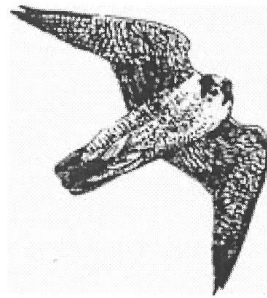


# *Falco*



*Middle East Falcon Research Group*

*National Avian Research Centre*

*Abu Dhabi, United Arab Emirates*

*P.O.Box 45553*

*Phone: + 971-3747555*

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*Newsletter No. 4, November 1995*

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**Letter from the Chairman's Office**  
Report by Jaime Samour

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**Specialist Workshop of the Middle East  
Falcon Research Group  
14th - 16 th November 1995  
Abu Dhabi United Arab Emirates**

As you can see above, we decided to change the name of our gathering this November since it is hoped to organise a more "International" meeting next year to commemorate the 20th anniversary of "The International Conference on Falconry and Conservation" organised by the President of the United Arab Emirates H. H. Sheikh Zayed bin Sultan Al Nahyan and held in Abu Dhabi from 10th to 18th December 1976.

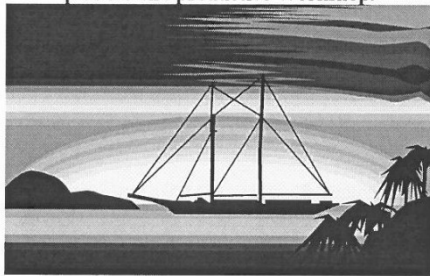
The programme has been completed, a copy of which is included at the end of this Newsletter. As you can see, there are five sessions in total. The first session includes some of the most important medical conditions affecting falcons in the Middle East. We could not have had a more qualified group of veterinary surgeons addressing these issues! At the end of day one, there will be an opportunity to discuss the importance of falcon biomedical research in the Middle East. There also will be a video presentation about the National Avian

Research Centre so you are familiar with what we are and our work.

The second session covers important issues related to the current taxonomy of desert falcons and in particular the saker falcon. The third and fourth sessions include topics of research and conservation in falcons. In the third session, we will have a practical demonstration of the classification of the saker falcon according to Arab falconers. This will be followed by presentations on the status of the saker falcon in its breeding grounds. We will also have the opportunity to listen to the current thoughts concerning the Altai falcon. The fourth session includes topics on genetic research focused on the saker falcon and discussed by world-class scientists in this field. These sessions will be crowned by a roundtable discussion on saker falcon taxonomy. This will be followed by free video and slide show presentations.

The last session includes topics on public awareness and falconry in the Middle East. At the end of this session, Dr. Nick Fox will discuss the future of saker falcon research and conservation and point out the priorities and the way forward.

**Your active participation and collaboration at the meeting will contribute enormously to ensure a positive and productive Workshop.**



"In a world that seems so very puzzling is it any wonder birds have such appeal ? Birds are, perhaps, the most eloquent expression of reality"

Roger Tory Peterson American Naturalist

## Haematological parameters in captive peregrine falcons (*Falco peregrinus*)

Report by Hermann S. Duttlinger, Durrell Institute of Conservation and Ecology, University of Kent, Canterbury, Kent CT2 7PD, UK. Present address: Langer Rain 4, 85301 Schweitenkirchen, Germany and David M. Bird, Avian Science and Conservation Centre of McGill University Quebec, Canada.

### Abstract

Blood samples were collected from 48 captive peregrine falcons (*Falco peregrinus*) to establish normal clinical haematological parameters. These included: red and white cell counts, haematocrit (PCV), haemoglobin concentration, leukocyte differential and thrombocyte counts. Females had significantly higher values for leukocytes ( $p < 0.001$ ) and thrombocytes ( $p < 0.01$ ) than in males.

### Introduction

This study was carried out in order to provide more general information on haematological values of captive peregrine falcons.

### Materials and methods

Forty seven adult and one juvenile peregrine falcons were used in this study. The birds were housed in skylight outdoor aviaries specially designed for breeding purposes. The size of each breeding chamber was 8 x 4 x 3.5 (LxWxH) meters. None of the birds was sick or injured during the previous 6 months before blood sampling except the following birds: two females showed small bumblefoot lesions, one male displayed a discoloration in the left cornea, another male had an injury on the left leg but showed no significant clinical symptoms and one female showed abnormalities in moulting. None of the birds was undergoing any medical treatment at the time of sampling. All falcons were fed *ad libitum*. Blood samples were collected on 24 July (36 birds) and on 12 August 1993 (12 birds). Blood samples were collected between 1400 and 2100 hr.

