OBSERVATIONS ON HUNTING AND BREEDING BEHAVIOUR OF THE BLACK FALCON (*FALCO SUBNIGER*)

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ABSTRACT

Observations on the Black Falcon (*Falco subniger*) are presented that add to previous, incomplete studies of the falcon’s breeding biology and behaviour, vocalisations, prey and hunting methods. Observations are mostly from two Black Falcon pairs that were monitored at separate locations (Gundagai and Tamworth) in the New South Wales sheep–wheat belt. At the nest of the pair at Gundagai (which later failed at the downy chick stage), the male brought food to the incubating female, but was not seen to share incubation; a Brown Falcon (*Falco berigora*) later briefly occupied the failed, vacated nest, but did not subsequently use it. The pair of Black Falcons at Tamworth was often observed to hunt feral Roek Doves (*Columba livia*), sometimes cooperatively. The pair apparently did not breed, and appeared to experience competition for potential nest sites from other raptors and corvids. A fresh juvenile specimen, found road-killed near the suspected nest area of a second pair at Tamworth, is described. Observations on interactions with other raptors are also presented, along with brief notes on Black Falcon hunting and roosting in Queensland.

INTRODUCTION

Inland Queensland is a stronghold of the Black Falcon (*Falco subniger*) (e.g. Barrett *et al.* 2003), yet the species is unstudied in that state. Overall, the Black Falcon (Figure 1) remains the least-studied of the readily observable Australian falcons. Several recent, incomplete studies were conducted on its food and hunting, breeding behaviour, and other aspects of its biology, but covered only parts of the breeding cycle (Debus *et al.* 2005; Debus & Olsen 2011; Debus & Tsang 2011; Barnes & Debus 2012; Debus 2012a). Besides these recent studies, there have been only brief anecdotal reports of the falcon’s hunting behaviour and food (Falkenberg 2011; Sutton 2011; Bartram 2012; Debus 2012b; Rawsthorne 2012; Stowe 2012; Ley 2013). The roles of the sexes and parental time-budgets (e.g. nest attendance, feeding rates) in the incubation and early nestling periods have yet to be determined, although the Black Falcon photograph and caption in Olsen (1995, p. 128) provides some insight into male–female relations (i.e. female dominance,
Figure 1. Black Falcon near Monto, Qld, September 2011. Photo: Chris Barnes.

Figure 2. Dark-coloured Brown Falcon near Wagga Wagga, NSW, April 2013. Photo: Caroline Zuccon.
male submission) at the nest. Falcons, including the Black, do not build nests, but (other than cliff- or cavity-nesting species) rely instead on stick nests built by accipitrid raptors or corvids (e.g. Marchant & Higgins 1993; see Debus 2012c for a summary of other aspects of the falcon’s biology and ecology).

In 2012, AEZ found an active Black Falcon nest near Gundagai (35°04’S, 148°04’E) on the South-west Slopes of New South Wales. Although the nest ultimately failed at the downy chick stage, we present what details on breeding behaviour (incubation and early chick phases) were obtainable, along with supplementary observations of Black Falcons in the district.

Also in 2012, SD attempted to find active Black Falcon nest(s) in the Tamworth district (North-west Slopes of NSW; 31°05’S, 150°55’E), in order to extend the previous incomplete studies (Debus et al. 2005; Debus & Tsang 2011; Debus 2012a). The aim was to document and quantify a complete breeding cycle from nest selection to independence of juveniles, and obtain population data (e.g. density, breeding success) if more than one nest could be found. However, only two pairs (versus three or four in 2009–2010) could be found, and no nest was located, despite weekly searching over winter–spring and the focal pair often being active in and around Tamworth city. We present observations on that pair in relation to hunting behaviour and interactions with other raptors during the breeding season, and describe a juvenile specimen. Supplementary observations by SD of hunting and roosting behaviour of Black Falcons in Queensland in 2011 and 2012 are also presented.

