

Nesting and Other Observations of Solomon Island Birds

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Until the presentation of field observations of the birds on the island of Santa Isabel in the Solomon Islands (Webb 1992), ornithological inquiry on Santa Isabel had been confined to collecting by the Rev. Robert Welchman in the 1890s, by Albert Meek in 1900 and by the Whitney South Seas Expedition of 1928. As collecting was their purpose, these expeditions revealed little concerning distribution or the natural history of the Santa Isabel birdlife. From 1986 to 1988 I was stationed in Buala, the provincial capital of Isabel Province, and spent time in the field on Santa Isabel, Vella Lavella, Guadalcanal, Malaita, Makira (San Cristobal), and Ndeni (Santa Cruz). In 1992 from mid June through the first week of August I returned to the Solomon Islands, and spent time in the field on Vella Lavella, Santa Isabel and Guadalcanal. Observations from 1992 and from 1986-1988 give the first nesting accounts for four species (Solomons Cockatoo, Duchess Lorikeet, Singing Parrot, Chestnut-bellied Monarch), the first published nesting accounts in the Solomon Islands for six species (Eastern Reef Egret, Pacific Baza, Varied Goshawk, White-headed Kingfisher, Ultramarine Kingfisher, Dollarbird), and the first description of eggs for one species (Yellow-throated White-eye). Observations from 1992 add two species to the Santa Isabel avifauna (Common Koel, Barn Owl), and previously unreported behaviours for five species including Solomon Islands endemics (Sanford's Sea-Eagle, Imitator Sparrowhawk, Island Imperial-Pigeon, Red-knobbed Pigeon, Collared Kingfisher).

Gibbs (1996) visited some of the same islands in 1994, but reported on different species (sightings only) from those discussed here.

Systematic list

Eastern Reef Egret *Egretta sacra*

I have noted the nests of Eastern Reef Egrets in the area of Maringe Lagoon, Santa Isabel, throughout the year with a peak in June: two nests January, one nest February, three nests March, two nests April, five nests May, 10 nests June, five nests July, two nests October and one nest November. The stick nests were usually placed on a limb 2-5 m from the trunk at a height of 5-10 m in trees 10-25 m tall (n=20), generally on small islands away from the mainland. In 10 cases the nest was placed in the crotch formed by a limb and the trunk of the tree. One nest was placed on a rock ledge 4 m above the water. Brood sizes were one (n=1), two (n=7) and three (n=3). Colonial nesting among Reef Egrets of the Maringe Lagoon area was not observed.

Pacific Baza *Aviceda subcristata*

This is the first published report of nesting for the Pacific Baza from the Solomon Islands, and is similar to nesting accounts from Australia (Marchant & Higgins 1993). The Baza was frequently heard calling from June to December on both Santa Isabel and Vella Lavella. Typical displays (see e.g. Marchant & Higgins 1993) were noted during this period. Individuals swooped down with legs extended and tail trailing below the body; rolls and somersaults were also observed. Two nests were observed on Santa Isabel, both at a height of 20-25m in large trees 35-40 m tall. They were insubstantial platforms of sticks on leafy forked limbs c. 3 m from the trunk of the tree, similar to a nest described by Buckingham et al. (undated). Two eggs observed on 24 November 1987 were short pyriform in shape, 42 x 35 mm, with a slightly glossy blue-green background sparsely smeared with red-brown. The larger female was the chief incubator, with relief by the male between 1100-1200 h and 1600-1630 h. Length of incubation was uncertain, but 30 days after the eggs were examined there were two white chicks in the nest. Both adults fed the young with large insects and small reptiles, including a bright green lizard (probably *Lamprolepis smaragdina*; McCoy 1980).

Sanford's Sea-Eagle *Haliaeetus sanfordi*

On 23 June 1992 two Sea-Eagles were observed soaring and calling near Sambora village, Vella

Lavella. The calls were a high-pitched grating chatter, similar to those noted by Buckingham et al. (undated). One bird carried a branch in its talons, while the second bird circled above and made periodic swoops at it. I believe that this previously unreported display, which is similar to that of the White-bellied Sea-Eagle *H. leucogaster* (Coates 1985), was related to mating.

