

FRUIT IN THE DIET OF THE CRESTED PIGEON: OPPORTUNISM THAT 'MAKES' A HIGHLY SUCCESSFUL SPECIES. Foods eaten by Australian birds have been comprehensively described by Barker and Vestjens (1989). Their two-volume compendium is encyclopaedic in its scope and should spawn numerous publications that add to the collective knowledge of the dietary ranges of birds. I encourage SAOA members to note all interesting feeding observations, to then consult Barker and Vestjens as to their significance, and to publish as appropriate. This short note serves as an example for an abundant, readily observed species, the Crested Pigeon *Ocyphaps lophotes*.

During the winter months of 1994 I observed one and occasionally two individuals eating the fleshy fruits of ruby saltbush *Enchylaena tomentosa*, a liberally fruiting plant which occurs over much of arid and drier temperate Australia. I observed the behaviour five or six times over three months (dates not noted) at my workplace, located on the floodplain of the Todd River in a semi-natural tall open woodland of ironwoods *Acacia estrophiolata*, c. 8 km S of Alice Springs. The ruby saltbushes were self-sown and form an understorey to a planted native garden around the workplace (G. Griffin pers. comm.). The birds clambered over the low bushes picking and eating the berries regularly while under observation. Although the species has been present here over the six years of my residence and has bred regularly in previous spring and autumn seasons, I have not noted this foraging behaviour before. I suspect the ecological significance of the observations relates to the dry conditions prevailing in the Alice Springs region. Barker and Vestjens (1989) list only one record of fruit (unspecified) as a dietary item of the species, referring to Boehm (1955). Boehm himself did not specify the plant species from which he saw Crested Pigeons taking fruit but stated, 'They feed on many kinds of seeds and wild fruits'. *Enchylaena tomentosa* grows in the Sutherlands district of South Australia where Boehm (1930a) observed their fruits to be a major component of the diet of Mulga Parrot *Psephotus varius* and Red-rumped Parrot *P. haematonotus*, and a favoured food of the Common Bronzewing *Phaps chalcoptera* (Boehm 1930b). It is easy to speculate that it was this species which formed the basis for Boehm's general remarks about the Crested Pigeon's frugivorous habits.

Frith (1982) quantitatively studied the Crested

Pigeon's diet at several Australian localities including Alice Springs. He found that only seeds were eaten around Alice Springs and fleshy fruits were not recorded from any locality. However, green vegetative material comprised up to 10% of diets in some places at certain times depending on recent climatic events. Also insect material provided up to 10% of dietary intake in some samples. Frith made the point that the species is catholic in its diet and highly adaptable to changing conditions of food availability caused primarily by variable weather but also by grazing. Under drought conditions in the Riverina the species became totally dependent on old seed reserves of the exotic salvation Jane *Echium plantagineum*; pigeons would scratch away the soft soil of bare sand dunes to harvest buried seed (Frith 1982).

I posit that the same factors are operating in the case I describe. Although seeds constitute the species' staple diet, the birds I observed chose to feed on the ample supply of fruit of the ruby saltbush in the absence or reduced abundance of a readily harvested seed source. The fruiting of the saltbush in turn was probably dependent on the external supply of water (drippers to the garden or sprinklers to the adjacent lawn). The mean annual rainfall of Alice Springs is 255 mm (Bureau of Meteorology, Alice Springs). Only 88.8 mm of rain fell in 1994, being one of the lowest annual totals on record. Under such exceptionally dry conditions many local bird populations must have benefited from the irrigation (whether deliberate or unintentional) that accompanies human settlement. The extra water permits increased vegetative growth and additional flowering and fruiting; increased plant production translates into higher insect populations and so on. For example, larger flocks of Galahs *Eolophus roseicapilla* than usual were in the town in 1994 and were often seen feeding on grassed sporting grounds. Ground staff had to resort to control methods because the birds were causing so much damage to the playing surfaces. Large influxes of Spiny-cheeked Honeyeaters *Acanthagenys rufogularis* occurred several times in 1994; in early winter when ruby saltbush was fruiting prolifically in the town, its crop of fruit in my home garden was consumed rapidly by this honeyeater. The smaller but still fleshy fruits of another chenopod, climbing saltbush *Einadia nutans*, were also eaten in large quantities. Again, this last plant is not listed by Barker and Vestjens (1989) in the Spiny-cheeked Honeyeater's diet.

