

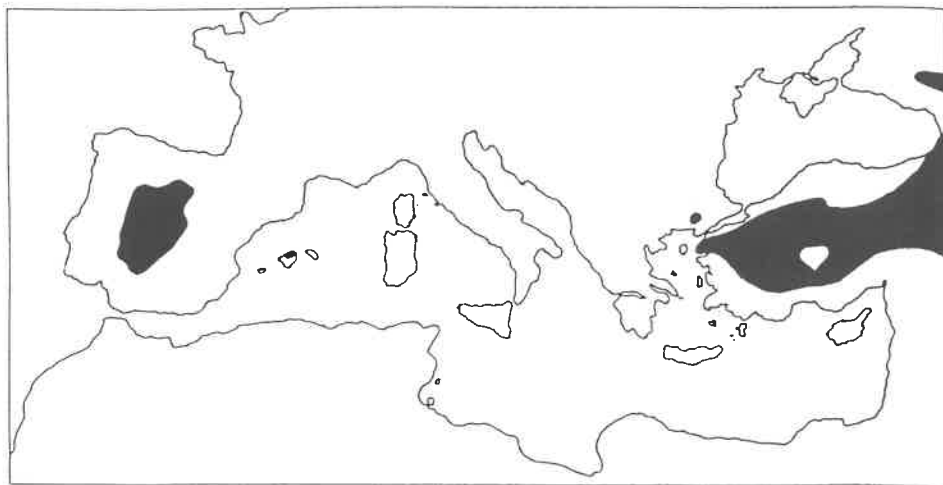
The European Black Vulture *Aegypius monachus* Project in Mallorca

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Status in Europe

Until the middle of the century the Black Vulture (*Aegypius monachus*) was distributed through all north Mediterranean countries. As a result of poisoning and hunting, as well as habitat destruction and food shortage, the population decreased to a mere fraction (see Fig. 1): the species is now extinct in Portugal (Glutz von Blotzheim, Bauer & Bezzel 1971), France (Terrasse 1989), Italy (Bijleveld 1984; Schenk pers. comm. 1990), Cyprus (Cramp & Simmons 1980), Bulgaria (Iankov 1992), Rumania (Glutz von Blotzheim, Bauer & Bezzel 1971), Morocco (Cramp & Simmons 1980), the Crim peninsula (Peklo, pers. comm. 1992) and probably Yugoslavia (Grubac 1990) and Albania. The status in Turkey is not well known, there might be about 100 pairs (Beaman & Porter 1984). Recent decline is supposed (Garzon, pers. comm. 1992). In Greece one colony with 14 breeding pairs is left (Hallman, pers. comm. 1991). The largest European population exists in Spain, which has recovered from about 200 pairs to 774 pairs in 1989 (González, 1990) and is continuously increasing. In Mallorca there now survives the last island population of the Mediterranean with 4 pairs (Tewes 1990).

Figure 1. Present Black Vulture distribution in Europe.



The Black Vulture Conservation Foundation (BVCF)

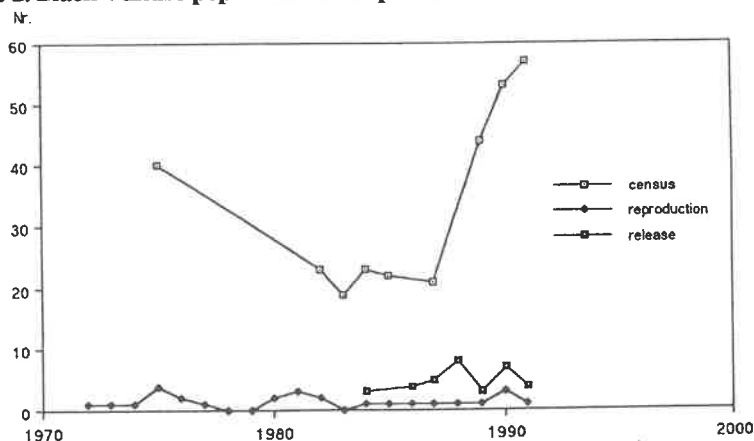
In view of the alarming situation in Europe, the Black Vulture Conservation Foundation was founded in 1986 with the aim of supporting endangered populations with captive-bred nestlings. At present the Foundation has four projects running (BVCF 1990, 1991, 1992)

1. The breeding project in collaboration with zoos and private breeders,
2. The recovery project in Mallorca, which is well advanced,
3. The recovery project in Greece in preparation,
4. The reintroduction of the species in France, starting this year.

