



Minimising threats from hybrid falcons (originating from captive-bred birds) on wild European falcon populations

Position statement adopted by the BirdLife EU Birds and Habitats Directive Task Force on 23 April 2008

This BirdLife Position Statement includes references to relevant legislative instruments of the EU, but it could also be applied in all countries that are signatories to the Bern Convention and the Bonn Convention, as the underlying principles are equally relevant. Therefore, BirdLife Partners in the respective countries are invited to adopt this position.

BirdLife asks for a ban on the production and keeping of hybrid falcons in the EU and beyond due to the unacceptably high risk of unnatural genetic introgression to native wild falcon populations in the EU, and especially to the globally threatened Saker Falcon (*Falco cherrug*).

The position follows the sensible precautionary approach, as the impact of hybrids on the genetics of wild Falcon populations is not known. As hybrids are unsuitable for ex-situ conservation, their production is questionable; there is no valid reason why their production should still be permitted. Furthermore, the leisure or commercial interests of very few people would be disadvantaged by this restriction. The position is also based on the understanding that:

- The risk of unnatural genetic introgression into natural populations of Falcons, and other problems caused by escaped hybrid Falcons, is not negligible.
- Significant numbers of reproductively viable hybrid Falcons are being produced and used in falconry.
- Significant numbers of hybrids, originating from captive-bred birds, are escaping into the wild.
- The problems caused by escaped hybrid Falcons and the numbers of hybrid Falcons in Europe are not being closely monitored.
- Genetic monitoring of the wild Saker population is not taking place with yet-to-be established molecular markers.

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Annexes:

- 1- Background and justification for BirdLife's position on hybrid Falcons
- 2- Recorded cases of escaped hybrid falcons breeding with wild falcons
- 3- Position Statement on Falcon Hybrids by the International Association for Falconry and Conservation of Birds of Prey (2000)
- 4- Position Statement on the Impact of Falconry on Wild Raptor Populations by the Raptor Research Foundation (1989)
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Annex 1: Background and justification for BirdLife's position on hybrid Falcons

Article 11 of the EU Birds Directive states that: *Member States shall see that any introduction of species of bird which do not occur naturally in the wild state in the European territory of the Member States does not prejudice the local flora and fauna. In this connection they shall consult the Commission.*

Since the development of artificial insemination techniques in the 1970s, it has become common to produce, keep and practice falconry with hybrids between different falcon species. Concerns have arisen in some countries, about the risk of wild falcons breeding with escaped/released hybrid falcons.

Hybrid falcons are typically created from crossbreeding of Peregrine Falcons *Falco peregrinus* with the four heirofalcon species, especially Gyr *F. rusticolus* and Saker Falcons *F. cherrug* but also Lanner *F. biarmicus* and Lagger *F. jugger*, as well as with other falcons, such as Barbary falcons *F. pelegrinoides*, Merlin *F. columbarius* and Kestrel *F. tinnunculus* and even species from the Americas eg Prairie falcon *F. mexicanus* and New Zealand eg. New Zealand Falcon *Falco novaeseelandiae*. Different subspecies of Peregrine falcon (e.g. *F.p. pealei* from the Pacific coast in North America) have been mixed with *F. p.peregrinus* and *brokei* in European captive breeding populations.

By breeding with wild species, these unnatural hybrids ultimately risk causing extinctions, at least of the globally threatened Saker falcon, especially through the mechanism of genetic introgression. Introgression is gene flow between populations whose individuals hybridise, achieved when hybrids backcross to one or both parental populations (Rhymer & Simberloff 1996). Escaped hybrids may also cause other conservation problems.

For the EU, there is no specific regulation on producing and keeping hybrids of raptors. However, six EU countries (Germany¹, Hungary, Netherlands, Slovakia, Slovenia, Sweden) have chosen to forbid use of hybrids for falconry (in other countries, there is no regulation on hybrid raptors; five restrict ownership for falconry to native Eurasian species, two permit only a limited number of those - in one case only of two species) (Kenward & Larsson 2006).

