suitable habitats. Applicable to: Bulgaria, Greece, Hungary, Italy, Romania, Serbia	High	Medium	Agri-environment authorities
1.3 Preserve, promote grazing livestock practices on grasslands by increasing the economic viability of livestock farming through agri-environmental subsidy systems. Applicable to: Croatia, Hungary, Italy, Serbia	High	Medium	Agri-environment authorities

1.4 Encourage the use of the species in marketing strategies of agricultural products from grassland areas Applicable to: Croatia, Greece, Hungary, Italy, Serbia	Medium	Medium	Municipal and community authorities
1.5 Ensure that Environmental Impact Assessment and Appropriate Assessment procedures effectively reduce the loss RFF breeding and foraging habitat. Map sensitive areas and provide information for spatial planning of protected sites networks (e.g. Natura 2000 and IBA) Applicable to: all range states	High	Short	Environmental authorities, NGOs
Result 2. Nest site availability ensured throughout the European range			
2.1 Identify, protect, and monitor the species colonies in rookeries. Ensure that information about their existence and needs is disseminated to the relevant authorities and landowners. Applicable to: all range states	Critical	Short	Environmental authorities, protected area managers, NGOs
2.2 Expand legal protection of the species to cover also breeding sites Applicable to: all breeding range states	High	Medium	National and regional governments
2.3 Strengthen the legal protection and its enforcement for roosting and breeding sites. (especially rookeries away from settlements) Applicable to: all range states	High	Ongoing	National and regional governments, environmental authorities, municipalities

<p>2.4 Develop measures to address the decline and restore rook populations. Ensure that Natura 2000 site management takes into account both RFF and rooks (e.g. identify breeding colonies, foraging range, key habitat management needs).</p> <p>Applicable to: all EU range states</p>	Critical	Long	Environmental authorities
<p>2.5 Develop education programmes for farmers to reduce persecution of rooks. Increase the public awareness on rooks and develop awareness raising actions to convert traditional prejudice into appreciation of Corvids.</p> <p>Applicable to: all range states</p>	High	Ongoing	NGOs, protected area managers, agri-environmental authorities, farm advisors
<p>2.6 Promote agro-techniques that are rook friendly, especially regarding use of chemicals and poisons.</p> <p>Applicable to: all range states</p>	High	Ongoing	Agri-environmental authorities, Regional governments, NGOs
<p>2.7 Develop and implement Conflict Management Plans for Corvids based on identification of all problems (especially crop damage by Rooks). Include recommendation of solutions and programmes to reduce crop damage by Rooks without having to reduce their numbers.</p> <p>Applicable to: all range states. (HU has good example)</p>	High	Ongoing	Regional governments, NGOs
<p>2.8. Provide additional nesting opportunities for the RFF in areas where necessary by creating, protecting and maintaining small forest patches in the arable landscapes (e.g. windbreaks, groves, poplar trees).</p> <p>Applicable to: all range states</p>	High	Long	Environmental authorities, NGOs

2.9 Remove legal loopholes and incentives that allow logging of trees in the farmland. Applicable to: all range states	High	Medium	National and regional governments
2.10 Effectively enforce the ban on stubble burning. Applicable to: all range states	Medium	Short	Agricultural inspectors
2.11 Encourage the planting of forest patches of native species in the arable landscapes where appropriate. Applicable to: all range states	Medium	Medium	Environmental authorities, NGOs
2.12 Promote nest box schemes where necessary. Identify and map suitable habitats where lack of nest-sites hinders breeding. Prepare and distribute nest-box scheme guidelines amongst potential users. Consider the financial implications of long term annual nest-box maintenance Applicable to: all range states	High	Short	Environmental authorities, NGOs
Result 3 Direct mortality reduced to levels not affecting the population trend			
3.1 Ensure effective legal protection of the Red-footed Falcon, including deliberate persecution in its breeding areas Applicable to: Ukraine	Critical	Short	National governments
3.2 Ensure effective law enforcement of breeding and roosting sites Applicable to: all range states	Critical	Short	National governments

