FALCO

The Newsletter of the Middle East Falcon Research Group
Issue No. 14 August 1999

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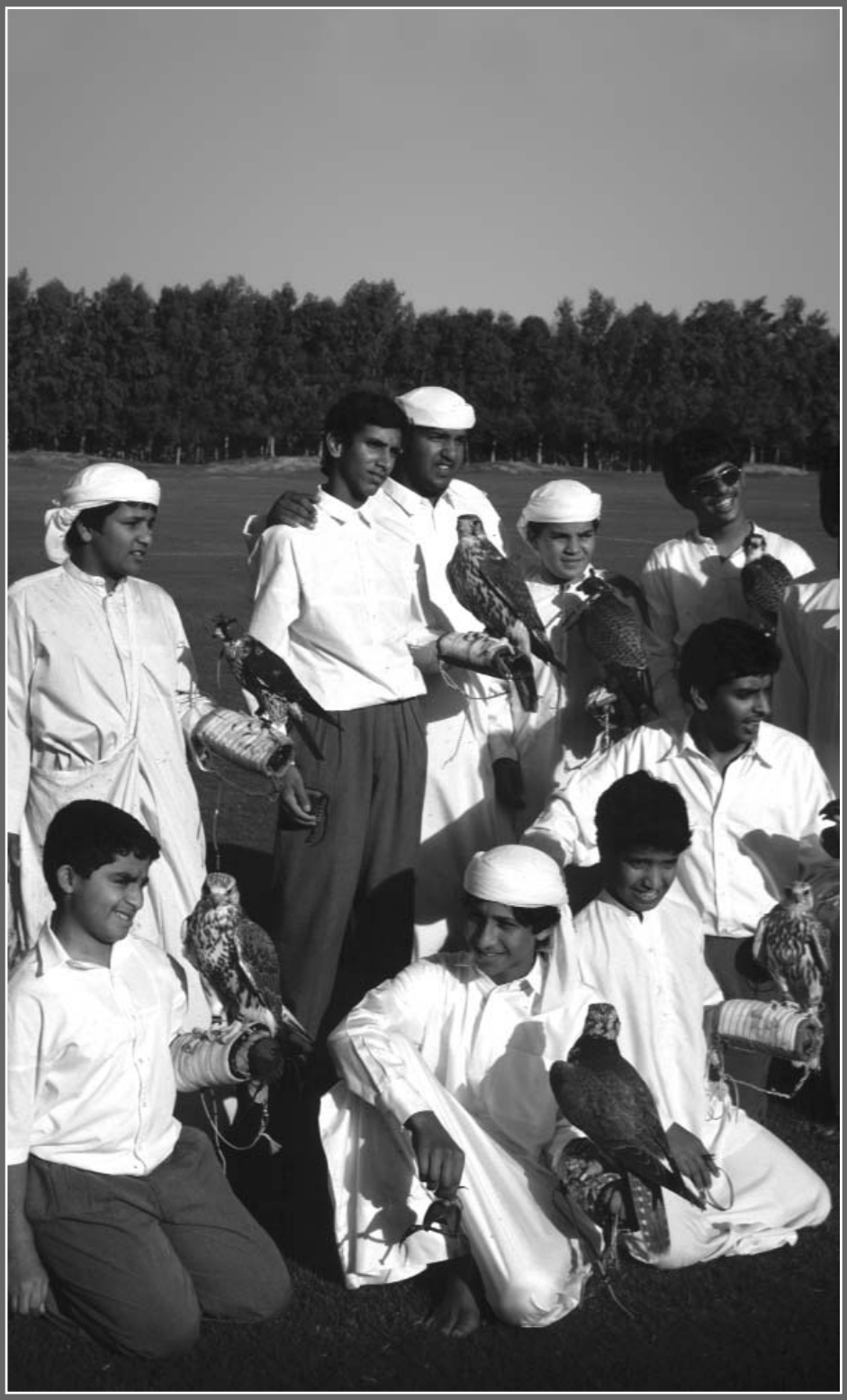

FALCO is published biannually and contains papers, reports, letters and announcements submitted by Middle East Falcon Research Group Members. Contributions are not refereed: although every effort is made to ensure information contained within FALCO is correct, the editors cannot be held responsible for the accuracy of contributions. Opinions expressed within are those of the individual authors and not necessarily shared by the editors.

Call for microchip and ring recoveries

Each breeding season field-biologists for the National Avian Research Center Falcon Research Programme implant microchips (PITs) and fit rings to wild saker and peregrine falcon chicks, juveniles and adults in the range countries. Occasionally recoveries of these marked birds are made in the falcon hospitals of Arabia.

The numbers of recoveries have recently declined and it is possible that valuable information is being lost. The purpose of this marking project is to investigate falcon populations that are targeted by trappers, and the sustainability or otherwise of harvest rates. This information is obviously of crucial importance in conserving falcon species affected by Arab falconry.

Previously, microchips implanted in wild falcons were prefixed with 111. Now, however, this prefix is no longer in use and wild birds are marked with random identification numbers.

If you are marking birds, or find a bird with an unknown PIT or ring number, please send the following information to the MEFRG database at the editorial address:

DATE:
IDENTIFICATION NUMBER:
SPECIES:
SEX:
AGE:
LOCATION OF MARKING OR RECOVERY:

If the falcon is recovered in a hospital then it is worth asking the falconer where he acquired the falcon. Additional data such as body measurements and photographs would be worth collecting for morphometric studies.

Please could all details of falcons marked and recovered be sent to the editorial address, where the information will be recorded on the Microchip and Ring Database. Many thanks.

Nigel Barton
MEFRG PIT and Ringing Scheme Co-ordinator

MEFRG Objectives:

To provide:

A central body for the co-ordination of research activities related to falcons and falconry.
A common forum for the exchange of information and for promoting collaborative research programmes.

To promote:

Research on health and disease in falcons, falcon moulting in the Middle East, falcon nutrition, domestic breeding.
Field studies on falcon migration, taxonomy, morphometrics, reproductive biology and behaviour.
Improved management conditions for captive falcons through educational awareness programmes.
Greater understanding of falconry as a part of Arab cultural heritage.

To Hold:

Regional and International workshops and conferences on veterinary aspects, falcon biology topics, falconry and conservation issues.

To publish:

Papers on aspects of falcon conservation, falcons and falconry.
A biannual newsletter/journal containing contributions on medical. biological and conservation topics of common interest, new developments and recent medical advances.

Membership:

Membership is open to any veterinary surgeon, biologist, conservationist or falconer working in the Middle East or any other person interested and contributing in the fields of medical, biological and conservation aspects of falcons and falconry worldwide.

Contributions can be sent tothe Editors of FALCO, Dr Nigel Barton and Tom Bailey.