The success of the Crested Pigeon since European settlement has been discussed many times (Boehm 1955; Condon 1969; Frith 1982). The species invaded wetter more southerly regions as vegetation clearance and agricultural development proceeded, and even within arid Australia its abundance has probably increased in response to the provision of reliable water supplies for pastoralism (Frith 1982). The species' dietary flexibility and opportunism generally, as noted by Boehm and Frith, are important factors in its success. Boehm (1955) observed the species eating with domestic fowl (Feral Chicken *Gallus gallus*) and Domestic Pigeons *Columba livia* in the Sutherlands district in South Australia. The species becomes quite tame in such situations and in urban environments generally. Neither Barker and Vestjens (1989) nor Frith (1982) specifically record poultry food in the diet of Crested Pigeons, although many of the potential component plants, such as wheat and oats, are listed. Commercial poultry food pellets are eaten by Crested Pigeons – several individuals regularly frequent the chook run in my Alice Springs garden, choosing the smaller fragments of pellets.

As this note shows, there is much to be documented about the habits of Australian birds, even common species such as the Crested Pigeon and Spiny-cheeked Honeyeater. With the compendium of Barker and Vestjens (1989) it is now an easy exercise to assess the significance of any foraging observation. Each dietary record they list is referenced to original sources of information, and so rapid entry to the primary literature is assured.

An important conclusion became apparent in following this process myself. There is a clear distinction between the total range of a species' diet and the actual contribution made by different food items to a species or population. Barker and Vestjens provide information on the first – dietary breadth – and not on the relative contributions of various food types. As illustrated by Frith (1982) for the Crested Pigeon, quantitative studies are required for an understanding of important dietary components and of how diet may vary from one location to the next (e.g. different food plants with separate geographic distributions), or in the one

place over different seasons. Obviously, temporal and spatial patterns of variation in an organism's biology are to be expected. An understanding of these aids the management and conservation of the country's biological resources. Therefore, interesting observations that add to the sum of knowledge about a species' biology, such as the opportunistic inclusion of fruit in the Crested Pigeon's diet, are just a start. More detailed studies, that focus on a species' use of and interactions with its environment, and that can identify the limitations which the environment and human land use place on the species, will be of more value. The local South Australian example of a comparative study of diets of three species of firetail finches *Emblema*, including two of conservation significance, is exemplary (Read 1994). However, conclusive factors for these species' declines are yet to be identified.

ACKNOWLEDGMENTS

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RECENT NESTING OF BAILLON'S CRAKE ON KANGAROO ISLAND.

In a review of Kangaroo Island's birds, Baxter (1989) cited only one observation and a breeding record of Baillon's Crake *Porzana pusilla*. These comprised at least one bird seen at Lashmar's Lagoon in 1935-36 (Lashmar 1936) and two clutches of eggs collected there in late 1935 (Parker and Lashmar 1976). Initially attributed to this species was another clutch of eggs collected there by A.F.C. Lashmar in October 1946, later re-identified as the Spotless Crake *P. tabulensis* (Parker and Lashmar 1976).

On 14 November 1990, during a biological survey conducted jointly by the South Australian Department of Environment & Natural Resources and South Australian Museum, C. Kemper and I located a nest with five incubated eggs at Larrikin Lagoon in Flinders Chase National Park. The nest was a cup woven from sedges, partly concealed in a tussock of twigrush *Baumea arthropphylla* immersed in about 60 cm of water, and about 4 m from dense prickly teatree *Leptospermum continentale*, dwarf hakea *Hakea rugosa* and slender honey-myrtle *Melaleuca gibbosa* shrubland fringing the lagoon (Figures 1 and 2). The eggs were uniform olive-brown and oval, with one measuring 24.8 x 19.1 mm using vernier callipers.

On 15 November we saw a crake with light brown and black streaked upperparts and grey underparts flutter, legs trailing, from the nest across stems of floating twigrush into adjacent shrubs.

The nest was identified as that of a Baillon's Crake because of the size and markings of the bird we flushed, and the distinctive eggs. Eggs of other South Australian crakes are pale and variously spotted at the larger end (e.g. Slater *et al.* 1986). Like elsewhere in south-eastern Australia (Blakers *et al.* 1984), Baillon's Crakes are probably regular spring-summer breeding visitors in small numbers to freshwater wetlands of Kangaroo Island, but are easily overlooked because of their secretive nature and inaccessible wetland habitats.