Varied Goshawk *Accipiter novaehollandiae*

In June 1987 I observed the nesting of a pair, the first account of breeding for this species from the Solomon Islands, and similar to that described by Halliday (1982) near Port Moresby, Papua New Guinea. On 2 June both the male and female were flying about an area of secondary forest that included several large Ngali Nut trees *Canarium solomonensis*, within 50 m of a housing block in Buala. A swooping and circling display was observed, along with *ki-ki-ki* calling by both birds. Frequent copulation was observed after bouts of display. On 18 June the male and female began building the substantial nest near the crown of a *Canarium* at the junction of a limb and the trunk at a height of c. 30 m. The nest's placement and the live condition of the nest tree differed from reports for the Varied Goshawk from New Guinea (Halliday 1982). The nest was constructed of small branches and other vegetable matter and was complete by 1 July except for periodic repairs during incubation and brooding. At completion its dimensions were c. 35 cm high and 60 cm wide, with an egg cup c. 7 cm deep \times 12 cm wide. The two eggs, laid between 4 and 10 July, were rounded ovals, light blue with evenly distributed dark brown splotches, and measured 38×34 mm and 39×34 mm. I observed two full days of incubation, and made many brief observations. The larger female bird was the chief incubator, with periods of relief from the male at about 0800 h and again at about 1600 h. The male was not much in evidence at the nest except when he brought food to or changed places with the female. I never saw the eggs unattended during incubation.

On 8 August I observed two chicks being fed. As with incubation, the female was the chief custodian. I observed the male brooding on five occasions. From 8-23 August I never observed the chicks unattended, and during this period the male brought food to the nest while the female attended the young and tore the prey for them.

Food brought to the nestlings included various unidentified lizards and snakes, but birds were the main food, and the following species could be identified: Rainbow Lorikeet *Trichoglossus haematodus* (three occasions), Yellow-throated White-eye *Zosterops metcalfei*, Cicadabird *Coracina tenuirostris*, White-bellied Cuckoo-shrike *C. papuensis*, Singing Starling *Aplonis cantoroides* and Yellow-bellied Sunbird *Nectarinia jugularis*.

On 25 August, the nest was unattended when I arrived. Later the female brought food for the young, and for the first time I saw a chick tearing its own food. After feeding the young, the female brooded them until the male arrived with food. She departed and the male left the food for the young. On 12 October, the nest was empty and the young birds were discovered in low brush. The parents continued to bring food into the area until the end of October, after which the goshawks were no longer seen.

Other nests of the Varied Goshawk were observed on Santa Isabel: July 1987, two nests with two young each; August 1988, one nest with three young. On Vella Lavella in June 1992 two nests were under construction.

Pied Goshawk *Accipiter albogularis*

In July 1992 on Santa Isabel, a pair of Pied Goshawks was observed bringing food to a nest located in the crotch of a limb c. 10 m high in a tree in primary lowland forest at an altitude of 200 m. The nest was far bulkier than that of the Varied Goshawk. I was unable to observe the young, but could hear their cries when the adults flew to the nest. The adults were dissimilar: one bird was slate-grey above and white below and one was entirely black. The larger black bird was the chief brooder of the young and was therefore probably the female (Brown & Amadon 1968). The July nesting and the location of this nest are similar to those reported by Donaghy (1950) on Guadalcanal. The displays and calls reported by Buckingham et al. (undated) at a nest on Makira were not observed.

Several observations were made on Santa Isabel of a Pied Goshawk taking prey: twice of lizards basking on limbs during the early morning, once of a snake from a banana plant at the edge of a native garden, once of a Duchess Lorikeet *Charmosyna margarethae* perched on a stem of an epiphyte, and once of a Red-bibbed Fruit-Dove *Ptilinopus viridis* feeding on fruits at the end of a branch.

Imitator Sparrowhawk *Accipiter imitator*

On two occasions in July 1992 this species was observed in primary forest at an altitude of c. 400 m near the Logadou River on Santa Isabel. It was identified by its jet-black dorsum, black throat and breast, white belly and the orange-yellow colour of the cere which extended across the base of the lower mandible.

The first observation was made as I watched a mixed passerine flock foraging in primary gallery forest; an accipiter swooped onto a Chestnut-bellied Monarch *Monarcha castaneiventris* which was feeding among leaves at a height of c. 15 m, then flew into a tree c. 20 m away, where, in full view, it mantled and dismembered its prey. The second observation was made near the same locality where

birds in a mixed flock of three Chestnut-bellied Monarchs, a Pied Monarch *Monarcha barbata*, two Steel-blue Flycatchers *Miyagra ferrocyanea*, two Cockerell's Fantails *Rhipidura cockerelli* and four Small Bougainville Honeyeaters *Myzomela lafargei* were mobbing an Imitator Sparrowhawk. The Honeyeater flew at the raptor while the other birds sat or flitted close by, making alarm cries. The Sparrowhawk was of the same plumage as described on p. 35.