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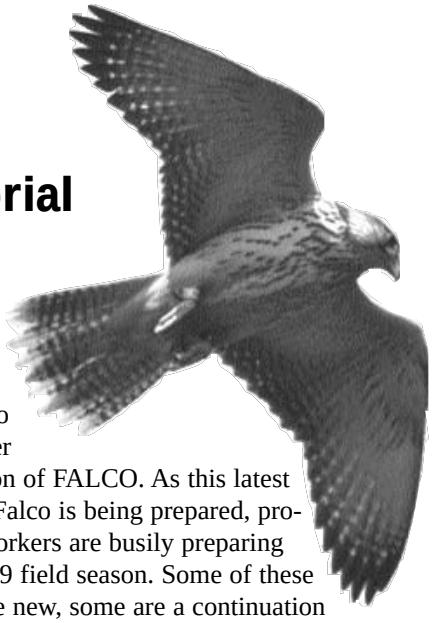
Editorial



Welcome to the Summer 1999 edition of FALCO. As this latest edition of Falco is being prepared, project fieldworkers are busily preparing for the 1999 field season. Some of these projects are new, some are a continuation of previous projects, others are nearing completion. There is a continuum of research addressing specific questions to be answered during a single field season to life-history data collected over a number of years and falcon generations. The editorial office is filled with numerous items of digital and electronic gadgetry, telemetry, radio-communication and global positioning systems, all essential for population studies. At the other end of the desk are small collection vials, syringes, glass slides and numerous miscellaneous items used for sampling individuals and establishing databases for future reference.

Long before equipment leaves the office to begin collecting data, government departments, officials, bureaucrats and state representatives are all involved with licensing and permissions. Biologists analyse work from previous years to establish a plan of action for the forthcoming season and collaborate with research scientists, university faculties and veterinarians to maximise the amount of useful information gathered during the course of fieldwork. Ultimately the success of such large scale projects is dependent on many different individuals and organisations working in unison. Getting a project off the ground and established is one thing, keeping the momentum going over the years is another.

News from the mews

Do we have another falcon biologist in the making? We'd like to send our best wishes to Jaime and Merle on the birth of their son in February and look forward to hearing more news as the Fahad bin Sultan Falcon Centre is established at its new site on the outskirts of Riyadh. Saudi Arabia accounts for a very high proportion of the Saker Falcons exported to the Middle East each year and judging by the huge success of the temporary facility which was operating this season we especially hope to increase the number of microchip recoveries in the coming years. We would also like to congratulate Jaime on recently being awarded The British Veterinary Zoological Society Parke Davies award for meritorious contributions to the field of zoological medicine. The award was made at the European Association of Avian Veterinarians Conference in Pisa and is awarded annually to a BVZS member.

Jesus Naldo, previously employed by the National Avian Research Center Veterinary Department recently moved to join Jaime and his team at the Fahad bin Sultan Falcon Centre and we wish him well in Riyadh.

Nigel Barton, previously at the National Falcon Hospital in Riyadh and prior to that at the Dubai Falcon Hospital is now employed by the Falcon Facility, Carmarthen, Wales as a member of the research and aviculture staff.

Chris Eastham is completing his thesis on falcon morphometrics and has now left the facility in Carmarthen.

Falco has had a change of editor. Future issues will be co-edited by Dr. Nigel Barton and Dr. Tom Bailey. Thanks to Jonathon Francis for transforming articles and photographs into what you see before you.

The new avian hospital of NARC established in Abu Dhabi as part of the Environmental Research Wildlife and Development Agency is nearing completion and is due to open in the autumn. It will provide a fully equipped veterinary, research and educational facility for falconers within the United Arab Emirates. Watch this space.

Anyone passing through Dubai airport this summer might have seen the Global Strategy for the Conservation of Falcons and Houbara. A report to follow in the next issue.

If anyone has further news that they would like to share with us then please send to the Editors'desk. Finally a request for articles. Prior to issues of Falco being published there is always the rather painful process of phoning around and asking people to write articles. We've had excellent support from numbers of people over the years but it would be nice to see a few different names at the top of articles. Whatever your nationality, language or grammatical capabilities we can translate and edit any articles so no excuses…..and remember…….there is always a next issue, so whenever you have something of interest please send it in. Thanks in anticipation. The Editors.

Recent Advances in Avian Medicine from the 5th Conference of the European Committee of the Association of Avian Veterinarians, and 3rd Scientific Meeting of the European College of Avian Medicine and Surgery, Pisa, Italy.

T. A. Bailey
Environmental Research and Wildlife Development Agency, National Avian Research Center, PO Box 45553, Abu Dhabi, UAE.

This was an excellent conference in a beautiful city, good food, good company and good science. What more can one ask for? Well coming from early summer in the Middle East the cool European weather was a real bonus too! Congratulations to the 'New Team' organisers, who did a great job on putting together a stimulating, challenging, and practical collection of sessions. The conference was held in Pisa between 17th-22th May and I will give an overview of some of the presentations that are relevant to avian veterinarians working with falcons and their quarry (Stone Curlew, Houbara Bustards) in the Middle East. Anyone interested in more details of the conference should contact the European Association of Avian Veterinarians committee to get a copy of the proceedings or special sessions (see the end for details).

Neil Forbes from the Lansdown Veterinary Surgeons, UK, reviewed latest theories and developments in the treatment of bumblefoot, raptor pododermatitis, which is one of the commonest and most serious afflictions of captive Falconiformes. Recent research carried out at Neil Forbes's hospital and the Dubai Falcon Hospital has shown that following culture and antibiotic sensitivity testing and extensive surgery, the use of antibiotic impregnated methylmethacrylate beads placed locally around lesions in the feet will greatly improve recovery rates and reduce reoccurrence rates.

Neil Forbes also reviewed the current methods available to veterinarians to diagnose aspergillosis. Recent advances in laboratory diagnosis have been made, including 1) plasma electrophoresis, 2) ELISA aspergillosis antigen testing and 3) aspergillosis antibody immunodiffusion testing. However although using all three laboratory methods has improved the diagnosis of the disease (>85% sensitivity and specificity), it is still recommended from a clinical point of view that the use of clinical signs, haematology, cytology, radiography and endoscopy provide a more rapid diagnosis.