These collective observations help to shed a little more light on the Black Falcon’s breeding behaviour, vocalisations and hunting behaviour. The falcon has been listed as Vulnerable under the NSW Threatened Species Conservation Act 1995, owing to its significant decline in reporting rate in the south-eastern Australian sheep–wheat belt, apparently related to loss and degradation of, and increasing competition for or interference with, nest sites and breeding habitat. Comprehensive biological and ecological information on this species is now more necessary, to inform and guide the falcon’s conservation and management. As the species ranges through Queensland, and relevant human impacts may apply at least in the state’s southern agricultural zone, the Black Falcon warrants greater ornithological attention in Queensland than it has received previously.
STUDY AREAS AND METHODS

Gundagai, NSW

AEZ found an occupied Black Falcon nest in the agricultural Murrumbidgee Valley near Gundagai in May 2012. The nest tree was on private farmland ~50 m from a public road. Monthly monitoring of the nest commenced on 12 May, when the male was first seen in the tree. When the pair was seen in the nest tree in the late afternoon/evening of 6 July, the nest was thereafter kept under frequent observation by AEZ from the road verge (approximately weekly at first, then almost daily as breeding activity progressed), with photographs taken with a high-powered zoom lens whenever possible. Observations continued until the nest failed in September 2012, with a 3-hour watch on the day that failure was suspected, and an all-day watch two days later from 0530 h (still dark, thick fog, sunrise at 0600 h) to 1800 h. The nest tree was not climbed.

Tamworth, NSW

The study area is described elsewhere (Debus et al. 2005; Debus & Tsang 2011). From late April to late November 2012 SD, occasionally assisted by L. Tsang, searched for occupied Black Falcon nests. Search effort consisted mostly of weekly visits of 1.5 days’ duration to the activity centre of the Tamworth pair (occasionally an additional day per week), walking along wooded agricultural river flats and floodplains, inspecting (from the ground, by binoculars or telescope) stick nests in woodland trees, waiting at vantage points, and slow driving on rural back roads. The study was also publicised in the Tamworth press (Northern Daily Leader, Tamworth Times, Tamworth City News), calling for sightings and reports of active nests; some responses were accompanied by photographs or video of raptors. Credible reports were followed up by field check, and by sustained watches where reports were verified by subsequent sightings.

Queensland

Opportunistic observations of Black Falcons were obtained by SD (i) during a bird survey of Bladensburg National Park near Winton (221º23′S, 143º02′E) on 6–15 May 2011, and (ii) during a faunal survey of a rural property near Chinchilla (26º44′S, 150º38′E) on 8–12 May 2012.
RESULTS

Gundagai

Breeding

The male Black Falcon was initially seen in the nest tree on 12 May. The pair of Black Falcons was occupying the tree on 6 and 21 July 2012, and the female was incubating on a stick nest (apparently that of a raven *Corvus* sp.) in that tree on 28 July (incubation inferred from the female’s posture and the calculated hatching and laying dates; see below). The nest was in the centre of the tree’s crown: a densely foliaged remnant eucalypt in a paddock, ~50 m from a quiet rural back road. The male was less disturbed by human presence than was the female. The incubating female was seen to leave the nest once for 30 seconds, apparently flushed by the noise of the car door when the observer arrived.

On 28 July in late afternoon (1630 h) the female was incubating, and the male dropped food to her at the nest, where she consumed it. The same behaviour was witnessed on 4 August (1615 h); the male stood on the nest while she fed, then he flew off 10 minutes later (1625 h). On 15, 18 and 28 August the female was sitting on the nest. On 5 August and 8 September, in the male falcon’s absence from the nest area, a lone Black-shouldered Kite (*Elanus axillaris*) repeatedly swooped the sitting female, calling aggressively as it did so. The kite appeared not to have a mate or nest in the area.

On 8 September, by which time two chicks had hatched (see below), the male falcon brought a freshly killed Eastern Rosella (*Platycercus eximius*) to the nest in the afternoon (1555 h). As he arrived at speed, the rosella appeared to be whole and unplucked. He landed on the edge of the nest, and the female stood up and jumped on the prey as he released it from his foot. He immediately retreated to the nest branch, where he stayed a few seconds then left. The female tore at the prey and fed from it on the nest, but feeding of chicks could not be seen through obscuring foliage.

On 11 September, two downy white chicks were just visible (and photographed) in the female’s absence. Based on a comparison with the photographic series of known-age Peregrine Falcon (*Falco peregrinus*) chicks in Olsen (1995, p. 157), they were about 2 weeks old (between the stages shown and described for days 8 and 15, i.e. acquiring second down, strong enough to peer over the nest rim). In development, they were between the 10-day-old Grey Falcon (*Falco hypoleucos*) chicks shown in Hollands (2003) and the 18-day-old Black Falcon chicks shown in Cupper & Cupper (1981, p. 90), and similar to the Peregrine chicks in Cupper & Cupper (1981) inferred...
to be \( \sim 11-12 \) days old. Hatching of the Black Falcon chicks at Gundagai would have been in late August and, allowing 5 weeks for incubation (Marchant & Higgins 1993), laying would have occurred in mid to late July.