The three *Accipiter* species of Santa Isabel take similar prey types; all take birds. Two of the three, Varied Goshawk and Pied Goshawk, are known to take reptile prey, and Wattel (1973) indicated that the morphology of the Imitator Sparrowhawk is of a type associated with accipiters that feed on reptiles. My observations of the Varied Goshawk and the Pied Goshawk indicate that both are occasionally seen in secondary growth, but that the Pied Goshawk is rarely seen in cleared areas and the Varied Goshawk is rarely seen in old forest. The avian prey that I have seen them take and feed to nestlings bears out these associations.

In all cases the prey taken by the Pied Goshawk appeared to be in open, unobstructed positions. The Chestnut-bellied Monarch taken by the Imitator Sparrowhawk was gleaning among leaves at the end of a limb, and from my vantage point was in a less accessible position than prey taken by the Pied Goshawk. This is only one instance of prey-taking by an Imitator Sparrowhawk, and one should be cautious in generalising from it. However, the overall smaller size of the Imitator Sparrowhawk is consistent with its taking prey in tighter, more obstructed positions, and supports the contention of Wattel (1973) that the morphology of the Imitator Sparrowhawk is consistent with hunting in overgrown conditions. It appears that these two forest-dwelling accipiters both take birds and reptiles as prey, but the conditions under which they hunt and the techniques employed in hunting differ. Wattel (1973) speculated that reptiles compose a larger percentage of the diet of the Imitator Sparrowhawk than of the Pied Goshawk.

Common Scrubfowl *Megapodius freycinet*

I have heard this species on Santa Isabel where local informants have told me of mound-type nests. Until 1992, I had examined only burrow nests on the south-eastern beaches of small islands off Santa Isabel. In July 1992 I was taken to three Santa Isabel sites where portable sawmills had been in use. Large piles of sawdust had accumulated and, in these, large numbers of Common Scrubfowl eggs had been laid. The birds had not altered the mounds of sawdust. Local people were using the eggs as a food source. This opportunistic use of the by-products of human activity is the first reported from the Solomon Islands and is similar to an instance described for New Guinea (Kisokau in Coates 1985).

Red-bibbed Fruit-Dove *Ptilinopus viridis*

Nesting of this species on Santa Isabel is the same as that reported by Schodde (1977) on Bougainville. Four nests in the first two weeks of July each held one dull white egg, measuring 33-34 × 20-22 mm. One nest in late July held one chick. Nests were flimsy platforms placed in the forks of small limbs c. 3 m high. Sibley (1951) noted mating behaviour in November on New Georgia, which may indicate different mating time(s) for that area.

Red-knobbed Pigeon *Ducula rubricera*

These birds nested in small colonies of up to 25 pairs in mangrove trees on offshore islands near Santa Isabel in July-August. The nests were flimsy, less bulky structures than those of the Island Imperial-Pigeons *D. pistrinaria*, and were seldom more than 2 m above the surface of the water. The clutch was one egg (n=22). Nesting coincided with the fruiting of the Ngali Nut tree which is the pigeon's preferred food. This nesting date differs from that of Sibley (1951), who observed colonial nesting on a small island near Simbo during early February.

Flight displays and calling also occurred during July-August. The flight displays were as described by Schodde (1977). Calling displays were the same as described by Meyer (in Goodwin 1970): head-bobbing co-ordinated with loud 'coos' or 'whoops'. In addition, I observed a previously unreported behaviour among Red-knobbed Pigeons on Santa Isabel and on Vella Lavella. The last 'whoops' were co-ordinated with jumping that shook the branch on which the bird was perched and, in the case of particularly enthusiastic callers, lifted the caller clear of the branch by several centimetres. The concentration of flight displays and calling during July-August corresponds with data collected by Schodde (1977), who found that slightly less than half the Bougainville birds collected between July and September were in breeding condition.

Island Imperial-Pigeon *Ducula pistrinaria*

During June-August the Island Imperial-Pigeons of Santa Isabel called and displayed. Precopulatory displays were the same as those observed by Schodde (1977) as incubating adults left the nest. I observed head-bobbing which accompanied the opening 'barks' of the call and branch-shaking leg actions or jumps that were co-ordinated with the final three most emphatic 'barks'. This calling display was very similar to that of the Red-knobbed Pigeon, but has not been described for the Island Imperial-Pigeon.