### Blood sampling technique

Sampling was carried out by venipuncture of the brachial vein, using a sterile one-way 23 gauge needle. Approximately 1.5 ml of blood was collected with the help of a 2 ml

microtainer. Blood smears were prepared on microscope slides according to the description of Campbell (1988). From each bird, two fresh blood smears were prepared and air dried for 12 hours. Staining was performed with standard quick staining and coloration set HEMAFIX (Biomed Labordiagnostik, Oberschleißheim, Germany). These freshly made blood smears were used for the differential counts. All blood samples were sent to a commercial veterinary laboratory for blood analysis and were examined 12 hours after sampling. The following haematology parameters were determined: haemoglobin concentration, erythrocytes (TRBC), MCV, haematocrit (PCV), thrombocytes, leukocytes (TWBC), granulocytes, monocytes, lymphocytes and eosinophils. Methods used for determination of the haematological parameters by the laboratory are listed in Appendix A. The examination of differences between two means was statistically analysed with the Student t-test. (Precht 1977, Timischl 1990). The average age of birds was 7.16 years (SD=4.6). For females (n=25) average age was 7.16 years (SD=4.22) and for males (n=22) 7.17 years (SD=5.07).

### Results

The results of the haematological analysis for 48 captive peregrine falcons are summarised in Table 1. Comparison of haematological values of females and males are shown in Table 2. The thrombocyte ( $p < 0.01$ ) and leukocyte ( $p < 0.001$ ) counts were significantly higher in females than in males.

### Discussion

#### Mean haematological values of captive peregrine falcons

The mean values of haematological data for 48 captive peregrine falcons in this study were within the range of values found in other species (Cooper 1972, Kirkwood et. al. 1979, Gylstorff and Grimm 1987, Halliwell 1980, Hernandez et. al. 1990, Rehder and Bird 1983.). There were some variations in haematological data in peregrine falcons. The variations may be due to different methods used in the analysis of samples and other factors. Sampling times, age

and sex of the birds, seasonal condition and even the altitude may have influenced these values. These may be important in aspects of veterinary diagnosis or health assessments.

In this study a wide range of variation for red blood cell counts ( $2.76 - 4.05 \times 10^{12}/l$ ) was observed. It is assumed that the wide range of variation is due to the individual condition of each bird. Jimenez et. al. (1991) found significant differences of erythrocytes between adult male and female great bustards (*Otis tarda*). Snyder et. al. (1980) encountered similar values ( $3.20 \times 10^{12}/l$ ) of RBC in American kestrels (*Falco sparverius*). It is generally assumed, that free-living birds of prey have lower haematological values than birds kept in captivity. The mean value of erythrocytes ( $3.49 \times 10^{12}/l$ ) evaluated for peregrines was higher to those reported by Gylstorff and Grimm (1987) of  $2.5 \times 10^{12}/l$ . The mean for TWBC found in this study ( $12.56 \times 10^9/l$ ) was remarkably higher than those found by Hernandez et. al (1990) in common buzzards ( $8.04 \times 10^3/\mu l$ ) but was within the range of values published for other birds of prey. High eosinophils counts were found in the peripheric blood of peregrine falcon in this study. The mean value of 19 % was higher than the value found in common buzzards of 16 %. For haemoglobin and PCV values, Kirkwood et. al. (1979) stated, that a wide range of values for both PCV and Hb were found in captive European kestrels (*Falco tinnunculus*). Evidence of annual fluctuation of PCV values was found in a study on captive American kestrel (Rehder and Bird 1983). The ambient temperature, reproduction and moult may also influence fluctuations on PCV values. The birds in this study were all still moulting and had just finished the rearing period of their offspring.

