



## “Diet of Peregrine Falcons”

The moderators have done an inspiring job in 2024 contributing data and collating as much evidence of species taken as prey items to this nest as possible. My thanks to all of those who have assisted in this project. I thought it might be timely to highlight an earlier study of prey species at this site and a second study looking into variation of prey species across a gradient of urbanisation from natural “forested” to highly urbanised. Then finally to present a summary of the data collected via the livestream over the years 2020 to ‘24.

### The diet of Peregrine Falcons

As with most Peregrine Falcon diet studies around the world nearly all of the prey species taken are birds. Peregrine Falcons have evolved to take live birds whilst flying but there are a tiny proportion of observations of different prey species including insects, mammals, reptiles and even fish that have been taken and delivered to the nest as prey items. Some of these will be “pirated” from other raptors that were carrying these items to their own nests. Some were actively hunted by the resident Peregrine Falcons. Overall these are very rare exceptions to the general Peregrine Falcon motto:

*“It flies. It’s on the menu!”*

Like all predators, Peregrine Falcons will adapt to the local availability of prey species. Novel prey items such as aviary escapees will readily be taken in part because they stand out as being different and their naivety or lack of “street cred” will get them into trouble. And that right quick!

### The diet of Peregrine Falcons at 367 Collins - 1994

For historical reference the first study to investigate the prey species brought to the nest ledge at 367 Collins was conducted in 1994 (Cogley, 1995). This identified delivered prey to 17 species with natives accounting for 65% of the prey species. However, only 15% items brought to the nest were identifiable. All identifiable prey items were birds (Figure 1).



**Figure 1.** Prey items delivered to an active Peregrine Falcon nest at 367 Collins St, Melbourne to feed nestlings in Spring 1994. Introduced species are in shades of grey and native species are shades of green (Source data from: Cogley, 1995).

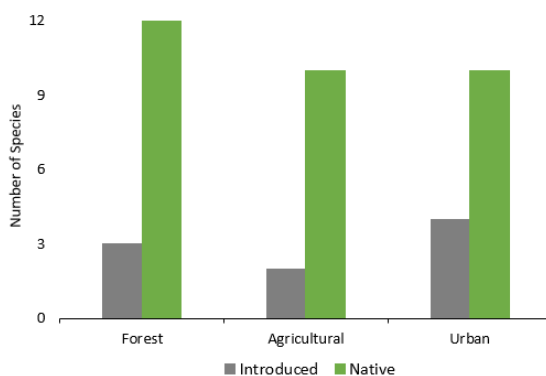


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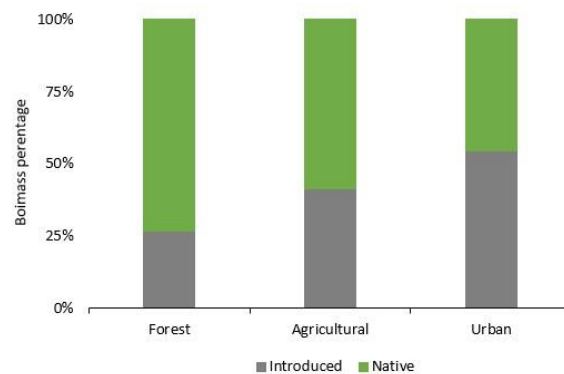
### Diet across an urban gradient

If native species account for 15% of the range of species in this one study, it is worthwhile investigating whether the landscape context of the nest territory influences the range of prey species being taken. A second study in 2010-11 (MacKinnon 2011) involved the collection of prey items collected from 53 active nest sites late in the nesting period. These resulted in the collection of 1,506 prey items covering 67 species 59 (88%) native and 6 introduced bird species. A further two mammal species were identified involving limited samples of European Rabbit (2) and House Mouse (1). Because of these insignificant numbers these three records are excluded from the following summaries.

The proportion of introduced bird species brought to an active Peregrine Falcon nest compared with native species and how the number of these is influenced by the landscape context is summarised by three very broad land-use categories (Forest, Agricultural and Urban). The trend is for the number of native bird species to decrease with increased urbanisation in the landscape and the number of introduced species to increase (Figure 2). The trend in the biomass contribution of native versus introduced species suggests that Peregrine Falcons at urban nest sites take many more individuals of introduced species than native species (Figure 3).



