

# The 2000 Ontario Peregrine Falcon Survey

Brian Ratcliff and Ted Armstrong

## Introduction

The American or *anatum* Peregrine Falcon was declared an endangered species in Ontario in 1977. Since that time, Ontario has worked as a member of the National Recovery Team and with a number of partners to recover the species in the province. While initial recovery efforts were focussed on the release of captive-reared young to re-establish a breeding population, population monitoring has also been a priority. The monitoring of nesting sites and population trends has become increasingly important as population recovery has proceeded.

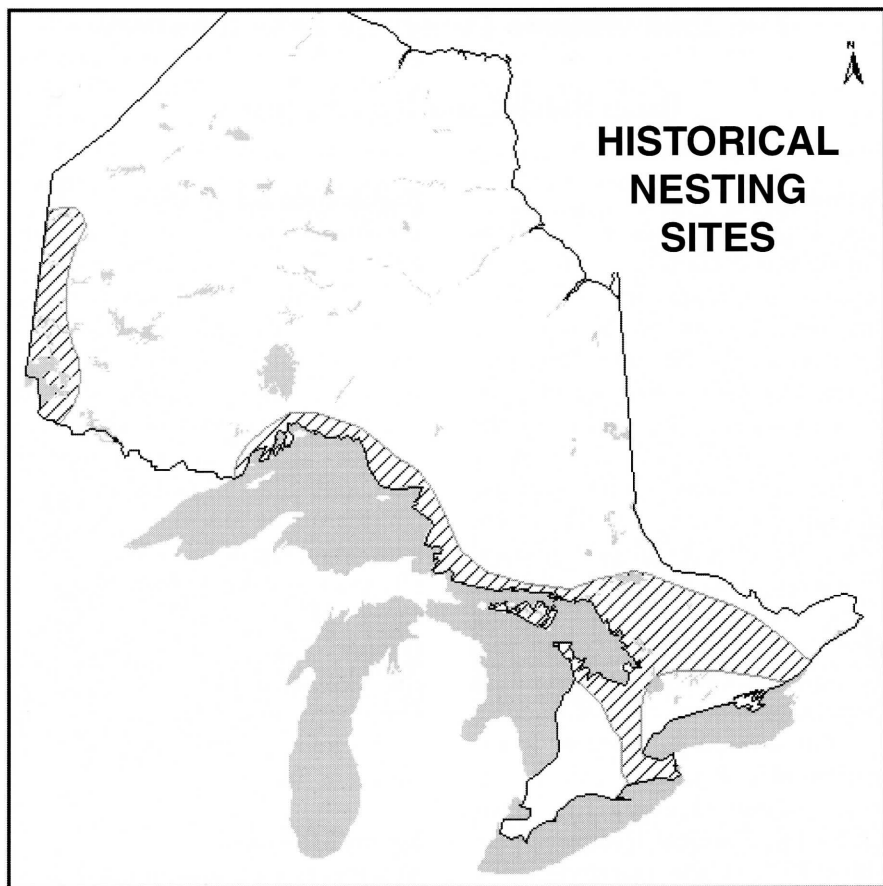
Ontario has participated in the nation-wide Peregrine Falcon surveys conducted every five years under the National Recovery Plan since 1970 (Cade and Fyfe 1970, Fyfe et al. 1976, Murphy 1990, White et al. 1990, Holroyd and Banasch 1996, Rowell et al. *in press*, Banasch *in prep.*). Survey methods and coverage within Ontario have varied somewhat from survey to survey, but the objective has always been to obtain as complete and comprehensive a view as possible of the status of Peregrine Falcons nesting within the province. This paper reports on the results of the provincial Peregrine Falcon survey in 2000.

## Background Information

Historical data on Peregrine Falcons in Ontario were used to help plan the 2000 survey (Greene 1978, Ratcliff and Armstrong *in prep.*). From an analysis of all documented historical nesting sites in Ontario (1848–1964), 40 sites were considered as confirmed nesting sites, and an additional 8 sites were considered as suspected breeding sites. Mapping of these sites generally portrays the known historical range of peregrines in Ontario (Figure 1), although it is likely that the historical range in northern Ontario is under-represented due to sporadic and incomplete investigation in the past.