Jaime Samour from the Prince Fahad bin Sultan Falcon Hospital, Saudi Arabia, presented his latest investigations of the pathology and life-cycle of *Serratospiculum*, the most widespread parasitic disease of falcons in the Middle East. Of 6335 falcons examined, 30.7% were found positive to *Serratospiculum* sp. ova. Clinical signs associated with severe parasitic infestations included laborious breathing and poor performance during training. From endoscopic and post-mortem examinations Jaime Samour concluded that *Serratospiculum* could predispose falcons to lower respiratory tract infections. While the clinical disease caused by *Serratospiculum* in falcons is well known, veterinarians and falconers have puzzled for many years over how birds become infested with the parasites. In one of the most intensive parasitological investigations to have been ever carried out in falcons, which was initiated at the National Avian Research Center, Jaime Samour reported how he had reproduced the larval cycle of *S. seurati* in 5 different species of beetles. It is known that falcons feed incidentally on beetles in their environment, and consequently this may be how the disease is transmitted to falcons. Thus knowledge of the life cycle may be used to control the transmission of the parasite.

Peter McKinney from the Wildlife Protection Department, Dubai, described the use of endoscopy to diagnose respiratory tract disease in falcons in the Middle East. Captive-bred Gyrfalcon hybrids are popular falconry birds in the UAE, but these birds are highly sensitive to heat stress when imported from temperate climates to the extreme desert environment. McKinney described how endoscopy is even routinely requested as part of the pre-purchase examination for falcons as well as being an essential tool in the diagnosis of infectious diseases. The concept of a pre-purchase examination for falcons by McKinney is an area that could be developed by the falcon hospitals. This is a topic that veterinarians working in the region should collaborate on to develop standard protocols, which could then be accepted by regional falconry bodies, when these are developed.

Michael Lierz from the Abu Dhabi Falcon Research Hospital, UAE, described an outbreak of avian pox in a Stone Curlew breeding farm in the UAE. These birds had been newly purchased and placed into a farm with 140 other Stone Curlew without quarantine. The avian pox infection spread from the new birds and infected the other stone curlew at the farm. This situation describing the disease risks involved in traded birds that are moved around the Middle East region without appropriate quarantine protocols was explored in my own presentation on the health considerations of illegally traded Houbara Bustards in the Middle East. This will be discussed further in another article in Falco in the future.

Middle East representation at the conference was strong, and although I am naturally biased because I work in the region, the standard of the presentations from Middle East veterinarians was very good. In recognition of the high standard of avian medicine that is carried out in the region by members of the Association of Avian Veterinarians it was agreed that this group should have regional representation within the European Association of Avian

Veterinarians. It was unanimously agreed that Michael Lierz should be the Middle East co-ordinator for this group. It is planned that this group will hold avian medicine meetings and will try to promote the AAV in the region.

Selecting another paper which has great significance for improving raptor medicine is not easy from so many presentations. However, the topic that captured my imagination with it's potential application to the modern falcon hospitals in the Middle East was the use of computerised tomography in avian medicine. This topic was comprehensively reviewed by Krautwald-Junghanns, and although the equipment is very expensive, and out of the reach of most veterinarians at the moment, this technology will undoubtedly revolutionise our ability to diagnose respiratory disease in the future.

Once again congratulations to the organisers who worked hard putting together such a good programme.

For information on how to obtain copies of the proceedings please E-mail

newteam.parma@iol.it

The Fahad bin Sultan Falcon Centre

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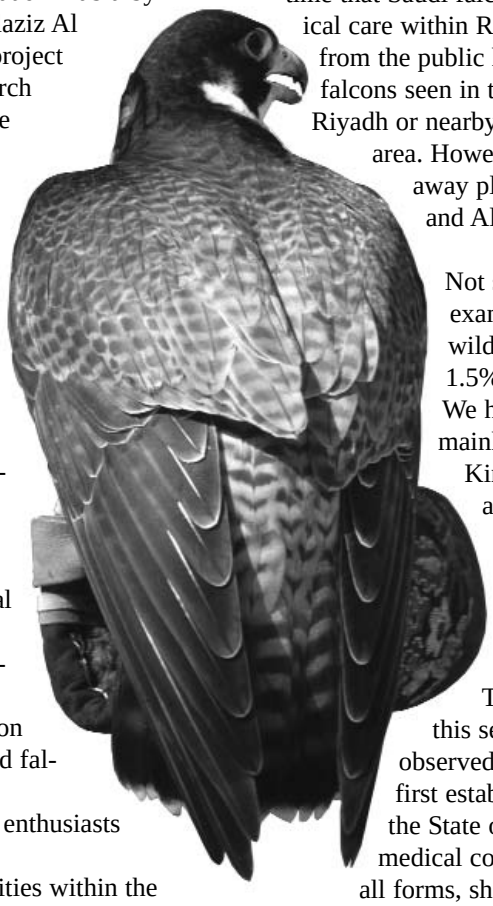
The Fahad bin Sultan Falcon Centre was established in Riyadh, the capital of the Kingdom of Saudi Arabia by HRH Prince Fahad bin Sultan bin Abdulaziz Al Saud in 1998. This is a very ambitious project comprising a Falcon Medical and Research Hospital, a Falcon and Falconry Heritage Museum and a Falcon Club.

The Centre was established primarily to:

Provide the finest medical care to falcons within the Kingdom.
Promote and increase public awareness on falcon health and disease.
Conduct a comprehensive biomedical research programme targetted at improving our understanding of health and disease in falcons.
Liaise and establish collaborative research programmes with local, regional and international falcon and falconry organisations and scientific institutions.
Promote and increase public awareness on conservation issues related to falcons and falconry.
Provide a forum for falcon and falconry enthusiasts in the Kingdom.
Co-ordinate falconry practices and activities within the Kingdom and throughout the Middle East.
Preserve falconry as part of the Arab cultural heritage.



As the first step to achieve these goals, a temporary hospital was opened to the public in Al Ezdehar suburb in the north east of Riyadh on the 1st November 1998. The hospital is fully equipped with the latest and most modern medical and laboratory equipment in order to provide clinical care to falcons in the form of in-patient and out-patient services, forensic examinations and clinical diagnosis laboratory investigations.

Since its opening the hospital has treated over 700 falcons including more than 3000 different visits. This is the first time that Saudi falconers have had access to modern medical care within Riyadh, but depite this, the response from the public has been overwhelming. Most of the falcons seen in the hospital have originated from Riyadh or nearby cities such as from the Al Qassim area. However, falconers also bring birds from far-away places such as Hafr Al Batin, Dammam and Al Ahsa.

Not surprisingly, almost 98% of the falcons examined at the hospital this season were wild caught Saker Falcons and only about 1.5% were Peregrine and Lanner Falcons. We have also seen some hybrid falcons, mainly Gyr/Sakers bought from the United Kingdom or the United States, but these are very rare, comprising less than 0.5% of the total birds examined so far. We have seen only a handful of pure gyr-falcons. The Kingdom of Saudi Arabia certainly is a Saker country.

