

Veterinary Aspects of Bird of Prey Reproduction



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KEYWORDS

- Raptor • Bird of prey • Falcon • Aviculture • Veterinary • Reproduction
- Assisted reproduction • Insemination

KEY POINTS

- Reproductive failure is a common occurrence in raptor breeding projects; if a veterinary investigation is needed by a breeding project the practitioner should assess the complete avicultural facility and review its management.
- The adult breeding stock should be examined annually; projects should have isolation and health screening protocols established to screen incoming breeding stock for infectious diseases.
- Avicultural record keeping is a core component of managing a breeding program; closed-circuit television camera systems with playback are widely used to observe and manage breeding pairs.
- Assisted reproduction techniques, such as artificial insemination (AI), play a key role in raptor breeding; semen assessment is an important tool to assess the fertility of males that are used in AI programs.
- Any birds that have had issues with lowered or absent fertility during the preceding season require an evaluation of their reproductive tract; endoscopy is the most useful tool to investigate infertility.



Video content accompanies this article at <http://www.vetexotic.theclinics.com>.

BREEDING BIRDS OF PREY

Birds of prey are bred in captivity for many reasons including conservation of endangered species, commercial production of large falcon species, and hobby breeding

Disclosure Statement: T.A. Bailey worked at International Wildlife Consultants from 2011 to 2014 as head of the falcon breeding department exporting captive bred falcons to the Middle East. M. Lierz has nothing to disclose.

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Vet Clin Exot Anim 20 (2017) 455–483

<http://dx.doi.org/10.1016/j.cvex.2016.11.008>

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of a wide variety of species that are kept and flown by falconers and bird of prey keepers.

Captive breeding has contributed to the successful restoration of many species of birds of prey threatened with extinction including the Californian condor (*Gymnogyps californianus*), Mauritius kestrel (*Falco punctatus*), and peregrine falcon (*Falco peregrinus*).¹⁻³ The restoration of peregrine falcon populations by the Peregrine Fund (Boise, ID) made conservationists aware that captive breeding could be used as a tool for conservation. Avicultural techniques that have been pioneered by raptor breeders include double clutching, direct fostering, cross-fostering, hatch and switch, hacking, imprinting male and female falcons for semen collection, and artificial insemination (AI) techniques (**Table 1** for explanations).⁴⁻¹¹

Since the 1990s falcon breeding projects in the Middle East, Europe, and North America have used AI, egg-pulling from pairs, and artificial incubation to maximize number of offspring, breeding thousands of peregrines (*F peregrinus*), saker falcon (*Falco cherrug*), gyrfalcon (*Falco rusticolis*), and mixed species (so-called hybrid) falcons (usually gyr × peregrine or gyr × saker hybrids) for the lucrative Middle East falconry market (**Figs. 1** and **2**).

Falconry is popular as a field sport and for public displays in many countries and a wide range of species are bred by hobby breeders and falconry centers.

This article provides an overview of veterinary contributions that can maximize the reproductive success of raptor breeding projects.

EVALUATION OF BIRD OF PREY BREEDING FACILITIES

Veterinarians are often consulted when reproductive success is not as high as expected or for last ditch “fire brigade” medical intervention on sick falcons. It is interesting that despite the high value of large falcons most commercial projects have limited veterinary involvement. This along with commercial sensitivities and a culture of secrecy accounts for the paucity of veterinary information published from these projects.

Table 1	
Avicultural term explanations	
Term	Explanation
Double clutching	Removal (and artificial incubation) of the first clutch of eggs by a breeder so that the pair recycles and lays a second clutch of eggs.
Direct fostering	Placing an artificially hatched chick with a foster parent who is the biologic parent
Cross-fostering	Placing a chick with a foster parent who is not the biologic parent
Hatch and switch	Placing a chick that has hatched under its biologic mother with another parent
Hacking	A method used to release young captive bred raptors from trees or specially constructed towers. Birds are permitted to fly free for a period of time before being recaptured and before they begin hunting on their own and can live totally independently. Wildlife rehabilitators use this method to release injured raptors back into the wild. Falconers use this method to develop the flying skills of their birds.
Imprinting	The learning mechanism that occurs during a specific sensitive period, after hatching until about the 14th day in raptors, which establishes a long-lasting behavioral response to a specific individual or object. Falcon chicks used for breeding using semen collection or artificial insemination are imprinted on human handlers as future sexual partner.

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