## Survey Methods

Volunteers, naturalist organizations and Ontario Ministry of Natural Resources (OMNR) staff were mobilized to monitor historical nesting sites and other potential habitat, and to report possible sightings of nesting activity. The survey was profiled and participation was solicited through a variety of websites, publications and media reports, including ONTBIRDS. A variety of survey methods was used, including ground monitoring of known and potential nesting sites (both urban and cliff), boat surveys,



**Figure 1: General range of documented historical Peregrine Falcon nesting in Ontario (1848-1964), adapted from Ratcliff and Armstrong (*in prep.*).**

and helicopter surveys. Helicopters were used to survey high potential and historical nesting habitat in areas where there was poor access or a limited number of ground surveyors, based upon a technique which was pioneered in Labrador (Jackson 1990).

Identification of high priority sites to be surveyed was based on current and historical nesting sta-

tus, identification of high potential sites and reported but unconfirmed sites. In descending order of priority, the following areas were selected for surveying: known, currently active nest sites (i.e., 1995+); suspected active nest sites (i.e., 1995+), based upon recent unconfirmed but probable reports; documented historical nesting sites where re-occupancy has not been documented

since population recovery began; and sites containing habitat with high potential, but where peregrine nesting has never been reported or suspected.

Nesting was documented by the highest category of confirmed nesting activity, ranging in descending order from a confirmed nesting attempt, to a territorial pair, to an occupied territory (single adult).

Young were banded by banding teams at nest sites in urban southern Ontario (led by Pud Hunter, OMNR, Aylmer) and in the western Lake Superior basin (led by Brian Ratcliff). Attempts were made to identify the origin of nesting adult peregrines by looking for and identifying band numbers and colours. Red-banded and red/black-banded birds were released in Canada and the U.S., respectively; black-banded birds were wild-reared birds from Canada banded in the nest; and unbanded birds were considered wild-reared birds of unknown origin.

Prey remains were collected at nest sites during banding, and identified as to species.

## Results

There was a total of 53 confirmed sites with reported peregrine activity in the province during the 2000 Survey, comprising 42 territorial pairs and 11 occupied territories (see Table 1 and Figure 2). There has been a dramatic increase in the number of occupied territories in Ontario over the past 30 years, with

the greatest rate of increase occurring between 1995 and 2000 (Figure 3). Occupied territories were distributed across both northern (38) and southern (15) Ontario, with 31 (59%) of these sites being located within the Lake Superior basin.

A minimum of 68 young was known to have fledged from the 53 sites. Because productivity was not determined for all territories, average productivity may be more precisely described as follows: 1.62 young fledged per territorial pair ( $n=42$ ); 2.19 young fledged per nest attempt ( $n=31$ ); and 2.62 young fledged per known successful nest ( $n=26$ ).

Of the 42 territorial pairs, 32 (76%) were using cliff sites, 8 (19%) were on buildings, 1 (2%) was on a bridge and 1 (2%) was on a smoke-stack. The additional 11 occupied territories represented 7 cliff sites and 4 buildings.

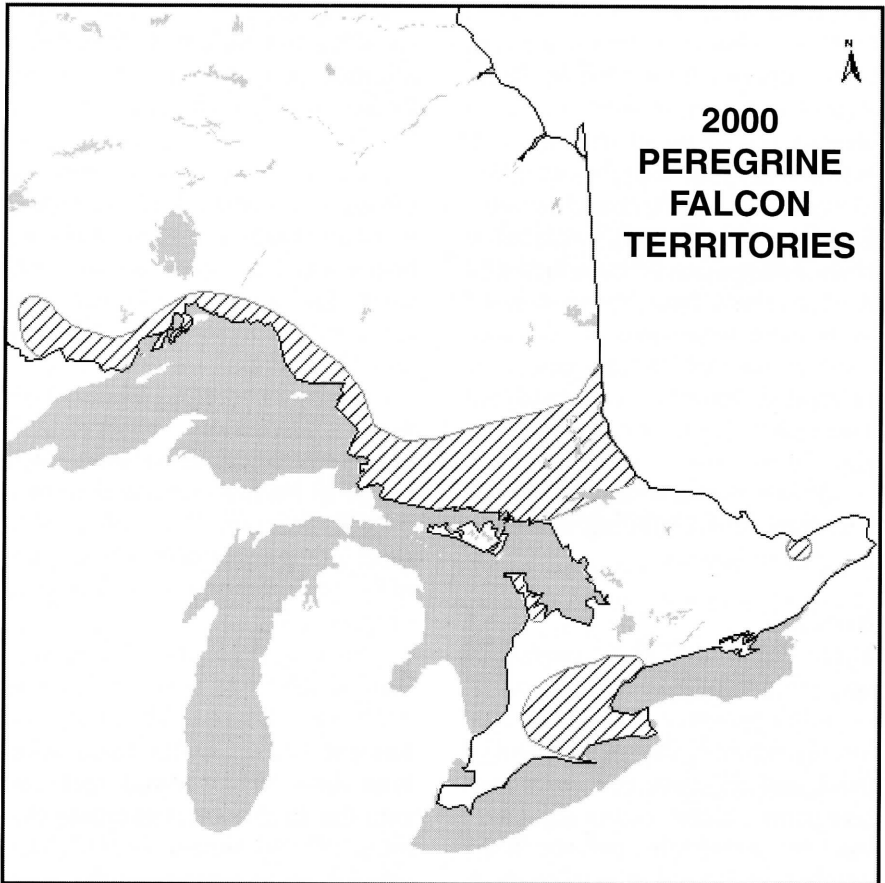
Of the 33 breeding adults which were individually observed, 8 (24%) were identified from their bands as having originated from a release program. The other 76% were either unbanded or had originally been banded as young in a natural nest.

