



PEREGRINE CONFERENCE

POLAND 2007

19 – 23 SEPTEMBER 2007, PIOTROWO/POZNAN



ABSTRACTS

Society for the Protection of Wild Animals "Falcon" from Poland
BirdLife Hungary /MME/
Raptor Protection of Slovakia /RPS/
"Milvus Group" Bird and Nature Protection from Romania
in cooperation with
Arbeitskreis Wanderfalkenschutz e.V. from Germany

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PIOTROWO/POZNAŃ 19-23 SEPTEMBER 2007

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PEREGRINE CONFERENCE – POLAND 2007

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PROGRAMME

September 19 Wednesday	<ul style="list-style-type: none"> - from 18.00 - arrival and registration - 20.00 - dinner
September 20 Thursday	<ul style="list-style-type: none"> - 7.00 - breakfast - 9.30 – official opening of the Conference - election of Resolution Committee - plenary session /with coffee breaks/ - 14.00 - lunch - 15.30 – plenary session /with coffee breaks/ - 17.00 – round table discussions <ul style="list-style-type: none"> - The use of the Peregrine in a European Pollutants Monitoring Network / Peregrine as an indicator of pollutants load, actual research, what to monitor/ - Sustainable use of the Peregrine populations - gains and risks, the way to prevent eventual genetic pollution - 20.00 - dinner - 21.00 - poster session - 21.30 – presentation of the Saker Conservation Programme in Hungary - 22.00 – Slide–show by Terry Pickford
September 21 Friday	<ul style="list-style-type: none"> - 7.00 - breakfast - 9.30 – plenary session /with coffee breaks/ - 12.30 – round table discussions <ul style="list-style-type: none"> - Status of tree-nesting population in Europe and ways to manage it's return to East Europe - Peregrine rings around Europe – schemes and possible cooperation and Peregrine Falcon Working Group – as a platform to exchange information and as organisation - 14.30 - half-day trip <ul style="list-style-type: none"> - Arboretum and Castle in Kórnik with lunch - visit to the Research Station of Polish Hunting Association - art exhibition and concert folk ansemlé “Żency Wielkopolscy” - dinner at the fire
September 22 Saturday	<ul style="list-style-type: none"> - 7.00 – breakfast - 10.00 – plenary session /with coffee breaks/ - 14.30-16.00 – Gala Concert of XXXVIII Bagpipes Contess of Wielkopolska - 16.00 – lunch - 17.00 – plenary session - voting final resolutions and position statements - 20.00 – official closing of the Conference <ul style="list-style-type: none"> - Concert of Capella of Rydzyna Castle, quintet of wind instruments - gala dinner
September 23 Sunday	<ul style="list-style-type: none"> -7.00 - breakfast - till 12.00 - departure

Peregrine Falcon in Georgia

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Peregrine Falcon (PF) *Falco peregrinus* is widespread species in Georgia and presented by two sub-species: *F. p. brookei* is year-round resident with local seasonal movements; *F. p. peregrinus* is passage and winter visitor. Past and present status of PF are described. According to historical publications, in the 19th–1st half of 20th centuries, the PF was reported as a widespread but not numerous species, inhabiting suitable habitats throughout the whole country. Sharp drop in numbers registered in 1950-60's due to shooting, disturbance, pesticides. Practically extirpated as a regular breeder in the 1960's. During 1973-1985 was recorded as regular but rare in small numbers passage migrant and winter visitor. After middle of 1980's again became to nest in Georgia. First breeding cases were recorded in the NW parts of study area – in Abkhazia (1 pair in 1984-1985 and 2 in 1988) and in Upper Svaneti (1 pair in 1988). Later breeding of solitary pairs was confirmed for several areas at southern macroslopes of Great Caucasus in East Georgia and at Lesser Caucasus. During the years 1989-1993 the total number of known breeding pairs ranged between 1 and 4 and 4-7 in 1996-1999. 9 territories were registered in the period 2000-2007. Inhabits areas with mature forests, rocky plots, cliffs, gorges at Trialeti Ridge, in Ktsia River basin, Borjomi Gorge, Terek River valley, Svaneti, Mtatusheti, Khevsureti. Several pairs sporadically can nest in Upper Ajaria, Erusheti Ridge, Mtkvari River valley, some other sites. Pairs inhabit places little-visiting by people. Nests are located at inaccessible rocks. Upper limit of breeding distribution is 2000m, usually up to 1500m. Pairs are attached to nesting territories during several years. Most often occupy Raven nests on rock shelves or in shallow niches placed at rocks. Breeding on trees in arid woodlands of semi-deserts is possible, but not confirmed. According to our estimations, present numbers within the limits of Georgia, (excluding Abkhazia and South Ossetia) consist of about 20 pairs, probably a little more: 10-12 pairs at Great Caucasus, at least 6 pairs at Lesser Caucasus and 2-3 pairs in other areas. Density in suitable habitats varying from 2.3 to 3.9 pairs/1000 sq. km. Present status of the local population can be characterized as stable with slight hints of increase. During the last decade number of migrating and wintering birds has also increased. In 1996-2006 up to 200 individuals were considered to migrate per autumn season across Georgia. Latest wintering population was estimated at 30-35, in some winters more. The general data on habitat selection, breeding success, feeding, threats, patterns of spring and autumn passages, wintering are presented. At present the major threats to the species are occasional shooting, illegal catching by falconers, habitats destruction, disturbance in some breeding territories. The most crucial conservation problems are discussed. Some recommendations for effective conservation plan and research of PF in all Caucasus are considered. Bibliography on PF in Caucasus is given.

Key words: Peregrine Falcon, *Falco peregrinus brookei*, Georgia, past and present status, distribution, biology, threats, conservation.

Distribution and present status of the Peregrine Falcon (*Falco p. peregrinus*) in Denmark.

Niels Peter Andreasen

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Coordinator of the Peregrine Falcon group in Denmark, Working Group for Threatened and Rare Breeding Birds (DATSY)

Danish Ornithological Society (Dansk Ornitologisk Forening).

Before 1950:

Being an almost entirely cultivated and low-lying country with a lack of natural breeding habitats, Denmark has always hosted a limited population of Peregrines. The three traditional Danish breeding sites, all situated at the Baltic Sea are: The coastal chalk cliffs at Møns Klint and Stevns Klint, and the coastal and inland cliffs on the island of Bornholm. Apart from these areas, Peregrines have occasionally been found in other types of habitats, such as woods, castles and towers, coastal slopes, and smaller islets.

My personal estimate is an average of 6-8 pairs, maximum 10-15 pairs, during the latest centuries.

1950-2000:

The Peregrine disappeared as a breeder from Stevns Klint in the 1950'ies and from the island of Bornholm in 1961.

The last pair of breeding Peregrines in Denmark was at Møns Klint 1962-1972.

In 1969, the juveniles were stolen by nest robbers. In 1970, the eggs were infertile, owing to DDT and PCB contamination. In 1971 and 1972 one pair was still present, but did not breed successfully.

After 20 years, Peregrine observations were clearly increasing in Denmark from the early 1990s., especially during migration and in winter. This was clearly due to a better legislation concerning protection of birds of prey, a ban on harmful chemicals, and successful rehabilitation projects in Sweden and North Germany, causing a slow but steady increase in breeding pairs in Southern Sweden and Northern Germany.

From 1995, Peregrines were observed in spring at the traditional Danish breeding site, Møns Klint, females as well as males.

Breeding seasons:

2001

Møns Klint: a pair was nesting in a small cave at Dronningestolen and completed laying, but the clutch was not incubated, probably due to the immaturity of the 1-year old

male, born at Kullaberg, South Sweden in the year of 2000. The female was ringed in a tree nesting project in Mecklenburg, North Germany, born 1997.

2002

Møns Klint: same pair at the same nest-site produced 2 juveniles (2 males).

2003

Møns Klint: same pair at the same nest-site produced 3 juveniles (2 males and 1 female).

2004

Møns Klint: same pair, but a new nest-site 300 meters to the north, at “Forchammers Pynt”, produced 2 juveniles (1 male and 1 female).

Bornholm: 1 pair made attempt to breed in a rock cavity at Hammeren, but did not succeed, probably because of too much disturbance.

2005

Møns Klint: same male and a new, unringed female - origin unknown - at a new nest-site 1 kilometre to the north, at “Sækkepiben”, produced 3 juveniles (2 males and 1 female).

Bornholm: 1 pair at the same locality, but no signs of breeding.

Stevns Klint: Male and female peregrines were observed throughout spring.

Mønbroen: A pair spent nights at the bridge during winter and late spring.

2006

Møns Klint: same pair, at Dronningestolen, the nest-site from 2001-2003, produced 4 juveniles (2 males and 2 females).

Bornholm : 1 pair at coastal cliffs, Hammeren, produced 2 juveniles (2 males?).

Stevns Klint: 1 pair occupying territory, but with no sign of breeding, the female being only 1 year old, born 2005 in the same tree nesting project in Mecklenburg as the first female at Møns Klint.

Mønbroen: A nest box was placed on the bridge, a pair was observed during winter and late spring.

2007

Møns Klint: probably same pair, still the Swedish male, the nest-site at Sækkepiben, produced 4 chicks, 1 died due to a helicopter disturbance incident, 3 juveniles (1 male, 2 females).

Another pair at the Southern part of the chalk cliffs was probably chased out of their territory by the breeding pair.

Bornholm: one pair at the 2006 breeding site did not succeed, the male being observed

later in the season with a 1-year old female.

Stevns Klint: one pair produced 2 juveniles (2 males).

Single Peregrines were observed at other parts of the chalk cliffs during spring.

Mønbroen: a male and female performed territorial behaviour in March at the nest box area, but disappeared in early April.

Vadehavet (Waddensee): a male and a female showing territorial behaviour were observed during most of the spring season at a small islet. No documented breeding took place.

Other regions in Denmark: Peregrine observations in May and June were regularly made at 13 localities in Eastern, Western, and Northern Denmark.

The future situation:

A number of nest boxes of varying quality have been placed in harbour areas in the cities of Esbjerg, Kolding, Vejle, Horsens, and Ålborg (Southern and Eastern Jutland). Older boxes of poor quality are found at a few other places, a.o. on the chimney of the power plant of Kyndbyværket in North Zealand.

The future situation might be 4-6 pairs at the traditional localities, plus 10 or more with nest box projects and an expected influx from North Germany.

Denmark is probably the only country in Europe where the authorities so far have not issued permits to ring juvenile Peregrines. This is due to a decision made by the Danish Forest and Nature Agency under the Ministry of Environment, taken to avoid any disturbance of the rare breeding birds. However, this decision has so far caused a situation where the origin of 21 juvenile Peregrines cannot be determined, and it is impossible to document their distribution, migration, and mortality. A monitoring project including ringing of Peregrine chicks with examinations of blood samples, parasites, egg shells, and feathers will probably start in 2008.