Island Imperial-Pigeons nested in July-August on Santa Isabel. They built bulky untidy stick nests

atop the inclined trunks of large trees found along the seashore. The nests were generally c. 3 m from the tree's base in a position over water. These trees are known in the Maringe and Hograo areas as *khoakoba*. The clutch size was generally one; however, one nest (of 16) had two chicks. This period of nesting fits the observations of Schodde (1977), who found that slightly more than half of the Island Imperial-Pigeons collected on Bougainville in July-September were in breeding condition, and of Howell (1981) who found Island Imperial-Pigeons breeding prolifically on Nissan in June.

Nicobar Pigeon *Caloenas nicobarica*

I know of no concentrations of the Nicobar Pigeon on Santa Isabel; however, occasionally I heard its call in lowland coastal forests. In July 1992 I made nocturnal visits to offshore islands to census Nicobar Pigeons at known roosts. No roosting birds were found on any of the islands of Maringe Lagoon. Eighteen birds were found roosting on Hakelake Rock, 33 on Sesehura Faa. On Arnavon Island there were about 200 birds at one roost and 54 birds were counted at another.

Local people use Nicobar Pigeons for food. Local custom places the birds off limits during October-December, the period of nesting and rearing of young. In spite of this traditional conservation, local informants indicated a decline in Nicobar Pigeon numbers around Santa Isabel.

Solomons Cockatoo *Cacatua ducorpsi*

During June, July and August, I examined 11 nests (June, $n=3$ nests; July, $n=5$ nests; August, $n=3$ nests), the first nesting accounts for this species. All nests were in cavities, none of which appeared to have been excavated by the birds themselves, in large trees between 20 and 25 m from the ground. Eight nest cavities seemed to have resulted from injury to the bole of the tree; however, the smoothness of the entrances, and the debris at the bases of the trees and in the nest cavities indicated that the birds had modified the natural cavities. One nest was in a cavity in a large branch about 2 m from the trunk and two nests were in cavities formed by the tangled mass of roots of a strangling fig *Ficus* sp. Of the 11 broods, nine contained two, one contained one and the other brood contained three nestlings; there are local reports of rare broods of four. All of the young in these nests had some plumage visible in sheath on the dorsal and ventral surfaces; the wings had developed flight feathers. Both parents fed the brood.

Cardinal Lory *Chalcopsitta cardinalis*

Three nests of the Cardinal Lory were examined on Santa Isabel and this is the first published nesting record for this species. All were in cavities 15-25 m above the ground, in large trees near water, two by a stream, one by the sea. Each brood was of three; in late May the chicks were covered in grey down, and in July two nests held young fully feathered in plumage duller red than that of the adult bird. Both parents fed the young. I have observed copulation in April, May, October and December on Isabel, in August and September on Guadalcanal, and in May and September on Vella Lavella. Buckingham et al. (undated) reported a high-altitude nest from Kolombangara in August. Cain & Galbraith (1956) observed display in September on Guadalcanal, and Schodde (1977) observed copulation in August on Bougainville. These observations suggest that breeding occurs the year round.

Duchess Lorikeet *Charmosyna margarethae*

On Santa Isabel I found one nest on 15 July 1992, the first nesting record for this species. The nest was in the Mount Sasari area at an altitude of c. 300 m in an irregular cavity c. 20 m high in the trunk of a large, rotten moss-covered tree. It was attended by both adults which arrived almost simultaneously to attend two very noisy young. This nest was different from that reported for other members of the genus which generally excavate their nests in termitaria or in large clumps of epiphytes (cf. Bregulla 1992 for Palm Lorikeet *C. palmarum*, Coates 1985 for Red-flanked Lorikeet *C. placensis*, Buckingham et al. undated for Meek's Lorikeet *C. meeki*). Local informants on Bougainville (Hadden 1981) and on Isabel indicated that nesting occurs in June-July.