3.3 Raise public awareness on the status, legal protection and conservation of the Red-footed Falcons Applicable to: all range states	High	Ongoing	NGOs, environmental authorities
3.4 Increase control on poaching along migratory flyways Applicable to: all range states	High	Short	National governments
3.5 Promote endorsement of this action plan under the CMS MoU on Raptors/CMS Applicable to: all range states	High	Short	National governments, International organisations
3.6 Take measures to reduce mortality on mid-voltage electric pylons - Insulate pylons in core areas (e.g. breeding and roosting sites, migratory hot-spots) - Promote bird friendly electric pylon design in grid expansion projects. Applicable to: all range states	High	Medium	National governments, electricity suppliers
3.7 Take measures to prevent mortality by collisions with vehicles and airplanes. Develop effective repellent techniques at airports. Applicable to: all range states (Greece for airports)	Low	Long	Local authorities, NGOs
3.8 Expand legal protection of the species to cover also breeding sites. Applicable to: all breeding range of states.	High	Medium	National and regional governments
3.9 Strengthen legal enforcement of breeding and roosting sites. Applicable to: all breeding range of states.	High	Medium	National and regional governments

Objective 2: By 2015, fill in knowledge gaps in distribution, population size and trends, ecology and life-style throughout the species' entire range.

Result 4. The most important knowledge gaps filled by 2015.			
<i>Population numbers and trends</i> 4.1 Search, document and monitor as many as possible pre-migration roosting sites. Applicable to: all range states	High	Short	NGOs, environmental authorities
4.2 Maintain accurate estimate of the population size and trends throughout the breeding range Applicable to: all range states	Critical	Ongoing	NGOs, scientists, environmental authorities
4.3 Develop and coordinate the implementation of an international breeding population monitoring scheme with sustainable funding for long term and constant effort. Applicable to: all range states	High	Ongoing	NGOs, International organisations
4.4 Undertake large scale survey on the population size (especially in Russia) based on: <ul style="list-style-type: none"> • Review of recent Russian literature • Identify key contacts in Russia • Analyse historical data from e.g. museum skins Applicable to: Russia, Ukraine	High	Medium	Scientists, environmental authorities and NGOs

<p><i>Research on the ecology and conservation of the species</i></p> <p>4.5 Understand the ecology and the factors that determine the breeding performance of the RFF population</p> <ul style="list-style-type: none"> • Assess importance of colonial and individual breeding strategies • Promote research on causes and effects of diseases and develop monitoring and prevention methods • Promote research on the relation of breeding parameters and climate change with special emphasis on extreme weather events • Promote research on the relationship between habitat types, key prey population dynamics and breeding performance within the whole breeding range • Investigate the reasons of decline of the rook populations and what causes their displacement to urban areas <p>Applicable to: all breeding range states</p>	High	Medium	Scientists, International organisations and NGOs
<p>4.6 Determine the rates and factors behind mortality, recruitment and breeding success.</p> <p>Applicable to: all breeding range states</p>	Medium	Medium	NGOs, environmental authorities
<p>4.7 Assess importance of secondary poisoning by pesticides and other harmful chemicals.</p> <p>Applicable to: all range states</p>	Medium	Medium	Scientists, NGOs, environmental authorities
<p>4.8 Identify and monitor critical wind farms and other infrastructures in the breeding range routes and migration routes (e.g. Crimean peninsula and Dobrudja region in RO and BG)</p> <p>Applicable to: UA, RO, BG and GR</p>	Medium	Short	Environmental authorities, NGOs
<p>4.9. Identify high risk areas and assess impact of traffic-collision</p> <p>Applicable to: HU, SER</p>	Low	Medium	Environmental authorities, NGOs

<p>4.10 Study migration routes, wintering grounds and threatening factors in the non-breeding range, including:</p> <ul style="list-style-type: none"> • Identify major migratory stop-over sites • Collect data on threatening factors during both pre and post nuptial migration • Continue remote tracking surveys (satellite-transmitters, data loggers etc.) • Promote cooperation with governments and locally based conservation groups in the non-breeding range (e.g. organize expeditions, maintain mailing lists, etc). Use CMS and this Action Plan as well as other suitable international platforms. • Research foraging strategy, and stop-over dynamics at located designated stop-over sites (e.g. Israel) • Promote expeditions and/or cooperation with locals at located wintering areas to understand the ecology and assess threatening factors • <p>Applicable to: all range states</p>	High	Medium	Scientists, International organisations and NGOs
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ANNEX 1 Threats importance at population/group of countries level