The Mallorcan project

This is where most experience has been obtained. Local and foreign conservationists have been working for the species since the 1960s, when a decline was first noted (Thiollay 1967; Richford, Steward & Houston 1975; Mayol 1975, 1977). In 1983 the first official recovery programme was elaborated by the biologists of the Nature Conservation Section (SECONA) of the Balearic Government (Unid-d de Vida Silvestre, 1983). From 1986 on, a close collaboration started with the Foundation in the recovery programme. This included the restocking of the remaining population, which at that time was about 20-22 birds. Other management measures applied were additional feeding, population control, artificial nest construction, nest guarding in the breeding period and an education programme (Unidad de Vida Silvestre 1987). In 1991 the census showed about 57 birds (Unidad de Vida Silvestre 1991, see Fig. 2). The pre-determined population of over 50 birds had then been reached. It was decided to stop the releases and to wait and see how the doubled population would respond with natural reproduction. The Recovery Programme is now replaced by a Conservation Programme which is continuing with all other management measures.

Figure 2. Black Vulture population development in Mallorca.



In the release programme three different methods were applied: the first was in 1984 and 1986 and was not successful because the adaptation period of only three days before release was too short. The second ran from 1987-1991. A total of 14 vultures were released from an adaptation cage in the Mallorcan mountain range. The birds had an adaptation period of about four weeks near a feeding place where they had regular contact with the wild Black Vultures. As a third, parallel method, hacking was applied from 1988 to 1990. Eleven captive-bred nestlings from European zoos and one wild-born nestling were released.

A total of 33 Black Vultures have been released in eight years. From the first seven birds in 1984 and '86, two have been found dead, the others disappeared several days or weeks after their release. From the caged birds two disappeared within the first days. From the hacked birds one died five days after its arrival and one has been found dead one year after its release, probably poisoned; both

deaths were not due to the release method. Taking into account the observations within the first six months after release, we have a survival rate of 70% of the 33 released birds. The survival rate of the caged birds is 86% and that of the hacked birds is 92%.

All released birds have been marked individually. As marking techniques, plastic coloured rings together with wrap-around patagial wing tags were used in the cage release and coloured rings together with feather bleaching were used in the hacking. The persistence of the wing tags is very variable, between a few days and three years. The feathers bleached with hydrogen were recognizable after 1½-2 years. After moulting or losing the wing tags the birds can be identified by the coloured rings using a 60X telescope up to 300m and with binoculars with 10X magnification up to 75m. Comparing the results of bleached feathers with wing tags, the former have the advantage that they do not inconvenience the birds, cannot be lost and give surer information about the survival of the birds than the wing tags. With the latter you do not know whether the bird died or lost its marks when it disappeared. On the other hand, in some birds with longer-lasting wing tags, the development of the individuals can be followed during a longer period than with the bleaching marks.

The most interesting, as well most laborious, releases have been with the hacking. It was the first time the technique was used with this species. A pilot project started in 1988 with the release of three nestlings, one of which died a few days after. The other two birds developed well, fledged without problems, integrated themselves in the wild population and became independent from our feeding. After this success the hacking continued in 1989 with three and in 1990 with six nestlings. The individual data of the development of all nestlings are shown in Table 1. In 1991 poor breeding success in captivity prevented its continuation. The hacking method was in general applied as in the Reintroduction Project of the Bearded Vulture in the Alps (Frey & Bijleveld 1992). The released birds passed the following phases until they became full members of the population:

1. Parent-or fosterparent raising in a zoo.
2. Transport and introduction to the hacking nest site.
3. Adaptation period.
4. Exercise period.
5. Fledging period.
6. Postfledging period with gradual independence from the release site and integration in the population.

Hand-reared nestlings have not been accepted for hacking because of bad experiences with abnormal behaviour in the Bearded Vulture Project. In 1990 the first foster-parent reared nestling was raised in Zoo de Haye in France together with the true young of the parents. This also proved that caninism does not occur in this species. Both vultures have been successfully released.