The issue has recently become a topical subject of European conservation concern due to:

- Sweden initiating a **report to the ORNIS Committee**: R Kenward (IAF) & T Larsson (Sweden) 2006 *A survey of falconry in the European Union in the context of the Wild Birds Directive*. This assessment is based on questionnaire returns submitted to national authorities involved in regulating falconry, assisted by International Association for Falconry and Conservation of Birds of Prey (IAF) representatives. Responses from 24 of the 25 EU countries were received.

The risk from hybrids to wild raptor populations is the falconry issue that the highest number of EU ORNIS delegates (8) rate as either medium or serious concern (and that fewest rate as no or slight concern). This is compared to the risk from alien species that was of lowest concern, with theft from the wild being of intermediate concern.

¹ In 1998, with the support of the largest Falconry Association, DFO.

- The paper concludes:
 - 'Falconers should as a minimum adopt the principles in IAF's Position Statement on hybrids' (see Annex 3) 'and avoid using in Europe any hybrids with species that exist only in the Americas' (which accords with the stricter position of The Raptor Research Foundation - see Annex 4).
 - 'Self-restraint against production and use of any hybrids should be promoted. The success of different policies for discouraging their use in falconry should be kept under review'.

- The **Saker Falcon Action Plan** approved by the ORNIS Committee in October 2006² and the Bern Convention in November 2006. Under the objective 'Prevent genetic introgression into wild saker populations' this has the actions:
 - encourage restraint in the production of hybrids that involve saker falcon
 - evaluate the possible threat of genetic introgression, set up a working group and prepare a strategic document within 2 years of adoption of this action plan with the involvement of the IAF.

- The current **Draft Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia**, which is intended to be adopted by the Convention on Migratory Species in December 2008, has the following wording:

8 To this end, the Signatories will endeavour to:

G) take appropriate measures to prevent the introduction into their territory of non-native birds of prey, including hybrids where this would have an adverse effect on conservation of native biodiversity;

Information suggesting that escaped hybrid falcons may be successfully breeding with wild falcons

1. There is circumstantial evidence of a substantial increase in genetic introgression into the Pannonian population of the Saker Falcon (ie at least 97% of the entire EU population excluding only the 5-6 remaining breeding pairs³ from the separate population in Bulgaria) coincident with the increase in use of hybrid falcons: hybrid frequency increased from 8.3% between 1970-1989 (mainly with south-east African Lanner *F. b. biarmicus*, possibly from captivity), to 26.7% (ie more than triple the frequency observed in the earlier period) in 1990 – 2004 (mainly with Gyr Falcon/eastern Saker (*F. ch. milvipes*), including one haplotype (A) not found historically, but also south-east African Lanners (N=46) (Nittinger et al 2006).

While the close phylogenetic relationships among hierofalcons mean it has so far not been possible to prove that recent hybridization or introgression through artificial hybridization takes place, data do suggest possible recent hybridization events (Nittinger et al 2007). This is most likely due to interbreeding with released or escaped falconers' birds (either eastern Sakers or Saker x Gyrfalcon-hybrids). Gene flow from these birds therefore has a potentially significant impact on the gene pool of wild birds in the Pannonian region.

² http://ec.europa.eu/environment/nature/conservation/wildbirds/action_plans/saker_falcon_en.htm

³ 2006-7 data, P Iankov pers comm. February 2008

2. Annex 2 lists the examples we are aware of where escaped hybrids (always males, usually of peregrine crossed with either saker or gyr falcons) appear to have bred with wild falcons in Europe. In the ORNIS survey, four EU countries documented problems with hybrid falcons: Germany, Sweden, Slovakia and Austria. From Annex 2, to this can be added Hungary, UK and also Norway.