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Population Trends of Peregrine Falcons (*F.p.peregrinus*) on the Sussex Coast of the United Kingdom, 1904 - 2006.

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This paper presents nest records encompassing 100 years of almost uninterrupted monitoring of a small topographically isolated and historically important, population of Peregrine falcons breeding on the Sussex coast of the United Kingdom. The first 50 years, 1904-54, are recorded in the diaries of John Walpole-Bond (JW-B) and document a period of intense egg collecting. Between 1954 and 1960 anecdotal evidence shows that, although Peregrines were observed, no confirmed breeding was recorded. From 1961 to 1989 no breeding was recorded in the county and initially very few sightings were either, although they gradually increased over the period, particularly in the 1980's; the 30-year absence of breeding has been attributed to the direct effects of organo-chlorine chemicals. Since 1990 when the first new productive eyrie was recorded, Sussex Peregrine Study (SPS) has documented the complete re-population of the area. Data on territory occupation and reproductive statistics, covering the whole period, will be presented and key features highlighted. In the 13 years to 2003 all the available ancestral territories documented by JW-B became reoccupied, and as the population in the area continues to grow, SPS has recorded unprecedented expansion into inland sites that was never achieved in the previous 100 years.

Status of Peregrine Population in Hungary 1964 – 2007

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After the II. World War the use of DDT and other pesticides became widespread also in Hungary. As in other parts of the world this affected seriously the Hungarian Peregrine population. Based on literature, available nest sites and hunting records we estimate the former Peregrine population up to 40-50 pairs (in the recent area of Hungary) before the DDT era. The number of pairs started to decrease parallel to the increase of pesticide use. In addition, falconers kept taking young Peregrines from nests at the same rate as before. As a result, Peregrine disappeared from Hungary. The last recorded breeding was in 1964 in Bükk Mountains. Then the abandoned breeding sites were taken by Sakers. Until 1997 Peregrines appeared in Hungary only during on migration and in winter. Some young birds were observed also spending the summer in the country, but no breeding was recorded. Observations became more frequent from the late '80s. Finally, after 33 years of absence Peregrines had the first successful breeding in 1997 in Pilis Mountains.

Ten years after, in 2007 there are still only 12 known pairs in Hungary, only in mountainous areas. Eyries stretch scarcely patterned from Bükk Mountains to Balaton Upland covering almost all the Hungarian mountains. No lowland breeding attempt has been recorded except for one, where the male was an escaped Gyr/Peregrine hybrid and the female was a wild Peregrine. The eggs failed and the hybrid later disappeared.

Colour ringing started when the first breeding took place. Since 2006 coloured rings with letter-number codes are used. Previously simple coloured rings were used that were not appropriate for identification on individual level. Until now there are several recoveries showing that males are more likely occupy territory relatively close to their fledging place. Some birds are observed with suspected Slovak rings. Relationship to population in Slovakia is very likely although it is not proven yet.

Threats are: human disturbance (by tourists) in breeding period, electrocution, persecution by pigeon fanciers. Conservation activities includes: nest guarding, nest site maintenance, isolation of pylons of mid-voltage power lines, colour-ringing, raising public awareness (www.vandorsolyom.uni.hu). Partners in the conservation work: volunteers, NGOs, national parks, falconers.

The Peregrine Falcon (*Falco p. peregrinus*) in the Pieniny

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The Pieniny area was one of many sites in Poland, where young falcons were released applying hacking method. The reinstatement programme was aimed at establishing nesting Peregrine Falcons in the Pieniny range. Between 1993-1996 and 1999-2000, seventeen birds originating from pairs bred in captivity were released in the Pieniny Mountains.

The deliberated goal was accomplished in 2003, when two nesting birds were observed in the Pieniny range. The nest was situated in the rock niche, and the birds produced one chick. The following year, falcons changed the nesting site, to finally build their nest on the rock ledge. There were four eggs laid in the nest but only two of them hatched. Young birds left the nest on 7 June, 2004. In 2005 birds chose the same place to breed, however they didn't succeed. Only one of the three eggs in this nest hatched but the fledgling likely fell prey to an eagle owl in the first half of June. Inaccessibility of the nest and expelling intruding birds from the nesting area by adult falcons prove that threat to the fledgling wasn't posed by predatory mammals or diurnal birds of prey. Feather remains of a young falcon indicate that predator didn't act in haste, which means that a fledgling could have been preyed upon by a nocturnal bird like an eagle owl; occurrence of this species was noted in the area of nesting site.

In 2006, falcons changed their nesting site once more, choosing the rock niche as the best place to breed. One young bird left the nest that year. In 2007, the nesting site remained the same. At the beginning of May the remains of egg bearing distinct teeth marks were found in the nest, which proves that the clutch likely fell pray to the pine marten.

Falcons have been nesting in the Pieniny for five years, but only three out of five clutches proved a success. In total, four young birds left their nests in the years 2003-2007.

Nest site selection (ground, tree, building, cliff / quarry) of Peregrine Falcons in South and West Germany and development of an urban population in North Rhine-Westphalia

Helmut Brücher, Stefan Brücher, Michael Jöbges, Michael Kladny, Martin Lindner, Gerald Sell, Gero Speer, Thorsten Thomas, Janina Volkhausen, Peter Wegner
Germany

After the population collapse in the DDT-era Germany actually accommodates 900 -950 breeding pairs of Peregrines. This number corresponds to the same size as before the crash, but with a completely different distribution.

We specially refer to the development of a new formed population in North Rhine-Westphalia (NRW), starting in the year 1986 with only but one breeding pair. The population grew to about 95 pairs in the year 2007 with annual growth rates of 10-15 % and mainly without any domestic breeding and release programs.

More than 90 % of the pairs are breeding on buildings (cooling towers, smokestacks, churches, bridges, pylons of power-lines and even active brown-coal excavators). To our best knowledge the present size of the NRW-population seems to be the largest and densest urban population not only in Europe, but probably in the world. The first successful breeding attempt in a tree-nest is described.

Additionally we refer to our ringing program with more than 1.100 ringed nestlings and some 150 recoveries. We use code-rings (numbers, letters) and coloured habitat-rings as individual distinguishing features.

New results from DNA-micro-satellite analyses were described.

Status of Peregrine Falcon population in Slovakia

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Key words: Peregrine Falcon population, Slovakia, status, threats, prey, nest robbery

Peregrine Falcon was a relatively common species of birds of prey in Slovakia up to the end of the 1950's. Since then the number of pairs started to decrease so rapidly that within the next 20 years no breeding pair was known. Since 1970 no breeding attempt was confirmed; though the occasional observations in the breeding season could suggest such a possibility. In 1994 the gradual increase of observations resulted in the first successful breeding attempt in the "Male Karpaty" mountains in the West of Slovakia. After 20 years absence of Peregrine Falcon, the rudimentary research could be initiated. The trend of population, characteristic of occupied breeding sites, diet and threats have been studied.

Since the first breeding in 1994, a dynamic increase in the population has been recorded. In 1998, there were 9 occupied territories, four years later 33 and in 2007 there are 87 known breeding territories. The process of spreading the population occurred from the West to the East of the country.

Based on the present observations and known territories, the number of breeding pairs is estimated to have exceeded 100 pairs in 2007. At the moment the two thirds of the historical breeding sites are reoccupied. Some of these sites have undergone significant changes as a result of human activities, thus they became unsuitable for Peregrine falcon. Expanded participation in recreational and sporting past times are the major reasons for rendering these sites uninhabitable.

Since 2006 the productivity of breeding pairs has exceeded 100 fledglings. Peregrines significantly prefer abandoned raven nests. Adults are generally in their territories all year; though some which breed in the high altitude winter in adjacent basins and lowlands. The main prey is represent by *Turdus* sp., *Sturnus* sp., *Coccothraustes coccothraustes* and *Columba* sp.. Pigeons have important role in the post fledging period.

The main threats to the population are nest robbery, disturbance (caused mainly by rock climbers and tourists), recreational development and persecution by pigeon fanciers. The breeding success is affected by disturbance in the breeding season.

Every year there are several cases of nest robbery recorded. During the period 1965 - 2007, the number of nests robbed amounted to some 71 nests.

Influence of falconry on Peregrine Falcon Conservation

Christian de Coune
Belgium

International Association for Falconry and Conservation of Birds of Prey

Peregrine Falcon was probably one of the earliest wild bird enjoying a legal protection. The reason for that is the value of it for falconry. As early as in the year 800, laws were adopted to protect birds of prey and very severe penalties were applied.

By the end of the XVIII century, falconry started declining due to the progress of firearms and to the political changes following the French revolution. Birds of prey started being viewed as pests and became the target of intense persecution : they had lost their supporters, the falconers.

Falconry revived in the '50s and falconers advocated insistently for the legal protection of birds of prey.

In the 50's and 60's the Peregrine falcon populations in Europe and North America decreased dramatically.

Falconers feared for their hobby.

The Raptor Research Foundation was created by falconers in 1966, the Peregrine Fund was formed on the initiative of a falconer, Dr Tom Cade. French falconers formed the Fonds d'Intervention pour les Rapaces (FIR).

In spite of the general opinion that birds of prey could not be bred in captivity, nonetheless falconers took the initiative of joining their efforts to try and breed Peregrines in captivity.

In 1968 one viable young peregrine hatched with an American falconer.

In 1971, first successful artificial insemination of a Peregrine took place in Germany by a falconer.

1974, first captive bred Peregrines were released at the New York University by a falconer.

In Germany, Prof Christian Saar, a well known falconer, produced 6 young Peregrines from one pair.

1979, first breeding case of released captive bred Peregrines in New Jersey.

Between 1974 and 1997, the peregrine Fund has released a total of 2187 captive bred Peregrines.

Roughly, to date, a total of 1100 Peregrines have been released in Germany with the active co-operation of the Deutscher Falkenorden.

In Germany, at least 100 breeding pairs result from reintroduced birds.

German falconers and AWS are running a program to re-establish the formerly extinct tree nesting Peregrine population. As a result, in 2007, 30 young fledged from 18 tree-nesting pairs. Polish falconers are running a similar project.

The success story of the rescuing of the Peregrine Falcon had a tangible effect : the US Fish and Wildlife Service has removed the Peregrine Falcon from the list of endangered and threatened wildlife in August 1999, resulting in the possibility for falconers to resume taking Peregrines from the wild.

The interest of falconers for the use of wild Peregrine Falcons has been a powerful incentive to the participation in the conservation efforts of their wild populations.

