

ARE NORTHERN RAPTOR POPULATIONS SIGNALLING A NEW COLLAPSE?

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Sitting as they are at the top of the food-chain, birds of prey are recognized as powerful indicator species of ecosystem health. The demise of the Peregrine Falcon in the 1960's was the impetus that initiated population monitoring of several raptor species and has now resulted in valuable long-term databases at several locations across Canada. In the Yukon Territory a 30-year series of population data exists for five key species maintained at Yukon College as part of its 'Biodiversity Assessment and Monitoring Project'.

By 2000, survey of the Yukon's Peregrine Falcon nesting populations (carried out in part for the 5-year periodic Canadian national monitoring survey as stipulated in the Canadian Peregrine Recovery Plan (1988)), suggested a possible 'collapse' in productivity (Mossop, 2000). As a result, a follow-up survey was conducted in 2001 on a sub-set of the Territory-wide survey. The objective was to make more intensive single visits to the nesting sites in the core of the best-known populations. The overall objective was to commence a more detailed data collection that hopefully can be used to shed light on environmental effects on productivity that may not be readily obvious from the cursory 'every 5-year' survey.

Basically the 2001 findings agreed quite closely with the 2000 conclusions. At about 20% of sites there was no evidence of breeding adults at all. This occupancy rate is the same as in 2000 and about 6% below the long-term average.

The production of young meanwhile, continues to give more concern. As in 2000, just about exactly 60% of sites showed no young. (Of occupied sites: 50% produced).

Our preliminary results seem to suggest a correlation with the "age" of the site. It seemed to be mostly the sites (and perhaps pairs) that have been part of the population the longest that are showing productivity problems. If this implies older adults -- and a possible building concentration of some chemical pesticide -- this could be of grave

concern, mirroring the disaster of the '60s. A secondary suggestion is correlated more with the age of the young in the nests. We think we are finding later nesting generally and much less healthy young in nests with very late hatch dates. (Although this conclusion is based on very small numbers and will be an integral part of our future monitoring.)

Meanwhile, though overall production of the Yukon Peregrine population may not be in a catastrophic "collapse" there are other troubling signs. Chief among these is the findings of others monitoring *anatum* Peregrines in the northern limits of their range. In Labrador, survey suggest a decline of almost 80% in the last three years (Brazil, 2001). As well in the Yukon over the last 5 years there has been an 80% decline in occupancy of nest boxes by American Kestrels, perhaps broadening the concern to raptors in general.

If we are seeing (and we think we are) the beginnings of trouble, it is imperative that monitoring vigilance continue. The 2001 survey was carried out because of the fear that the Peregrine is once more 'telling us something sinister' about the environment. We know from the past that they are definitely "in harm's way" where environmental pesticides are concerned, there is excellent evidence they will perhaps also serve as "whistle-blowers" for things like climate change. Given the excellent long-term database for the species, a strong pitch is being made in the Yukon, to continue monitoring its performance and to assign this research to graduate-level scholarly attention. A partnership between Yukon College and the University of Northern B.C. has been struck to begin that work.

LITERATURE CITED:

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Table 1. Summary, 2001 Peregrine Falcon Survey, Yukon Territory

Sub population		no. checked	no. occupied	no. productive	yn/productive yn/terr. pair
Yukon River	2001:	47	37 (77%)	17 (35.4%)	2.4 ± 0.9
	In 2000:	53	43 (81%)	22 (41.5%)	3.1 ± 1.0
Peel River	2001:	8	7 (88%)	5 (62%)	?
(whole Peel)	In 2000:	31	22 (70%)	12 (39%)	1.2 ± 0.6
TOTAL	In 2001:	55	44 (80%)	22 (40%)	2.4 ± 0.9
	In 2000:	84	65 (77%)	34 (41%)	2.3 ± 1.5

Figure 1: Apparent decline in productivity of Yukon Peregrine Falcons over the last 10 Years. (The percentage of pairs checked that had young to approximately fledging age.)