The International Association of Falconry currently only recognises 12 proven cases of successful breeding of hybrid falcons with wild falcons back to 1995, with two cases in the USA and ten in Europe (Germany, Slovakia and the UK) (C. de Coune, in litt, November 2007).

3. The most worrying case is that an escaped saker x peregrine bred with a wild saker female in Slovakia in 2003. DNA analysis confirmed one chick as a saker-peregrine hybrid. The same pair had also produced four fledglings in 1999 but the eggs during 2000 and 2002 were sterile
4. Almost all species in the genus *Falco* can be hybridized by artificial insemination to produce first generation young (Heidenreich et al 1993) and within the subgroups such as the gyr/saker/lanner complex or the peregrine complex hybrids appear to show full fertility over many generations (Fox 1999, Lindberg 2006))

Additional conservation concerns regarding hybrid falcons

5. If production of hybrids is permitted to continue then the question must be addressed as to the legal status of hybrids in the wild, both under the Birds Directive and national legislation.
 - a. Hybrids present problems for enforcement of laws designed to prevent illegal taking of falcons from the wild. This is because hybrid falcons are often difficult, and in some cases impossible, to identify based on plumage characteristics. Wild pure-bred juveniles can be easily be passed off as hybrids; it is almost impossible to distinguish morphologically between a pure-bred peregrine and a bird which is claimed as a 1/8 Barbary falcon and 7/8 peregrine. In addition, some species display sub-specific variation in plumage further complicating the issue. DNA testing cannot be relied on to identify and separate hybrids to an evidential standard as even separating pure species of some falcons is difficult due to their genetic similarities. Confirmation that a bird under investigation is a captive-bred hybrid may be possible by using genetic profiling on putative parents. However, this requires the parent birds to be identifiable and traceable using records from a registration scheme, which is not the case in many countries.
6. Hybrids may disturb the nesting of native falcons and even expel them from breeding territories, for example both in 2001 and apparently in 2007, in the Netherlands, a pair of peregrines was caused to desert their nestbox due to harassment by individual hybrid falcons. However, it is unclear whether this risk is greater than from wild falcons.

7. Loss into the wild of hybrids is an irritation for those engaged in other sustainable use activities such as birdwatching (Anonymous 2000).

The risk of escape of hybrid falcons: numbers in captivity, numbers escaping

8. More than 3,000 captive bred raptor hybrids were produced in the EU in 2005. According to data from only 10 EU countries in 2005, probably representing about 70% of the EU production of captive raptors, of about 6889 raptors acquired from domestic breeding, 46% were hybrids of large falcons. The second largest category was pure-bred Peregrines ($N=1241$), then American Harris Hawks *Parabuteo unicinctus* ($N=965$), Sakers ($N=687$), Goshawks *Accipiter gentilis* ($N=622$) and Lanners ($N=185$) (Kenward & Larsson 2006).
9. In Europe, several hundred hybrids are lost annually (Lindberg 2006). In Germany 30-40% of hybrids escape annually (C Mayr pers comm.). Eight out of 30 registered Saker hybrids escaped in Slovakia in 2004 only (Chavko, J. pers. comm.).
10. Observations of hybrid falcons in the wild have been reported in most EU countries. Most hybrids are escapes from captivity, but some may have been produced in the wild if an escaped falcon has paired with a wild specimen of another species (Lindberg 2006). In Denmark, escapes of hybrid falcons into the wild have been noted on about 15 occasions since 2000. In Sweden (southern and central), hybrid falcons are observed each year, but they are caught only occasionally. Frequent visits by hybrid falcons from Denmark, probably lost during training, have been recorded (Lindberg & Nesje 2000).
11. In the Middle East, which has a huge market for hybrids, the tradition is to release falcons in springtime (estimated to be several thousand per year) and many of the hybrids (saker/gyr/peregrine) may mix up with wild Sakers and Gyrs in Eurasia (Lindberg 2006). The largest Danish commercial producer of hybrid falcons supplies 200 birds each year to the Middle East to replace birds routinely released at the end of the season (K Flensted pers comm.).
12. The information in Annex 2 indicates inadequate monitoring of hybrid Falcons. Such monitoring is even more difficult in countries where hybrid raptors are not required to be registered and marked with rings. In the UK, for example, the Government is in the process of removing the need to register any hybrid birds⁴.