Peregrine Population Surveys: A Case Study From Wales

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The breeding population of Peregrines in south-central Wales over the period 1900 to 2004 was determined by using the registration dates on racing pigeon rings found at breeding sites. The data derived from racing pigeon rings supplemented historical records of breeding Peregrines in the study area. Over five decadal periods from 1900 to 1949 the number of occupied breeding ranges increased from 11 to a maximum of 34 in the 1930's. From the 1930's through to the mid-1950's the population was relatively stable with an estimated annual breeding population of about 20-25 pairs. After 1955 the population began to decline as a result of the effect of organochlorine pesticides, which eventually led to regional breeding extinction after 1965. The first post-pesticide era breeding attempt was confirmed in 1975 and the breeding population increased exponentially through the 1980's to eventually reach the present day upper-population ceiling of 81 (+/-3) occupied ranges since 1995. Detailed survey data from this south-central Wales study area was used in a validation study of the UK National Peregrine Survey results. This validation study revealed that the 2002 National Peregrine Survey significantly under-recorded the number of occupied breeding ranges in inland areas of South Wales.

The Diet of Urban Peregrines in England

Edward Drewitt
UK

Key words: Peregrine, diet, prey, urban, night hunting

Peregrines are found in many cities and large towns across England. However, the diet of urban peregrines in England and the rest of the UK is poorly understood.

Over 5,000 prey items found at four city locations, Bath, Bristol, Exeter and Derby have been identified, revealing a detailed and comprehensive list of prey which compliments other studies of urban-dwelling peregrines in England and Europe as well as smaller sample data sets from other sites in Britain (Drewitt and Dixon *In Press*).

Most notably, 40% of prey comprises one species, the rock dove *Columba livia*. However, the proportion of rock doves eaten varies seasonally and other species are also important in the prey including starlings *Sturnus vulgaris*, greenfinches *Carduelis chloris*, house sparrows *Passer domesticus*, redwings *Turdus iliacus* and woodcock *Scolopax rusticola*. 3% of the peregrine's diet contains bird species that are most likely to be caught at night as part of the peregrines' night hunting behaviour (Drewitt and Dixon *In Press*).

The study is also revealing important information regarding the bird species that the Peregrines are eating. In particular, it is telling us more about the migratory movements of birds such as terns, wading birds and passerines as well as the populations of some species.

Colour-ringing peregrine chicks has begun to help reveal more about the hunting movements and behaviour of peregrine chicks fledged from urban locations.

Drewitt, E. and Dixon, N. *In Press*. Diet and prey selection of urban-dwelling Peregrine Falcons *Falco peregrinus* in southern England and a review of their night hunting behaviour. *British Birds In Press*

Morphometric analysis of large falcon species and their hybrids with implications for conservation

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KEY WORDS:

Falcon hybrids; peregrine; *Falco peregrinus*; gyr; *Falco rusticolus*; saker; *Falco cherrug*; New Zealand falcon; *Falco novaeseelandiae*; *Falco*; morphometric ; genetic pollution; principle component analysis; PCA; CITES.

Morphometric examination of several large falcon species and their hybrids was used to test whether phenotype was an accurate indicator of hybrid parentage. Six external body measurements were collected from a total of 167 juvenile peregrine (*F. peregrinus*), gyr (*F.rusticolus*), saker (*F. cherrug*) and New Zealand falcon (*F. novaeseelandiae*) individuals and from 100 juvenile F1, F2 and backcross hybrids of these species. Principal Component Analysis separated pure species and also gave clusters for F1 peregrine x saker, F1 gyr x peregrine and F1 gyr x saker hybrids. F1 Gyr x peregrine hybrids were distinguishable from their parent species, but it was impossible to accurately discriminate between a complex (F1, F2 and backcross) of gyr x saker hybrids and between these and the parent species. It is suggested that phenotypic characteristics are not reliable for identification of such hybrids for legal purposes. The poster will summarise these results and summarise perceived threats and legal, moral and ethical implications of the loss of such hybrids into the wild.

**First UK Record of a Wild Free-living Female Peregrine
(*F.p.peregrinus*) Breeding and Producing Young with a Hybrid Male
Falcon of Domestic Origin.**

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In 2005 during on-going monitoring of a Peregrine population on the Sussex coast of the United Kingdom (UK), a hybrid male falcon of domestic origin was found breeding with a wild female at an ancestral eyrie. This was the first known/recorded UK case, of a wild Peregrine breeding with an escaped hybrid. Our paper documents the discovery and progress of this breeding attempt and includes images of the birds food passing and copulating. The biological and ethical issues faced by the researchers are outlined, especially the potential pollution of the local gene pool by an allopatric species. Finally we describe the sequence of decisions and actions taken to resolve the dilemma, culminating in the elimination of the male. The UK government's Department for Environment, Food and Rural Affairs (DEFRA), requires certain species of raptor used for falconry to be fitted with a uniquely numbered leg ring allowing individual identification. The recovery of the male bird with its ring intact enabled DEFRA to identify the parentage of the bird, which was in fact a 'tribrid', and the circumstances of its escape into the wild.

Population trends of the Peregrine Falcon in Russia for twelve years between two European Symposia on the species.

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At the First Symposium on the Peregrine Falcon (Ciechocinek/Wloclawek, Poland, November 1994) the first signs of the species recovery in Russia was stated after its overall decline during the 1950s – 1970s. Fortunately this encouraging trend still continues and becomes more evident through the country. Thanks to more precise studies the species population stability and some growth are indicated for all its nesting habitats in tundra, forests and mountains. Moderate increase in a number of breeding pairs was recorded in many particular regions like Ural, Yamal, Taimyr, East Siberia and others. Major threats for the Peregrine populations are weakened and arrested. Unlike the Saker it is not much attractive for illegal taking and smuggling abroad. Pesticides are practically out of use in Russia although their negative impact on migrant and wintering falcons is still presumed. Rather new threat, i.e. illegal taxidermy for rich clients recently appears. Some efforts for reintroduction of the Peregrine in Moscow allow to hope for its recovering in the nearest future because of summer records of these falcons and even their pairs within the city in 2006-2007. A total number of the Peregrine within European Russia is now assessed as 1000-1500 breeding pairs. Significantly more Peregrines inhabit Asiatic Russia. While estimation of their numbers over this vast area lies ahead nevertheless an almost overall population growth of the Peregrine Falcon is indicated through entire Russia.

Peregrine Recovery in the Continental United States 1974 - 1999 To Include Current Numbers Available For Falconry From Captive Breeding and the Harvest of Wild Produced Young

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In the early 1900s the estimated population of the eastern American Peregrine Falcon (*Falco peregrinus anatum*), was thought to be in the neighborhood of 400 pairs. Surveys indicated that by 1965 not a single pair was known to be nesting east of the Mississippi River. In 1975 in the western United States the known number of nesting peregrines had declined to less than 40 of the 300 + pairs known for the region historically. In 1969 the Peregrine falcon was placed on the U.S. Endangered Species List, and in 1972 the use of the pesticide DDT, the main cause for the population decline, was banned. Captive breeding efforts were initiated by falconers and The Peregrine Fund was established by Dr. Tom Cade in 1970 with the purpose of breeding Peregrines in captivity for release into the wild. Soon major release efforts were under way throughout the country. Between the years of 1974 to 1999 over 5102 peregrines were released in the continental United States. Three release methods were used including fostering, cross fostering and most commonly hacking from cliffs, towers, and in cities. As a result of the releases, accompanied by natural repopulation, by 1999 the known nesting population in the continental United States exceeded over 1,650 pairs. On 20 August 1999 the Peregrine was officially removed from the United States Endangered Species list. The Peregrine recovery program was the most successful program ever to restore an endangered species in the United States. In September of 2002 The Archives of Falconry building was completed at The Peregrine Fund's World Center for Birds of Prey. Not only does the building hold some of the world's most valuable falconry treasures, but is also a tangible tribute to the role that falconers played in the recovery to the Peregrine falcon. Today many states with nesting pairs have provisions which allow falconers to legally harvest young peregrines. Despite the fact that Peregrines can now be taken from the wild for falconry purposes, relatively few birds are taken annually. This can be attributed to the difficulty of taking wild birds from remote cliff nesting locations and the fact that in 2006, 263 peregrines were produced by 149 captive breeders with virtually all of the birds being utilized by falconers.

Development of the Peregrine and Saker Falcon populations in the Czech Republic in last 30 years.

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The Peregrine Falcon and the Saker Falcon belongs to the most endangered bird species in the Czech Republic. There is a long term interest of humans concentrated on these species not only because of their rarity, but as well because for their magnetism as a falconry birds. Thanks to the above mentioned interests, various approaches in conservation of these species are used, often even antagonistic. The populations of Peregrine and Saker falcon have undergone dramatic development in last decades not only in the CZ. The Peregrine Falcon was on the edge of extinction in the whole area of its distribution 40 years ago. Catastrophic decline of the populations caused mainly by areal usage of chlorhydrocarbons (especially fusions with a content of DDT) was reversed and the numbers of Peregrines are slowly retreating back to original levels. The Saker Falcon was never influenced by this factor as much as the Peregrine, especially because of its different diet and Eurasian range of distribution. Its population did not decline during the “DDT period” so much. The breakdown of its numbers especially in the Asian part of its distribution happened much later. The reason was different as well. It is mainly the demand for the Saker falcons for falconry purposes in the Arabic countries. The inhabitants of poor Asian countries, motivated by financial rewards, started to “harvest” birds from wild. This caused the total collapse of the sooner numerous and prospering population. The negative trend is still continuing and the survival of the species in the wild is unsure.

A management plan for the Peregrine and Saker Falcons was prepared in 1996. Since then, all the activities connected with the Peregrine and Saker falcon were coordinated by a group of experts – ornithologist, amateur and professional conservationists, falconers and scientists. Thanks the the activity of this group, the development of Czech populations is very well documented. The multitude in the Czech Republic reflected mainly the status of the populations in whole Europe and in smaller part was influenced by the coordinated activities. The population of the Peregrine Falcons recovered from nearly total extinction in the 60ths and 80ths and in the 90th the increase was evident. Nowadays, the population size is around 30 breeding pairs. Our newly established population was influenced mainly by the increasing German population

The Saker falcon population was systematically monitored since the 1976. Slow increase of the population caused probably thanks to the support of the breeding success (by repairing of old nests and preparing new breeding possibilities, protecting the nests from disturbing etc.) is obvious since then. Nowadays, we estimate the population size to vary between 10 to 15 pairs, but not all of them are exactly registered every year. It is possible to observe evident change in habitat preference in last 30 year. First, the population was restricted to the riverine forest, later expanded to the agrocenoses, then retreated from the riverine forest and now both habitats are used.

An assessment of nest site imprinting in Peregrine Falcons (*Falco peregrinus macropus*) in Australia.

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Peregrine Falcons have a near global breeding distribution and generally prefer to nest on cliff ledges. 199 Peregrine Falcon (*Falco peregrinus macropus*) nest sites have been recorded across Victoria in temperate Australia. A high proportion (37.2%) of these eyries being non-cliff (or atypical) nest sites, namely those in disused stick nests of other birds (18.3%) or tree hollows in large Eucalyptus trees (18.9%). All other sites (62.8%) (including natural and man made cliffs i.e. in quarries) bridges, buildings and silos in this study are grouped under the same category of 'cliff site'.