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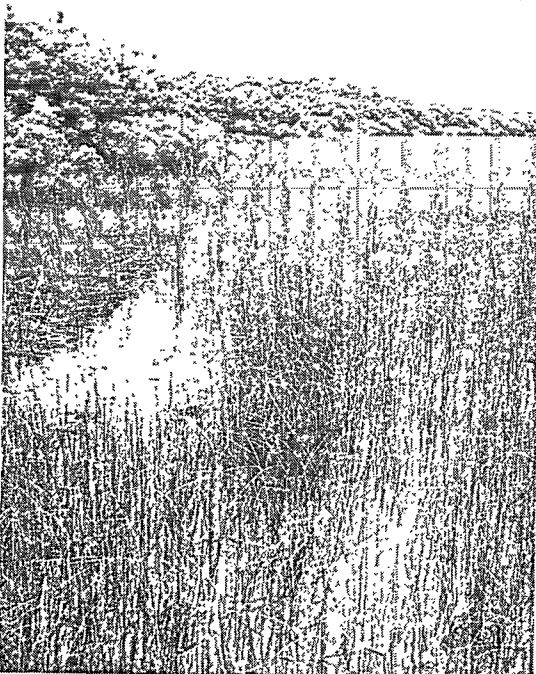


Figure 1. Location of nest of Baillon's Crake at Larrikin Lagoon, Flinders Chase National Park.

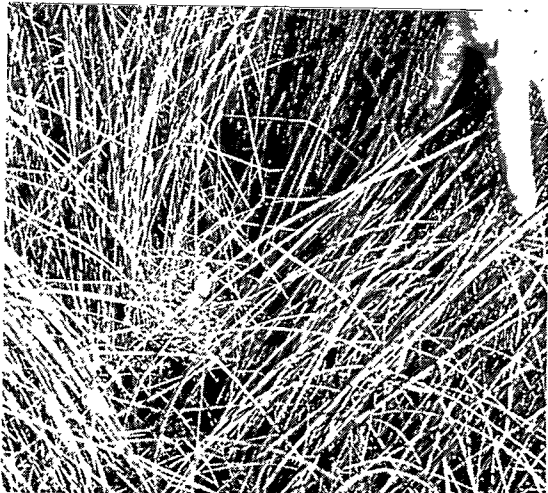


Figure 2. Eggs of Baillon's Crake in nest of sedge amongst twigrush, Larrikin Lagoon.

RED-BROWED PARDALOTE *PARDALOTUS RUBRICATUS* IN THE FLINDERS RANGES.

On 2 August 1995, between about 0730 and 1300 h, note was made of the birds seen while assisting Sam Wade, from the University of Adelaide, with the collection of stream samples in the creek just below Elatina Hut (31°21'S, 138°38'E). The hut is located on one of the tributaries of the Brachina Creek, in the Trezona Range, of the Flinders Ranges, South Australia.

Most significant of the birds recorded was a pair of Red-browed Pardalotes *Pardalotus rubricatus*. They spent a considerable amount of time foraging on the ground, occasionally less than 3 m from us, and the pair also took turns to bathe in the stream. They landed in shallow water, vigorously splashed for a few seconds, then flew to a rock near the water's edge. Following bathing, they shook themselves and preened vigorously, all for very short periods, before flying back up into the canopy of the river red gums.

The main feature that drew attention to them initially was the very distinct call which is quite unlike the familiar 'double-chip' call of the Striated Pardalote *Pardalotus striatus* – the pardalote more usually found in the area. Seen close at hand, their large orange wing-flashes were clearly visible, together with the Red-browed Pardalote's characteristic orange-yellow eyebrow.

The Red-browed Pardalote is a bird of the arid and semi-arid interior of Australia (Longmore 1991), and Condon (1968) reported it to be 'common along watercourses' in the northern parts of South Australia. Records for sightings in the Flinders Ranges are sparse. While bird-banding in April 1990, C. Rich (pers. comm.) observed two in some river red gums *Eucalyptus camaldulensis* var. *obtusa* along the Hamilton Creek, about 7 km ENE of the old Mount Fitton Homestead in the North Flinders Ranges; approximately 190 km NE of the present sighting. His attention also initially was drawn to them because of their unfamiliar call. The author recorded them in other river red gums just downstream, but in the same general vicinity (29°58'S, 139°38'E) as the Rich record, in June 1995. Again, they attracted attention because the call was so different from that of the more common Striated Pardalote which they were assumed to be. Field notes made at the time suggested the familiarity of the call indicated it had been present on earlier occasions but that insufficient attention had been paid to identifying the source of the call.