**Figure 2.** Diversity of prey species (native vs introduced) brought to active Peregrine Falcon nest sites across an urban gradient. (Source data from MacKinnon, 2011).



**Figure 3.** Relative biomass contribution of native vs introduced species brought to an active Peregrine Falcon nest sites across an urban gradient. (Source data from MacKinnon, 2011).

### Summary

Peregrine Falcons generally take species that are more common within their nest territory more often than those species that are less common. Hence they take more individuals of introduced species in more urbanised environments than they do in more natural environments. Within Melbourne’s CBD despite its generous amounts of “green space”, introduced bird species tend to be in greater abundance and taken more often than are native bird species. This has been confirmed in two studies 16 years apart.

Another key finding, distinguishing feature of these two studies, is the greater diversity of prey items identified to species when collecting feather and bone remains when compared to using video footage alone. So the figures presented below for the 2020-2024 seasons identified across the four years 24 species although for each year the numbers are similar to (13 in 2020, 15 in 2021, 12 in 2022 and 10 in 2024) but not as high as in the original study in 1994 (17).



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### The diet of Peregrine Falcons at 367 Collins – 2020-24

The years (2020-23) have all been subject to La Niña events with increasing levels of rain with each successive year. Melbourne has had ~20% less rain (to date) than these previous years. The citizen science project involved collecting observations of prey brought into the nest ledge and identifying each item to species level where possible (Table 1). This data provides a broad sense of the diversity of prey being brought into the nest during the breeding season. Consistent with the more detailed studies above a rough look over the recent raw data suggests introduced species especially Rock Doves (pigeons) make up the bulk of the biomass being brought into this most urban of nest sites.

**Table 1.** Diversity of prey species brought to an active Peregrine Falcon nest at 367 Collins St, Melbourne to feed nestlings in the springs of 2020-24. Introduced species are in shades of grey and native species are shades of other colours (Source data from the 367 Collins falcon Watchers FB group)

Summary species list	2020	2021	2022	2024
Australian Magpie		Native		
Australasian Grebe				Native
Bar-tailed Godwit		Native		
Black-faced Cuckoo-shrike		Native		
Brown-headed Honeyeater			Native	
Buff-banded Rail		Native		Native
Dusky Woodswallow	Native			
Grey fantail			Native	
Magpie-lark	Native		Native	
Musk Lorikeet	Native			
New Holland Honeyeater		Native		
Quail		Native		Native
Rainbow Lorrikeet		Native		
Scarlet Honeyeater		Native		
Silvereeye		Native		Native
Spotted Pardalote		Native		
Sulphur-crested Cockatoo			Native	
Wattlebird		Native		
Wader (unidentified)		Native		
Common Mynah		Introduced		
European Starling		Introduced		
House sparrow		Introduced		
Pigeon/Rock Dove		Introduced		
Spotted Dove		Introduced		



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### Frequency of prey delivery

A reference was made in a previous FFS that the number of prey deliveries drops off in the week or more before fledging. A result of this is the young start to lose weight which means the wing loading they have to overcome is reduced. It also must serve as an inducement to fly to gain access to more food. Because the young see the adults bringing food in on the wing to deliver it to the nest. So it is easy to imagine some kind of Homer Simpson level thinking could inspire fledgling logic along the lines of:

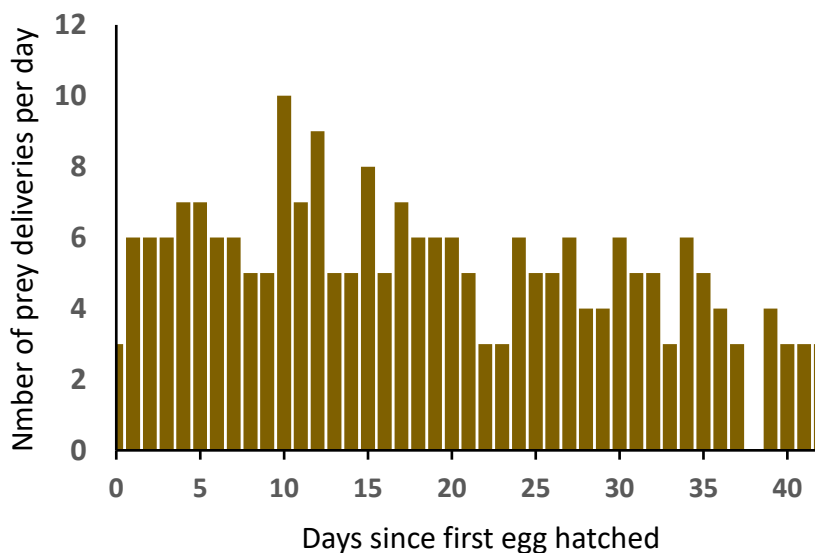
“I like food.