Further in this study, a total of 1,707 Peregrine Falcon nestlings have been colour banded from 1991 to 2006. From these, 74 were identified later as breeding adults. Of these breeding adults 82.6% were found at sites similar in appearance to their natal site, moving an average of 44.3 km. The remaining 17.4% of Peregrines chose a different nest type from that in which they had fledged, having moved an average of only 33.1 km. When adults choose a different nest type, most (75%) had been fledged from cliff nests and then chose a stick nest in which to breed. One cliff raised Peregrine moved into a tree hollow and two stick nest raised Peregrines moved to cliff sites. The level of 'choice' being evidenced by Peregrines in this study does not support current theory of nest site selection by Peregrine Falcons.

Population trends of the Peregrine Falcon in Volga-Ural region (Russia) for twenty years.

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There is the number of the Peregrine Falcon (*Falco peregrinus*) increasing in the Volga-Ural region since 1990s to recent time. The number of breeding peregrines has increased 1.5-2.5 times in different districts of the region since 1990 to 2007. The number has increased 20-70 % in some districts in last decade; the average increasing in the region is 40%. The most increasing is noted in the Perm district (70%) and in the Republic of Bashkortostan (50%). Now a total of 1000 pairs are estimated to breed in the European part of the region (1300 pairs – on the territory including Sverdlovsk and Chelyabinsk districts).

However negative fluctuations are also surveyed in some subpopulations. The lowest number of peregrines is noted on several forest-steppe areas along the Volga River (Samara district) where as a result of high human disturbance pairs are registered breeding very irregular and only on cliffs. Some breeding territories were disappeared in last decade. The number of peregrines in a forest-steppe zone of the Kama River (Republic of Tatarstan) slowly increases due to the birds spreading from the northern areas through river cliff-faces. However the tree-nesting population inhabited the mouth of the Belaya River (Republic of Tatarstan, Republic of Bashkortostan) has completely disappeared. The similar fluctuations are recorded in forest-steppe areas of the Ural Mountains foothills where insignificant growth of number of falcons are noted but the tree-nesting pairs have completely disappeared and all falcons are surveyed to breed only on cliffs. And in the most cases the changing of nesting places from trees to cliffs is observed on long-term breeding territories as a result of change of partners or full replacement of adults on young birds. In the Nizhniy Novgorod district peregrines have not been surveyed to breed in a forest-steppe area of the right side of the Volga but the number of falcons has been stable on forest territories of the left side of the Volga where falcons are rare and prefer large bogs to breed. Also in the Kirov and Perm districts (flat part of forest zone) the number of falcons increases only due to the ground-nesting birds inhabiting bogs. Occupation of small bogs is surveyed. However the species was registered only on large bogs 10 years ago. Tree-nesting peregrines have not recorded in the districts as well as in the all region during last 5 years; all surveyed birds are noted breeding only on the ground on bogs. The cliff-nesting population of the Ural Mountains is the most successful, the number of which has increased 3 times in last decade. However the most productive South Ural population has been endangered now.

Large areas that peregrines inhabited including 50 breeding territories (20% of the total known breeding territories) were destroyed as a result of intensive construction of water reservoirs and mounting skiing resorts.

We believe the disappearance of tree-nesting birds in the Urals Mountains is impacted by spreading the birds from the South Ural population. The tree-nesting birds with lower number and breeding success have been replaced by most successful cliff-nested birds. The similar situation is observed in the flat part of the region where tree-nesting birds was replaced by grown-nesting. Thus 7% of pairs used to nest on trees at the beginning of 1990s, 4% - at the end of 1990s, and now such pairs are not registered at all or predicted only in the western edge of the region - in the Nizhniy Novgorod district. Nevertheless, restoration of the tree-nesting population of peregrines in the European part of Russia is very important. We believe the most perspective territory for this purpose is the middle and upper reaches of the Volga where peregrines are still extremely rare.

Opportunities for Conservation through Sustainable Use

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The peregrine falcon is a highly charismatic species, which is of economic value to bird-watchers, scientists and falconers but sometimes creates costs for pigeon-fanciers and game-management. Through falconry, potential value as a resource for wildlife conservation competes with high financial worth set by domestic breeding, with indirect conservation value through spending by falconers on development of breed-for-release techniques and with owners of grouse moors. There are also concerns about production of hybrid falcons and theft, which create costs for falconers and benefit for scientists. Thanks to recent survey for the European Commission, new data are available to inform consideration of these issues and discussion of the future socio-economic conservation potential of the peregrine.

Current Population Status of the Peregrine Falcon Near Medusa Bay Area, Dikson District, North-Western Taimyr

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In June-July of 2000-2007 we regularly searched the area of 175 square km near Willem Barents Station, 73.23E, 80.32E. Peregrine Falcons breed there on the steep rocks on river banks and sea shore. Up two nests were recorded along downstream of the Lemberova River (73.24N), up two nests - at downstream of the Maximovka River (73.13N), up to 3 nests at downstream of the Efremova River (73.10N). One breeding site was situated on the sea shore (revealed in 2004, likely existed earlier). Peregrines usually occupy most or all permanent sites every season, some birds start to breed, others just hold a territory. In 2000-2005 the falcon numbers remain stable: the number of occupied sites did not exceed 7. Then, the number of territories showed slight increase. In 2006 we recorded 8 territories; in 2007 – 9 territories, 8 of the latter contained nests. Clutch size comprised 2-5 eggs, hatching started: earliest in 2005 - 11 July, latest in 2006 – 18 July. Several Peregrine Falcon breeding territories (not all of them) contained Red-breasted, White-fronted and Bean Goose nests.

The situation with Peregrine Falcons in 2006 was quite interesting. Only two of 8 territorial pairs, which were recorded in that year, had nests with clutches. It seems birds with clutches in 2006 had no normal motivation for breeding. The clutch with 2 eggs firstly diminished to 1 egg and then disappeared. The other clutch with 4 eggs lost one egg before hatching. Though 2006 was the year with greatest lemming number depression for all the 8-year study period, this is hardly the reason for non-breeding in Peregrines, because previous observations have not shown any relation between Peregrine Falcon breeding status and lemming numbers. The probable cause might be a wreck in waders for the reason of bird flu on the spring stop-over area at Sivash Lake, Sea of Azov, Ukraine (Raya Chernichko, personal communication). At the same time, our surveys in 2006 showed decrease in all wader species in the study area on Taimyr in comparison to previous years, but slightly increase in Dunlin only.

In additional to the main study area, in 2003 and 2006 we searched the vicinities of Slobodskaya Bay (73.07N), where a rocky ridge (100 m high) in tundra held one Peregrine Falcon breeding site. In 2006 we recorded Peregrine territories both on rocks in the mouth of Matveyevskaya (73.00N) and Ragozinka (72.48N) Rivers.

Current Population Trend in Peregrine Falcons Breeding Along the Agapa River, Taimyr

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The Peregrine Falcon surveys have been performed along the Agapa River – the long term monitoring area in the western part of the inland Taimyr Peninsula. 30.07-12.08.2000 the river banks were searched from a motorboat from upstream (70.11N, 86.15E) down to the river mouth (71.26N, 89.13E). The same trips were made 18.06-20.07.2004 and 10.06-20.07.2007 on rubber boats with oars. Peregrine Falcons breed along about 370 km of the Agapa River stream. During study, we recorded Peregrine Falcon eyries: nests and territories without nests.

Steep river banks (formed of clay and sand mixture) of ≥ 6 m height and 300 m - 3 km length are potentially suitable for falcon, buzzard and goose nesting. In 2004, together with other tasks, we survey this kind of habitat, as well. Along the river we detected 64 steep bank areas of this type. The distribution of these banks deviates from the random (Poisson distribution) to the uniform one (Clark-Evans coefficient (Clark, Evans, 1954; formulae for linear distributions see Kharitonov, 2005) - $R=1.82$; $P<0.0001$). This means that steep banks which are suitable for Peregrine Falcons are stretched along the whole Agapa River. Peregrine Falcon nests are usually posed on the very edge of the flat plateau of a bank, just before the steep cliff.

In 2000 the study area held 13 Peregrine Falcon eyries: 10 nests and 3 territories without nests, in 2004 -18 eyries (12 nests and 6 territories). In 2007 we found 20 eyries: 15 nests and 5 territories. Therefore, the Peregrine Falcon population in this part of Taimyr shows explicit growth in about 1.5 times during 2000-2007-year period. This growth is the most pronounced (2.5 times since 2000) along the southern 1/3 part of the Agapa River. In all study years the eyrie distribution in relation to the breeding habitat does not differ from the random one. This indicates that the considered area is not saturated with this bird-eating raptor and, at the current level of food and habitat resources, its population can grow even more. Clutches contained 2-4 eggs, in 2004 mean clutch size was 3.2 eggs (N=10), in 2007 – 3.6 eggs (N=12). Egg size (min-max; mean+/-SE) in 2007 was: length – 43-50 mm; 46.9+/-0.3 mm, width – 31-39 mm; 36.4+/-0.3 mm (N=38). Hatching started: in 2004 - since 15 July, in 2007 – since 13 July.

The Peregrine Falcon population growth at Taimyr is a good event not only for the falcon itself. This growth creates additional breeding possibilities for the Red-breasted Goose, the IUCN Red List species which forms their colonies on Peregrine Falcon territories. In 2007 the latter species shows slight increase in numbers since 2004 (in 2000 data on the Red-breasted Geese were not collected). Peregrine Falcon eyries are favorable places for the White-fronted and Bean Goose nesting, as well.

Return of the Peregrine (*Falco peregrinus*) in Germany – restitution in west and east, tree-nester’s subpopulation status, further management.

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In Germany the Peregrine survived only in the southwestern part with a tiny remaining population of ca. 30 pairs in 1965. DDT-intoxication as the main cause of extinction is now ascertained also for Germany by subsequent chemical analysis of unhatched eggs collected during that time. After the ban of DDT in 1974 the remaining population recovered and slowly expanded (under protection of AGW –working association for protection of the Peregrine in SW-Germany) mainly into northern direction. The eastern part of Germany was not resettled by that slow expansion. Instead reintroduction projects in Hessia (1978-93) and in Berlin (1977-90) brought about the first nestsite reoccupations in the Harz Mountains in 1981, in Thuringia Mountains in 1985 and in the city of Berlin in 1986. In eastern Germany AWS performed an own reintroduction project in the Elbe-Sandstone-Mountains (1989-96) and succeeded in the reoccupation of that region since 1992. Furthermore AWS is still carrying on a reintroduction project for the refoundation of the tree-nesting population started in 1990 with meanwhile 5 release stations within the former tree-nester’s range.