Further arguments for a ban on falcon hybrids

13. Consistency with the approach relating to risk of genetic introgression to other globally threatened species, such as White-headed Duck *Oxyura leucocephala* and Lesser White-fronted Goose *Anser erythropus*. A pan-European position regarding the imperative to eradicate the Ruddy Duck *Oxyura jamaicensis* has been adopted by the Bern Convention and implemented in several countries, including the UK. Likewise, in the recent (2007) AEWa agreement on the Lesser White-fronted Goose, Sweden agreed to undertake a feasibility study to remove the hybrids from its free-flying flock of reintroduced birds⁵.

⁴ Furthermore, all species of falcon are being removed from the list of registerable birds, although peregrines and merlins will still need to be registered if they have not been issued with CITES Article 10 certificates.

⁵ See page 36 of the draft AEWa Lesser-white fronted goose plan, due for adoption at the AEWa COP in September 2008: http://www.unep-awea.org/meetings/en/stc_meetings/stc5docs/pdf/stc5_13_ssap_lwfg.pdf. See also pages 50, 56 of the draft plan for the proposed position on genetic introgression.

14. The precautionary principle that has been adopted by all parties to the Convention on Biological Diversity and is widely used by the EU.
15. The CBD principles on preservation of genetic variation.

Annex 2 Recorded cases of escaped hybrid falcons breeding with wild falcons

Hybrid	Wild mate	Country	Years	Evidence	Outcome	IAF
Saker x peregrine	Saker	Slovakia	2003	One young proved by DNA analysis to be 50:50 saker x peregrine hybrid Sterile eggs 4 hybrid fledglings		Yes
			2000-2002			No
			1999			No
Hybrid male	Saker female	Slovakia	2000	Observation of hybrid male		
Hybrid male	Saker female	Slovakia	2001	Observation of hybrid male		
Hybrid?	Saker female	Slovakia	2002	Observation of two chicks with yellow legs		
Hybrid	Saker	Slovakia				
Hybrid	Saker	Slovakia				
Hybrid	Saker	Slovakia				
Hybrid	Saker	Austria		Nittinger et al. 2006		
Hybrid	Saker	Austria		Nittinger et al. 2006		
Gyr x ? hybrid	Saker	Hungary	Probably 2001			
Saker hybrid	Gyr	Norway		Genes typical of Sakers found in 2 of 14 Norwegian gyrs		
Saker hybrid	Gyr	Norway				
Gyr x peregrine male (with falconers ring)	Peregrine (both with an escaped <i>F.p.pealei</i> x <i>F.p.peregrinus</i> and a wild <i>F.p.peregrinus</i>)	Sweden, Bohuslan	1998-1999 breed with <i>F.p.pealei</i> x <i>F.p.peregrinus</i> , 2000-2002 with <i>F.p.peregrinus</i>	DNA-test – five alleles in the nestling gyrfalcon specific (Lindberg & Nesje 2000)	1998 1 chick produced, probably killed by Eagle Owl at fledging. 1999 Two chicks and female <i>F.p.pealei</i> x <i>F.p.peregrinus</i> captured and removed. Male impossible to catch or shoot. He bred with a wild <i>F.p.peregrinus</i> 2000-2002 and produced several young, all were culled.	AD
				N.B. At least one of the German pairings below was confirmed with genetic analysis		