The kind of diseases seen at the hospital this season were very similar to those observed in my early days back in 1987 when I first established the Sulman Falcon Hospital in the State of Bahrain. Some of the most common medical conditions observed this season included all forms, shapes and sizes of trichomoniasis and bumblefoot. Surprisingly, aspergillosis was not a disease widely diagnosed. Only two confirmed cases, both Peregrine Falcons, were admitted for treatment. The low incidence of aspergillosis observed at the hospital can probably be related to the lower relative humidity prevalent in the central region of the Kingdom (I am probably

giving myself a shot in the foot but I had to say it). Other respiratory conditions, however, were very common, including rhinitis, sinusitis and air sacculitis of bacterial origin. Internal parasitism was also a very common occurrence with *Serratospiculum* spp. topping up all records, followed closely by trematodes and *Caryospora* spp. Remarkably, we also treated more orthopaedic cases in the past two months than the total number of cases treated in

my entire 13 years working in the Middle East!

The plans for the permanent facilities have been completed and we hope to start building the whole complex late this month. The new Centre will be built on a 300 x 800m plot about 30 minutes away from the city. The new Falcon Medical and Research Hospital will probably be one of the largest veterinary facilities of its kind in the world. This will include spacious examination rooms, operating theatre, X-ray and developing rooms, intensive care wards, ample rooms for clinical diagnostic laboratories, extensive hospital and moulting wards and other support facilities.

Disseminating information to improve the understanding of falconry issues relating to conservation of wildlife in the Middle East is an important responsibility of the Centre. The Falcon and Falconry Heritage Museum will be a focal point for this work in the Kingdom, providing relevant displays and information to visitors on the history of falcons and falconry in the Kingdom and the Middle East as a whole, the sustainable use of the houbara bustard as a quarry species and the preservation of falconry as part of the Arab cultural heritage. The Saudi Falcon Club intends to provide a forum for falconry enthusiasts within the Kingdom, to serve as a lobby for the exchange of information and for the co-ordination of falconry activities within the Kingdom and the Middle East as a whole.

We hope to report in Falco recent advances and achievements on a regular basis and the results of research observations in the fascinating field of raptor medicine.

I am sorry we are not connected yet to Email, but if any MEFRG member is interested in any collaborative work or would like any information about falcons and falconry in the Kingdom please contact me at the above address.

Falcon numbers in the United Arab Emirates

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Falconers in the United Arab Emirates have for many years depended on large numbers of wild-caught Peregrines (*Falco peregrinus*) and Sakers (*Falco cherrug*) being available in the local souks or markets. The larger females are used primarily to hunt Houbara Bustard (*Chlamydotis undulata*) some Sakers being used for Arabian hares (*Lepus capensis*), male Peregrines being smaller are more suited to catch Stone Curlew (*Burhinus oedicnemus*). More recently, captive-bred Gyrfalcon hybrids have increased in popularity within this region whereas in Saudi Arabia the majority of falcons flown are Sakers. It is difficult to estimate the number of Peregrines and Sakers being sold to the Middle East and sources are often unreliable.
Since the early 1980's, professional veterinary care has been provided for these falcons with well established clinics in Dubai, Abu Dhabi, Qatar, Bahrain and more recently in Saudi Arabia. At the Dubai Falcon Hospital, comprehensive computer records have been maintained since 1983 making the hospital the most accurate source for information on falcon numbers and species within the region. This article summarises some data collected on Peregrines and Sakers. From such data the minimum numbers of wild-caught falcons in the region can be estimated as well as mortality during the year, species being used, and proportion of captive-bred falcons.

Numbers of Sakers and Peregrines
Both species were categorized for age and sex and the numbers of falcons for 1993-98 are shown in Table 1. The total number of Sakers and Peregrines has remained fairly

constant for the past four years at about 1500 individuals reaching a maximum of 1953 falcons during the 1993-94 season. The total number of Peregrines has increased by 12.5% over the 5 years, whereas Saker numbers have decreased by 43%. The largest decrease is seen in the juvenile female Saker category.

There has been a gradual decline of 25% in the percentage of Sakers and a 6% increase in the percentage of Peregrines. During 1993-94, Sakers and Peregrines accounted for 94% of all new falcons seen. In 1997-98 they accounted for 74%. It seems that one reason for the decreasing percentage of Sakers and Peregrines is the resurgence in popularity of captive-bred Gyrfalcon and Gyrfalcon hybrids. From a total of 58 hybrids seen in 1993-94 the number has steadily risen to 274 during 1997-98. However in absolute numbers, Sakers have decreased from 1292 to 732 over a 5-year period.

Saker numbers at the Dubai Falcon Hospital have fallen dramatically and more specifically the decrease is in the number of juvenile female Sakers. During the 1997-98 season 426 were admitted to the hospital compared to 929 in 1993. The data were collected from one hospital in Dubai, a rapidly developing country. In recent years some sheikhs within Dubai have bought only large numbers of captive-bred hybrids. It is possible therefore that the market for Sakers has concentrated on other regions of the Middle East accounting for the considerable decrease in Saker numbers within the U.A.E. We hope in future years that the Fahad bin Sultan Falcon Centre in Riyadh will be able to fill the void in information currently existing in Saudi Arabia. Judging by the number of falcons seen at that hospital during its first season, previously unknown data should come pouring in.
Unless female Peregrines are preferred to female Sakers, a similar decrease might be expected to be seen in Peregrine numbers. On the contrary, Peregrines have shown a recent increase in numbers. Is the decrease in the number of Saker falcons admitted to the hospital an indication of fewer Sakers being trapped? If so, is this because of reduced demand or decreasing population numbers?

The above data are from one falcon hospital in the Middle East. As already mentioned there are already established hospitals seeing large numbers of falcons in other parts of the region. Those hospitals in Bahrain, Qatar and Saudi are especially important since it seems likely that a large proportion of the wild caught sakers probably pass through these countries. I would urge these hospitals to contact us at the editorial address in the U.K. or at our address in Abu Dhabi to try and pull together some of this useful data.

We are still looking for microchip recoveries. Fieldworkers are currently implanting Sakers during the course of fieldwork in Central Asia and a huge amount of effort goes into such work during the breeding season. The falcons are out there somewhere and we will be contacting individual hospitals shortly to find ways of improving recoveries for implanted falcons. Of primary interest are recoveries of falcons implanted in Kazakhstan, Mongolia, Russia,

NIGEL BARTON

Kyrgyzstan and Siberia. However there is obviously considerable movement of falcons within the Middle East allowing us to determine the main ports of entry and distribution.

We have had no recoveries this year from the United Arab Emirates but Jaime Samour has reported the following from Riyadh:

Female Saker PIT 011-832-096. *Trapped 1998 in Northern Iran, reported in Riyadh February 1999. Who implanted this one? It was not implanted in Dubai.*

Female Saker PIT 015-050-032, tagged by Dr Robert Kenward as a chick in Kazakhstan 1997 and reported in Riyadh on 28th November 1998.