Presently there are again ca. 1000 pairs of Peregrines in Germany exhibiting a strong decline of numbers from west to east. In eastern Germany there are actually 70 pairs on cliffs, 38 pairs on man made structures, among them 5 on power pylons, and 18 pairs on trees, the latter exclusively gained by imprinting reared young and young from endangered broods on buildings on that way of nesting amidst wooded lowland habitat bare of cliffs and high buildings. – The former tree-nesting population in the German lowlands amounted to ca. 400 pairs.

Since 1992 all Peregrines in eastern Germany and partly in Poland and Czech Republic, too, are marked by colour- and identity-rings concerning nesting habitat (cliff, building, tree) and origin (wild brood or managed young, i.e. released/adopted). Reading the rings at the breeding sites offered new knowledge about population biology, especially about age structure, sexspecific dismigration, turnover at the breeding sites and, the most important finding, about the separation of the population into nestsite-types, the tree-nesters receiving no input from cliff- and building-nesters. Further came out, that as a rule pairs don’t change the nestsite-type cliff, building or tree after having settled

primarily at one of them.

In northeast Germany tree-nesters and building-nesters live together in the same area. But only young fledged from release cages or wild broods on trees have chosen tree-nesting again with a portion of 54%. Of the 59 young fledged from buildings and found settled later only 1 female is paired with a tree-nesting male. This result confirms, that the choice of tree-nesting is decidedly influenced by imprinting on that type of nesting.

Within the wooded lowlands of eastern Europe the Peregrine must further be considered extinct besides a few scattered broods on industrial buildings. To bring about the reoccupation of this huge european tree-nesting range it will require an international management and commitments concerning marking by colour- and identity-rings and the special methods of release and imprinting.

Status of the Peregrine Falcon (*Falco peregrinus*) in Romania

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Key words: peregrine falcon, *Falco peregrinus*, breeding population, Romania, population survey.

The peregrine falcon suffered a large decline in the 1970s. However in the '80s there were some efforts made to locate the species, the first recent breeding records come from the '90s. Except the search in the '80s, real efforts to find the species were made only starting from 2001. In the last six years we have accomplished three significant surveys aiming the main habitat of the species, however only one of them can be considered complete. During 2001-2007 almost all rocky habitats of the Apuseni Mountains were searched. Out of 57 locations checked 6 were occupied by pairs and breeding at two more is possible. In 2007 a survey has been conducted in Dobrugea, where beside all rocky habitats also many high-voltage power-lines were checked. Only one adult bird was seen, probably not breeding. The most relevant survey has taken place in 2007 in the South-western part of the Carpathians, where we have checked almost all the cliffs appropriate for breeding. A total of 113 observation points were made, spending 90 minutes in March and 150 minutes in April-June on each. A total of 24-27 pairs have been identified, with the highest density in the Aninei Mountains. In 2006 a preliminary study has taken place in the same location, when 11-12 pairs of peregrine falcon were found. From these however in 2007 only 7 were present on the same breeding sites, suggesting that pairs may change quite frequently their breeding site. No comprehensive data do exist on the status of the species from the other parts of the Carpathians. It is clear, however, that in many ranges it is present as a breeding species, as several observations of breeding pairs even with recently fledged juveniles do exist from all over the Southern and Eastern Carpathians. As a conclusion we can affirm, that the Romanian breeding population is much higher than previously thought and it is probably increasing continuously.

Population Decline and Recovery of the Peregrine Falcon in California,

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As in much of the world, American peregrine falcons (*Falco peregrinus anatum*) declined in California and elsewhere in North America during the DDT era. A 1970 survey of 62 historical territories in California suggested a decline in breeding pairs exceeding 95%. Ten falcons were found, including two breeding pairs, their offspring, and two unmated adults. We discuss the historical surveys, recovery efforts for peregrines in California, and the current situation as peregrines continue to expand in the absence of significant management. We will also discuss unusual breeding attempts, both historical and recent, such as tree nesting, ground nesting, use of abandoned stick nests on power distribution structures, and comparatively easily accessed (walk-in) natural eyries on islands.

The Fall and the Rise of the Swedish Peregrine Falcon Population.

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The Peregrine Falcon was once distributed all over Sweden with the exception of the N. mountain areas. Former population-size has been estimated to 900-1400 pairs. It was mainly a cliff breeder but parts of the population bred in trees and in N. Sweden on bogs. Population decline started in S. Sweden already in the 1920-30s due to persecution (hunters, pigeon-fanciers) but the main decline occurred after 1945 following the introduction of DDT and several other organochlorines. Thinshelled eggs were recorded in Sweden as early as 1947 and DDE was found in shell-membranes from eggs collected in Finland in 1948. In addition alkyl mercury was used as a seed-dressing agent in the agriculture and widespread mercury-poisoning among seed-eating birds and small mammals occurred, as well among birds of prey. A combination of lowered reproduction due to DDT and an increased mortality caused by mercury and more toxic organochlorines such as dieldrin and aldrin resulted in a population decline not only in Sweden but in many other areas of Europe. In 1950s the population was estimated to 350 pairs and in 1975 to 15 pairs. After the ban of mercury, DDT, PCBs etc in the 1960s and -70s levels in prey-species have decreased, which resulted in both better survival and reproduction among the falcons. An action-plan involving nest-guardening, captive-breeding and pesticides-monitoring was initiated in 1972 by the Swedish Society of Nature Conservation. The declining population became separated in two subpopulations - N. and S. Sweden with no gene-flow between each other. The southern population passed a genetic bottle-neck and was more or less inbred. The aim of the captive breeding programme was to restore a population of >25 breeding pairs in SW Sweden. Founders to the captive population were collected within the subspecies peregrinus breeding area (S. and N. Sweden, Finland, Norway, Scotland) to create a stock of >25 pairs. Between 1982-1997 about 280 juveniles were released at 26 hacking-sites in S Sweden and additional juveniles were fostered to wild birds. Survival of wild and captive-raised falcons was not significantly different and >8% was found as breeding in the wild. Double-clutching was also used to increase production of young and to diversify the gene-pool of the captive population. As a result the wild population in S. Sweden started to increase from 6 pairs in 1990 to 29 pairs 1999 and 59 pairs in 2007. Rate of increase varies between 5-10% annually and will probably continue. Competition and predation from Eagle Owls are severe in many areas. Productivity (=young/occupied territory) has increased and was in 2000-2005 between 1.5-1.7. Females (n=25) bred on average 4.3 years (1-11 years) and had between 1-5 different partners while males (n=40)

bred 4,1 years with on average 1,3 partners. The oldest falcon in the wild was 17 years and in captivity a female 20 and a male 22 years.

In SE Norway, adjoining SW Sweden, a similar increase has occurred from a few pairs to a recent population of > 60 pairs, of which many have their origin from Sweden. The use of non-native genetic stock has increased genetic diversity and prevent inbreeding depression.

The population in N Sweden is closely associated to falcons in N Finland and N Norway and is genetically different from birds in S Sweden. This population is highly migratory and winters in W and S Europe. A significant population increase started in the end of 1980s from less than 20 known pairs to >100-125 pairs in 2007.

In 1994 release of captive-breed birds started in C. Sweden, an area depleted of falcons. The aim is also here to create a local self-sustaining population that can increase the gene-flow between the N. and S. population. 129 juveniles have been released until August 2007. The wild population in 2007 was >7 pairs, most originated from the released birds.

The total Swedish population was estimated to >150-175 pairs in 2007 but although the population trend is positive new contaminants such as brominated flame-retardants (PBDEs) and PFOS might hamper a further population increase.

Colour-ringing of Swedish Peregrine Falcons - migration and natal dispersal

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Colour-ringing of Fennoscandian Peregrines was introduced in 1978 and has been coordinated by the Swedish Society for Nature conservation since. Between 1978-81 a small number of nestlings in S. and N. Sweden and N. Finland was ringed with plastic rings with an engraved unique letter- and numbercode. The rings were provided by the North American Peregrine Project (P.Ward). The plastic-rings were exchanged for colour-anodised metal rings (longer life-time) in 1982. The ordinary metalring provided by the Swedish Ringing Center is 10 mm high while the colourring is 20 mm high. Both rings are coloranodised and number and digits engraved to the large ring. Besides uncoloured rings we have only used four colours (red,lilac,blue,black). We have found that green colour often was reported as blue.

Colour-rings were used only in C and S Sweden and SE Norway in 1982-2006 but in 2007 the programme also involved Finland and yellow colour was added. The colour-combination can be read up to 300 m and individual numbers up to 200 m dependant on telescope and light conditions. The codes of the rings have been read even on longer distances using digiscoping. 1556 nestlings were colour-ringed between 1978-2007 in Sweden. Up until 2000 the recovery rate (birds controlled or reported as dead or hurt) was 27% varying from year to year from 14-38%. Individual birds have been tracked on migration, winteringareas in Holland, Germany and Denmark and on breeding sites in Sweden, Denmark and Norway. Recoveryrate was much lower , 5%, for falcons ringed in N Sweden without colour-rings. Main wintering-area for the northern birds is SW Europe from Spain to Holland and British Isles. Two falcons have been found in Africa - one in Maroco and one in Senegal. Many falcons show high fidelity to their winter-quarters and returns regularly to the same territory. Falcons from both N and S Sweden have been found on church-towers, power-plants and bridges in Holland. There is an increased tendency due to climate change that more Peregrines stay over winter in S Sweden.

Median natal dispersal for females was 137 km (min-max 13-425 km) and for males 46 km (min-max 0-206 km). There was no significant difference in dispersal among hacked captive-bred birds and wild nestlings. In a few cases females shifted territories but most falcons tended to be faithful to their nesting area during their life time.

Peregrine in Poland – historical overview and perspectives

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The Peregrine Falcon until DDT era was quite numerous in Poland. The lowland population was nesting in trees, being main part of this unique ecotype present in area from East Germany till Central Russia. This population went extinct in the sixties of 20th century. There is no any evidence of other reasons of extinction besides pollution. Straight anthropogenic pressure was not strong enough to be a reason. Passive protection of the species did not gave any effects. There are opinions that tree-nesting population had specific gene-pool. Since 1960's until 1980's only 3 nesting attempts were known, only one successful. Number of any observations was also very low.

In early 80's Polish falconers started the recovery project with breeding Peregrines of nominative subspecies. The reintroduction begun in 1990. Since that number of observation started to climb. First wild nest was found in 1999 in Warsaw. Most of known birds in wild pairs comes directly from Polish reintroduction project or are next generation. There are also few cases of birds born in other countries, which is known thanks to colour ringing. Some of the birds perhaps come from neighbouring wild populations without colour rings, especially in mountains of Sudety. There are also few observations of Peregrines in spring in forest areas, but there is no confirmed breeding attempts.