On 13 September, there was no activity at the nest from midday to 1330 h, and at 1350 h a Brown Falcon approached the nest. During the all-day watch on 15 September to ascertain the outcome, only the male Black Falcon attended the nest tree, and then only in the morning when he was first seen (as the fog lifted) perched in the tree at 0750 h. Throughout the morning of the 15th, the male mostly perched and preened (>2.5 h), and on that day there was no other Black Falcon activity or sign of life at the nest. Once, the male was chased off by two Australian Magpies (C. tibicen), calling in distress as he flew (a Peregrine-like cackling "kak-kak-kak-kak"), but he returned (1000 h) to the tree again, this time close to the nest, towards which he peered. Finally, he was harassed by a pair of Nankeen Kestrels (Falco cenchroides) that had an active nest in a hollow in the same tree, and he left by 1030 h, not to return that day. Ravens also chased the male when he was alone, after the female had abandoned the nest, but they did not approach the nest tree while the female was present.

During the all-day watch, in the Black Falcons’ absence, a light-coloured female Brown Falcon arrived at the nest tree (1450 h), calling, while being mobbed by the kestrels. She took off and circled the tree, landed beside the nest then moved to the centre of the nest, calling loudly and repeatedly, and peered deep into the nest cup. After 2 minutes of occupying the nest, the Brown Falcon left the tree, and did not return that day nor appear at the nest during subsequent checks. It was thus apparent that by 15 September, the Black Falcons’ breeding attempt had failed at the downy chick stage, and that a Brown Falcon showed interest (if temporarily) in the now-vacated nest.

On the morning of 25 September apparently the same pair of Black Falcons was resighted 6 km from the nest, the male distinctive by his exceptionally light-coloured plumage. He was eating what looked like a bird, while the female stood watching \( \sim 2 \) m away, both on the earth bank of a stock dam.

Interactions with other raptors

On 4 January 2012, between Gundagai and Wagga Wagga, one female Black Falcon and three Peregrine Falcons were seen chasing and repeatedly dive-bombing a Wedge-tailed Eagle (Aquila audax), for at least 2 minutes. The eagle found shelter in a tree, and the falcons departed separately. In level
flight the Black Falcon kept up with the Peregrines. However, the Peregrines climbed and dived more steeply than the Black Falcon.

**Hunting**

On 11 September 2012, while the female falcon was absent from the nest and chicks (see above), a large Black Falcon was seen chasing a flock of Common Starlings (*Sturnus vulgaris*) 6 km from the nest. However, it could not be confirmed that the falcon was the breeding female.

In September 2012, an apparently juvenile male Black Falcon (by its size and very dark plumage, and its approachability) was perched for two consecutive days in a dead eucalypt ~4 km from the above nest site (i.e. suggesting another, successful, falcon pair and nest in the district). The falcon appeared to be waiting for a parent to deliver food, but it once chased a Turquoise Parrot (*Neophema pulchella*) unsuccessfully.

In the Gundagai region, Black Falcons (both sexes) are attracted to stubble fires in autumn: two fires in the nest district were attended by seven and three falcons, respectively, and one fire between Gundagai and Cootamundra was attended by 12 Black Falcons. The falcons flew through thick smoke, diving to within a half a metre of the ground or sometimes landing on the ground very close to flames, on the edge of the burnt area, to eat unidentified terrestrial prey.

**Tamworth**

No active nest was found of the focal (or any other) Black Falcon pair at Tamworth in 2012, despite the many active and inactive stick nests checked; most were occupied by Australian Ravens (*Corvus coronoides*) or Whistling Kites (*Haliastur sphenurus*) (one pair of which also used an alternative nest as a feeding platform). In early September at sunset, a Black Falcon (apparently of the focal pair) flew into a riparian tree that contained two old stick nests and apparently stayed there (to roost?), but a week later one of these nests was confirmed as an active (incubating) Brown Falcon’s nest. In October–November there was no sign of the focal pair of Black Falcons having fledged young, and it appeared from the observations reported herein that, although they had been interested in nests occupied by other raptor species, they did not breed. One pair of ravens vigorously defended their previous nest, being rebuilt in 2012, against any raptors up to Little Eagle (*Hieraaetus morphnoides*) size that approached it during the ravens’ pre-laying phase.