#### Females versus males

No significant difference between the mean of female and male peregrine falcons could be found with two exceptions, the mean values for leukocytes and thrombocytes. Female peregrine falcons measured in this study displayed a significantly higher value of leukocytes ( $p < 0.001$ ) and thrombocytes ( $p < 0.01$ ) than the male falcons. It is assumed that this is the first time that this has been identified and published. For leukocytes, sexual differences have been reported for adult female chickens, adult female quails and adult female ducks (Gylstorff and Grimm 1987). One explanation for this sexual dimorphism could be seasonal factors such as breeding conditions and therefore

by hormonal influences and it is assumed that high amounts of leukocytes and thrombocytes is correlated with hormones in females. Two birds were known to have small bumblefoot lesions but values found for leukocytes and thrombocytes did not deviate very much from the mean values. Another reason may be that good immunity is expected for the female birds to endure the breeding season and this could be expressed by an increased amount of leukocytes and thrombocytes. Further investigation in this subject is suggested.

#### Conclusions

A wide range of variations of haematological values was observed in this study. Therefore, it is most important to standardise sampling techniques, methods of analyses, sampling time and starvation periods before sampling. The blood sampling times were different from those recommended by others (Desy 1992, Forbes 1994 pers.comm., Halliwell 1980, Hernandez et. al. 1990, Lumeij and Remple 1991). Due to organisational problems all birds in this project were sampled either in the afternoon or in the evening. The time to draw the blood samples is to be standardised according to other authors (Desy 1992, Forbes 1994 pers.comm., Hernandez et. al. 1990, Lumeij and Remple 1991.). The season of the year may also have its influence on haematological parameters and should be considered.

#### Acknowledgements

We would like to express our appreciation to Max Albrecht and Petra Peter, Christian Saar, Fritz Grimm, Dr. Strauß and Harald Kaspert who freely provided advice and assistance.

#### References:

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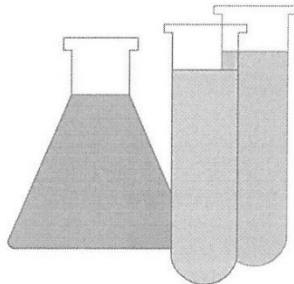
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**Table 1:** Haematological parameters for 48 captive Peregrine falcons. The number of samples (N), mean value (X), standard deviation (SD) and observed range are given for each parameter.

		N	X	SD	Range
TRBC	[ $10^{12}/l$ ]	47	3.49	0.21	2.76 - 4.05
Hb	[g/dl]	46	14.82	1.32	11.6 - 19.1
MCV	[fl]	47	117.51	7.70	100.8 - 176.0
Hkrt (PCV)	[%]	47	40.78	3.80	26.5 - 58.0
Thrombocytes	[ $10^9/l$ ]	48	23.65	7.82	10.0 - 57.0
TWBC	[ $10^9/l$ ]	48	12.56	3.06	7.6 - 21.2
Heterophils	[%]	48	36.0	9.56	11.0 - 60.0
Lymphocytes	[%]	48	44.0	10.83	14 - 60
Monocytes	[%]	30	2.0	0.99	1 - 5
Eosinophils	[%]	48	19.0	7.25	8 - 38



**Table 2:** Comparison of haematological parameters for female versus male captive Peregrine falcons. The number of samples (N), mean value (X), standard deviation (SD) and observed range are given for each parameter.

		Sex	N	X	SD	Range
TRBC	[ $10^{12}/l$ ]	females	25	3.52	0.31	2.76 - 4.05
		males	22	3.47	0.25	2.80 - 3.90
Hb	[g/dl]	females	25	14.70	1.52	11.6 - 18.30
		males	21	14.97	1.55	13.0 - 19.10
MCV	[fl]	females	25	116.92	7.01	102.7 - 129.7
		males	22	118.17	15.25	100.8 - 176.0
Hkrt (PCV)	[%]	females	25	40.66	4.34	26.50 - 47.09
		males	22	40.92	4.68	34.29 - 58.00
Thrombocytes	[ $10^9/l$ ]	females	25	27.24*	11.83	11.0 - 57.0
		males	23	19.74*	6.35	10.0 - 37.0
TWBC	[ $10^9/l$ ]	females	25	14.07**	3.38	7.6 - 21.2
		males	23	10.92**	2.51	7.6 - 16.7
Heterophils	[%]	females	25	35	11.9	11 - 60
		males	23	36	8.56	20 - 52
Lymphocytes	[%]	females	25	42	11.88	14 - 65
		males	23	46	8.28	33. - 66
Monocytes	[%]	females	13	2	0.86	1 - 3
		males	17	2	1.28	1 - 5
Eosinophils	[%]	females	25	21	8.04	8 - 33
		males	23	17	6.90	8 - 38