Polish Eagle Committee checks numerous nests of big birds, but never found a Peregrine nest in trees. The reintroduction project is successful only by half – we have wild pairs of Peregrines, but it's main aim – tree nesting population – was not achieved, so far. Perhaps there was a mistake with the hacking from artificial structures in forests. The cross-fostering reintroductions were so far only experimental and do not have visible effect. The hacking from artificial nests on trees seems to be more perspective and now is the main method of reintroduction. With the growing number of Peregrines nesting on trees in Germany we hope for recovery of this ecotype in Poland soon.

Evolution and current situation of the Peregrine Falcon in France

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Along with disparate informations, it seems that the situation of Peregrine Falcon, on the French European territory has been subject to large changes during the last century. In the beginning of the 20th century the population size in France was probably inferior to 800 pairs, with a distribution and density quite different from the one observed today. The most remarkable densities were localized in areas where the Eagle-Owl was absent from a long time, the largest extended areas and population number being after the WWII. As for many Peregrines population in the world, the French population collapsed from 1945 to 1974. The recovery starts near that period with occupation of eastern territories at first, more recently the western. To day with the saturation of the sites and the regain of the Eagle-owl in the eastern territories, the global French population seems to reach a steady state point.

Evolution and current situation of the French Jura mountains Peregrine Falcon population from 1964 to 2007

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The Peregrine Falcon (*Faco peregrinus*) of the Jura range which population was crumbling before 1970 have seen its population almost multiply 7 fold from 1974 to 2007.

From 1990, overloading of favourable sites has led the new pairs to colonise cliffs more vulnerable to weather conditions, as well as terrestrial predators. This evolution has created a natural restraint to the development of the population, more than the food resources – as the rate of reproduction by reproductive pairs has not deeply evolved from the end of the 70's.

Stabilisation, even decline, initiated from 2002 seems to be related more on expansion of the Eagle-Owl (*Bubo bubo*) than on the outdoor activities or new chemical contamination as PCB..

Status of the Peregrine Falcon (*Falco peregrinus*) in Finland

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Key words: Peregrine Falcon, monitoring, methods, Finland, distribution, nest sites, breeding success

Before the catastrophic population decline due to pesticides in the 1950s and 1960s, there were at least 700 breeding pairs of the Peregrine Falcon in Finland. The breeding range covered the whole country. The majority of the falcons nested on the ground in peatlands. Nesting in cliffs was very common especially in the coastal regions, and scattered inland pairs nested in cliffs, too. The population reached its minimum, about 30 breeding pairs, in the early 1970s. The Peregrine Falcon had vanished totally in southern Finland by the same decade. Since that time the population has recovered considerably in the northern half of Finland but not at all in the south. The main reason for the recovery was the all-European ban of the most harmful pesticides. Since the beginning of the 1970s, all previously known nest-sites have been controlled once in July to record nesting success, and also new territories have been searched for actively. Volunteer bird ringers make about 75% of all fieldwork. The total number of territories occupied by Peregrine Falcons since the 1970s is 298, and the number of territories occupied by the species at least once during the last five years is 241, respectively. Over 90% of the present Peregrine Falcon pairs nest in extensive and wet aapamires, very wet northern peatlands. In northern fjell regions Peregrine Falcons nest on cliff ledges. Every year some nests have been found in a tree in old twig-nests of the Osprey and the White-Tailed Sea Eagle. The average number of big nestlings per occupied territory was 1.62 in 1997–2006, and the respective figure per successful nest was 2.31. These figures are at the same general level as in the pre-pesticide era, compared with the much lower 1.4 nestlings per occupied territory in the 1970s. The most important prey species in Finland are waders, ducks and gulls.

The current status of the Peregrine population in Yamal and Lower Ob region

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Key words: Peregrine Falcon, Yamal, modern status, number, distribution

The area of Peregrine in the North of Western Siberia includes zones of tundra and forest-tundra. In taiga zone and Ob valley nests were not found. Several nests were found in northern part of Polar Ural mountains. The main of peregrine population are concentrated in the south part of Yamal subarctic tundra (67–70°N). In arctic tundra and forest-tundra the nests is isolated and sporadic.

Typical habitats of peregrine in Yamal are steep riversides and lakesides with vast floodlands. It is common in valleys of large rivers and rare in valleys of small rivers or steep seashores.

The counts since 1979 within Yamal on plots in 30-100 km² (total >3000 km²) and on boating trips (total >3000 km) give an estimate of peregrine number:

in arctic tundra – 0.17 potential nest sites (pns) per 100 km² or 1 territory per 140 km of river valleys (total 20-25 nesting pairs every year);

in north subarctic tundra – 0.64 pns/100 km² or 1 territory/40 km of river valleys, mean distance between nests is 80 km (total 140-150 nesting pairs every year);

in south subarctic tundra – 1.23 pns/100 km² or 1 territory/14 km of river valleys, mean distance between nests is 30 km (total 195-210 nesting pairs every year).

In south subarctic tundra the occupancy of potential nest sites is 35-56% (on average 45%), in north subarctic tundra – 40-80% (on average 50%). At present time we estimate total peregrine nest number on the Yamal as 360-390 pairs, in forest-tundra near 50 pairs.

Distribution of the peregrine is non-uniformly: there are places with high local density and vast areas where the species is solitary. As on the south-west Yamal in Erkuta river basin the density was 2-3 pairs/100 km² or 1 territory/14 km of river valleys, in the Kheyakha and Yuribey river basins the mean distance between nests was 12.6±6.2 SD km and locally (e.g. Kheto lake – 68°27'N, 69°25'E) the distance was 3.75-5 km. While

along west coast of Yamal in the absence of large river valleys we found only 1 nesting pair on 110 km distance in 2006.

The number of eggs in peregrine nests was 1-4, on average 3.53 ± 0.12 SE (n=38), nestlings – 1-4, on average 2.58 ± 0.15 SE (n=38). The death rate of eggs and nestlings was near 27% from total eggs number.

The state of Yamal peregrine population on the whole keeps stability in present time, in spite of increased human impact caused by gas production and transport. That is evidence of high density, nest territory stability and high reproductive rate. The current state of Yamal peregrine may be supported in most cases by moderate industrial and recreation limits in known places of nests.

Populations of Peregrine Falcon in the South Western Cape, South Africa Current Status

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A survey of nest sites and nest site characteristics is used to obtain an estimate of the breeding density of the peregrine falcon, *Falco peregrinus minor*, in the South Western Cape, South Africa. The breeding density from a small intensively studied area around the town of Stellenbosch is extrapolated to the region. This extrapolation is justified since nest site characteristics suggest that suitable sites are widespread in the region. Lower and upper estimates of 45 and 95 pairs respectively were obtained from the area above 300m. This gives densities of one pair per 199km² for the lower estimate and one pair per 100km² for the upper estimate. For the entire study area densities are one pair per 806km² and 407km² respectively. Final figures are a culmination of 25 years of study, involving some 600,000 km of road-side observation and are derived using internet distance calculation.

Peregrines in Hungary – Breeders, Migrants, Winter and Summer Visitors

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Peregrines occurring in Hungary can be classified in to various groups. Groups are separated in time and space.

Breeders

There are 12 known Peregrine pairs in Hungary in 2007. Their eyries are situated in the mountainous areas of the country. Breeding Peregrines are resident in Hungary and they can be certainly found at the eyrie between January and September. No data or record exists about regular migration of Peregrines domestic to Hungary. Repeated observations at 4 eyries in the Danube Bend region, in 2006 – 2007 winter showed that adult males were at their eyries also all around winter. At one place adult female was also present all winter long and local females could be observed occasionally at other eyries. Since there are no high mountains in Hungary, regular altitudinal migration of domestic falcons is not likely either. However, in winter when food availability is poor, some pairs in central parts of mountains may move further away from the eyrie than others living at foothills or closer to cities.

Non-breeders

Migrants – Migratory Peregrines are regularly crossing Hungary in autumn and spring. Based on observation data from www.birding.hu the peak of Peregrine migration in Hungary is October. In spite of domestic Peregrines, migratory falcons prefer lowland habitats, most of all wetlands. The origin of those Peregrines is unknown. However, considering the estimated number of observed Peregrines on migration and the number of breeding pairs in Hungary and surrounding countries, it is very likely that – besides altitudinal migrants from neighbouring high mountains – migratory Peregrines come also from further north. That is supported indirectly by the fact, that migration pattern of northern Peregrines crossing the Netherlands show strong similarity to the pattern of Peregrine observations in Hungary. Rarely, race *calidus* occurs during migration as well. Further research is needed to explore the places of origin of migratory Peregrines.

Winter visitors

Winter visitors differ from both migratory and breeder Peregrines. They usually arrive

in autumn and they defend their winter territory for all winter long. “Winter Peregrines” prefer the lowland as well. In addition, almost all big Hungarian cities have their “own” Peregrines for winter. Observations and ring recoveries suggest that individuals occupy the same sites each winter. Very interestingly, no males have been observed wintering in cities so far. Apparently, only females choose cities for wintering site. Similarly, Peregrines observed to keep territories in winter have been almost all females until now. Majority of wintering Peregrines are adult. Young Peregrines can be seen mainly on migration in October-November, but rarely seen after mid-December.

Summer visitors

Before the species have started to breed in Hungary again, 2nd-year Peregrines spent the summers in some typical “Peregrine countries” in Hungary, especially in the Danube Bend. They moulted to first adult plumage in these regions. They might have come from the surrounding high mountains. However, very few young Peregrines occupying a certain area for summer can be observed since the breeding population have taken those favourite places.

Peregrine (*Falco peregrinus*) in Bulgaria – General Review

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Key words: population status, distribution, breeding habitat, breeding period, threats

The current study is based on a review of the existing published information about the distribution of Peregrine falcon (*Falco peregrinus*) in Bulgaria. Additionally, data from the last several years, personally collected by the authors, was used.

The earliest data about Peregrine in Bulgaria dates back from the middle of 19th century. During the second half of the 19th and the beginning of the 20th century the species is relatively common during the breeding season where suitable habitats occurred. Later, around 1950, the species is described as “extremely rare”. The peregrine population continues to decline until 1980 when it is estimated to be only 10 pairs. Stabilization and increase of the population is detected after 1985. Between 1990 and 2007 the species increases in number and extends its distribution range.

Current population estimates are around 120-200 pairs. Most of the authors show tendency of population increase.

Peregrine breeding distribution is related to the mountains and mountain foothills. In the plains the species is only an accidental breeder, even if the proper cliffs and food supply are available. It is very rare in the alpine zone.

Breeding habitat: It nests more often on cliffs, in niches and holes without nesting material. Sometimes it uses raven and long-legged buzzard's nests. Iankov, 2007 mentions some breeding cases in forests. There are two records of breeding on high buildings - in Sofia and Bourgas.