Finsch's Pygmy-Parrot *Micropsitta finschii*

During July 1992 I examined six nests of Finsch's Pygmy-Parrot on Santa Isabel, the most detailed accounts of nesting for this species to date. The nests were in an area of primary forest roughly 2 km square at an altitude of c. 300 m. All had been excavated in active arboreal termitaria located 2.5-3 m above ground, and their construction was examined by opening the termitaria. The entrance holes were roughly round, had a mean diameter of 33 mm (30-36 mm) and were located on the undersides of globular termitaria. These dimensions were smaller than those reported by Drowne (in Hindwood 1959). Each entrance tunnel angled slightly to the right of an observer facing the termitarium, was slightly narrower than the entrance and led inward and slightly upward; after c. 15 cm, it curved up toward the centre of the termitarium, and extended c. 4 cm before opening into the top of the oval (c. 10 cm high by 15 cm long) nesting chamber, in which there was a thin layer of debris and a few green feathers. The tunnels and nest chambers of these occupied nests were sealed from the portion of the termitaria occupied by the termites. Each clutch had two rounded, slightly elliptical eggs, white with a pink cast. Eggs measured 16-17 × 13-15 mm, similar to those reported by Drowne (in Hindwood 1959). Four females, but no males, were captured leaving the occupied nests (by flushing them into nets held over the entrances), and this may indicate that only females incubate the eggs.

The immature male Finsch's Pygmy-Parrot collected by Sibley (1951) on New Georgia in late October indicates that the nesting of Finsch's Pygmy-Parrot on New Georgia may be concurrent with that on Santa Isabel.

Singing Parrot *Geoffroyus heteroclitus*

On Santa Isabel from May to August this species nested c. 10-20 m above ground in damaged trunks of trees. The five nests examined were in primary or old secondary lowland forest and are the first accounts of nesting for this species from the Solomon Islands. The regularity of the openings and the debris at the bases of the trees indicated that the nesting cavities were at least in part excavated from rotten wood by the birds. Four broods were of two, and one of three nestlings. Both parents fed the young and approached the nest directly from a high perch, entering the cavity without pausing outside. These nests confirm Forshaw's (1973) suspicions that this parrot has nesting habits similar to those of the Red-cheeked Parrot *Geoffroyus geoffroyi*.

Common Koel *Eudynamys scolopacea*

Found on most of the large islands of the archipelago, but previously unreported from Santa Isabel. I did not see or hear the bird during two years' residence on Santa Isabel (1986-1988), but became aware of Koels on small islands off Santa Isabel in 1992 during nocturnal censuses of Nicobar Pigeons. I heard them on Vaghena, Sulei, Sesehura Faa and Gha Ghe Islands; also heard twice on the main island of Santa Isabel (15 July, 0300 h, and 18 July, 0500 h). The larger populations of the Koel on smaller islands follow a pattern observed by Jared Diamond (pers. comm.) in the Bismarck Archipelago. I heard and tape-recorded the full range of calls as described by Schodde (1977) and Diamond (pers. comm.).

Barn Owl *Tyto alba*

A pair of these owls was observed at dusk hunting along the newly cleared landing strip at Suvanao, Santa Isabel, in July 1992. Barn Owls were previously unrecorded from Santa Isabel. Olsen (1994) recorded the first breeding Barn Owls in the Solomon Islands on Kolombangara.

Glossy Swiftlet *Collocalia esculenta*

I examined three nesting colonies, two on Santa Isabel and one on Guadalcanal. Previous nesting records in the Solomon Islands have been of solitary nests. The two Santa Isabel colonies were in caves, the Guadalcanal one in a World War II bunker. One Santa Isabel colony and the Guadalcanal colony were near sea level, and the other Isabel colony was at an altitude of c. 500 m. In all three cases, the nests were affixed to walls and roofs near enough to the openings that they were illuminated by very dim light. The roughly round, cup-like nests were constructed of moss and coarse fibres, with feathers sometimes included. The front edges of the nests dipped down from the roof or wall to which they were attached. The 77 nests examined in the Santa Isabel colonies averaged 75 mm (range 69-78 mm) from the surface of attachment to the front edge of the nest, and their inner cavities averaged 50 mm (range 48-54 mm) from back edge to front edge and were roughly 35 mm deep. Schodde (1977) reported a single nest from Bougainville of slightly larger dimensions. Medway (1962) gave no nest measurements for Glossy Swiftlets of Niah Cave, Sarawak; however, he described these nests as 'bracket-shaped', which indicates a nest that is flatter in the vertical dimension than the more rounded cup-like nests of Santa Isabel. In the case of the Santa Isabel colonies, 40% of the nests were located on vertical walls of the cave 1.3 m or more above the floor, 56% on the curving portion of the cave between vertical wall and horizontal ceiling, and 4% were affixed to the ceiling of the cave. The nests of the Santa Isabel colonies were arranged in an alternating pattern one above the other on either side of an axis, which allowed for unobstructed approach to the nests. This arrangement differed from that described by Medway (1962) who reported a much less orderly, more crowded arrangement where 'adjacent nests may touch or share a common foundation'. The nests of the Santa Isabel colonies were divided unevenly into two groups: a larger group farther from the cave entrance (76% of the nests in one case, 67% in the other) and a smaller concentration nearer the cave entrance. The two white, slightly glossy eggs were elliptical in shape, and averaged 16 × 11 mm (range 15-18 × 10-13 mm, n=102), measurements similar to Medway's much smaller sample.