In August and September, aged between two and three months, the nestlings were sent to Mallorca, where they needed to spend at least three weeks in an artificial nest before fledging, to become adapted and attached to the place. As the nestling stays without parents, social company is necessary, so at least two nestlings have to be put together. In 1989 the first nestling was left alone for ten days, because the second did not arrive as planned. Its loneliness was evident from its passivity and finally it started to eat less. The moment we obtained a companion bird for it, its behaviour changed completely, it became very active and ate well again. There were up to six nestlings together on the nest platform. Normally they lived together quite peacefully, only competing regularly for the best piece of food. In their social relations different degrees of sympathy could be recognized between individuals, and in one case antipathy.

Between seven and 28 days before fledging, the nestlings started exercising, including wingbeating, jumping and finally short flights on the nest platform.

The nestlings fledged at an age between 97 and 146 days, on average 117 days (see Table 2). One bird that fledged one month older (5 months) than the others (4 months), was introduced to the nest at an advanced age after having had a traumatic history: it was found below the nest in a Spanish colony, hand-reared in a recovery centre and sent to Mallorca already at fledging age (4 months). As the bird was tame, it was not planned to release it. After one week without contact with

Table 1. Individual data of nestlings released by hacking in Mallorca.

Name	Origin	Hatching date (days)	Release date	Age at Release	Fledging date	Age at Fledging	Days in nest
Pep	Son Reus (E)	10.5.1988	6.7	57	4.9	117	60
<i>Gaspard</i>	<i>De Haye (F)</i>	<i>12.5.1988</i>	<i>11.9</i>	<i>123</i>	-	-	6
Otto	Osnabrück (D)	16.6.1988	26.8	71	29.9	105	34
Colette	De Haye (F)	19.5.1989	19.8	92	8.9	112	20
Suso	Wild colony (E)	1st week of 5.1989	29.8	ca.120	24.9	ca.146	26
Kalev	Tallinn (USSR)	20.6.1989	1.10	103	19.10	121	18
Mohrli	Grünau (A)	ca.6.5.1990	1.8	ca.86	2.9	ca.118	32
Schönbrunn	Vienna (A)	8.5.1990	1.8	84	3.9	117	33
Valentina	Wassenaar (NL)	8.5.1990	5.8	89	1.9	116	27
Dominique	De Haye (F)	20.5.1990	9.8	81	10.9	114	33
Mulhouse	Mulhouse (F)	30.5.1990	9.8	71	4.9	97	26
Bernardí	La Garenne (CH)	12.5.1990	25.8	105	11.9	122	17

Table 2. Nestlings released by hacking in Mallorca.

	Age at Release (days)	Age at Fledging (days)	Days in Nest
Maximum	ca. 120	ca. 146	60
Minimum	71	97	17
Average	87	117	30
Considered optimal	80-90		25-35

humans, however, it showed quite normal social behaviour with the other vultures in the cage. At that time a companion for the lonely nestling was urgently needed and this older young was introduced and successfully released.

In the fledging period the birds began with several short, straight flights each day, trying not to lose height. They continued practicing circular flights, gaining height, landing and flying for longer periods every day. After three to ten days they were able to fly well and some days later started to join the wild birds on excursions to neighbouring valleys.

To facilitate the integration of the nestlings into the population, a feeding place was maintained in the release valley. First contacts with the wild birds had already been made when the wild vultures came to feed and rest near the release place, and sometimes also fed on the nest platform with the nestlings. After fledging these fed either on the nest or at the feeding place, in company with the wild vultures.

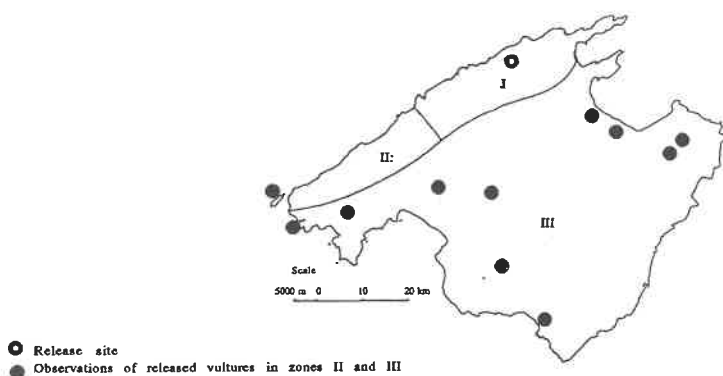
During the first weeks after fledging the youngsters slept in the release valley; later on they disappeared more and more often for some days from the release place to stay with the wild vultures. In December, two to two and a half months after fledging, they were considered to be integrated in the population. At the beginning of November the youngsters were observed to fly over the whole northern mountain range, Zone 1 of the Black Vulture distribution (see Fig. 3). Later on they used Zone 2 as well and on several occasions have also been seen in the Mallorcan plain, where the population used to feed on rabbits during the summer months.