The Red-browed Pardalote was not included in the original bird list for Arkaroola, 40 km SW of Mount Fitton Homestead (May 1972a,b), or the supplementary list dated to 1985, nor did it appear in the Bird List of Gammon Ranges National Park, just south of Arkaroola (NPWS undated), though there it was mentioned in the list of 'birds that occur in the region and may occur in the park'. The recently-published guide *Explore the Flinders Ranges* (Barker *et al.* 1995) lists birds recorded in the Flinders Ranges and again the Red-browed Pardalote was not included. In the north-west of South Australia, Badman (1979) found this species to be 'apparently more widespread than *P. striatus* and perhaps slightly more common', while Close and Jaensch (1984) concluded it was widespread in small numbers. A similar interpretation could be put on the observations reported by Cox and Pedler (1977) and Bransbury (1984) for the north-east of the state. Cox and Pedler (1977) found them along watercourses, and Pedler and Ragless (1978) observed them 'in coolibahs on Callabonna Creek' (about 90 km east of Mount Fitton); and 'almost certainly heard them at Paralana Creek', near Arkaroola, on 26 April 1977. This area is effectively the eastern side of the North Flinders Ranges, while Badman (1981) reported one sighting at Witchelina Station, 25 km SSW of Marree on 5 July 1977; effectively just west of the North Flinders Ranges.

Taken collectively, these records could indicate that the southern limits for the distribution of the Red-browed Pardalote include the northern parts of the Flinders Ranges and adjacent plains. It may be more common in this area than records show, due to the paucity of observers. Furthermore, the observation at Elatina Hut could be close to, if not on, the southern limit of its range.

ACKNOWLEDGMENTS

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FURTHER SIGHTING OF LEADEN FLYCATCHER AT ALDINGA SCRUB CONSERVATION PARK.

Following the sighting of a female Leaden Flycatcher *Myiagra rubecula* in the Aldinga Scrub Conservation Park on 2 November 1981 (Ashton and Ashton 1982), another bird of this species was seen here on 19 November 1983. When walking along the fire track in the centre of the park one of us (CBA) heard an unusual call. Within minutes, a male Leaden Flycatcher was sighted in an area of low pink gum *Eucalyptus fasciculosa*, acacia and yacca *Xanthorrhoea semiplana* scrub at the edge of grassland. The bird was the size of a Willie Wagtail *Rhipidura leucophrys* and a leaden-grey colour except for its sharply demarcated white abdomen and undertail coverts. Using 8 x 40 binoculars from a distance of 10-30 m we spent 15 minutes observing it perch and hawk for insects. The flycatcher stayed within 4 m of the ground while hawking, and when landing on a branch it rapidly quivered its tail and called persistently. Several calls were heard: a frequent 'toooo-ee' or 'toooo-eet' repeated 4-8 times on several occasions; 'wee-it' eight times in succession, the first syllable being longer than the second; 'too-eet-a-weet-a-weet'; 'weet weet weet eet eet'; soft rasping 'zzzrrp' repeated 4-5 times on several occasions; and 'wee-too' lasting half a second. The flycatcher was not directly associated with any other birds, but a Weebill *Smicrornis brevirostris* was nearby. After EMA joined the first observer, the bird was glimpsed in thicker foliage.

Local residents (L. and P. Pinnington) had seen two birds like Willie Wagtails, but without eyebrows, a week before this sighting. These birds

were dark grey above with a dark grey chest and white below and gave a call of 'too-ee', the first syllable being drawn out. Therefore it is possible that one or two Leaden Flycatchers had been in the vicinity at least one week prior to our observations.

The Leaden Flycatcher is considered a vagrant to the Mount Lofty Range area of South Australia (Blakers *et al.* 1984). Records of other sightings in the Adelaide region come from Beaumont, Bolivar (a *Myiagra* flycatcher), Cromer Conservation Park and Angove Scrub (Paton 1965; Glover 1976; SAOA 1994; Seymour 1994). All records of this species occurred during November or December (with a possible sighting in March), which is consistent with the species' southward migration in summer and apparent absence from south-eastern Australia in winter (Blakers *et al.* 1984).