Threat	AT	BG	CR O	CY	GR	HU	IT	MA	RO	SK	SRB	TR	UA	KZ
1. Habitat loss and degradation														
1.1 Loss and degradation of foraging habitats														
a Infrastructure development				C		L			H (loc)					
b. Field consolidation		C				L			H				H	
c. Conversion of grasslands to arable fields (esp. maize and sunflower)			U		Pot	M	C		M		H	H		
d. Conversion of cereals, fallow and alfalfa to sunflower and maize			U		Pot	M				C	H			
e. Decline of livestock grazing			U			H								
f. Lowered prey abundance due to excessive pesticide use		C	U		Pot	H (Pot)	M		H (Pot)	C	H (Pot)	M/H	H (Pot)	L
1.2 Degradation and loss of nesting sites														
a. Decline of Rooks and/or displacement of rookeries to cities hence decline of natural breeding sites						H			H (loc)					
b. Negative reputation of Rooks and other Corvids						M			H	H			H	
c. Logging of trees with rookeries	M	C				M	H		H		H		H	H
d. Fires													H	H
e. Hunting of Corvids	Loc									H			H	
f. Persecution of Rooks		H				M			H				H	U
g. Conservation dependency of artificial colonies						C			H					
2. Direct threats (mortality)														
2.1 Persecution, including disturbance in breeding colonies					Pot			H	H	H	L	H	H	U
2.2 Low and mid voltage electric network with dangerous pole design						H				M				
2.3 Collision with vehicles						L (loc)			H (loc)		H (loc)			
3. Knowledge gaps														
3.1 Population size, trends and ecology in the breeding range											M	H		

Threat	AT	BG	CR O	CY	GR	HU	IT	MA	RO	SK	SRB	TR	UA	KZ
3.2 Breeding output and population viability						Pot	M		U		M	M/H	H	Low
3.3 Ecology and survival in the non-breeding range														
3.4 Migration routes, major stop-over sites and threatening factors along migratory flyways						Pot			Pot			H	H	

Notes:

- ✓ *The description of threats should reflect the actual understanding of the situation with the species, according to the latest available knowledge and the workshop participants' best judgment. It is not necessary to follow a formal threat classification system. The logical problem analysis and cause-effect relationships among the main threats are the important aspects to focus the plan on.*
- ✓ *Threats are not hierarchical, but clustered according to type of effect.*
- ✓ *Threat score: C - Critical, H -High, M - Medium,L - Low, Loc -Local, U -Unknown, Pot - indicates potential threat.*

ANNEX 2 Key sites for the species in the European Union

Country	IBA Name	Lat	Long	Pop max	Pop min	Year	Units	Season	Quality	IBA Area (km ²)	Area protected	SPA Code	SPA name	% IBA protected
Austria	Parndorfer Platte Heidboden	48,00	16,90	11	8	2007	pairs	breeding	good	278,6	77	AT1110137	Parndorfer Platte Heidboden	36,00
Bulgaria	Shablenski ezereen complex	43,34	28,34	16	5	1996	pairs	breeding	medium	31,95	31,94	BG0000156	Shabla Lake Complex	99,94
Bulgaria	Atanasovsko ezero	42,35	27,27	3110	438	1998	ind.	passage	medium	72,09	72,06	BG0000270	Atanasovsko ezero	99,96
Bulgaria	Complex Ropotamo	42,30	27,75	1000	1000	1996	ind.	passage	medium	38,67	38,64	BG0002041	Ropotamo Complex	99,92
Bulgaria	Zlatiata	43,70	23,63	38	30	1997	pairs	breeding	good	434,93	434,80	BG0002009	Zlatiata	99,97
Cyprus	Paphos plain	34,70	32,52	800	50	2004	ind.	passage	good	24	24	4000018	Ekvoles potamon Ezousa, Xerou & Diarizou	100,00
Hungary	Abonyi kaszáló-erdő	47,17	19,95	27	15	2007-2009	pairs	breeding	good	3,73	3,65	HUDI10001	Abonyi-kaszálóerdő	97,89
Hungary	Alsó-Tisza-völgy	46,49	20,18	10	4	2007-2009	pairs	breeding	good	294,83	281,41	HUKN10007	Alsó-Tisza-völgy	95,45
Hungary	Bihari-síkság	47,10	21,43	94	64	2007-2009	pairs	breeding	good	508,87	447,74	HUHN10003	Bihar	87,99
Hungary	Bihari-síkság	47,10	21,43	2700	890	2007	ind.	passage	good	508,87	447,74	HUHN10003	Bihar	87,99
Hungary	Borsodi-mezőség	47,79	20,75	153	61	2007-2009	pairs	breeding	good	390,18	369,36	HUBN10002	Borsodi-sík	94,66
Hungary	Csanádi hát	46,34	20,65	70	55	2007-2009	pairs	breeding	good	92,19	90,48	HUKM10004	Hódmezővásárhely környéki és csanádi-háti puszták	98,15