Female Saker PIT 007-281-789, tagged at the Dubai Falcon Hospital in November 1993 and reported in Riyadh in March 1999.

Female Saker PIT 021-578-548, tagged at the Dubai Falcon Hospital in November 1997 and reported in Riyadh in 1999.

Female Saker PIT 015-317-568, tagged at the Dubai Falcon Hospital in September 1995 and reported in Riyadh in March 1999.

Female Saker PIT 020-812-567, tagged at the Dubai Falcon Hospital in November 1997 and reported in Riyadh on 17th February 1999.

Female Saker PIT 005-827-778, tagged at the Abu Dhabi Falcon Research Hospital on 12th January 1998 and reported in Riyadh in January 1999.

Female Saker PIT 005-108-280, tagged by the Dubai Falcon Hospital on 15th October 1994 and reported in Riyadh in February 1999.

Female Peregrine PIT 001-827-359 tagged at the Abu Dhabi Falcon Research Hospital in October 1993 and reported in Riyadh on 17th December 1998.

Female Peregrine PIT 001-360-842, tagged at the Abu Dhabi Falcon Research Hospital in October 1993 and reported in Riyadh on 15th February 1999.

Female Peregrine PIT 014-092-339, tagged at the Dubai Falcon Hospital in December 1995 and reported in Riyadh on 11th May 1999.

Female Peregrine PIT 015-308-553, tagged at the Dubai Falcon Hospital in 1996 and reported in Riyadh on 3rd March 1999.

Table 1. Numbers of new Sakers and Peregrines admitted to the Dubai Falcon Hospital (1993-1998).

	SAKER			PEREGRINE		
1993-1994	male	female		male	female	
Adult	26	225		19	81	
Juvenile	112	929		189	372	
TOTAL		1292			661	1953
1994-1995						
Adult	27	242		23	107	
Juvenile	73	623		171	358	
TOTAL		965			659	1624
1995-1996						
Adult	12	222		18	69	
Juvenile	53	473		222	367	
TOTAL		760			676	1436
1996-1997						
Adult	15	208		16	105	
Juvenile	77	563		199	313	
TOTAL		863			633	1496
1997-1998						
Adult	17	217		36	133	
Juvenile	72	426		199	376	
TOTAL		732			744	1476

Microchip implants, Helping in the UK

A microchip, about to be inserted into a young falcon

Nigel Barton

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The following article by Maria Graham shows how microchips implanted in raptors in the UK enable officials to detect illegally taken raptors within the UK. This project is run completely independently of the Middle East Falcon Research Group but illustrates very well the advantages of microchips in terms of rapid identification of individuals as well as the necessity for people handling birds to routinely scan raptors and report any microchips which they find. In common with the PIT scheme which has been running for several years in Central Asia, the time and effort expended in implanting microchips is wasted unless identified individuals are reported.

Lancashire has a healthy raptor population with species such as Peregrine, Merlin and Goshawk. Unfortunately we suffer at the hands of unscrupulous individuals who take eggs or chicks from the wild and sell them on through the captive-bred market. Once the bird is taken from the wild and the theft goes unreported the chances of recovering stolen birds is small. With the advent of DNA testing it is possible to prove beyond all reasonable doubt whether a particular bird is the legitimate offspring of the supposed parent birds. DNA analysis is a wonderful tool and its use has led to the conviction and imprisonment of several individuals. Whilst the use of DNA is a great asset in investigations of this type, it is quite cumbersome in the way it has to be obtained. For example, warrants have to be suitably timed, veterinarians and handlers are required and there is a delay in obtaining the results.

I felt that a scheme which would identify a wild raptor immediately could be beneficial and so I researched the possibility of implanting a microchip into wild raptors and found that this would be exempt from the need for a scientific procedure licence as its purpose was purely for identification. We obtained some training in implanting the microchips from an experienced bird of prey handler. It was considered safer for the birds, to train an experienced handler to microchip, rather than train a veterinarian to handle birds. The microchips which we used in the scheme were very kindly supplied by Identichip and we are grateful for their continued support in this project. The chips have an anti-migration collar and conform to European Standards. The unique code held by each chip is registered on the Pet-Log database which can be accessed 24-hours a day. All chips in the scheme begin 407B or 407C. Should anyone find a bird which is chipped and the chip begins with this sequence then they can contact the register and give the full details of the 10 digits of the code. Not all microchips beginning with this prefix belong to this scheme, and the identity of anyone making such an enquiry is checked. Should a bird be reported which was chipped in the scheme, Pet-Log will inform me immediately. I feel that the advantages of this scheme are:

· That RSPCA (Royal Society for the Prevention of Cruelty to Animals) inspectors, RSPB (Royal Society for the Protection of Birds), Customs Officers and Police Wildlife Officers will be able to check birds wherever they are and receive an answer almost immediately as to whether the bird was originally implanted in the wild. This should increase the chances of detecting illegally taken birds.

· Being able to obtain confirmation as to whether the bird was taken from the wild immediately removes the delay in obtaining search warrants and blood samples.

· Immediate identification may be of particular benefit to customs staff who can check birds awaiting export and obtain immediate confirmation.

· There is less paperwork and therefore less risk of error which could cause a prosecution to fail.

· Obtaining a result in this scheme does not depend on the availability of parent birds/siblings.

· Any risk to the birds resulting from the need to take blood will be removed.

For such a scheme to have any chance of success in recovering illegally taken wild raptors from Lancashire, U.K. it relies heavily on everyone with a scanner using it wherever possible to check birds of prey. It is possible that some of our birds could end up being scanned at one of the veterinary hospitals in the Middle East.

"Mummy"- its use in falconry and veterinary practice.

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The Falcon Facility at Penllynin Farm has been collecting information on "mummy" and its healing properties for the past few years. It has been traced to its original source, its properties discussed with people using the substance for medicinal purposes and it has been incorporated for several seasons into the diet of hunting falcons produced at the facility. It was with interest therefore that we recently read an article in the journal of the German Falconers Club which claimed to have analysed a sample of the substance from Lahore, described as "mummy", used in the treatment of falcons, but seemingly a completely different substance to that used throughout Central Asia in human and veterinary medicine and certainly very different to the samples sitting on our desk.

The following is a summarised translation by Nigel Barton of the German article written by Tank, Mayr and Bauer in Greifvögel und Falknerei, 1997, Neumann-Neudamm.

