

A PILOT PROJECT TO INCREASE THE REPRODUCTIVITY OF PEREGRINE FALCONS IN THE WILD BY ARTIFICIAL MEANS

by
John J. Lejeune
Peregrine Park
Hope, British Columbia, Canada

The purpose of this proposed study is to gather information on the possibility of increasing the productivity of a wild pair of Peregrines by 50-100% in one season. I propose to obtain this information by the following methods.

(1) To locate a Peregrine eyrie characterized by easy accessibility and abundant food species,

(2) To collect the entire clutch of this pair at the earliest possible date after completion,

(3) To incubate these eggs artificially while the second clutch is incubated and raised by the parent birds, and

(4) To raise the young of the first clutch artificially.

Secondarily, it is also possible theoretically to obtain more data on the breeding ecology of the Peregrine.

Discussion. Most authors dealing with the biology of the Peregrine Falcon state that this bird, more readily than any other raptor, produces a second and even third clutch of eggs if the former clutch is lost. Bent (1938) states that only one brood is raised in a season, but if the eggs are taken, the birds will lay a second, or even third, set. Herbert and Herbert (1965) found one female on the Hudson River in 1950 and 1951 laying four (sometimes incomplete) sets.

It is true of course that Peregrines can best be counted on to renest if their first clutch is lost at an early stage of incubation (Hickey 1942, Mebs 1960, and Ratcliffe, in lit.). Greene (1916; see Beebe 1960:162) visited the Queen Charlottes specifically for the purpose of collecting eggs and noted: "when the completed clutch is taken, before incubation begins, the bird begins her fresh set close by the first in about ten days, but if incubation is advanced it will be more like weeks before the new set is laid."

It is my opinion that we can make use and increase the

number of young of a given pair of Peregrines simply by taking the entire clutch of the same at the earliest possible stage and incubating them artificially while the pair will lay and raise a second clutch naturally.

The eyrie chosen for this purpose has to have two characteristics. The first is easy accessibility to insure a safe transport of the eggs in a portable incubator. Also, as it is not necessary to spend much time on the eyrie, the adult birds will be as little disturbed as possible. The second necessity will be an abundance in prey species; this makes the possibility of a second clutch greater and also seems to guarantee a good clutch size. Cade (1960), referring to clutch size, says: "For peregrines this number is clearly dependent upon the density of their prey species or at least upon the availability of prey."

After bringing the eggs in a portable incubator to the final site they should be incubated and hatched under Bantam hens, as hatching of raptorial eggs in incubators has not been 100% successful. As I have raised a Peregrine (*F. peregrinus tundrius*) from an egg, and have kept a proper record of heat and food requirements, there should be no problems after hatching.

Wildlife biologists have developed a method of increasing the total reproduction of Whooping Cranes (*Grus americana*) by removing one of the usually two eggs from the nests, as in nature generally only one young is raised. This procedure would not increase Peregrine reproduction, as these birds raise generally more than one young and only the removal of the total clutch would stimulate the adult birds to lay again.

Conclusion. In populated areas of North America the Peregrine has drastically decreased supposedly due to DDT contamination or other causes. It is my opinion that the discussed method can in two seasons be perfected to increase the reproduction of remnant populations considerably above their natural ability. It could also be used to obtain young birds for scientific or recreational purpose without decimating the natural reproductivity of a Peregrine population.

Several government institutions such as the Pesticide Department of the Canadian Wildlife Service in Edmonton, Alberta, Cornell University, and Patuxent Wildlife Research Center are at present actively engaged in attempting to repro-

duce the Peregrine Falcon domestically. However despite the cost of several hundred thousand dollars of public money for buildings and the care for birds alone these institutions have so far not produced a single young Peregrine. I therefore think that the above explained method is by far more economic, as long as the domestic production of Peregrines is not possible on a broad basis and despite some true successes by individual members of Raptor Research Foundation, I still think that consistent success will not be possible for at least ten years.

It is well known that the Peale's Peregrine, as most other birds, contains various amounts of DDT, and as a certain percentage of this is getting flushed out of the parent bird with the egg, a second clutch should have a lower DDT contamination and a better hatching success. Presst and Ratcliffe (1970) indicate in relation to egg shell thickness and DDT contamination: "Other species with decreased shell thickness and egg breakage still fledge young because they lay repeat clutches which are successful." The only fledged young of a pair of Peregrines in Alberta, where this species has drastically declined, were raised in 1970 by a pair that lost its first clutch of four eggs and renested, laying a second clutch of four and raising three young successfully (Fyfe and Hodson 1970).

The only danger of the project lies in the abandoning of the eyrie site by the parent birds but this seems to be very unlikely as at least most reports in the literature, some by the world's foremost authorities on Peregrines, speak against it. The reproduction of deserting pairs would however not be entirely lost; it would merely depend on the outcome of the first taken clutch.

Until the method has proven to be at least partially successful to the extent that the parent birds have raised a second clutch and/or the first clutch was raised without loss artificially, it should only be applied to a very limited number of eyries, perhaps one or two.

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