t - Test female versus male

\* =  $p < 0.01$ , \*\* =  $p < 0.001$

#### Methods used for blood analysis by the commercial veterinary Laboratory Tierlab Ingolstadt.

- Haemoglobin determination: Manual cyanomethaemoglobin method; lysate was 10 minutes at 3000 g in the centrifuge then photometric measuring.
- Thrombocytes determination: Test solution "Thrombo-Zahl" was used from Merck, direct count in the improved Neubauer hemocytometer.
- Leukocytes determination: Test solution: Ammoniumoxalat 10g/l; mercury(II)chloride 10mg/l: direct count in the improved Neubauer hemacytometer.
- Determination of erythrocytes, MCV, haematocrit; automated "Impedanz-Signal-Erythrozytenzahlung" and MCV determination and haematocrit calculation at "Contraves autolyzer 801" Controls were made for haematocrit with Hettich haematocritcentrifuge, RBC counted in improved Neubauer hemacytometer with Hayems-solution and manual calculation of MCV.
- The leukocyte differential count was performed by routine microscope procedure with panoptical coloration according to Pappenheim.
- Staining and coloration of freshly made blood smears air dried for 12 hours were performed with a standard quick set Hemafix from Biomed, Oberschleifheim, Germany.

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## **The art of falconry in Italy**

Report by Amedeo Arpa, Federazione Italiana Falconieri

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### **History, art, nature and sport: treasures symbolised in the flight of a falcon.**

Falconry is a valuable cultural heritage of our civilisation. For centuries it has been one of the most refined ways of hunting and often practised in a scientific and artistic manner.

The founder of modern falconry, Friedrich II of Hoestaufen, was born in Iesi in 1194 and is also the father of ornithology. Falconry inspired responsible attitudes towards birds of prey in Italy and led to the protection of these birds in the country.

Due to the Italian falconers passion for the flight of their bird and their love of nature, modern falconry is now permitted by law. Italian falconers demonstrate responsibility and only hunt with captive bred birds of prey.

Captive breeding is a form of scientific research, in itself, as it conserves a valuable genetic heritage. This is undertaken by a group of people with the knowledge and understanding to preserve these species.

Falconry is also practised at airports as a safety service to frighten-off flocks of birds before planes are due to land or take off.

The Federazione Italiana Falconieri coordinates and regulates the activities carried out by the different Associations of the Federation and its members.

For information:

President Office: 0039-31-212344  
Secretary Office: 0039-2-3313759  
Public Relations Office: 0039-2-66985249

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## **Unusal lingual foreign body**

Case report by Neil Forbes MRCVS, Lansdown Veterinary Surgeons, The Clock House Veterinary Hospital, Wallbridge, Stroud, Glos. GL5 3JD, United Kingdom.

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Recently a male saker falcon (*Falco cherrug*) was presented at our Hospital with dysphagia and head flicking. On examination the base of the tongue appeared slightly swollen and erythematous, whilst the tip of the tongue appeared a little darker and smaller than usual; a faint straight line demarked the border between the two areas. On close examination under general anaesthesia, a tight circular band of tissue was found to be encircling the tongue, at

the level of the frenulum. This band was not visible on the surface of the tongue, and was removed with great difficulty. The tissue was found to be a single complete cartilaginous avian traqueal ring, (thought to have originated from a pheasant), which had become lodged over the tongue. At the time the survival of the distal tongue tissue was considered to be doubtful; however, on re-examination six weeks later the tongue has returned to its normal appearance.



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## Letters to the editor

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Dear editor

Further to your discussion of *Serratospiculum* spp. I would like to make a few observations. *Serratospiculum* is not seen in the UK except on rare occasions in imported saker falcons (*Falco cherrug*).

On a more general note, it has been previously reported that free-living saker falcons have a *Serratospiculum* infection rate of some 65%, it does not seem to do them too much harm. As with many parasitic infections, the balance remains in the favour of the host, unless some other stress or infection occurs, after which time the parasitic burden may become significant.