The identity of "mummy" an old Indian Saker medicine

It is reported that a medicine known as "mummy" is given by Pakistani falconers to Saker Falcons which are in high condition and that the drug supposedly increases the falcon's hunting inclination. Details as to specific dosages are very imprecise but there are warnings that overdoses are lethal to birds and especially to Peregrines. The identity of the substance was previously not known and falconers kept it a secret. At first glance the name would suggest that it could relate to mummified remains (English "mummy" = mumie, arabic). Both the earlier medicinal use of ground mummies as well as a possible pharmacological use of the waxes (arabic "mum" = bees wax), resins or bitumen used to preserve mummies, could be clues to this connection. Even from the external appearance of the substance, such a possibility for this origin is not unfounded.

For precise identification, an actual sample of "mummy" was available, which H. Ch. Petersen had received many years ago via the falconer Otto Kals, Düsseldorf from Pakistani falconers near to Lahore. A visual inspection by Mr D. Parsche from the Institute of Anthropology and Human Genetics at Munich University, experienced in the examination of mummies, confirmed that the material does not come from mummies but that the sample was of plant origin.
At the Institute for Pharmaceutical Biology at the University of Munich, microscopic examination revealed the sample to be a rhizome of a monocotyledon. Analysis of the sample by means of thin-layer chromotography and HPLC showed that the composition was of an aromatic nature. From the UV spectrum and by comparison with a reference substance a- and b- Asaron could be identified as the two main components. This as well as the typical aroma of the sample leads to the conjecture that it could be a Calamus rhizome (*Acorus calamus* L. or *A. gramineus* Soland, Araceae). Comparison of the composition with an authentic sample of *Acorus calamus* confirmed this.

Acorus calamus is an old Indian medicinal plant which has since been cultivated throughout the Northern Hemisphere. Its rhizome is used for recurrent fever, asthma and dyspeptic complaints. The name *Acorus* is believed to be derived from the Greek a (a=not) and koroz (koros=satiated) which relates to the effect of appetite stimulation. In India it is also used as an aphrodisiac, in China as a tonic and in Denmark and Hungary it is used against appetite loss. The drug is used in veterinary medicine as a powder, tincture or infusion in cases of appetite loss and digestive problems.

Confirmation of the result that "mummy" is a Calamus rhizome comes from the old, arabic falconry literature where its use in the treatment of hunting birds suffering from respiratory problems is described. They are given "mummy" (mumiya) which has been dissolved in iris oil (duhn as

sawsan) from *Iris germanica* or *I. Pseudacorus* to drink or in an undissolved form given with the food. It remains to be examined whether "duhn as sawsan" really is iris oil or whether it is Calamus oil, the confusion resulting from an incorrect translation.

It seems that the medicinal effect of "mummy" is amplified by the oil. As already seen, there are several reasons why we refer to the Calamus root as "mummy" and an examination of language history could reveal a clearer explanation. Heidenreich reports from his raptor studies an existing source in which "mummy" is described. The Qatari falconers use it extensively in the treatment of birds with muscular exhaustion, especially following lengthy transportation. It is surrounded in secrecy; there is just one source in Qatar and there is no information as to its identity. The substance looks like a grey-black stone and is not very hard. It is possible that this is also Calamus rhizome. Mummy, mumiya, momian certainly leaves room for further examination.

Comments from the Editor

As can be seen from this article, "mummy" is widely used in human and veterinary medicine. However, from the variety of descriptions on appearance and chemical composition, it is possible that the word "mummy" is used to describe products of different origin. From the literature it has been described as the product of a wild bee, a product of fermentation of excrement from wild and agricultural animals, a result of surface transformation of the paraffin carbohydrates, a type of bitumen or a mineral wax. The sample analysed in the above article was concluded to be of plant origin. However, "mummy" extracted in Central Asia and supposedly identical in quality and appearance to that described from the Middle Ages is described as being extracted from caves 2-3000m above sea level. It has been referred to as "the golden tear", "the gift of inaccessible mountains", "tears of rocks and stony giants" and can be found in its unrefined state as a solid, dark almost crystalline substance which shatters when struck and melts in the summer when it is most exposed, often being covered by snow at other times of year.

During the course of Saker Falcon research in the Karakorum as far as the Chinese border, Nick Fox was able to track down "mummy" in its unrefined form and at the same time to gather information from the local people of the area as to its origins and uses. It is found high in the mountains and in its raw state is a hard, brittle, conglomerate of solid brown bubbles glued with a hard, dark resin. In its refined state it looks just like bitumen. It is solid when cold but becomes very soft when heated. It is found under overhangs and in caves at high altitude where it exudes slowly from the rocks. It can only be collected in June and July when the snows melt. After being collected from the mountains it is left in a metal bowl in the sun where it melts and the pure "mummy" can be separated and made ready for use. Falconry has all but died out in these mountain areas and so references as to its uses referred to human medicine. It is exported from the Himalayas to Pakistan, India, China and the Middle East and one of its more significant effects is in the healing of fractured bones. It is also used as an antibacterial, diuretic, for urinogenital infections, gastro-intestinal complaints, tuberculosis, neuralgia, epilepsy, bronchitis and others. In Russia it is used to enhance athletic ability, for body building and to treat radiation sickness in conjunction with other drugs.

The substance which we describe is almost certainly a type of bitumen, it is not of plant origin and definitely not a rhizome. It is likely that there are several substances , all with similar healing properties, which come under the description of "mummy". Substances of mineral, plant and animal origin have already been described. We have managed to trace some of the medical literature on its uses, but if anybody out there knows anything about its use in falconry and falcon veterinary medicine, past or present, then we would be most interested to hear.

Keep the steppes tidy: impact of litter on Saker Falcons.

E. Potapov, S. Banzragch , D. Shijirmaa1, O. Shagdarsuren, D. Sumya , M. Gombobataar.

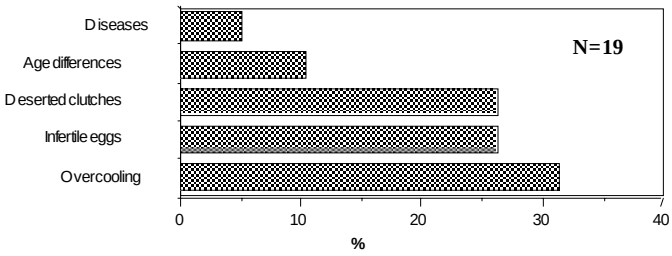
In 1998 the Environment Protection Agency of the Mongolian Ministry of Environment and Nature Protection together with the National Avian Research Center, Environment Research and Wildlife Development Agency, United Arab Emirates launched a Saker Conservation Project. The project aimed at establishing a monitoring scheme for Saker Falcons in Mongolia and to determine the population numbers and dynamics of the species in the wild. In May-June 1998, two field teams established 5 control areas across Mongolia. The area of the control plots totals 16,948 km^2. This represents 1.1% of all Mongolian territory, and 1.6% of all possible breeding habitat of Sakers in Mongolia (total area - land higher than 3,000m - flat sand deserts and densely forested areas). In these control areas, all nest locations of territorial pairs were mapped and their reproductive output was estimated.