Figure 3. Distribution in Mallorca.

Zone I: Northern mountain range: breeding and main foraging area.

Zone II: Southern mountain range: regular foraging

Zone III: Mallorcan plain: rare foraging



Observation of the nestlings was continuous until they could fly well and started to become independent of the release place. Now the first released nestlings are five years old and from next year on we hope they may start to reproduce. Some of the cage-released birds are already adult. A first sign of the integration of released vultures in the breeding population was observation of a copulation between a subadult vulture with plastic marks and an unmarked bird. The same bird has been observed at a nest but is not yet breeding. Breeding of the released vultures will be proof that the releases have been successful.

ACKNOWLEDGEMENTS

The project has been financed by the Balearic Government, the Frankfurt Zoological Society, WWF Austria, the Austrian Fund for Scientific Investigation (FWF) and the Veterinary University of Vienna. The releases would not have been possible without the help of the zoological gardens and recovery centres of Spain, which donated the captive-bred nestlings and recovered birds.

REFERENCES

- BEAMAN, M. & R.F. PORTER 1984.** Status of the Birds of Prey in Turkey. *Proc. II. World. Conf. on Birds of Prey*. Thessaloniki.
- BIJLEVELD, M. 1974.** *Birds of Prey in Europe*. London.
- BVCF 1990.** Annual Report 1989 (unpubl.).
- BVCF 1991.** Annual Report 1990 (unpubl.).
- BVCF 1992.** Annual Report 1991 (unpubl.).
- CRAMP, S. & K.E.L. SIMMONS 1980.** *Handbook of the Birds of Europe, the Middle East and North Africa*, Vol II, pp 89-95.
- FREY, H. & M. BIJLEVELD 1992.** The Reintroduction of the Bearded Vulture *Gypaetus barbatus aureus* (Hablitzl 1788) into the Alps (this volume).
- GLUTZ von BLOTZHEIM, BAUER & BEZZEL 1971.** *Handbuch der Vögel Mitteleuropas*, Bd. 4, pp 259-274.

- GONZÁLEZ, L.M. 1990.** Situación de las poblaciones de águila imperial y buitre negro en España. *Quercus* 58: 16-22.
- GRUBAC, B. 1990.** Situation actuelle des Vautours (Aegypinae) en Macedoine. *Proc. I Congreso Internacional sobre Aves Carroñeras*: 139-145.
- IANKOV, P. 1992.** Changes in Status of the Black Vulture *Aegypius monachus* in Bulgaria during 1980-1990 (this volume).
- MAYOL, J. 1975.** Un plan para la conservación del Buitre Negro, *Aegypius monachus*, en Mallorca. *Ardeola* 21 (esp): 1017-1028.
- MAYOL, J. 1977.** Contribución al conocimiento de Buitre Negro (*Aegypius monachus*), en Mallorca. *Bol. Soc. Hist. Nat. Baleares* 22: 150-178.
- RICHFORD, A.S., J.G. STEWARD & D.C. HOUSTON 1975.** The status of the Black Vulture (*Aegypius monachus*) in Mallorca. *Ardeola* 21 (esp): 225-243.
- TERRASSE, J.F. 1989.** Le Vautour moine (*Aegypius monachus*) appartient encore a la faune Française. *Alauda* 57,3, pp. 231-232.
- TEWES, E. 1990.** El Voltor (*Aegypius monachus*) a Europa, un pas endavant en la seva recuperació. *Anuari ornitológic de les Balears* 1990.
- THIOLLAY, J.M. 1967.** Observations sur le Faucon d'Eleonore (*Falco eleonorae*) et quelques autres rapaces des Balears. *Nos Oiseaux* 29, pp. 29-40.
- UNIDAD DE VIDA SILVESTRE 1983.** Programa de Conservación del Buitre Negro, Mallorca 1983.
- UNIDAD DE VIDA SILVESTRE 1987.** Programa de Recuperación del Buitre Negro, Mallorca 1988-90.
- UNIDAD DE VIDA SILVESTRE 1991.** Recompte de Voltors 1991.

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