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AN UNUSUAL FORAGING HABITAT OF THE RED-CAPPED PLOVER.

On 6 March 1995 while driving along the Eyre Highway about 40 km E of Ceduna, South Australia, I flushed a small wader from the road in front of my vehicle. I immediately stopped the car, and observed the bird, a Red-capped Plover *Charadrius ruficapillus*. The morning was overcast but bright and warm. Although rain had fallen within the previous 24 hours, there was no wetland or other surface water in the area.

The Red-capped Plover was actively foraging on the recently resealed bitumen road, in the stop-run-peck pattern typical of the species. While foraging, the plover would occasionally head-bob. Inspection of the road surface did not reveal any obvious food sources. Food items may have become stuck in the bitumen as it hardened, or might have been knocked down or run over by passing traffic (e.g. insects).

Each time a vehicle passed by, the plover reacted in a similar way: at a distance of about 150 m the plover stopped feeding and watched the approaching vehicle; as the vehicle closed in, the plover ran directly away from the oncoming vehicle for 1–2 m, then in the last seconds it flew at right angles to the road, narrowly avoiding a collision with the vehicle. The bird then circled back to the road and after a short time resumed foraging. During these observations the rate of disturbance by vehicles was estimated at about once per minute. The speed limit on this section of the road was 100 kph. On one occasion when I attempted to slowly move my car alongside the bird, the plover ran across the gutter and up an adjoining embankment before taking flight, circling and returning to the road.

Red-capped Plovers are usually recorded foraging around margins of marine and terrestrial wetlands, including intertidal mudflats, sandy beaches, lakesides, stream banks and saltmarshes; they occasionally also forage in pastures and on gibber plains (Marchant and Higgins 1993). There do not appear to be any previous observations of Red-capped Plovers foraging on sealed roads. However other waders have been recorded foraging on sealed surfaces, e.g. Black-fronted Plovers *Elsayornis melanops*, Common Sandpipers *Tringa hypoleucos* and Red-kneed Dotterels *Erythrogonys cinctus* have been seen foraging on a concrete causeway in a riverbed (Johnson 1990). Indeed, another member of the genus *Charadrius*, the Double-banded Plover *C. bicinctus* has been recorded running on sealed footpaths and roads, and foraging on tar-seal in the centre of a town in New Zealand (Sibson 1978).

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A RUFOUS FANTAIL AT LANGHORNE CREEK.

The Rufous Fantail *Rhipidura rufifrons* was first recorded for South Australia on 10 December 1933 when a specimen was taken at Coombe by W.J. Harvey (Sutton 1934). Condon (1951) assigned this bird to the race *rufifrons* of eastern Australia. Birds of this race are migratory, coming south in late October or early November to breed in wet forests (Reader's Digest 1976; Pizzey 1980). Some breed regularly in the Portland forests which adjoin the South Australian border in the

lower South East. A second record came from Bool Lagoon where one was observed on 21 March 1983 by H. Bakker. It was found dead and partly decomposed near the same spot two weeks later (Bakker and Parker 1986).

On 14 December 1992 a Rufous Fantail was seen about 2 km south of Langhorne Creek by P. Hender. It was hawking insects amongst orchard trees near sheds on the Hender property. It was still present on the following day and was secured as a specimen for the South Australian Museum. A male of the

race *rufifrons*, its skull was completely pneumatized and the gonads had begun to enlarge. The bird was in almost the exact spot where P. Hender had found a dead female Satin Flycatcher *Myiagra cyanoleuca* on 29 March 1964, the first record for South Australia (Condon 1965).

Like much of South Australia, Langhorne Creek experienced an unusually wet spring and early summer in 1992. The abnormally wet conditions may therefore have encouraged the bird to venture well beyond its normal range. The first record for the State of the Brush Cuckoo *Cacomantis variolosus* had been made some 20 km north a month earlier (Figwer and Britten-Jones 1994), its movement possibly also influenced by the unusually wet conditions.

A sight record of the Rufous Fantail from Tooperang (Smith 1946) was ignored by Terrill and Rix (1950) and Condon (1951 *et seq.*), then discussed and dismissed by Bakker and Parker (1986). Support for their action comes from the time of the sighting, namely 28 August, a surprisingly early date for a pair to have been present.

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AN ORIENTAL PRATINCOLE NEAR PORT WAKEFIELD. On 7 December 1992, I was driving on my property 10 km north of Port Wakefield at about 1030 h. The weather was cool and cloudy with a strong southerly wind.

