

## Some Ideas Concerning the Breeding of Peregrines in Captivity

by

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In view of the urgent need to increase the supply of Peregrines for falconry and because of a diminishing number of wild Peregrines, a practical means of causing Peregrines to produce young in captivity is of great importance. With only a few exceptions attempts to breed Peregrines have failed. In the following I have outlined a series of procedures that I am certain will go far in producing the desired end, i.e., the establishment of a self-sustaining domestic strain of Peregrine Falcons.

First some general comments. Peregrines in the wild are aggressive breeders. This means that the phenomena leading to the production of young are not passive operations but powerful behavioral and physiological reactions to environmental stimuli. The basis of these reactions is genetic; the series of events that results in the production of young is written on the genes of each living Peregrine. The role of the would-be Peregrine breeder is to allow that genetic information to be expressed.

The "simplest" way to do this is to provide exactly the series of conditions to which the bird's genetic information has become evolutionarily adjusted, in short, allow the bird to reproduce in the wild. In lieu of that, the breeder must provide an environment for the birds that is consistent with the genetic information that says "make new Peregrines." To do this one must have the keenest insight as to just precisely what a Peregrine is, in the biological sense.

In order to achieve this understanding the best place to start is at a point free of any suppositions regarding what Peregrines "would like" in the way of captive conditions. We must stop thinking along the lines of what would seem "desirable" to them, and instead provide conditions that will make reproduction an imperative, as it is in wild birds. This means that the fault is not with birds that do not breed, but with the conditions that obtain in their captivity.

How does one provide the conditions which will allow the genetic information of the species to do what it has done over a thousand thousand generations, making it an imperative to reproduce? Simply provide, so far as possible, the environmental situations with which that genetic information has come to terms.

Light. Change in photoperiod (length of day and night) is the trigger and the timer of the reproductive cycle of many vertebrates, especially birds. The breeder must provide light conditions to which the bird's genetic information has become evolutionarily adapted. Beebe's and Kendall's encouraging results may well be due to the fact that they are working with races of birds that would

normally reproduce under the natural light conditions in the region of their captivity. Fyfe has had little response from tundra Peregrines in New Brunswick. Under natural light, the annual photoperiod changes at New Brunswick are vastly unlike those to which tundra birds are adapted. Tundra birds winter in a near 12-hour photoperiod. In mid-April they fly into a near 24-hour photoperiod in two to three weeks or less. In short, arctic Peregrines are seldom exposed to less than 12 hour days and spend a good deal of time in continuous light. Further, the change from 12-hour days to continuous daylight as they race northward may well trigger the necessary hormonal changes.

The breeder should expose his birds to at least the same photoperiods that they would experience in the wild. At the critical time in the spring one might use extra long days as a lever to stimulate physiological development. Natural light may well be best. Incandescent bulbs of 40 watts (15 hr. photoperiod) will bring sparrow testes to full size in the fall, when the birds are kept in a four-foot square cage. Two 250 watt bulbs should stimulate changes in Peregrines in an eight by ten foot room. Someone should try a spring transition to a 24-hr. photoperiod in even Peale's Falcons or Prairie Falcons.

Breeding Quarters. To contain a Peregrine in a room is unnatural, but this cannot be overcome. At any rate, natural light should enter through large openings not covered with glass. Screened sections in the roof would be good, with some provision for covering these in severe winter weather only. In the wild, copulation is the result of mutual triggering by both birds. The approach of the male to the perch of the female causes her to crouch; this in turn releases mounting behavior on the part of the male. Perches should be available that allow plenty of head-room and "wing-room" for these activities. The nest ledge should be roomy; Peregrines in the wild almost always choose sites that are more roomy than those selected by the Prairies. A ledge at least three feet square may be none too big. Some sort of covered ledge, darkened at the rear, might provide added stimulus. A large drum, open at one end and mounted by its base might prove satisfactory with gravel or sod added. A bath should be present, perhaps with a trickle of running water.

Food. Peregrines eat a variety of prey in the wild and one cannot err in providing variety in captivity. Six-week-old chicks make a good and inexpensive food. Pigeons, beef heart, horse meat, and occasional road-killed animals are good too. Twenty pairs of white mice, set up in a colony can provide four to six mice a day at low cost. These mice, homogenized without skin or large intestine can provide an ideal food for very young eyasses. Whenever possible, the male Peregrine should be allowed to kill food animals provided. Every game-hawker knows that the process of killing prey has a noticeable effect on the behavior of the bird for several minutes after the kill. The person in charge creates an unnatural situation when he feeds the male; the female should feed herself or be fed by the male.

Other. All unnecessary disturbance should be kept to a minimum. I do not think that it is impossible to induce passage birds to breed if the quarters are large and disturbance small. A room with no windows, only large open roof sections might work best for both intermewed eyass and passage hawks. All perches should be padded with foam rubber and covered with rubberized nylon fabric. Several of us, including Stabler and Berthrong, feel strongly that captivity creates increased stress on the feet. Padded perches simply distribute the weight and prevent corns that are precursors of bumblefoot. In my opinion, no person who has inquired as to the nature of the perch used by birds with bumblefoot can objectively argue for the use of hard perches.

It seems to me that Raptor Research Foundation should quickly organize three or four operative units made up of people in different regions interested and capable of putting a great deal of time and effort into the project. Each unit might explore different alternatives to various problems. A catalog of the various adult birds now in captivity and available for pairing should be made, and a list of expected recruits drawn up. By December people in charge of the units should see to it that the facilities of their units are inhabited by pairs of Peregrines being kept under proper conditions. Raptor Research Foundation might set down certain guidelines for the operation, objectives, and responsibilities of each unit. The impetus for this action should come from the possibility that within a very few years these opportunities will be lost.

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A Preliminary Summary of a Peregrine and Prairie Falcon  
Survey in the Southern Interior of B. C.

by

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Since 1950, many populations of the Peregrine Falcon have shown dramatic reductions in breeding success and breeding distribution. Considerable evidence has been gathered in Europe, especially in Britain, concerning the relationships between the use of biocides and the disappearance of the Peregrine and the European Sparrowhawk. In North America, the Bald Eagle and Osprey of the eastern parts of the continent have been, and still are being studied in detail, and the effect of biocides is very strongly suspected as being the prime factor in the widespread declines in their numbers.

In eastern North America, the distribution of the Peregrine was surveyed by Hickey (1942), and a western survey was conducted by Bond (1946). Considerable numbers of breeding pairs were reported in both these articles. When considering B.C. Peregrines, Bond discussed the west coast Peale's subspecies but only briefly mentioned