Direct human persecution of falcons has not been recorded during field trips. Nevertheless, we have found human causes of mortality acting indirectly on both parents and chicks such as littering of the steppe with rope and string. Faced with a shortage of nesting material, birds pick up pieces of string and parts of horse harnesses and bring them to the nests. The string sometimes acts as a set of nooses, and birds become entangled and die. This year our field team saved one chick which was caught in this way. It had a badly wounded tarsus, and would not have survived without our visit. In addition we found one dead adult falcon which had become entangled in a pile of ropes which it had delivered to the nest (Figure 1). In such conditions this means not only a loss of potential broods (at least 3 each consecutive year), but also a loss of a territorial pair. Other causes of chick mortality include death by chilling, and significant differences in hatching dates which causes some chicks to lose out in competition for food amongst the broods (Figure 2). Overall mortality does not appear to be high - out of 172 hatched young 153 fledged (88.9%) or reached fledgling age.

Fig1. An adult Saker, having died after becoming entangled in a pile of ropes.

The worst scenario (when the rescued chick as well as the rest of the brood dies because they stay at the nest and the loss of the potential brood due to the loss of the adult) suggests that the real mortality figure might have been 150 chicks fledge from 175 produced chicks, i.e. 85.7%. Since we believe that we have surveyed about 1% of Saker breeding habitat in Mongolia, there is reason to believe that the loss of falcons in the whole of Mongolia due to the rope/string nooses which they bring to the nest could be as high as 3% and is likely to increase in the future.

Figure 2. Clutch/brood mortality causes



Mongolia has traditionally exploited the steppes for grazing, and in fact represents the largest pasture in the world. A total of 85% of the country is natural pasture, which is in constant use by local people. The same pastures are shared by a number of wild animals including the Saker Falcons. Grazing traditions have not significantly changed in the last centuries and therefore there were no significant changes in the habitats suitable for Saker falcons. There is no centralized rubbish collection in the steppe zone, except in the large settlements. Even there, all rubbish is dumped on specially allocated places and only a fraction of the rubbish is incinerated. Previously only ropes made from natural material were used in Mongolia, but with cheap imports, there has been a significant shift in these practices. Instead of ropes made of natural materials, a plastic twine has been employed. Small cuts of such ropes used for harnesses and for carrying luggage were dropped directly on the steppes. In some places such rope was also used for fencing. The plastic rope does not rot and looks very attractive to raptors as building material. As many as 56 nests had plastic rope in their composition thus acting as a potential threat to the adults and young.

Exact figures for the loss of wildlife caused by such ropes is largely unknown, however it is clear that not only Sakers, but also other birds of prey might suffer from them. The Environment Protection Agency does understand the threat and will run a special survey on the matter in the 1999 field season. At the moment the message is very simple: "Keep the steppes tidy!".

Venture into the World of Tamerlane

Edward Donald
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" You are cold!?" I woke to this half-statement, half question from a light snooze to find an Uzbek army colonel offering me some water from a bottle and some dried black raisins. It was November and I was travelling in the late evening from Tashkent to Samarkand and with this my time in Central Asia was entering its second phase. I was now to begin a more civilised experience and with this a change from riding to dogs during the day and feasting on a high fat diet of meat and noodles in the evening. I was en route to visiting the great cities of Tamerlane.

For three weeks an isolated house on the steppe had been my home and each day we had followed the tracks in the newly-fallen snow of fox, jackal and hare. The salukis would move patiently over the ground, fanning out and then grouping behind the scent. On other days we left the dogs and set off with two eagles, Berkut, as they are called in Kazakh. On these days we sought foxes and the hunters would sell the fur in the town for hats.

Some 15km from the road the house nestled in a small hollow next to a tumbled- down cow shed. Formerly the cowman's house under the Communist collective farm system, the house was now home to Illubaji, his wife and six children. The first evening a turkey was killed in honour of our arrival and my knife was used to slice the meat onto the steaming mass of noodles in the enormous plate that took centre stage on the table in front of us. After Illubaji's blessing we plunged in with our hands and ate away until, slightly soporific we reclined on one side and leant against the cushions provided. We needed a good meal to combat the conditions we faced over the following days. Morning sun bathed the yard area as we saddled up. Deceptively only a light breeze blew and I felt I did not need my gloves. On the open steppe the strength of the wind drilled through my clothes and my fur hat whether riding into or with my back to the wind. Without doubt these were some of the harshest conditions I have ever experienced. The brown sun-burnt grass bent in the wind, pock-marking the snow whilst here and there mice had left their holes and their tracks led maze-like over the surface of the snow. The call of rock partridge rang out as we approached cuts in the steppe showing how deceptive the terrain was; at first sight flat but with many dips and some rock faces joined here and there by streams. On some ledges the white mutes of falcons gave away their summer nest sites. Every now and then we caught glimpses of eagles or buzzards playing on the wind. Spectacular too was the view of a Saker as she put in a stoop on some Rock Partridge as we moved down a stream-cut gorge. From nowhere she appeared and chased the partridge to ground before throwing up and stooping to take one of them in the tall grass thirty meters from the horse. As she crashed into the cover and barrelled in on her prey I could clearly see her markings and feet. It was either hunger or relative lack of fear of humans that had brought this falcon so close to us. This sight remains imprinted on my memory.

Golden Eagle

With the dogs we had some great pursuits over the open steppe or amongst the bushes lining the small streams. Often the hares would go to ground in a burrow but we returned victorious on more than one occasion with a fox or a jackal. Riding just behind the lead horse and wheeling with the motion of the hare or fox was great sport and had the adrenalin coursing through my veins. The Salukis had an inexhaustible supply of energy as they trotted along behind the horses throughout the day. At a sign or a scent they would spread out and move forward and it was a great to see them working together as instinct drove them on; man's presence seemingly limited to the occasional curse of discipline and to help dispatch the prey.

In this feast of hunting our days with the eagles brought great excitement mixed with the odd day when the weight of the birds took its toll on the energy of the riders. Such is the destiny of those who fly eagles! The Kazaks fly female Golden Eagles at fox, hare and sometimes wolf. They hunt using elevated terrain where possible and surprise to take their prey. The birds can not be described as truly fit for they are not flown to the fist to improve condition but by using haggard birds the falconer relies on a combination of the bird's weight, aerial skills and hunting ability. The eagle is carried on the right hand and once in the saddle a Y-shaped stave supports the bird's weight. The eagle remains hooded until the quarry is sighted and then she is

A mounted Uzbek Falconer with his Golden Eagle

cast off. Accompanying shrieks and yells follow the eagle's descent and the rider charges after his bird seemingly impervious to the difficulties of the terrain. We caught a number of foxes in short flights on the side of gulleys where surprise was key. We also had some stern chases on hare only to lose them when once the eagle had lost too much height. The natural hunting ability and experience of the birds was great to watch as they used the wind and every aspect of the terrain to outthink their prey, slipping wind to take a lower line, closing their wings to accelerate like a stone before jack-knifing for the kill.