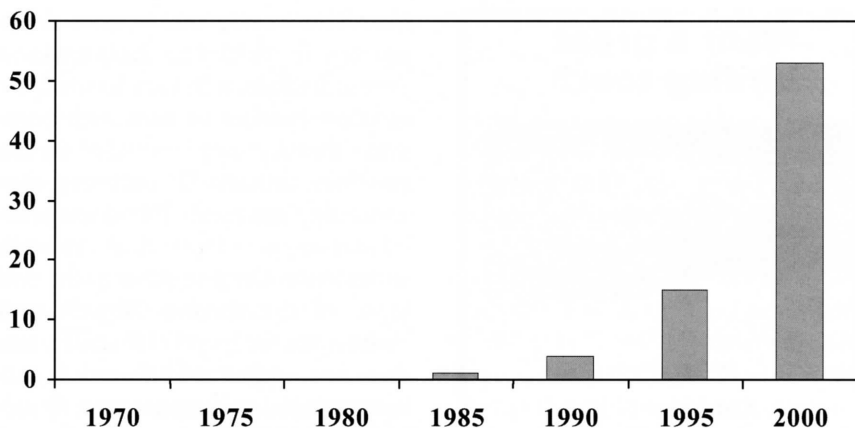
Sixteen peregrine chicks were banded at urban nests in Toronto, Etobicoke, Ottawa, Hamilton and London, and an additional 27 peregrine chicks were banded at cliff nesting sites in western Lake Superior. Since 1995, banders in Ontario have banded 64 peregrine chicks from urban nests, 117 chicks from cliff

**Table 1: Summary results of the 2000 Peregrine Falcon survey in Ontario.**

Breeding status	Number of sites	Nesting site type		Number of young
		Urban	Cliff	
Confirmed nesting	31	8	23	68
Territorial pairs*	11	3	8	
Occupied territories	11	4	7	
Total	53	15	38	68

\*Two of the territorial pairs were recorded as territorial pairs in Ontario but were successfully nesting in New York and Michigan. Both of these pairs utilized significant portions of Ontario as their hunting territories. These birds are not included in calculations of the number of nest attempts, successful nests or young fledged.

**Figure 2: General range of confirmed Peregrine Falcon nests and territories, 2000.**



**Figure 3: Trends in the number of Peregrine Falcon territories in Ontario during progressive 5-year surveys, 1970-2000.**

nest, and 2 rehabilitated birds as part of the monitoring program.

The analysis of collected prey remains from 13 nests revealed a total of 21 species of birds in 2000. Rock Doves (*Columba livia*) were the most common prey items identified from 8 of the 10 cliff nests and all 3 urban sites. At the cliff sites, Ring-billed Gull (*Larus delawarensis*), Cedar Waxwing (*Bombycilla cedrorum*) and Northern Flicker (*Colaptes auratus*) were the next most common species identified, while at urban sites, European Starling (*Sturnus vulgaris*) and Blue Jay (*Cyanocitta cristata*) were the next most common species.