Country	IBA Name	Lat	Long	Pop max	Pop min	Year	Units	Season	Quality	IBA Area (km2)	Area protected	SPA Code	SPA name	% IBA protected
Hungary	Csanádi hát	46,34	20,65	1500	490	2009	ind.	passage	good	92,19	90,48	HUKM10004	Hódmezővásárhely környéki és csanádi-háti puszták	98,15
Hungary	Cserebökényi puszták	46,74	20,51	66	40	2007-2009	pairs	breeding	good	181,87	179,93	HUKM10005	Cserebökényi puszták	98,93
Hungary	Cserebökényi puszták	46,74	20,51	3300	1100	2007	ind.	passage	good	181,87	179,93	HUKM10005	Cserebökényi puszták	98,93
Hungary	Dél-Heves, Jászság	47,54	20,00	37	23	2007-2009	pairs	breeding	good	571,79	237,48	HUHN10005	Jászság	41,53
Hungary	Dévaványai-sík	47,09	20,90	25	10	2007-2009	pairs	breeding	good	286,97	250,62	HUKM10003	Dévaványai-sík	87,33
Hungary	Dévaványai-sík	47,09	20,90	5700	1900	2009	ind.	passage	good	286,97	250,62	HUKM10003	Dévaványai-sík	87,33
Hungary	Hevesi-sík	47,58	20,45	34	27	2007-2009	pairs	breeding	good	639,59	530,82	HUBN10004	Hevesi-sík	82,99
Hungary	Hevesi-sík	47,58	20,45	9000	3000	2003	ind.	passage	good	639,59	530,82	HUBN10004	Hevesi-sík	82,99
Hungary	Hortobágy és Tiszató	47,58	20,96	307	191	2007-2009	pairs	breeding	good	1500,72	1068,50	HUHN10002	Hortobágy	71,20
Hungary	Hortobágy és Tiszató	47,58	20,96	4500	1500	2004	ind.	passage	good	1500,72	1068,50	HUHN10002	Hortobágy	71,20
Hungary	Kiskunsági szikes puszták térség	47,06	19,24	15	11	2007-2009	pairs	breeding	good	443,39	353,53	HUKN10001	Felső-kiskunsági szikes puszták és turjánvidék	79,73
Hungary	Solti-síkság	46,72	19,17	87	70	2007-2009	pairs	breeding	good	345,01	308,42	HUKN10002	Kiskunsági szikes tavak és az őrjei turjánvidék	89,40

Country	IBA Name	Lat	Long	Pop max	Pop min	Year	Units	Season	Quality	IBA Area (km2)	Area protected	SPA Code	SPA name	% IBA protected
Hungary	Solti-síkság	46,72	19,17	1400	470	2009	ind.	passage	good	345,01	308,42	HUKN10002	Kiskunsági szikes tavak és az őrjegi turjánvidék	89,40
Hungary	Vásárhelyi-puszta	46,50	20,59	109	73	2007-2009	pairs	breeding	good	101,23	98,98	HUKM10004	Hódmezővásárhely környéki és csanádi-háti puszták	97,78
Hungary	Vásárhelyi-puszta	46,50	20,59	1400	460	2004	ind.	passage	good	101,23	98,98	HUKM10004	Hódmezővásárhely környéki és csanádi-háti puszták	97,78
Italy	Valli di Comacchio e Bonifica del Mezzano	44,62	12,17	15	25	2000	pairs	breeding	n.a.	340	340	IT4060008	Valle del Mezzano, Valle Pega	100%
Italy	Marchesato e Fiume Neto	39,22	16,95	1000	0	1996	ind.	passage	poor	680	680	IT9320302	Marchesato e Fiume Neto	100%
Romania	Aliman - Adamclisi	44,15	27,93	41	36	2000-2006	pairs	breeding	medium	198,49	193,51	ROSPA0001	Aliman - Adamclisi	97,49
Romania	Allah Bair - Capidava	44,47	28,13	22	14	2000-2006	pairs	breeding	medium	125,19	116,21	ROSPA0002	Allah Bair - Capidava	92,83
Romania	Brațul Borcea	44,34	27,82	21	18	2000-2006	pairs	breeding	medium	212,05	0,67	ROSPA0012	Brațul Borcea	0,31
Romania	Câmpia Crișurilor	46,35	21,36	49	34	2006-2009	pairs	breeding	good	422,64	319,23	ROSPA0015	Câmpia Crișului Alb și Crișului Negru	75,53
Romania	Câmpia Nirului - Valea Ierului	46,36	21,12	15	12	2006-2009	pairs	breeding	good	392,64	370,04	ROSPA0016	Câmpia Nirului - Valea Ierului	94,24
Romania	Cheile Dobrogei	44,48	28,47	23	17	2000-2006	pairs	breeding	medium	110,66	108,44	ROSPA0019	Cheile Dobrogei	98,00