The press publicity resulted in several reports from the public of genuine Black Falcons, as well as of Brown Falcons that lay informants had
misidentified from the Black Falcon illustration in Cayley (1984). From these field-checked mistaken reports (and photos) of ‘Black Falcons’, it is evident that laypeople, and some birders, still confuse dark Brown Falcons with Black Falcons: partly from inaccurate information and/or illustrations in the older, superseded field guides, but also through insufficient knowledge of identification features (relative lengths of exposed tarsi versus thigh feathers on perched falcons; flight style; wing attitude (dihedral versus anhedral) when soaring/gliding; and the prominent underwing barring on even the darkest Brown Falcons: see Figure 2 herein, and Debus 2012c). Despite the identification issues, the press publicity generated much interest, goodwill and some useful sightings, though no occupied Black Falcon nests, and is a potentially helpful adjunct to future such studies.

**Interactions with other raptors**

Several observations were made of Black Falcons, apparently of the focal pair, harassing other raptors in 2012, near the Tamworth pair’s activity centre during the breeding season:

1. In early September, a female falcon stooped three times in quick succession at a soaring Little Eagle, soared, then made a mock stoop at a Straw-necked Ibis (*Threskiornis spinicollis*) in a soaring flock, before departing. However, the attack on the eagle lacked the ferocity of an attack by a Black Falcon on a soaring Square-tailed Kite (*Lophoictinia isura*), noted elsewhere (Debus 1996).

2. In early September, a male Black Falcon suddenly joined a Brown Falcon in briefly chasing/stooping at a flying Whistling Kite (near the kite’s active nest). The Black Falcon then soared, and the Brown Falcon switched its attention, trying to catch up and engage the Black Falcon. The latter outperformed the Brown and soared higher, making a short feint at the much lower Brown Falcon. The Brown then performed display dives as it descended, possibly because there were by now three Brown Falcons in the air (two of which occupied the nearby stick nest, referred to above).

3. In early September, a soaring male (?) Black Falcon made a short (mock?) stoop towards a flying Black-shouldered Kite, but the kite then repeatedly swooped the falcon, causing the latter to roll and fend it off.

4. In early September, a soaring male falcon was harassed by a Whistling Kite near the kite’s active nest, but the falcon outmanoeuvred and outclimbed the kite, soared, and made a brief V-dive (see Marchant & Higgins 1993; Whelan 2013). In July, a Black Falcon and a Whistling Kite had soared around the active kite’s nest (L. Tsang personal communication),
the falcon apparently showing interest in the nest, although the kite did not defend its nest strongly at that stage (pre-laying or incubation).

Vocalisations

In late September 2012, in the early afternoon (~1615 h), the male of Black Falcon pair C (of Debus & Tsang 2011) was carrying prey towards a suspected new nest on private land apparently ~1 km north of that pair’s nest C (of 2010), and therefore inaccessible for further investigation. He gave a deep, soft Peregrine-like cackle of three notes when mobbed by birds. (Pair C and their active nest of 2010 were located ~14 km south-west of Tamworth, and ~18 km west of the main activity centre of the focal Tamworth pair.)

Juvenile specimen

A freshly road-killed, fully grown juvenile Black Falcon was found ~2 km from the suspected nest area of pair C in late November 2012, i.e. almost 2 months after local fledging dates (cf. Debus et al. 2005; Debus & Tsang 2011). Its fresh plumage and the symmetrical fault-bars across its rectrices indicated recent fledging, and its rectrices and outer primaries were fully emerged and no longer ensheathed at the base. This specimen, now lodged with the Australian Museum, was overall dark slaty-brown with slightly paler (brown-streaked) cheeks; a white, finely brown-streaked chin; slight, dull-rufous dorsal fringing; slight, narrow basal barring under the outermost primaries; and a pale-tipped tail. Its cere was brown, its facial skin (bill base, orbit) pale blue, and its legs and feet pale blue-grey. A male by dissection, it was in good body condition (albeit probably dehydrated from lying in the sun), weighed 616 g, and its stomach contained the remains of a Common Starling, including both feet (L. Tsang personal communication).

Hunting

Most observations (all by SD in 2012 unless stated otherwise) concerned hunting behaviour of the focal pair of Black Falcons in the rural fringe and hinterland of Tamworth city, including two events within the city. Terminology for search and attack methods, which have specific definitions in the raptor literature, follows previous papers (Debus & Tsang 2011; Debus 2012a).