Parents bring food from the sky.

I want more food.

Therefore I fly!”

I’ve often wondered myself is this true? Do the adults reduce the number of food deliveries leading up to and possibly stimulating fledgling? Well thanks to the dedicated efforts of the moderators this year we have some data on this very question (Figure 4). It would appear that they have in fact made fewer prey deliveries over the past week or so. Now I haven’t taken into account the biomass of the prey being delivered. Deliveries recently have tended to be whole prey or larger portions which the young must pull apart themselves. Compared to the weight of the young it does appear that there is in fact a net reduction in biomass being brought to the nestlings.



**Figure 4.** Frequency of prey deliveries from the day of the first egg hatching to day 42 at an active Peregrine Falcon nest at 367 Collins St, Melbourne for Spring 2024.

### Prey delivery by sex of adult

For the resident adults this is thought to be their first year breeding together, certainly at this site. So I thought it interesting to investigate the data to see who is bringing in the most prey items and



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who in turn is undertaking most of the feeding of the young. Data is presented from the day of the first hatching out to the end of day 42 when the first young fledged.

Firstly, looking at prey deliveries to the nest ledge (Table 2). The female brought 60% of all prey deliveries to the nest this year. It is most likely that the male had caught many of these and had transferred many of these to her away from the nest first.

**Table 2.** Prey delivery by the sex of the resident adult and the percentage of deliveries per sex. (N=220 prey deliveries)

Adult delivering prey	Percent of deliveries
<b>Female</b>	60.1%
<b>Male</b>	39.9%

When investigating feeding events where only one adult undertook the full duties, again the female dominated nearly 10 to one compared to the resident male (Table 3). In a small number of occasions both adults fed young at once (9 times). Towards the last two weeks the young had started feeding themselves (20 times).

**Table 3.** Feeding of young by the sex of the resident adult and the percentage of feeding bouts by each adult. (N=192 feeding events)

Adult feeding young	Percent of feedings
<b>Female</b>	90.1%
<b>Male</b>	9.9%

### Conclusion

The diversity of prey has been noticeably down from the past few years. This is due in part because so many more prey items were plucked and prepared so that only a torso and legs was presented to the young in the nest. This makes it near impossible to identify via webcam what species each time is. The reduced prey diversity may also be attributed to the relatively dryer seasonal conditions when compared the La Niña years. Amongst the native species brought in, Quail (Brown and Stubble) and Buff-banded Rails appeared to be the most commonly collected.

Overall, the rapid growth rates and general health of the nestlings this year has been quite positive and bodes well for their lives ahead of them.

These figures of the female delivering prey and feeding the young most of the time at the nest are consistent from day one with this female. She also undertook 83% of the daylight hours of incubation duties! (FFS 10/24). If we didn't know better (than to anthropomorphise here) you could be forgiven for thinking she is a total control freak. Hopefully she will figure out there is much to be gained by sharing in these duties more equally. In time, maybe... Every bird has its' own “personality”.



With three female nestlings this year, the first two hatched and then fledged exactly 42 days later on the same day. The third nestling hatched some 36 hours later and is taking a little longer to get with the programme. I have no doubt she will over the weekend.

#### References

- Cogley, V. 1995. Prey-selection by urban Victorian Peregrine Falcons (*Falco peregrinus macropus*). Honours Thesis, University of Melbourne, Melbourne, Australia.
- MacKinnon, M. 2011. Does diet flexibility facilitate Peregrine Falcon persistence with land-use change?, Deakin University, Melbourne, Australia.

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