Country	IBA Name	Lat	Long	Pop max	Pop min	Year	Units	Season	Quality	IBA Area (km2)	Area protected	SPA Code	SPA name	% IBA protected
Romania	Delta Dunării	45,18	29,35	340	220	2000-2006	pairs	breeding	medium	5155,80	5079,00	ROSPA0031	Delta Dunării și Complexul Razim - Sinoie	98,51
Romania	Dunăre - Canarale - Hârșova	44,69	27,90	26	22	2000-2006	pairs	breeding	medium	87,01	72,97	ROSPA0017	Canaralele de la Hârșova	83,86
Romania	Dunăre - Ostroave	44,20	27,59	21	18	2000-2006	pairs	breeding	medium	170,92	143,06	ROSPA0039	Dunăre - Ostroave	83,70
Romania	Dunărea Veche (Brațul Măcin)	45,00	28,13	34	22	2000-2006	pairs	breeding	medium	267,92	168,31	ROSPA0040	Dunărea Veche - Brațul Măcin	62,82
Romania	Eleșteele Jijiei și Miletinului	47,39	27,32	40	30	2000-2006	pairs	breeding	medium	173,87	153,72	ROSPA0042	Eleșteele Jijiei și Miletinului	88,41
Romania	Hunedoara Timișană	46,10	21,15	72	64	2006-2009	pairs	breeding	good	26,26	9,73	ROSPA0047	Hunedoara Timișană	37,06
Romania	Lacul Beibugeac (Plopu)	45,03	29,12	28	14	2000-2006	pairs	breeding	medium	2,48	2,48	ROSPA0052	Lacul Beibugeac	100,00
Romania	Lacul Siutghiol	44,25	28,60	23	20	2000-2006	pairs	breeding	medium	20,23	20,23	ROSPA0057	Lacul Siutghiol	100,00
Romania	Lunca Barcăului	47,14	21,54	21	19	2006-2009	pairs	breeding	good	26,66	26,66	ROSPA0067	Lunca Barcăului	100,00
Romania	Lunca Prutului - Vlădești - Frumușița	45,73	28,12	15	10	2000-2006	pairs	breeding	medium	149,42	18,06	ROSPA0070	Lunca Prutului - Vlădești - Frumușița	12,09
Romania	Mlaștina Satchinez	45,55	21,40	12	10	2006-2009	pairs	breeding	good	27,97	2,60	ROSPA0078	Mlaștina Satchinez	9,28
Romania	Pădurea Babadag	44,89	28,58	30	20	2000-2006	pairs	breeding	medium	494,14	445,44	ROSPA0091	Pădurea Babadag	90,15
Romania	Pădurea Bârnova	47,04	27,68	15	10	2000-2006	pairs	breeding	medium	156,90	128,25	ROSPA0092	Pădurea Bârnova	81,74

Country	IBA Name	Lat	Long	Pop max	Pop min	Year	Units	Season	Quality	IBA Area (km2)	Area protected	SPA Code	SPA name	% IBA protected
Romania	Pădurea Hagieni	43,80	28,46	21	13	2000-2006	pairs	breeding	medium	15,25	4,17	ROSPA0094	Pădurea Hagieni	27,33
Romania	Stepa Casimcea	44,76	28,39	36	29	2000-2006	pairs	breeding	medium	320,33	221,06	ROSPA0100	Stepa Casimcea	69,01
Romania	Stepa Saraiu - Horea	44,71	28,15	40	24	2000-2006	pairs	breeding	medium	46,78	41,15	ROSPA0101	Stepa Saraiu - Horea	87,96
Romania	Valea Alceului	46,59	21,46	17	15	2006-2009	pairs	breeding	good	10,72	10,72	ROSPA0103	Valea Alceului	100,00
Romania	Lacul Beibugeac (Plopu)	45,03	29,12	2000	1000	2006-2008	ind.	passage	low	2,48	2,48	ROSPA0052	Lacul Beibugeac	100,00
Romania	Delta Dunării	45,18	29,35	4000	2000	2006-2008	ind.	passage	low	5155,80	5079,00	ROSPA0031	Delta Dunării și Complexul Razim - Sinoie	98,51
Slovakia	Syslovské polia	48,04	17,12	20	5	2003	pairs	breeding	good	38,6	17,51	SKCHVU029	Syslovské polia	45,35
Slovakia	Dolné Povazie	47,95	18,16	8	3	2003	pairs	breeding	good	358,66	351,82	SKCHVU005	Dolné Povazie	98,09
Slovakia	Lehnice	48,07	17,45	10	3	2003	pairs	breeding	good	26,56	18,76	SKCHVU012	Lehnice	70,65
Slovakia	Ostrovne luky	47,86	17,92	14	4	2003	pairs	breeding	good	87,18	85,63	SKCHVU019	Ostrovne luky	98,23
Slovakia	Puste Ulany-Zelenec	48,27	17,54	10	3	2003	pairs	breeding	good	212,06	210,06	SKCHVU023	Ulanska mokrad	99,06
Cyprus	Akrotiri Peninsula - Episkopi Cliffs	34,62	32,92	2 606	380	2008	ind.	passage	good	65,33	62	-	-	95,00
Hungary	"Dél-Jaszsag" non designated!	47,19	20,03	38	16	2007-2009	pairs	breeding	good	-	-	-	-	-
Hungary	"Dél-Jaszsag" non designated!	47,19	20,03	4850	1615	2006	ind.	passage	good	-	-	-	-	-
Romania	Horga - Zorleni	46,26	27,82	15	12	2000-2006	pairs	breeding	medium	239,96	0,00	-	-	0,00
Romania	Kogălniceanu - Gura Ialomiței	44,68	27,79	44	28	2000-2006	pairs	breeding	medium	61,73	0,00	-	-	0,00

