THE ROLE OF THE GYRFALCON IN ARABIAN FALCONRY

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ABSTRACT.—In the United Arab Emirates, Saker Falcons (*Falco cherrug*) and Peregrine Falcons (*F. peregrinus*) are traditionally used in falconry. The success of hybrids has made falconers appreciate purebred Gyrfalcons (*F. rusticolus*). It took some years to develop techniques for managing the Gyrfalcon for good health and hunting, and it is now valued alongside the Saker and Peregrine Falcon. Gyrfalcons are becoming increasingly popular because they are good hunters, as well as being large and beautiful. Although there is some illegal trade in wild Gyrfalcons, the United Arab Emirates has developed strong regulations involving a ringing and passport system for ownership. Illegal wild Gyrfalcons held in captivity, owing to stress, are more prone to disease such as aspergillosis, amyloidosis, and bumblefoot. Captive-bred Gyrfalcons are steadier and can live, hunt, and breed for many years. Captive breeding will provide sustainable supplies without impacting wild populations. Research is in progress to analyze the genomes of Peregrine and Saker Falcons, which are genetically very similar to the Gyrfalcon. This will help in the long-term health of the wild populations and sustainable supplies of quality falcons for falconry. *Transcribed from an oral presentation given by Majid Al Mansouri on 1 February 2011.*

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I'll be focusing mostly on the cultural part of falconry in the United Arab Emirates. Falconry in Arabia goes back for more than 2,000 years as part of the culture, and it is embedded in the culture. The UAE is one of the major countries to have worked to preserve falconry, and just recently we successfully led about 14 countries to petition the IUCN to recognize falconry as one of the world's intangible heritages.

Gyrfalcons (*Falco rusticolus*) used to be a very rare species in the Arabian Gulf and the Arabian Peninsula, only rarely migrating there. Today, with transportation opening up the whole world, Gyrfalcons have become one of the main falcons used in hunting in Arabia. Traditionally, Saker Falcons (*Falco cherrug*) and Peregrine Falcons (*Falco peregrinus calidus*) were trapped in Arabia as passage birds and used for hunting. In the past, people rarely kept birds to molt, especially the Peregrine; it used to be hunted with and then released again. But now, with a better health care system for falcons and with different management to create the environment for molting of these birds, it has become very common to keep them. However, the Gyrfalcon presents lots of challenges when it comes to diseases

and management of the species in captivity, and a lot of work has been done in the UAE to improve their management.

The Altai Saker Falcon was one of the main variants of Sakers which used to be used in Arabia because it was the form that migrated to the Arabian peninsula. Sakers come in all colors, from almost white to almost black. Some are considered more desirable than others. Occasionally we would receive some very large dark Sakers, allegedly from the Altai Mountains. Research on the Altai Sakers revealed that morphologically they intergraded between Saker Falcons and Gyrfalcons. Fieldwork showed them nesting with typical Sakers. Captive breeding trials showed that artificial 'Altai' Sakers could be made by crossing Sakers with gyrs. The wild Altai Falcons are being over-trapped due to their high demand and value in falconry.

The hybrid gyr/sakers are able to offset this harvest by providing cheaper captive bred substitutes. The success of these hybrids led falconers to appreciate the pure bred Gyrfalcons, which were even larger and more beautiful than the Altai Falcons.

It took some years to develop the techniques for managing the gyrs both for good health and for hunting. Now the pure gyr has an increasingly valued place alongside the Saker and the Peregrine. Initially used solely by Sheikhs (Table 1), gyrs are now also being used by ordinary falconers (Table 2) to hunt Houbara Bustards (*Chlamydotis undulata*).

Although there is some illegal trade in wild Gyrfalcons, we have stamped hard on this in UAE and have a ringing and passport system to control bird ownership. The illegal wild gyrs, owing to stress, are more prone to disease in captivity, such as aspergillosis, amyloidosis, and bumblefoot. The captive bred gyrs are steadier and can live, hunt, and breed for many years.

Today in the UAE it is illegal to trade wild birds without a CITES permit. We are the fifth country to publish what we call a "falcon passport" which is now being adopted by CITES as one of the permits for transboundary movement of birds. To register a white falcon, you have to have all the CITES permits and that has really reduced the wild trade in falcons in the Arabian peninsula, especially in the UAE.

Table 3 shows the number of falcons treated at the Abu Dhabi Falcon Hospital and the percentage of Gyrfalcons among them. When we started in 2008 there were 380, and they have increased each year since then, both in number and proportion of patients. This shows that Gyrfalcons are getting more popular in the region. As a result, we have developed programs and pamphlets to train people and educate them on how to handle the Gyrfalcon through the Abu Dhabi Falcon Hospital and Emirates Falconer's Club.

There are 2,382 falconers registered at the Abu Dhabi Falcon Hospital and a similar number attend the Dubai Falcon Hospital, so probably there are around 5,000 falconers in the UAE.

The most common diseases which cause deaths of falcons are liver problems (Table 4), but the most frequent problem is bumble foot.

Table 5 compares the number of import permits issued to bring falcons into the UAE each year since 2004. The majority were issued for captive raised hybrid falcons. The number of captive raised Gyrfalcons has increased each year, while Saker Falcons have declined and Peregrines have increased somewhat.

In the UAE we have at least five falcon breeding farms which breed hybrids and pure breeds so there are also permits issued to export these birds (Table 6). Some go in and out in the course of overseas hunting trips, and the annual hunting exhibition which attracts a lot of exhibitors (Table 7). Some are traded

Table 1. Ownership of Gyrfalcons by Sheikhs in the UAE.