Out of the breeding season: Resident species in Bulgaria. The birds breeding above 1000 m. a.s.l. do vertical migration and go down in the plains and mountain foothills. Peregrine is a comparatively common species during the winter in the lower part of the country, especially in towns. Perhaps individuals from northern populations rich the country's territory.

Breeding biology: Peregrine lays eggs in March. Hatching lasts 29-30. Chicks appear in April. Young birds fledge at the end of May or the beginning of June. In case of substitute clutch chicks can appear 1 or even 2 months latter than normal. This sometimes also happens when subadult birds try to breed.

Diet and movements of Bulgarian peregrines is not studied at all. There is no established ringing scheme in Bulgaria. Only a few birds are ringed per year (irregularly) during migration and wintering.

Main threats: i) Killing; ii) Stealing chicks and eggs; iii) Disturbance during the breeding season.

Conclusion: The peregrine in Bulgaria is not well studied. Up to now, no specific conservation project or scientific study has been implemented. Little is known about its ecology, especially diet and movements. Data is scarce and non-systematic. The rate of the potential negative factors is not estimated. However, it is evident that the peregrine population has been increasing lately. Its breeding distribution range within the country territory is extending as well. The main reason for that is most probably improvement of the overall situation after DDT was taken out of use (in Bulgaria the use of DDT and hexachloran is banned in 1967 by the national law).

Feeding activity and seasonal changes in prey composition of Peregrines (*Falco p. peregrinus*) in Poland

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Detailed data concerning the feeding activity of Peregrines were collected in 2000 and 2001 at Warsaw, C Poland. During the breeding seasons from hatching to fledging falcons nests were monitored using the video camera. Two peaks of parent daily activity were observed: at the morning, and at the afternoon; it was also found that falcons fed their young at the night. In Warsaw falcons most often preyed upon the Feral Pigeons (32%) and various species of thrushes (23.5%), Skylarks (8%) and Corncrakes (5.6%) (n = 486). During spring and autumnal migration participation of pigeons reached 19.4–22.7%, while in summer and winter were over 51%. Reverse trend was observed for migrant species which dominated in diet in spring and fall and were less numerous in summer and winter. Additional data concerning the Peregrine food habits was collected during breeding season 1999 at two other sites — Toruń (n = 32) and Włocławek (n = 54, both C Poland) where falcons had nested on high chimneys. At the first of them Jays (14–60%) were a dominant prey species, while at the latter — Pigeons (45%), similar to Warsaw.

The importance of Peregrine diet studies in resolving predator-prey conflicts.

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As in many other predatory raptors, perceptions of impacts of Peregrine predation on prey numbers can have negative consequences on Peregrine populations due to the occurrence of illegal persecution by people whose goal is to maximise numbers of these prey for human interests. Such persecution is therefore a corollary of conflict between parties and legislation responsible for 'managing' or conserving Peregrines and those managing or 'responsible' for the relevant prey species. Quantifying the impact of Peregrines on the relevant prey population is a key research requirement when attempting to resolve such conflicts and this study of Peregrine predation on racing pigeons in Northern Ireland outlines methods of Peregrine dietary analysis and the importance of unbiased estimates of prey consumption to estimate losses to predation. Previous studies highlighted Northern Ireland as one of the highest areas in the UK for racing pigeon predation by Peregrines and recent research has indicated high levels of persecution of Peregrines by racing pigeon interests.

Direct observations of prey deliveries, prey remains and pellet analyses are utilised here to quantify the dietary components of Peregrines in Northern Ireland, to derive estimates of predation rates on racing pigeons. 1260 prey remains, 543 pellets and 219 observed feeds were recorded and analysed. Prey composed (by numerical frequency) of 46% pigeons, 15% crows, 22% non-corvid passerines, 8% seabirds, 5% ducks/waders, 1% mammals and 3% unidentified. Mean consumption of racing pigeons ranged between 14% and 29%, dependent on method used to estimate peregrine diet and highlights the possible disparities.

Potential sources of variation and biases are presented with respect to prey identification and prey delivery rates (notably brood size and associated limitations for the latter) and possibly sex-biased predation, which in the case of racing pigeon may be inclined towards female falcons and thus markedly seasonal following the reduction in brood care of the females in the later nestling phases. Possible mitigation and future research goals are discussed to deliver reliable estimations of predation. This could positively influence Peregrine populations by decreasing the perceptions of predation and potentially reducing persecution.

Brief review of Russian-language literature on the Peregrine Falcon for 1995-2007.

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For the period since the 1st Symposium on the PF about 70 articles were published in ornithological literature in Russian language with fragmentary information on this species and there were 23 among them specifically devoted to the PF.

The main articles are listed below: The PF on the Vaigach Island by V.V.Morozov (1998); The Status of the PF population in the Western Caucasia by P.A.Tilba and R.A.Mnatsekanov (1998); Observations on breeding PF (*Falco peregrinus*) in the Meghri District of Armenia by K.E.Aghababyan (1999 with reduced translation into English in 2006); Number, distribution and biology of the PF *Falco peregrinus* in Yamal Peninsula by S.P. Paskhalnyi, V.F. Sosin, V.G. Shtro, V.S. Balakhonov (2000); The PF *Falco peregrinus* in Sumy Polesie, Ukraine by V.T.Afanasiev (2000); On feeding and hunting behaviour of the Caucasian Peregrine Falcon *Falco peregrinus brookei* by O.A. Vitovich, I.V.Tkachenko, I.M.Akbaev (2000); The case of the PF *Falco peregrinus* breeding near Irkutsk by Yu.I.Melnikov (2001); Materials on the PF *Falco peregrinus* on the Kurile Islands by Yu.B.Artyukhin (2002); Estimation of the Aleutian PF *Falco peregrinus pealei* on the Commander Islands by Yu.B.Artyukhin, A.V.Zimenko, D.A.Ryazanov, V.F.Sevastyanov (2003); The PF *Falco peregrinus* in the Lake Baikal Region (2003); Ecology of the PF (*Falco peregrinus brookei*) in Western Caucasia by P.A.Tilba (2003); Breeding density and breeding success of the Rough-legged Buzzard and the PF in the SW of Yamal by Sokolov, A.A., Shtro, V.G., Sokolov, V.A. (2003); Breeding biology and population structure in the Rough-legged Buzzard, PF and Snowy Owl in arctic tundra by S.P.Kharitonov (2003); The PF in the N of Central Yakutia by S.V.Volkov (2003); The PF in Stavropol Territory by M.P.II'ukh (2003); New observations of the Red-naped Shaheen in Kazakhstan by A.V.Kovalenko (2003); The PF in Turkmenistan by N.N.Efimenko (2004 with reduced translation into English in 2005); New data on the PF breeding in Rep. of Tatarstan, Russia by Khanov, R.A. and A.V.Volkova (2005); The PF in Volga-Ural region by I.V.Karyakin (2005); What can we expect for the PF in Zilim River basin, Bashkiria, Russia by A.S.Pajenkov (2005); The PF in Bolshoi Inzer River valley, Russia by A.S. Pajenkov (2005); The PF in the Taimyr Peninsula by Ya.I.Kokorev (2006); Status and monitoring of the Peregrine and Gyrfalcon in the Kola peninsula, Russia by S.A.Ganusevich (2006).

Thus, number, distribution, breeding biology and episodic observations with descriptions of breeding sites dominate while other sides of biology and ecology are described in part or not at all.

Disproportion between volume of the known material from European and Asiatic part is increased much more in comparison with the period before 1991.

Asiatic populations need more attention.

Restitution of the Peregrine Falcon (*Falco p. peregrinus*) in Poland

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At the beginning of the 20th century, Peregrine Falcon was a widespread species in the whole territory of Poland, however not numerous. It was met most often on territory of Warmia and Mazury (N-E Poland). Polish pre-war literature about Peregrine Falcon's presence is scanty, but after the 2nd World War information about this species is scanty as well. Poland was a centre for tree-nesting population, which original area starts in the N-E Germany and covers lowlands of Belarus and central Russia.

Sudden decrease of the population has been noticed near 1950. Nests of the Peregrine Falcon on the territory of Poland were last seen in 1964 in the Krakow district as well as in Koszalin and Wroclaw district.

Polish falconers first started in the late 70's first tests of breeding in captivity of the Peregrine Falcon, and first results have been reached in the middle of 80's. When at the beginning of the seventies, Polish falconry has been reborn, Peregrine Falcon has been already vanished from the territory of Poland, and that was the reason why all birds in Polish breedings were from west European breeding centres. All birds represent nominative sub-species of the Peregrine Falcon, and its ancestor com from the German, Scotch and Scandinavian populations.

Reintroduction began in the year 1990 and it was held mostly on the forested areas, partially in the mountain (Pieniny) and in the cities (Warszawa, Krakow). Currently in the work coordinated by Peregrine Falcon (*Falco peregrinus peregrinus*) Reintroduction Council in Poland, in the breeding activities there are engaged 5 breeding centres and several accompanying institutions under surveillance of the Ministry of Environment.

In the years 1990-2007 there have been 319 Peregrine Falcons reintroduced together. From about mid 90's Peregrine Falcons can be seen more often in their natural environment.

In 1998 the first wild nest of the Peregrine Falcon was found in Warsaw, since that number of known wild nests increases. In the year 2007 we are aware of 14 breeding pairs, where most of them comes from our reintroduction. We know at least 98 nestlings which have been hatched out in the natural hatches in the years 1998-2007. We know also about several birds reintroduced or born wild in Poland having their nests in Germany as well. We expect some number of breeding pairs in the forests, however we were not able to locate them so far.

Key words: Peregrine Falcon, Falco, peregrinus, Restitution, Reintroduction, tree-nesting population, breeding, nests.

Using Passive Integrated Transponders (Pit Tags) to Understand the Peregrine Falcon Population in Britain

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Peregrine studies in southern Scotland have been conducted for many years. A new initiative to learn more about peregrine mortality, recruitment and turnover started in 2002. Since then we have handled over 500 peregrines, fitting both breeding adults and chicks with British Trust for Ornithology and "PIT" (microchip) rings. 71 adults (mostly females) have been caught either physically or electronically since 2002; 32 have been caught in only one year, 39 have been caught in more than one year (four females were caught in each of the six years of the study). Mean maximum age of known-aged males was 8.8 +/- 4.2 (n=8), for females 10.4 +/- 2.3 (n=8); the oldest bird was a 16 yr old male. 19 birds that were ringed as pulli, were captured as breeders. The direction to breeding site from natal site showed no pattern. Natal dispersal ranged from 0 to 209 km. Mean = 48.4 km for males (n = 8), and 70.74 km for females (n=11). Mean dispersal of birds that were found dead or sick (1992 to 2007) was 150km (range 44-318 n=9). We documented two cases of established breeders changing sites and breeding successfully. Two female falcons ringed as a nestling during this initiative entered the breeding population at the ages of 3 and 4. For two birds we have a complete record of their lifetime reproductive output to date; the best of these has produced 20 fledglings in 6 years. We have identified some sites with very high turnover of adults, the worst having a minimum of 3 males and 3 females in a 5 year period. This we attribute to human persecution. The use of PIT tags has enabled us to build a network of co-operators who fit PIT rings to nestlings and recapture breeders electronically. Because this requires no specialist skills beyond ringing, we can cooperate with more people and more data are collected. Also, electronic trapping is less stressful for peregrines. In time we will build up information on the peregrine population structure, the potential impact of persecution, and life time reproductive output of individuals.