I have many memories of my time on the steppe living the life of one of Tamerlane's vassals. Perhaps the cold was more than unbearable at times but the copious cups of tea soon brought me back to life. Above all else watching eagles and falcons playing out the theatre of their lives sometimes defies description. I have caught the Central Asia bug and I plan to return.

Strange but true

Roger Upton.

Today when you look into a night sky, somewhere, somehow, the sky will be lit by the lights of a distant city or town. Even in the deserts of Arabia, the dark of night is often spoilt by the blaze of lights marking a distant town. In earlier times the only lights to be seen at night were the flames of a camp fire in the distance. This was recognised by Arab falconers and used by at least one Saudi falconer I heard of, in training his Lanner falcon. Whenever the falconer fed his Lanner he would only do so beside his camp fire. Even if he had been out hunting, the falcon would be given only the smallest of rewards on catching her quarry, whether Houbara, Stone Curlew or desert hare. Her master would then feed her up beside the camp fire in the evening. Trained to only expect her feed by a fire, if lost the Lanner would fly, even in the dark, to the huge fire that the falconer would build back at camp, so that she might see it, wherever she was, provided she was able to see the fire, often at a very great distance. At the end of the hunting season this same falconer would take his Lanner Falcon to the Hejaz mountains and there release his good falcon to breed more young as good as she was. In October the falconer would again travel to the mountains and there build a great fire in the evening, and on more than one occasion his Lanner would come to the fire and here be snared and used for another season of hunting in the desert.

Stories told me by the Bedouin falconers around the camp fires.

Review: The Raptors of Europe and The Middle East.

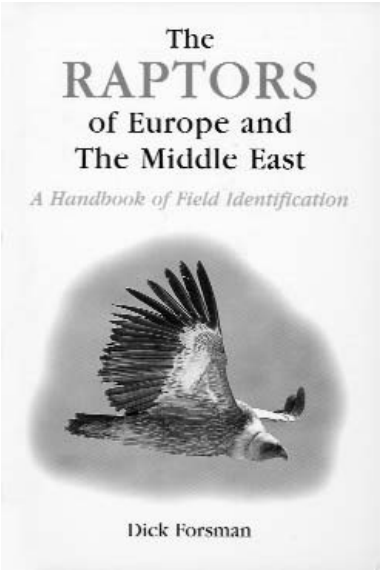
Dick Forsman T&AD Poyser, London. £29.95. ISBN 0-85661-098-4.

There are books designed for library and office use which are too large and bulky to be taken into the field. There are books made in pocket format printed with field use in mind. However some of the larger books, although clearly not designed for field use, are tempting to take into the field. Dick Forsman's book is one of these. Full of colour photos, black & white and colour drawings and detailed descriptions of moult patterns, age and sex differences in all breeding species of European raptors, the book has set a new standard in field identification.

The author is an authority on raptor identification as well as on ageing and sexing and is known in the raptor world by his numerous papers and magazine articles on large falcons, eagles, harriers and buzzards. This book collects Forsman's original knowledge on sexing, ageing and identification of raptors under one cover.

Species accounts give detailed information on field identification, moult, plumage details at different ages and a comprehensive list of references. The literature list is extensive and highly relevant. The writing style is clear and readable, artwork is neat and well organised , photographs are numerous and informative. Academic readers will appreciate a lot of interesting information as the book gives many hints relevant to research. This has been demonstrated in studies of raptor migration in Falsterbo, Sweden, where age and sexing techniques made it possible to establish different patterns of raptor migration in respect of sex and age categories. Birdwatchers will find the book exciting since it has in-depth identification analysis with many colour photos and sketches, as well as detailed text clearly divided into subsections according to the age and sex of different species.

The author covers all raptor species breeding in the Western Palaearctic excluding some vagrant rare breeders such as Crested Honey Buzzard, Bald and Black Eagle, Steller's Sea Eagle, Shikra, and Swainson's Hawk. Problematic identification of young and female Eastern Marsh and Pallid Harrier is outside the geographical scope of the book. The latter reason is perhaps the explanation why the Upland Buzzard is also omitted, however, I believe that this species might occasionally migrate to the Middle East where it could be confused with other buzzards. Nevertheless, Steppe Buzzard (a subspecies of Common Buzzard) is given special treatment on the species level. The author treats the Barbary Falcon as a subspecies of the Peregrine, however the other classification opinions are mentioned in the text. Although the book attempts to cover the serious identification problem of [Greater] Spotted Eagle and Lesser Spotted Eagle, there is not good news in the book: field identification of some adults of this species remain virtually impossible. The author nevertheless gives every possible hint for identification of these species and there is a hope that this section of the book should invoke further studies. Identification of these species is probably the most difficult problem in the field of bird identification.



My only criticism is that the book lacks distribution maps. The distribution section in the text is highly misleading and sometimes requires from the reader sophisticated geographical skills (from...parts of N Africa to Kamchatka...,), Forsman often mixes country names and geographical names in a rather confusing way (...Asia to Pakistan and Tyan-Shan, ...from W Europe to Lake Balchas...) and is inconsistent between species. Some are given details of the global distribution, some species are given detailed distribution in Europe only without mentioning the global range and some species are promoted to the level of limiting latitudes. Forsman often uses the name Enisey River in Asia, however in the absence of any other landmarks, this is very inaccurate as the length of Enisey is at least double the N-S dimensions of Europe. Throughout the book the author seemed to avoid the name of the country called Kazakhstan even in the case when it is worthwhile to use it (e.g. Pallid Harrier or Merlin section).

The scope of the book could be greatly enhanced by a section on hybrid identification, since there is great concern about the large number of hybrid falcons produced for the Middle East market. Escapees are found almost everywhere in Europe, as the author has correctly mentioned, but the same is equally true for hybrids. Identification of hybrids is a matter to address urgently.

Excellent text on field identification of Saker falcon and hints to tell it from Lanners and Gyrs are extremely valuable and relevant to the birders in the Middle East, despite the fact that the identification problem of Gyrs and Sakers are not yet solved.

The book should provide the impulse for a new generation of raptor biologists and sophisticated birdwatchers to get out into the field and restart in-depth identification sessions. It is a pity that for some the book might appear too heavy to bring to the field, but maybe the publisher should think about a shortened paperback edition. Anyway, the book is a 'must' for all serious birders and raptor specialists.

Eugene Potapov