No. of Gyrfalcons owned	No. of Sheikh owners	Total Gyrfalcons owned
1	16	16
2	7	14
3	7	21
4	3	12
5	1	5
6	2	12
7	1	7
11	1	11
12	1	12
13	1	13
14	1	14
15	3	45
17	2	34
18	1	18
21	1	21
24	2	48
26	1	26
28	1	28
29	1	29
71	1	71
228	1	228
245	1	245
Total	56	930

Table 2. Ownership of Gyrfalcons by others in the UAE.

No. of Gyrfalcons owned	No. of normal owners	Total Gyrfalcons owned
1	275	275
2	60	120
3	32	96
4	9	36
5	6	30
6	1	6
7	5	35
8	4	32
9	2	18
11	2	22
16	1	16
18	1	18
20	1	20
31	1	31
34	1	34
Total	401	789

Table 3. Falcon patients seen at the Abu Dhabi Falcon Hospital.

	Total number of patients seen	Number of Gyrfalcons seen	Percentage
2008	4089	380	9.3
2009	4945	450	9.1
2010	5222	551	10.6

Table 4. Endoscopy diagnosis in 2010 of Gyrfalcons (n=326) at the Abu Dhabi Falcon Hospital (multiple entries possible).

Total	Diagnosis
212	Aspergillosis
167	Ingluvitis
108	Serattospiculosis
64	Hepatopathy
41	Airsacculitis
27	Blocked airsac
19	Lesions in trachea
18	NAD
16	Aspergillosis in ostium
9	Enteritis
1	Bacterial airsaccultitis
1	Gout

between the gulf countries, and the UAE is now one of the main hubs for distributing birds of prey within the Arabian gulf countries. The best hunters are often returned to the breeders for future breeding.

These numbers used to be much higher than now but, because of the better health care system and better understanding by bird handlers and falconers, the numbers of falcons imported and exported are reduced compared to the total number of these birds in the UAE.

More people are diverting from hybrids like gyr-sakers and gyr-peregrines into pure Gyrfalcons, pure Sakers or pure Peregrines. Gyrfalcons are becoming increasingly popular because they are good hunters as well as being large and beautiful. Captive breeding will provide sustainable supplies without impacting wild populations. We have been analysing the genetic relationships of our captive breeding stock. Many have been line-bred to enhance colour characteristics. Most North American captive bred gyrs now have a high coefficient of inbreeding so we are looking for breeding stock that shows less in-breeding and carries the genes and characteristics that we are looking for, such as size, color, hunting performance, pedigree, flight characteristics, and breeding performance.

The Environment Agency—Abu Dhabi has many international programs focused on falcons in the wild, and Andrew Dixon will describe the program on Saker Falcons in Mongolia. Now we have a new program to analyze the genome of the *calidus* Peregrine, and of the Saker Falcon (which is genetically very similar to the gyr). This is through a collaboration between International Wildlife Consultants Ltd, Cardiff University, and BGI Shenzhen/Hong Kong with sponsorship from the Environment Agency—Abu Dhabi. This project will help to decipher genetic relationships between wild populations, help determine genetic influences in disease, and help in the management of the captive populations of falcons. As falconers, our shared aims are the long term health of wild populations and sustainable supplies of quality falcons for falconry.

I would like to thank you for giving me a chance to speak before you, and I wish that out of this conference will come a program for improvement. As an environmental agency, we are ready to support any programs that will save this species because it is very important from a scientific and ecological point of view and as a biological species which exists today.

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Table 5. Approved falcon import permits into the UAE.

	Source	2004	2005	2006	2007	2008	2009	2010	Total
Hybrid falcons	Captive	2234	2655	2378	2252	2500	2830	2972	17821
Peregrine Falcons	Captive	80	87	61	131	149	207	196	911
	Wild	0	0	0	0	0	0	0	0
Saker Falcons	Captive	452	256	136	172	219	305	155	1695
	Wild	0	0	1	4	0	35	44	84
Gyrfalcons	Captive	269	362	416	334	579	712	899	3571
	Wild	0	0	0	0	0	0	0	0
	Total	3035	3360	2992	2893	3447	4054	4226	24007

Table 6. Approved export permits from UAE.

	Source	2004	2005	2006	2007	2008	2009	2010	Total
Hybrid falcons	Captive	51	40	52	30	39	42	63	317
Peregrine Falcons	Captive	3	43	17	10	1	4	3	81
	Wild	0	0	0	0	0	46	1	47
Saker Falcons	Captive	4	0	10	2	1	2	5	24
	Wild	0	0	0	0	0	25	2	27
Gyrfalcons	Captive	22	7	15	17	14	25	40	140
	Wild	0	0	0	0	0	0	0	0
	Total	80	90	94	59	55	144	114	636

Table 7. Approved re-export permits.

	Source	2004	2005	2006	2007	2008	2009	2010	Total
Hybrid falcons	Captive	182	352	340	242	234	403	425	2178
Peregrine Falcons	Captive	7	22	10	2	13	33	17	104
	Wild	51	50	36	41	44	0	27	249
Saker Falcons	Captive	5	15	31	8	10	78	7	154
	Wild	43	47	32	25	18	6	35	206
Gyrfalcons	Captive	44	73	90	50	90	159	208	714
	Wild	0	0	0	0	0	0	8	8
	Total	332	559	539	368	409	679	727	3613