Although very many sakers have the parasite, relatively few have an air sacculitis.

Even when birds become ill, or worse still die, one should not assume that the presence of *Serratospiculum* in the air sacs and air sacculitis are necessarily related. This situation arose in the Middle East during a disease outbreak in a group of falcons. The outbreak was characterised by intermittent recurrent clinical signs in no more than 10% of the collection. Clinical signs comprised non-responsive ocular discharges, sinusitis, air sacculitis and characteristically bright green faecal staining of the urate portion of the mite and a small number of fatalities. Two birds were made available for post-mortem, which indeed had significant numbers of *Serratospiculum* worms and air sacculitis, but they also had massively swollen spleens. Impression smears of the spleen confirmed the presence of *Chlamydia* spp. A full paper with these findings will be presented at the Specialist Workshop of the Middle East Falcon Research Group, 14 - 16 th November, Abu Dhabi, UAE.

Neil Forbes MRCVS  
Lansdown Veterinary Surgeons  
The Clock House Veterinary Hospital  
Wallbridge, Stroud, Glos. GL5 3JD  
United Kingdom

Dear editor

I am compiling information for a book on the red-naped shahin, also called russet-headed or desert peregrine falcon (*Falco peregrinus babylonicus* or *Falco pelegrinoides babylonicus*). I am interested in obtaining information on: a) Literature on this species, e.g. from handbooks, checklists, expedition reports; b) Published or unpublished manuscripts with personal observations e.g. breeding records;

c) Addresses of institutions or persons engaged in the study of this species. Also, I would like to obtain information on museum skin collections (data on skins will be very useful), research, field observations, falconry and captive breeding. Every piece of information will be acknowledged and the sender will be informed about the progress of the book.

Please send information to:

Dieter Schmidl,  
Max-Planck-Institut,  
D-82319, Seewiese, Germany.  
Phone: +-8157-932268  
Fax: +- 8157-932209

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## Announcements

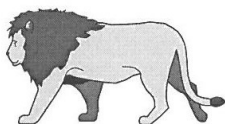
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**The Institute of Zoology** (Zoological Society of London)  
**and**  
**The Royal Veterinary College** (University of London)

### MSc in Wild Animal Health

This is a twelve month course for European and overseas graduates in veterinary and relevant sciences making a career in wild animal health. The course includes practical and theoretical instruction in the husbandry and nutrition of wild animals, taxonomy, population biology, conservation genetics, welfare and ethical aspects, epidemiology, immunology, infectious and non-infectious diseases, disease

investigation, restraint, preventive medicine and surgery, together with an individual research project. Training will be given by staff at The Institute of Zoology and the Royal Veterinary College, as well as invited speakers from other veterinary and zoological centres. Applications are now invited for the 1995/96 course starting in October 1995.



Full particulars and an application form are available from:

The Registrar  
The Royal Veterinary College,  
Royal College Street  
London NW1 OTU,  
United Kingdom.  
Tel: + 44 - 171 - 3872898.  
Fax: + 44 - 171 - 3882342.

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### International summer student internships Avian Science and Conservation Centre of McGill University

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Each Spring and Summer the Avian Science and Conservation Centre of McGill University offers up to four non-salaried internships. This includes free residence with kitchen facilities provided within walking distance of the Centre. We are located just a short bus ride from downtown Montreal. In the last three years, our interest hailed from Canada, USA, England, Scotland, China, Turkey, Italy, Mexico and France.

Each intern gains experience in the care, handling and propagation of captive birds

(Mostly birds of prey) and most important, becomes involved in scientific research either on captive birds or in the field depending on annual funding. Our main research areas include behavioural ecology, nutrition, reproductive physiology, parasitology, toxicology and management. We have also initiated a captive breeding program for endangered loggerhead shrikes for research purposes.