Country	IBA Name	Lat	Long	Pop max	Pop min	Year	Units	Season	Quality	IBA Area (km2)	Area protected	SPA Code	SPA name	% IBA protected
Romania	Pădurea Radomir	43,13	24,19	26	23	2000-2006	pairs	breeding	medium	10,31	0,00	-	-	0,00
Romania	Uivar-Diniaş - non designated!	45,64	20,91	3000	2000	2006-2009	ind.	passage	good	0,00	-	pSPA	Uivar-Diniaş	-
Romania	Livezile-Dolaţ - non designated!	45,37	21,05	3000	2000	2006-2009	ind.	passage	good	0,00	-	pSPA	Livezile-Dolaţ	-
Romania	Valcani - non designated!	45,97	20,39	2500	1500	2006-2009	ind.	passage	good	0,00	-	-	-	-

Key sites for the species in Non EU range states

Country	IBA Code	IBA Name	IBA area km2	Lat	Long	Pop min	Pop max	Unit	Season	Quality	Year	Protected area name	Type
Serbia	YU002	Suboticka jezera i pustare	200,00	46,07	19,82	22	25	pairs	breeding	good	2009	Ludasko jezero	Nature Reserve
Serbia	YU011	Jazovo-Mokrin	80,00	45,82	20,25	17	20	pairs	breeding	good	2009	[Pasture of Great Bustard]	Special Nature Reserve
Turkey	ORT043	hafik-zara tepeleri	1 030,32	39,80	37,41	8	n.a.	ind	passage	poor	2009		
Turkey	MAR023	istanbul bogaz	556,31	41,16	29,12	>150	n.a.	ind	passage	poor	n.a.		
Turkey	ORT014	ankara mogan	150,50	32,46	39,43	20	n.a.	ind	passage	poor	2009	Mogan Gölü	
Turkey	ORT004	eskisehir balikdamı	32,97	39,19	31,63	20	n.a.	ind	passage	poor	2009	Balıkdamı	
Turkey	OBK015	sinop yarımadası	186,00	42,04	35,01	15	n.a.	ind	passage	poor	2009		
Turkey	OBK019	kızılırmak deltası	313,27	41,72	35,94	180	n.a.	ind	passage	poor	2008		
Turkey	AKD051	goksu deltası	217,52	36,33	33,99	7	n.a.	ind	passage	poor	2008		
Turkey	OBK019	kızılırmak deltası	313,27	41,72	35,94	59	n.a.	ind	passage	poor	2006		