1. In late June, mid morning (~0930 h), a soaring male (?) falcon made a long, shallow glide with bursts of Peregrine-like wing-beats into a rural village. The intended prey and outcome were unseen, but the foray was likely to have been a direct flying attack (i.e. with continuous wing-beats) at urban exotic birds.
2. In late June, mid morning (~0915 h), a male falcon was perched on a paddock fencepost on a quiet back road, and showed a large crop bulge; immature magpie fresh remains were on the ground below (feathers, head and neck, wings, legs).

3. In late June, late morning (~1150 h), a pair of falcons was hunting feral Rock Doves (*Columba livia*). The soaring male made a long, shallow glide with bursts of rapid wing-beats, at a milling flock of doves as the female was flying below the flock (she had flushed the doves, keeping them in the air); the attack was unsuccessful. Later (~1400 h), the pair was over the city, chivvying a high-swirling flock of Rock Doves; one dove broke away and the male falcon tail-chased and stooped, but he failed to capture it.

4. In mid July, late afternoon (sunset), a male (?) falcon was observed by SD in low, fast direct flight at rooftop height past farm buildings, for >2 km, apparently fast contour hunting; the falcon was unsuccessful, as it was then located a few minutes later soaring, empty-footed, by L. Tsang (personal communication).

5. In early August, mid morning (~0940 h), a male (?) falcon was chivvying a flock of Rock Doves over the city, and later (1245 h) soaring around a tightly swirling flock of doves on the rural fringe, but he gave up and departed.

6. In mid August, around midday, a female (?) falcon, with a Brown Falcon, repeatedly hawked insects low over sheep grazing in a paddock, sometimes swooping almost to the ground close to the sheep. The Black Falcon landed on a nearby power pole, but was chased off by the Brown Falcon.

7. In mid August, early afternoon (~1345 h), a soaring male falcon performed a V-dive, or possibly an abortive/feinted stoop, soared, then made a long, descending glide that became a low direct flying attack, out of sight beyond trees. A few minutes later (~1400 h), the female (?) falcon was chivvying a swirling flock of Rock Doves in the same area, then broke away and made a long, shallow stoop across riparian woodland (outcome unseen, but there were open fields on the other side of the river).

8. In mid August, late morning (~1050 h), a male (?) falcon was chivvying a circling flock of Rock Doves, but gave up and soared away.

9. In mid August, late morning (1130 h), a male (?) falcon was soaring over paddocks; it made a long, angled direct flying attack among trees in a homestead garden (outcome unseen).

10. In mid August, mid afternoon (~1425–1435 h), a male (?) falcon was soaring over grassy paddocks, searching widely in a circuit to the apparent
extremity of his hunting range (at the limit of SD’s 8× binoculars); the falcon returned, made a long, low glide at a flock of ground-feeding Galahs (*Eolophus roseicapillus*), which flushed and milled, then he resumed soaring and departed.

11. In mid January 2013, late morning (~1035 h), a falcon was observed by L. Tsang (personal communication) in the area frequented by Black Falcon pair C of Debus & Tsang (2011). The falcon was soaring above a paddock with a hayshed and feedlot silos, circling slowly for ~1 minute; it quickly and sharply banked, descending rapidly, and began flapping with quick shallow wing-beats (2/sec), its carpals flexed. It gathered speed, flew directly towards the hayshed/silos and flushed a ground-feeding Crested Pigeon (*Ocyphaps lophotes*), the falcon’s wing-beats increasing to 3–4/sec as it attacked. The pigeon flapped hard, apparently at full speed; the tail-chasing falcon was level with the pigeon while closing, but rose slightly as it attempted to grab the pigeon from above. The falcon missed, pulled up, its speed and momentum carrying it quickly back up to soaring height, then it soared away.

**Queensland**

In May 2011, in Bladensburg National Park, a Black Falcon flying in to its roost at sunset gave a low moaning ‘karrr’ call like a deep, soft whine or wail. The roost site was a bare branch in the exposed top of a dead (or dead-topped) eucalypt on a creekline. This prominent site was used, presumably by the same individual, at dusk on at least one subsequent evening that week. This roost contrasted with two roost sites observed opportunistically by SD on the North-west Slopes of NSW in September 2012, near Narrabri and Bingara: in both cases, at sunset a Black Falcon flew in to perch on a horizontal limb within the canopy of a living woodland eucalypt, and remained there until dusk (in failing light).