Gyr x peregrine male	Peregrine (captive bred, hacked)	Germany, Thuringen	1995	Kleinstauber, G. & Seeber, H-J 2000	Escaped falconers' hybrid tiercel caught after producing 2 young which were removed from nest.	AD
Gyr x peregrine male	peregrine	Germany, Thuringen	1996		Tiercel was caught	Yes
Gyr x peregrine male	peregrine	Germany, Thuringen	1997		Tiercel was caught	Yes
Gyr x peregrine male	peregrine	Germany, Nordrhein-Westfalen	2000	Hoeller & Wegner	3 chicks removed.	Yes
Gyr x peregrine male	peregrine	Germany, Sachsische Schweiz	2004		Tiercel was caught. Male caught a year later.	Yes
Gyr x peregrine male	peregrine	Germany, Sachsische Schweiz	2004		Tiercel was caught Hybrid male was caught one year later	Yes
Hybrid male	Peregrine	Germany, Saxonia	2001	Augst 2002	The 2 young were removed.	
Hybrid male	Peregrine	Germany, Franconia	2004			Yes
Hybrid male	Peregrine	Germany, Mecklenburg Pommerania	2005	P Wegner <i>in litt</i> from info from G Kleinstauber	Produced chicks. Male removed to zoo in 2006.	AD
Gyr x peregrine male (?)	peregrine	East Germany	2007		Produced one young	Yes
Gyr hybrid	Peregrine	Hungary	2003		Produced one nestling and four infertile eggs	
Possible hybrid	peregrine	Slovakia	1999-2002		Birds observed with atypical colour, size, behaviour etc	
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Possible hybrid	peregrine	Slovakia	1999-2002		Birds observed with atypical colour, size, behaviour etc	
Possible	peregrine	Slovakia	1999-		Birds observed with	

hybrid			2002	atypical colour, size, behaviour etc		
hybrid	peregrine	Sweden		Produced young		
hybrid	peregrine	Sweden		Produced young		
Gyr/Saker Triple hybrid	peregrine	UK, Sussex	2005	Everitt & Franklin 2007	Chicks hatched, nest destroyed through natural causes. Hybrid male shot by authorities (Everitt & Franklin 2007)	yes

Annex 3: Position Statement adopted in 2000 on Falcon Hybrids by the International Association for Falconry and Conservation of Birds of Prey (IAF)

The International Association for Falconry and Conservation of Birds of Prey (IAF) has examined in depth the practical and theoretical considerations that arise from the production of hybrid raptors. After a review of the available data and taking expert advice, we consider it unlikely that a problem for wildlife conservation will arise from the breeding of hybrid raptors if their loss to the wild is rare. We recommend, as a minimum, that:

1. hybrids be fostered if possible by a parent that does not occur locally in the wild;
2. hybrids only be hatched in large conditioning pens;
3. hybrids only be flown with reliable telemetry equipment;
4. maximum efforts be made to recover any hybrid that is lost;
5. hybrids should never be deliberately released.

We ask IAF member clubs to bring these considerations to the attention of falconers world-wide. We accept that individual clubs may feel obliged to endorse stricter measures. However, we strongly believe that self-regulation is preferable to regulatory supervision. In that spirit, we appreciate a growing tendency of falconers in some countries to fly pure-bred falcons rather than hybrids. We are keeping this issue under review and will remain actively involved in the political consultation processes at all levels of regulation.

Annex 4: Position Statement of the Raptor Research Foundation on the Impact of Falconry on Wild Raptor Populations (1989)

Genetic theory predicts that, at normal population levels, hybrids between sympatric or parapatric species would be eliminated by natural selection. Similarly, non-native species from within the same super-continent (Americas, Eurasia) are unlikely to establish themselves in the wild as introduced aliens. However, traits from hybrids between allopatric species might establish in native stocks, and species from other super-continents might become accidentally introduced if used in large numbers for Falconry.

Escape of sympatric and parapatric species or their hybrids is unlikely to pose any significant threat to wild populations. However, we recommend that hybrids between allopatric species should not be bred for falconry, and that other hybrids or species at risk of accidental introduction between super-continents should be imprinted on humans before being used in Falconry.

Annex 5: References

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