Turkey	MAR013	manyas	218,21	40,18	27,96	12	n.a.	ind	passage	poor	2005		
Turkey	OBK019	kızılırmak deltası	313,27	41,72	35,94	295	n.a.	ind	passage	poor	2005		
Turkey	ORT004	eskişehir balıkdanı	32,97	39,19	31, 63	14	n.a.	ind	passage	poor	2004	Balıkdanı	
Turkey	OBK012	kızılcahamam ormanları	146,89	40,70	32,57	82	n.a.	ind	passage	poor	2002		
Turkey	MAR017	uluabat gölü	246,23	40,17	28,60	37	n.a.	ind	passage	poor	1999		
Turkey	DKD006	borçka	637,65	40,81	41,60	23	n.a.	ind	passage	poor	1976		
Russia (European)	RU141	Delta Dona	864,00	47,17	39,42	1000	1600	ind.	passage	medium	1997	Rostovskoe GOOH (Azovskiy uchastok)	Managed Resource Protected Area
Russia (European)	RU127	Dolina reki Safarovki	25,00	51,00	48,75	50	100	pairs	breeding	-	1997	not protected	n.a.
Russia (European)	RU126	Okrestnosti Borisoglebovki (Saratovski [Semenovski] Zakaznik)	722,90	51,00	46,75	100	200	pairs	breeding	medium	1996	Saratovskiy	Zakaznik
Russia (European)	RU272	Ozero Lysiy Liman i poima Vostochnogo Manycha	60,00	45,80	44,08	27	0	pairs	breeding	medium	2005-2006	not protected	n.a.
Russia (European)	RU381	Irgaklinskaya lesnaya dacha	25,00	44,35	44,80	28	0	pairs	breeding	good	2007	Irgaklinskiy	Zakaznik
Russia (European)	RU387	Leninskiy leshoz	179,00	46,75	38,12	30	50	pairs	breeding	good	1997-1999	Rostovskoe GOOH (Aleksandrovskiy uchastok)	Managed Resource Protected Area

Russia (European)	RU348	Karakulinskaya poima	200,00	55,93	53,67	18	25	pairs	breeding	good	1995-2003	Ust'-Bel'sk	National Park
Russia (European)	RU348	Karakulinskaya poima	200,00	55,93	53,67	13	20	pairs	breeding	good	2004	Ust'-Bel'sk	National Park
Russia (European)	RU370	Shcherbakovskaya izluchina Volgi	356,36	50,45	45,75	15	20	pairs	breeding	medium	2004	Shcherbakovski	National Park
Russia (European)	RU370	Shcherbakovskaya izluchina Volgi	356,36	50,45	45,75	13	15	pairs	breeding	medium	1998-1999	Shcherbakovski	National Park
Russia (European)	RU421	Karanogaiskiye stepi	650,00	44,13	45,80	150	200	pairs	breeding	medium	2004-2006	not protected	n.a.
Russia (European)	RU395	Taman'	475,00	45,28	36,75	40	60	pairs	breeding	medium	2004-2006	Tamano-Zaporozhski	Zakaznik
Russia (European)	RU393	Delta Kubani	1 795,00	45,77	38,35	14	16	pairs	breeding	medium	2006	Priazovskiy	Zakaznik
Russia (European)	RU482	Severo-donetskaya	200,00	48,33	40,58	30	50	pairs	breeding	good	1998-1999	Severodonetskiy	Zakaznik
Russia (European)	RU469	Buninski les	79,05	54,00	54,03	12	0	pairs	breeding	good	2004	Buninski Les	Zakaznik
Ukraine	UA116	Konka river mouth	78,00	47,32	35,17	100	300	pairs	breeding	unknown	1999	not protected	n.a.
Ukraine	UA121	Berezans'kyj lyman and Solonets Tuzly pond	116,00	46,72	31,48	50	59	pairs	breeding	unknown	1999	not protected	n.a.
Ukraine	UA135	Chauda	560,00	45,20	35,92	80	100	pairs	breeding	unknown	1999	not protected	n.a.
Ukraine		Serednyotomakivske vodoshkovysche	5,50	47,73	34,38	18	30	pairs	breeding	medium	2002	not protected	n.a.
Serbia		Melence				16	16	pairs	breeding	good	2009	not protected	

Serbia		Vrbica				15	18	pairs	breeding	good	2009	not protected	
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ANNEX 3

National legal status

Country	Legal protection	Legal penalties
Austria	Red Data book Critically endangered, Legally protected from hunting	up to € 7,000 for killing according § 135 para 2 of the Lower Austrian Hunting Law 1974, LGBl 6500
Belarus	Red Data book, Legally protected from hunting	180-9,000 € including disturbance at breeding colony
Bosnia and Herzegovina	n.a.	n.a.
Bulgaria	Red Data book Near Threatened, Biodiversity Act (Annex 2 and 3)	153 €for illegal killing and/or nest destruction
Croatia	Red Data book Near Threatened, Legally protected from hunting	Penalty for killing: 3,000 €, does not include disturbance.
Cyprus	Protected (Wild Bird Law No 39) and since joining the EU in 2004 it is protected by the Birds Directive (79/409/EEC) which has been transposed the National Law 152(1)2003.	€ 17,000 or up to 3 years in prison or both, including disturbance.
Czech Republic	Red Data book, Legally protected from hunting	n.a.
Finland	Red list 2009 under preparation Not Applicable, protected	Fine
Germany	Protected	n.a.
Greece	Protected against hunting through national hunting legislation	n.a.
Hungary	Listed in Red data book 1990, Strictly protected	Penalties for killing, disturbance 2, 000 €
Italy	Red Data book, Not evaluated, particularly protected by national law	750-2,000 €for killing, but not for destruction or disturbance of nests and roosting sites
Kazakhstan*	Not listed in national Red Data book	Legal penalties is about US\$40 (in 2009), it covers killing and nest destruction. Additional special rules about keeping.
Latvia	n.a.	n.a.
Liechtenstein	Not listed in national Red Data book , Protected	n.a.
Lithuania	Not listed in national Red Data book , killing “officially forbidden”	n.a.
Luxembourg	Strictly protected by National Nature protection Law (Loi du	n.a.