### Discussion

The initial objective of the *anatum* Peregrine Falcon Recovery Plan was to establish in southern Ontario, by 1997, a minimum of 10 territorial *anatum* pairs naturally

fledging 15 or more young annually, measured in a five-year average commencing in 1993 (Erickson et al. 1988). The population objective was reached in 1997, and by 2000 the population was more than four times the 10 pair minimum and the productivity objective had also been surpassed. However, these original Recovery Plan objectives were minimum targets set at a time when there were virtually no peregrines nesting anywhere in eastern North America, and were not intended to reflect a target for population recovery.

There has clearly been a significant and progressive increase in Ontario's Peregrine Falcon population over the past 20 years, with more than a three-fold increase from the 15 sites located during the last provincial survey in 1995. The actual increase may be less than this, as some of the sites located in 2000

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may have been active but not documented in 1995. The 2000 Ontario Peregrine Falcon Survey located the greatest number of sites with peregrine activity ever recorded in the province, with the 53 confirmed sites exceeding the total of 48 documented and suspected historical sites ever recorded in Ontario prior to the collapse of the species (Ratcliff and Armstrong *in prep.*). However, this does not suggest that Ontario's current population is higher than historical levels, due to the sporadic and incomplete nature of earlier surveys of historic nesting sites.

There are two distinct populations of peregrines throughout the province: those nesting on cliff sites, primarily in northern Ontario (38); and those nesting in urban sites, solely in southern Ontario (15). The range distribution of sites across northern Ontario is very broad, with birds being located from the Atikokan area east to the Ottawa River, roughly approximating the known historical distribution. The known range in northeastern Ontario was extended northward with the location of new sites in 2000. Territories were distributed across the Great Lakes portion of the province, although a high proportion of the provincial population (31 of 53 sites) continued to be centred within the Lake Superior basin. The recolonization of the Lake Superior basin and the continued increase in the colonization of southern urban centres have been very encouraging. However, much

of the core historical range in southern and eastern Ontario, where most of the historical nest records originated, has still not been reoccupied. Only one cliff nest was located in southern Ontario (i.e., south of the French-Mattawa Rivers).

The continued increase in the number of nesting sites and territorial pairs is very positive. More breeding pairs were identified during this survey than in any previous year in Ontario, and a record number of chicks was known to have fledged in 2000. The 68 young that were known to have been produced from the 26 successful nests in 2000 exceeded the highest number of young released during the peak of the recovery program (54 in 1993) in Ontario (OMNR data). In the Midwest U.S., productivity in 2000 averaged 1.8 young fledged per territorial pair, 2.2 young/nest attempt, and 2.8 young/successful nest (Tordoff et al. 2000). This is very comparable to the 2000 observed productivity in Ontario of 1.6, 2.2 and 2.6, respectively.

An analysis of prey remains indicates that Peregrine Falcons in Ontario follow a similar pattern to peregrines elsewhere, feeding upon a wide diversity of avian species but with a few species accounting for the majority of the diet (Hunter et al. 1988). While 21 species were preyed upon, it is interesting that Rock Doves were by far the most commonly recorded prey species at both urban and cliff sites.

There has also been an immigration into Ontario of both released and wild-reared birds from outside of the province. Some of these birds have been nesting in Ontario since the mid-1990s and have contributed significantly to local populations. There was also a significant number of naturally-reared birds observed at nest sites in 2000 (76% of all known-origin adults); these birds were either unbanded or banded as young in a natural nest. These birds represent at least second-generation falcons, and provide further indication that the population is recovering and is not unduly reliant on the continued introduction of captive-reared birds.

The total number of Peregrine Falcons breeding in Ontario is still very small, but the population is clearly growing, reoccupying historical cliff range and colonizing new urban habitat. Although it remains an endangered species in Ontario, the Peregrine Falcon continues to show encouraging signs of population recovery. With continuing recruitment of breeding birds from within Ontario and elsewhere, the recovery is expected to continue.

### **Acknowledgements**

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Brian Ratcliff, Ontario Ministry of Natural Resources, 435 James St. South, Suite 221, Thunder Bay, Ontario P7E 6S8 (Current address: R.R. 12, Dog Lake Road, Thunder Bay, Ontario P7B 5E3)

Ted Armstrong, Ontario Ministry of Natural Resources, 435 James St. S., Suite 221, Thunder Bay, Ontario P7E 6S8