As I drove near a dead sheep I noticed an Australian Pratincole *Siltia isabella* beside it. I stopped to observe the bird and saw it feeding on flying insects attracted to the carcass. The insects were caught on the ground and also in the air. Another darker pratincole flew in near the dead sheep and also caught an insect. I identified this bird as an Oriental Pratincole *Glareola maldivarum*. I observed it with 7 x 35 binoculars for about 10 minutes. Both pratincoles were fairly confiding and I had a good view from about 20 m.

The Oriental Pratincole was in non-breeding plumage. It was grey above, with dark primaries, and paler underneath, grading to almost white on the abdomen. The feature which confirmed its identification was a distinct black line around a

pale greyish throat. The bird had short black legs, a black bill and black eyes with a whitish eye-ring. It flew off and circled, showing a black-tipped, white forked tail and reddish-brown underwings.

The next morning I returned to the same location loaded with camera gear. The Australian Pratincole was again at the sheep carcass, but the Oriental Pratincole was not present. The Oriental Pratincole is rarely reported in southern Australia; e.g. see Pedler (1976) for early records in South Australia.

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AUSTRALIAN MAGPIE FEEDING ON PINE SEEDS. While conducting a census of birds at Kooyonga Golf Club in the Adelaide suburb of Lockleys on 16 November 1993, I observed a flock of Australian Magpies *Gymnorhina tibicen* of the white-backed subspecies. There were about 10 birds and all but one flew off at my approach. The remaining bird was an adult female and I thought that she was an old bird, because her black head feathers were mottled and the right wing drooped.

I observed this bird for about five minutes while she fed on the ground, taking seeds from a pine cone and from the ground nearby. She pecked out the seeds or took them off the ground and closed her bill on the hard part of the seed, leaving the seed wings attached to the outside of her bill. Occasionally the bird rubbed her bill on the ground, presumably to remove the seed wings. After about five minutes she slowly walked off and was seen a few minutes later on an adjacent green. The cone from which she had been feeding was three-quarters open and had only one seed left exposed. There were 12 'empty' seed wings near the cone and four intact seeds. Officers of the State Herbarium of South Australia were unable to identify positively the species of pine involved in this incident, but they thought the most likely species were Corsican pine *Pinus nigra* or Aleppo pine *P. halepensis*.

The standard reference on the food of Australian birds (Barker and Vestjens nd) does not mention pine seeds as a food for Australian Magpies, so presumably this is not a common occurrence. I know of one other report of an Australian Magpie taking pine seeds. This was on 6 January 1966 at Victor Harbor (Joan Paton pers. comm.) when a bird cracked open pine nuts by holding them in the

tip of its bill and banged them on the ground, and consumed the kernels. These large nuts were most probably from a stone pine *Pinus pinea* and are presumably energetically rewarding for a large bird like a magpie. However, the seeds of the pine cone at the golf course were small and may reflect the poor health of the female bird and her inability to find sufficient food over the normal range of a magpie's diet.

It is well known that many species of cockatoo and parrot feed on seeds from a range of pine species. Moreover Barker and Vestjens (nd) record White-winged Chough *Corcorax melanorhamphos* as feeding on *Pinus* sp. seeds and Australian Raven *Corvus coronoides* as feeding on unspecified parts of radiata pine *Pinus radiata* and other *Pinus* spp. Thus opportunistic feeding on pine seeds may occur widely among Australian birds and this raises the question of how birds learn that these are food. This is particularly the case with pine nuts, which are enclosed in a hard case. Presumably young birds learn from adults that the pine nut has to be cracked to obtain the kernel. Similarly, a chance finding by a bird that the seeds of introduced pine trees are edible may be passed from adults to young birds in particular areas.

REFERENCE

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CORRIGENDUM

A recent paper titled 'The Singing Bushlark *Mirafra javanica* in the South East of South Australia' by John Eckert (*S. Aust. Orn.* 32: 53-57) included the following statement: 'As might be expected, the darkest specimens came from the most northerly locations, a gradual infusion of warmer brown becoming increasingly evident with northerly movement...' (p. 55, left hand column, first sentence of last para). The first occurring 'northerly' should have been 'southerly'. I am grateful to John Eckert for pointing out the error which appears to have occurred after submission of the original MS.