	19 janvier 2004)	
Malta	Protected under national law (LN79 of 2006/LN39 of 2007)	minimum fine of €233 and 1-3year suspension of license on first offence and €466 on subsequent offence, as well as permanent revocation of license
Montenegro	Protected species under Law for nature protection and no hunting species under Hunting Law	Minimum 5500 and max 16,500 €for killing, hunting, nest destruction (article 119 Law for nature protection
Romania	Listed in Red data Book, protected: 1996, OUG 57/june 2007 - Law of Protected Areas, L215/2008 Law of Hunting and Game Management, Hunting Law nr. 103 / 23 sept. 1996 OU nr. 236 / 24 nov. 2000	Illegal killing 58 € or 317 € (in case of organised hunting). Including disturbance, but no penalties are listed.
Slovakia	Protected since 2003, Listed in Red data Book as Endangered	prison or fine up to 9,958 €plus compensation for damage of € 2,655
Switzerland	Not listed in Red data Book, Protected	finest or prison
Turkey	Protected from hunting under Terrestrial Hunting Legislation No: 4915	Legal penalties for illegal killing, hunting is 6,500 Turkish Liras
Ukraine	Not listed in the national Red Data book, but it is listed in the Mykolayiv regional Red List, Unprotected	No legal penalties for illegal killing, hunting, nest destruction

*outside of Europe with important breeding population

Recent conservation measures

Country	Is there a national action plan for the species?	Is there a national {Species} project / working group?
Austria	in development (ready for the end of 2009)	no
Belarus	no	no
Bosnia and Herzegovina	n.a.	n.a.
Bulgaria	no	No?
Croatia	no	no
Cyprus	no	no
Czech Republic	no	no
Finland	no	no
Germany	no	no
Greece	no	no
Hungary	yes	yes, www.kekvercse.mme.hu
Italy	no	Only local group
Kazakhstan*	no	no
Latvia	no	no
Liechtenstein	no	no
Lithuania	no	no
Luxembourg	no	no
Malta	no	no
Montenegro	no	no
Romania	no	No?
Slovakia	n.a.	yes
Switzerland	no	no
Turkey	no	no
Ukraine	no	no

*outside of Europe with important breeding population

Ongoing monitoring schemes for the species

Country	Is there a national survey / monitoring programme?	Is there a monitoring programme in protected areas?
Austria	Yes, annually	Yes, annually
Belarus	no	no
Bosnia and Herzegovina	n.a.	n.a.
Bulgaria	Yes, BSPB nest box project	no
Croatia	no	no
Cyprus	Yes, annual counts	na
Czech Republic	no	no
Finland	no	no
Germany	no	no
Greece	no	no
Hungary	yes	yes
Italy	no	Yes, in SPA's
Kazakhstan*	no	no
Latvia	no	no
Liechtenstein	no	no
Lithuania	no	no
Luxembourg	no	no
Malta	No, raptor camps to prevent illegal shooting of migrants	no
Montenegro	no	no
Romania	no, but regular monitoring in W Romania and Danube Delta	no, only in Danube Delta Biosphere Reserve
Slovakia	Yes, nestbox project	yes.
Switzerland	no	no
Turkey	no	no
Ukraine	no	yes, as part of the ornithological monitoring

Overview of the coverage of the species in networks of sites with legal protection status

Country	Percentage of national population included in IBAs	Percentage of population included in SPAs	Percentage of population included in protected areas under national law
Austria	100%	20-50%	0%
Belarus	0%	NA	NA
Bulgaria	44%	44%	0-5%
Hungary	88%	92%	59%
Italy	50-90%	50-90%	0-10%
Kazakhstan*	0-10%	NA	0-10%
Romania	60%	52%	0%
Slovakia	70 %	60 %	0 %
Ukraine	0-10%	NA	0-10%

*outside of Europe with important breeding population