Patterns of urbanization and hunting strategies of urban Peregrine falcons in Italy

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Keywords: Peregrine falcon, *Falco peregrinus*, hunting behavior, urban habitat

Peregrine Falcons, *Falco peregrinus*, (PF) were reintroduced artificially in many Northern European and USA's cities. The populations of urban PF in the Mediterranean area is instead a natural phenomenon, independent from reintroduction programs; this is a new and still poor known event. The present study gives the first results of a monitoring project of naturally urbanized PF population in Italian cities. The causes of the natural urbanization trend of PF in Italian cities can be found in the progressive saturation of the natural nest sites, caused by the recent expansion of the PF population at global level in the last 2 decades (Allavena et al 2003, Birdlife International 2000, Tucker and Heath 1994); furthermore PF increased their confidence towards the human beings as consequence of the reduction of human persecution toward this species (Saurola 1985). The PF breeds naturally and successfully in at least 8 Italian cities (2000-2007) where it takes many advantages from the urban habitat: absence of predators, large amount of preys and high artificial structures (similar to the natural cliffs) useful for nesting or only as feeding perches. The intermediate position between the urban environment and the rural habitat around the cities generates a great variety of preys within a restricted area and this gives great advantages to a species like PF with a marked reversed sexual size dimorphism and consequent hunting specialization between the sexes (Newton 1979). We observed a general "pattern of urbanization" (UP) in many of the urban PF pairs we studied: initially one individual falcon (generally the male) starts to frequent some high buildings or artificial structures within the city, in the following 2-3 years one partner join the single individual thus creating a non-breeding pair (NBP) that, finally, after 1-2 years can start to breed successfully in the urban environment. Two hypotheses can explain the cases where PF are observed without any breeding attempt: A) the single individual or the NBP is using the city just as hunting habitat and breeds in natural cliffs near the city (1 to 6 km); B) the NBP cannot find a suitable nest ledge.

We studied the hunting behavior of 4 BP and 2 NBP in urban environment (n=6) for a total amount of 900 hours. PF never were observed to hunt in the strict surroundings of the nest (NSS); from direct and indirect observations it was seen that PF hunt in a range between 1 and 5 km from the nest site. From a quantitative point of view, the populations of pigeons (*Columba livia*) and other typical preys of PF (Jackdaws, Blackbirds, Starlings,

Doves etc) living in the NSS area (100-500 mt range) were not affected by PF predation. In one case we had the occasion to follow the reaction of pigeons to PF since the start of the UP; when a single individual PF started to frequent the area, pigeons reacted very actively every time the falcon approached the area until a no-reaction point (NRP) after 2-3 months, when they don't showed any anti-predator response.

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Long-term investigation of the degree of exposure of German Peregrine Falcons (*Falco peregrinus*) to damaging chemicals from the environment and recent results

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The peregrine falcon in Germany was very close to extinction, because this falcon as a top predator can accumulate persistent biocides from the environment in concentrations, which can lead to reproduction failures and population collapses. Therefore peregrine falcons are uniquely suited indicators for a global monitoring programme. We investigated the contamination with organochlorine biocides (mainly DDT/DDE, PCB, HCB and chlorinated cyclopentadienes) and mercury by analyses of more than 1.100 unhatched eggs, completed by analyses of feathers and tissue samples from different parts of Germany (Baden-Württemberg, eastern Germany, North Rhine-Westphalia) over a timescale from 1955 up to the year 2006. Additionally the changes in shell indices were measured. Following the DDT ban and with the help of thorough conservation measures it was possible after a fall in numbers of about 80 % (locally up to 100 %) to stabilize the remnant populations in southern Germany. The results of this long-term investigation were discussed in detail. In the last years we found a slight increase of the DDE- and PCB-levels in addled eggs. There is no doubt that the mean pollution of eggs with toxic dioxin equivalents (WHO-TEQ) has reached the no observed adverse effect level (NOAEL) for chickens and also osprey chicks. The most polluted eggs exceed this threshold considerably.

The Northern Ireland Peregrine population 1977-2007

Jim Wells

UK

Northern Ireland Raptor Study Group

The Northern Ireland Raptor Study Group monitors the peregrine population. This study presents outline data from 1977-2007 and discusses the population changes and current status. This paper presents an update of Peregrine work within Northern Ireland and provides an overview of the population in recent years and describes the monitoring work undertaken in NI.

The study shows a population that has risen from the number of known sites from 40 to over 150 with mean pair occupancy over the study period of 73% of surveyed territories. Occupancy appears to have been declining. Further research is encouraged into the causes of the declines in some areas and highlights the need for continued annual monitoring. The minimum number of known fledglings was 3200 since 1977. The mean number per year was 110. The current known population in 2007 is X pairs producing X number of young.

Colour ringing of nestlings, by the team, has been undertaken since 2003 to determine more about dispersal and turnover. However, results to date from this have been limited with few live recoveries, after 110 chicks have been ringed. Recent public engagement exercises through the collaborations with the NIRSG have shown increased awareness and acceptance of raptors generally and 2007 in particular has been a very positive year for Peregrines.

APPENDIX 1

Results of the Saker (*Falco cherrug*) Conservation Programme in Hungary 1980-2006

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The Saker Falcon – the Turul – is the only raptor species that has an important role in Hungarians' myths. The following is written about a Hungarian tribe-leader in the chronicles:

„He was named Álmos (Dreamy) since her mother pregnant with him had envisioned a Turul in her dream that impregnated her by flying on her. At the same time, she had the vision that a spring arose from her womb and glorious kings originated from her loin, but they would not multiply on their own land.” Source: Anonymus: Gesta Hungarorum

Other myths are describing the behaviour of Turul and this along with some other elements of the myths enables us to certainly identify Turul as the Saker Falcon.

Hungarians knew already the art of falconry at the time they were conquering the Carpathian Basin. They were registering the falcon nests for centuries and they were paying tax sometimes with falcons. When selling lordships it happened sometimes that sellers disposed of local falcon nests separately from the whole estate. They knew the locations of nests very well from ancient times – it is proven by geographical names as well. We do not have accurate data on Saker population in the ancient times in Hungary, however – considering original habitats – the estimation of more hundred pairs may be close to reality. Unfortunately, due to human activities like shooting and use of pesticides, Saker population in Hungary did not count more than 30 pairs in the early 1970s. BirdLife Hungary (MME) was formed in 1974 and its primarily aim was to save Saker from extinction. The main results:

- Guarding of endangered nests was the first step, because illegal trade of falcons was still a crucial threat. Various nests were guarded 101 occasions between 1977-2006, out of which breeding failed 22 times, and it was successful 79 times. 238 juvenile Sakers fledged from guarded nests who contributed significantly to the increase of Saker population in the Carpathian Basin. Altogether 1600 volunteers participated in the nest-

guarding during that time.

- In 2006 we estimate the Hungarian population to 183-200 pairs. 85,4% of known pairs bred in artificial nests of platforms out of which 43,5% were on pylons of high-voltage power lines and 41,9% were on trees. Altogether 3573 juveniles from 1189 successful broods fledged between 1980-2006.

- In the frame of the conservation programme 3000 susliks (favourite prey of Saker) were re-patriated from airports to new or their former (improved) habitats.

- In order to lessen mortality by electrocution, following our proposal electric companies insulated about 50.000 pylons of mid-voltage power lines – that was a good news for other bird species as well.

- Between 1992-2006, prey remains were collected from 444 nests. In total 10830 individuals of 114 species were identified.

APPENDIX 2

**First Results of Satellite Tracking of Saker Falcons (*Falco cherrug*)
in the Carpathian Basin**

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The Saker (*Falco cherrug*) qualifies as a globally endangered species because it has undergone a very rapid population decline by about 61 % from 1990 to 2003 at a global level. The total European breeding population was recently estimated to 450 pairs. Currently, Hungary and Slovakia together hold about 40 % of this number.

In the frame of a common Hungarian-Slovak Saker conservation LIFE-Nature project 40 Sakers in Hungary and 6 Saker in Slovakia will be tagged with satellite transmitters (so-called Platform Transmitter Terminals or PTTs). 10 Sakers in Hungary were already tagged in 2007. Two types of solar powered transmitters are being tested. At this time there are only two companies in the world (Microwave Telemetry Inc. and NorthStar ST) producing PTTs appropriate for tagging birds of the size of a Saker. Both PTTs are located by a satellite from the space using the Doppler-effect. In addition, Microwave PTTs have an in-built GPS unit that enables such PTTs to locate themselves very accurately (which is an independent system from the sometimes very inaccurate Argos system). The GPS coordinates delivery interval can be set on demand. About 20 g transmitters are fixed with permanent ribbons and will be removed from the Sakers in the future.

PTTs provide valuable information about the survival rates, wintering sites, migrating routes and spreading of *Falco cherrug* individuals as well as discovering unknown Saker pairs and appropriate habitats for the species. It is also important to understand the spatio-temporal dynamics of the *Falco cherrug* population in the Carpathian Basin and to identify the threatening factors.

First results show that juvenile Sakers start long-distance (>100km) roaming within the Carpathian Basin only after 1 month after fledging! They prefer to stay in lowland – they do not cross mountains ranges. Usually they avoid hilly areas too. Apparently mountain ranges form barriers for juvenile Sakers – at least in the first two months. In some cases, rivers serve as leading lines.

Common features in movements of juveniles that they make bigger and bigger “excursions” to every directions around the nest. However, some of them make even 50-60 km “round-trips” and still return to the nest site, while others do only 3-5 km rounds before leaving the eyrie for good. Most of them left the eyrie about 1-1,5 month after

fledging. Then after a few days of “search” they establish a temporary site somewhere far from the eyrie with good prey abundance, it is again a common behaviour. After some days or even some weeks they start roaming again. Sometimes they do circles around that temporary base similar to the circles around the nest, sometimes they leave and establish new bases on other places. It probably depends on the state of the food source; however more research is necessary to draw any solid conclusion. Another similarity is that each tagged Saker showed a strong south-easterly move at various points of their roaming; however all of them stayed within the Carpathian Basin and changed direction at some point.

Those first results above show that satellite tagging of Sakers is a justified method that will contribute significantly to our knowledge about the species and thus to the conservation measures.

Same method would be desirable to study large falcons, especially Peregrine, too. Certainly, we would have a better understanding on migration, roaming and threats of various species as well as interactions between species.

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