If interested, submit a letter of recommendation, a resume of experience and a covering letter indicating your research interest by February 1st 1996 to:

Dr. David M. Bird  
Avian Science and Conservation Centre  
of McGill University  
21,111 Lakeshore Road,  
Ste Anne de Bellevue  
Quebec H9X 3V9  
Phone: +1-514-3987760  
Fax: +1-514-3987983  
email [bird@nrs.mcgill.ca](mailto:bird@nrs.mcgill.ca)

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## Durrell Institute of Conservation and Ecology

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DICE is an international, non-governmental and non-profit research and postgraduate training school dedicated to conserving biodiversity and the ecological processes which support ecosystems and people. Its objective is to integrate conservation and development sustainably through combining natural and social sciences in a single discipline, Conservation Science, by pursuing research, training, advice, implementation and international partnership.

DICE provides the most targeted, relevant and applied course in international conservation offered in the United Kingdom. You will receive personal attention and guidance of an extremely detailed and comprehensive nature, and will participate in year-round international seminars on the scientific, economic, social, legal and political aspects of conservation, with fellow students from around the world. DICE is unique in bringing the necessary disciplines in Conservation Science into one institute. Our training and teaching programmes are career-oriented with flexible programmes, both full-time and part-time; the latter for those already employed. Our

philosophy is one of education for life, of continual learning and updating, to perfect the professional abilities and competence of our students, alumni and partners in environmental management.

We have students from 32 countries and their ages range from 21 to 73 years old; from those just beginning their careers to more experienced and senior staff with key positions in their own countries.

Many studentships are funded by Bursaries and Scholarships generated by the Institute itself. The majority of graduates obtain long-term positions in conservation and the environment.

Degrees involving coursework are modular and include a formal 6-month core course of lectures, seminars and demonstrations from October to March each year conducted by leading exponents in key areas of Conservation Science, both from DICE and across the world. Many lecturers come to the Institute from far afield to teach and collaborate in conservation research.

For further information please contact:

Dr. Mike Walkey, Executive Director  
Durrell Institute of Conservation and Ecology,  
University of Kent at Canterbury,  
Canterbury, Kent, CT2 7PD, U.K.  
Phone: + - 1227 - 475480 / 764000  
Fax: + - 1227 - 475481  
E-mail: M.Walkey@ukc.ac.uk

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**Books**

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**Copies for sale**

**Veterinary Aspects of Captive Birds of Prey**  
(second edition with 1985 supplement)  
by  
**Professor John E. Cooper FRCVS.**

For information please write to:

Mr. E. F. Cooper  
8 Scotchel Green  
Pewsey, Wiltshire  
SN9 5Au  
United Kingdom

Dr Jaime Samour  
Middle East Falcon Research Group  
P.O. Box 45553  
Abu Dhabi  
United Arab Emirates

Price without postage: J17.50 or \$30.00

Price including postage and packing:

UK 1st class/surface mail outside UK J21.00 or \$35.00  
Europe air mail J23.00 or \$37.00  
Rest of world air mail J25.00 or \$40.00

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**The Middle East Falcon Research Group**

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The Middle East Falcon Research Group (MEFRG) intends to bring together experts in falcons and falconry, veterinary surgeons, falcon biologists and conservationists working in the Middle East and other professionals interested in falcons and falconry from around the world.

The main objectives of the MEFRG are:

**1.- To provide**

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

**2.- To promote**

- Research on health and diseases in falcons, falcon moulting patterns in the Middle East and falcon nutrition, captive breeding programmes and semen cryopreservation and artificial insemination.
- Field studies on falcon migration, taxonomy, morphometrics, reproductive biology, nutritional ecology and behaviour.
- Improved management conditions of captive falcons through educational awareness programmes.
- A better understanding of falconry as part of the Arab cultural heritage.

**3.- To hold**

- Regional workshops on veterinary medical aspects, falcon biology topics, falconry and conservation issues.
- An International Conference immediately after the International Advisory Committee Meeting (IAC) of the National Avian Research Centre. It is envisaged to publish the papers and posters presented at the conference in the form of proceedings.

#### **4.- To publish**

- Joint papers on aspects concerning falcons and falconry.

For further information please contact:

- A quarterly newsletter containing contributions on medical, biological and conservation topics of common interest, new developments and recent medical advances.

#### **- Membership**

- Any veterinary surgeon, biologist, conservationist or falconer working in the Middle East or any other person interested in medical, biological and conservation aspects of falcons and falconry from around the world.