ABARN SWALLOW NEAR NANTAWARRA.

On 6 February 1995 at 0750 h, I saw a single swallow flying around our farmyard, 6 km SW of Nantawarra (N of Pt Wakefield). For about 15 minutes the bird flew around the yard, hunting insects. Finally it perched on an overhead power line and I was able to view it from almost directly below, less than 10 m away with 7 x 40 binoculars.

Despite weather conditions being overcast and dull, the bird's rufous throat bordered by a black band could be easily seen. The white underparts were noticeably brighter than those of a Welcome Swallow *Hirundo neoxena*. These two features confirmed that it was a Barn Swallow *Hirundo rustica*. The bird's plumage appeared slightly dishevelled, but a moderate northerly wind may have accentuated this.

The swallow perched on the power line for at least 10 minutes, until a Willie Wagtail *Rhipidura*

leucophrys swooped and scared it off. It soon returned to the same perch and remained in the vicinity for about one hour.

This is the second published record of the Barn Swallow for South Australia, the first being made by Lynn Pedler in March/April 1977 near Koolunga (Pedler 1977).

I would like to thank Lynn Pedler for assistance in preparing this note.

REFERENCE

Pedler, L.P. 1977. A Barn Swallow in southern Australia. *South Australian Ornithologist*, 27, 256-257.

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COPULATION BEHAVIOUR IN A MAGPIE-LARK PAIR IMMEDIATELY AFTER DEATH OF THE YOUNG.

The Magpie-lark *Grallina cyanoleuca* commences its breeding season in early August (Robinson 1947; Tingay 1974). Despite a number of detailed examinations of Magpie-lark behaviour (Aston 1988; Byrne 1985; McCulloch 1987; Robinson 1947; Tingay 1974) there appear to be no reports of this species' copulatory behaviour. The female lays 3-4 eggs and incubation is shared by both birds (McCulloch 1987; Robinson 1947; Tingay 1974). The eggs hatch after 17-18 days (Tingay 1974). Both parents feed and brood the young (McCulloch 1987; Robinson 1947; Tingay 1974). The nestling period lasts 19-23 days after which the young fledge, staying within the nesting tree for up to four days, before flying about the territory (Tingay 1974).

Three pairs of Magpie-larks have been observed throughout the breeding season for three consecutive years at Gretel Crescent Reserve, Hallett Cove, South Australia. Each pair was observed for two hours a day, six days a week. On 3 August 1993 one pair began nest building by carrying mud to the nest site every 10-15 minutes, mostly in the morning. The nest was built in the fork of the upper third of a mature eucalypt tree. Nest building continued until 26 September, with only occasional repairs

after this date, and incubation commenced on 27 September. The number of eggs laid was not observed. On 11 October the parents were observed to carry food to the nest every 5-15 minutes. On 16 October two chicks were observed in the nest, but on the next day one of the chicks was found dead at the base of the tree. By 29 October the second chick had fledged and left the nesting tree.

On 30 October at approximately sunrise (0516 h) the remaining live fledgling was observed being taken by a dog. The dog carried its prey in its mouth for about 20 m before consuming it. The parents witnessed this incident, giving persistent 'pee' calls (Robinson 1947; Tingay 1974), whilst perched in their nesting tree. Within five minutes the pair flew to a wide open area where they were observed lying together on the ground. The female was underneath the male and partly concealed. She was not standing, but appeared to be either on her back or her belly. The male's wings were spread and there appeared to be cloacal contact. The birds were briefly interrupted, flew a short distance and returned to their apparently copulatory behaviour. They remained in this position for about one minute.

Approximately 20 minutes later the birds were observed carrying mud and other nesting material to the original nest. This behaviour was observed to continue for the next 11 days, mostly in the morning.

On 11 November the parents commenced incubation. Mud carrying was discontinued, except for occasional repairs.

On 26 November the parents were seen carrying food to the nest. On 1 December two chicks were observed. By 15 December both chicks had fledged and spent four days in the nesting tree before following their parents into the rest of their territory. The parents continued to feed the young for another three weeks. The young developed adult female plumage. One left the territory in late February 1994 and the other did not leave the territory until early August when the parents began nest building.

This rapid onset of reproductive behaviour in the Magpie-lark after the death of a chick appears not to have been previously reported.

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- Tingay, S. 1974. Antiphonal song of the Magpie-lark. *Emu*, 74, 11-17.
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