Near Chinchilla, in May 2012 towards midday, a Black Falcon attacked a flock of Apostlebirds (*Struthidea cinerea*) foraging on a back road, by making a shallow dive between trees lining both sides of the road. Unsuccessful as the flock ‘exploded’ into flight with alarm-calls and sheltered in the trees, the falcon soared up and disappeared into the distance. A few days later, within an hour after sunrise a few kilometres from the hunting incident, two Black Falcons (male and female) were perched together, high on the exposed branches of a dead-topped woodland eucalypt, near a wooded creekline. It was not possible to confirm that this behaviour was (as suspected) conspicuous perching near an occupied nest in the pair’s pre-laying phase, but it does suggest that such behaviour in May–June may reveal a falcons’ nest nearby (there were vacant corvid nests in the wider area).
DISCUSSION

The inferred laying date at Gundagai, together with those in the Tamworth district (Debus et al. 2005; Debus & Tsang 2011), suggest that the Black Falcon’s peak laying month in NSW is July, and that future studies should therefore search for occupied nests in May–June. From the limited observations, there was no evidence that the male Black Falcon shared incubation when he brought prey to the incubating female. However, it is likely that sustained observations will confirm male incubation (when the female is off feeding on his catch), as in other falcons (e.g. Marchant & Higgins 1993). Thus, the roles of the sexes and parental time-budgets (e.g. nest attendance) during incubation and the first week or so of the downy chick phase require further study.

We infer from the road-killed juvenile that it was ranging 2 km from the nest at about 2 months post-fledging: another small insight into the Black Falcon’s little-known post-fledging period (Debus et al. 2005; Barnes & Debus 2012). The killed juvenile provides a further example, to those of Debus & Olsen (2011), of collisions with vehicles and other man-made objects as a cause of unnatural mortality for this species in the sheep–wheat belt.

The juvenile specimen was similar in plumage and bare parts to other descriptions and reviews of Black Falcon fledgling/juvenile characters (Debus et al. 2005; Debus & Olsen 2011) that challenge earlier published information (e.g. in Marchant & Higgins 1993). The specimen’s weight was near average for passively collected males (e.g. road kills; see Debus & Olsen (2011) for revised weights for the sexes of this species, and Schoenjahn (2011) for a critique of published falcon weights).

Combining the various studies and reviews (Debus et al. 2005; Debus & Tsang 2011; this study), and using the standard terminology (e.g. Carlier 1995), it appears that the Black Falcon’s main adult vocalisations are:

(1) A cackle similar to, but deeper and softer than, that of the Peregrine Falcon;
(2) A faster, guttural (‘rattle’) version of the cackle;
(3) The creaking call or ‘ee-chip’, rather high and squeaky in the male (in display flight), and deep and guttural (‘double cluck’) in the female;
(4) The wail, also sometimes called the whine, usually high-pitched (by the female around the nest, e.g. when begging to the male or when copulating), but deep and soft in some other (little-studied) contexts.
Our observations of hunting behaviour and prey provide variations to, or supplement, those events previously described (mainly of solitary Black Falcons hunting: Debus et al. 2005; Debus & Tsang 2011; Debus 2012a). These variations relate mostly to the Tamworth pair sometimes hunting birds co-operatively in 2012 (as also observed by Debus 2012b).

As an Australian endemic falcon, a representative of the ‘great’ or ‘desert’ falcons, which include the Lanner Falcon (Falco biarmicus), Laggar Falcon (F. jugger) and Gyr Falcon (F. rusticolus), and having flight capabilities comparable to the Peregrine, the Black Falcon is well worthy of further study, with many knowledge gaps yet to fill. In particular, its conservation status in NSW suggests that further information on its biology and ecology is needed, to inform management of its habitat and possible threats. Accessible areas, with apparently sufficient numbers of Black Falcons for meaningful study and within easy reach of tertiary institutions, include the western Darling Downs, the NSW Riverina and Liverpool Plains, the Victorian northern plains, and the South Australian wheat belt. Research in Queensland could contribute much, because of the likelihood of finding sufficiently dense falcon populations. Other areas worth investigating, besides those in the state’s southern inland agricultural zone, include the dry coastal Lockyer and Fassifern valleys (G. Czechura personal communication).

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