Jaime Samour  
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National Avian Research Centre  
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## Specialists Workshop of the Middle East Falcon Research Group

Abu Dhabi, United Arab Emirates  
14th - 16th November 1995

### Programme

#### Day 1

- 0845 - 0900 Opening address Dr. Jaime Samour  
National Avian Research Center,  
Abu Dhabi, UAE.
- First session**  
**Falcon medicine**  
**Chairperson - Dr. Jaime Samour**
- 0900 - 0930 Chlamydia in falcons Mr. Neil Forbes  
UK.
- 0930 - 1000 Falcon Herpesvirus and immunological considerations for the production of a vaccine Dr. David  
Remple  
Dubai Falcon Hospital  
Dubai, UAE.
- 1000 - 1030 Coffee break
- 1030 - 1100 Falcon pox in the Middle East Professor Oskar-Ruger Kaaden  
Munich University,  
Germany.
- 1100 - 1130 Newcastle disease in captive falcons Priv. Doz. Dr. Dr. habil Ulrich Wernery  
Central Veterinary Research Laboratory,  
Dubai, UAE.
- 1130 - 1200 Biomedical considerations of falcon re-introduction programmes Professor John E. Cooper  
National Avian Research Center,  
Abu Dhabi, UAE.
- 1200 - 1400 Lunch break
- Second session**  
**Saker falcon taxonomy**  
**Chairperson - Professor John E. Cooper.**
- 1400 - 1430 National Avian Research Programme on the saker falcon Dr. Nick Fox  
National Avian Research Center,  
Wales, UK.
- 1430 - 1500 The morphometrics of the saker falcon Mr. Chris Eastham  
National Avian Research Center,  
Wales, UK.
- 1500 - 1530 The taxonomy of the desert falcons Professor Clayton White  
Brigham Young University,  
USA.
- 1530 - 1600 Aspects of the taxonomy of the large falcons Professor Wolfgang Baumgart  
Germany.
- 1600 - 1630 Coffee break
- 1630 - 1730 Round-table discussion - Falcon biomedical research in the Middle East Chairperson - Professor  
John E. Cooper.
- Video programme**
- 2030 - 2130 National Avian Research Center - Video presentation Mr. Abdul Aziz Al Midfa  
Mrs. Theresa Bailey  
National Avian Research Center,  
Abu Dhabi, UAE.

**Day two**

**Third session**

**Falcon research and conservation**

**Chairperson - Professor Clayton White.**

- 0900 - 1000** The Arab classification of the saker falcon Mr. Roger Upton  
UK.  
Mr. Khalifa Saif Al Qumzi  
National Avian Research Center,  
Abu Dhabi, UAE.
- 1000 - 1030** Coffee break
- 1030 - 1100** The status and breeding biology of the saker falcon in Mongolia Dr. David Ellis  
Patuxent Wildlife Research Center,  
USA.
- 1100 - 1130** The status of the saker falcon in Kazakhstan Dr. Robert Kenward  
Institute of Terrestrial Ecology,  
UK.
- 1130 - 1200** The Altai falcon Dr. David Ellis  
Patuxent Wildlife Research Center,  
USA.
- 1200 - 1400** Lunch break

**Fourth session**

**Falcon research and conservation**

**Chairperson - Dr. Nick Fox.**

- 1400 - 1430** DNA studies of the saker falcon Dr. Jon Wetton  
University of Nottingham,  
UK.
- 1430 - 1500** Phylogenetics of the desert falcons Professor Michael Wink  
Ruprecht-Karls University  
Germany.
- 1500 - 1530** Coffee break
- 1530 - 1630** Roundtable discussion - Saker falcon taxonomy Chairperson - Professor Clayton White.

**Video programme**

**2030 - 2130**

Free video / slide show presentations

**Day 3**

**Fifth session**

**Public awareness of falcons and falconry**

**Chairperson - Mr Abdul Aziz Al Midfa.**

- 0900 - 0930** Changes in Arab falconry in the last thirty years Mr. Roger Upton  
UK.
- 0930 - 1000** The role of public awareness on issues related to falconry in the Middle East Mrs. Theresa Bailey  
National Avian Research Center,  
Abu Dhabi, UAE.
- 1000 - 1030** Coffee break
- 1030 - 1130** Roundtable discussion  
The future of saker falcon research and conservation: priorities and the way forward Chairperson Dr. Nick Fox.