One Santa Isabel colony examined on 12 November 1986 contained 42 nests: four were empty, two contained two eggs, one contained one egg and one nestling, six held one nestling, and 29 held two nestlings. All of the nestlings were blind and naked. The eggs were probably non-viable, but I was unable to confirm this. I returned a week later, and found that all of the nests had been raked from the walls and roof of the cave by local children. I returned on several occasions, and never again found nests at this location.

Another Santa Isabel colony, located in a cave at an altitude of about 500 m, contained 51 nests on 6 September 1987: two were empty, one contained one egg and the remaining 48 held two eggs. All of the eggs had hatched when I returned to the colony on 11 October 1987. The nest that had held one egg held two nestlings, as did one of the nests that was previously empty. The young were blind and naked.

The activity of the adult birds at and around the nest was accompanied by sharp metallic chirping

and bill-clicking. The nestlings, whose eyes were unopened, rose at the approach of the parents, apparently in response to auditory rather than visual cues. The parents alighted on the edge of the nest to feed the nestlings by regurgitation.

I visited the Guadalcanal colony at 1000 h on 19 July 1992. The arrangement and size of the 31 nests in the colony were similar to those on Santa Isabel, but 13 were empty, distributed among the occupied nests. Ten nests held two eggs, one held one egg, five held two naked nestlings, and two held three fully feathered birds believed to be nestlings. Adults leave the roost at dawn, while chicks capable of flight linger in the nest, and frequently leave only under the influence of hunger or fright (Medway 1962). The large percentage of empty nests, and the disparity in development among the young of the colony, differed from my highly synchronous observations on Santa Isabel and those reported by Medway (1962) for Sarawak.

Collared Kingfisher *Todiramphus chloris*

On Santa Isabel, this species nests high in tree cavities in the bole or substantial limb of a tree. The ten nests observed were more than 25 m above the ground, and were within 0.5 km of the coast. In the Maringe Lagoon area, active nests were observed during November (one), December (one), June (six) and July (two nests). One pair has used the same cavity every June since 1986.

White-headed Kingfisher *Todiramphus saurophaga*

This species nests in cavities in the trunks and limbs of trees within 100 m of the sea on Santa Isabel. Of the 13 Santa Isabel nests observed, all in the period from May to 10 July, three were in cavities in limbs and 10 were in cavities in trunks. I have never seen the bird's eggs. The most common brood was two chicks ($n=13$); one brood from Vella Lavella had three chicks, and one from Guadalcanal four chicks. Incubation apparently begins before the clutch is complete, as there was a great disparity in the development of brood mates.

In June 1992 I observed an unusual nest near Sambora Village on Vella Lavella. The nest was excavated in the layer of soil atop a coral projection about 200 m seaward of the high-tide line. The opening of the excavation, which was c. 8 cm in diameter, was c. 2.5 m above the rocks at low tide. The excavation went directly back about 8 cm before opening into a brood chamber that appeared to be about 25 cm wide, 15 cm deep and 15 cm high. Local informants reported the use of the nest site before 1986, when I first observed its use. Its location may make the nest less susceptible to predation. This nest had a brood of three chicks. Both parents were observed feeding them with crabs of at least two species, a fiddler crab taken from mudflats and a small, pale grey crab taken from tidal pools.

Ultramarine Kingfisher *Todiramphus leucopygia*

In July 1992 on Santa Isabel, I found a nest in a termitarium at an altitude of c. 400 m in an area of primary forest; a first record of nesting for this species. Both parents brought large insects to the nest to feed the chick(s). The opening to the nest was c. 4 cm in diameter but the young were not visible here. I returned to the nest, and found the nest broken open and the chicks gone. The brood chamber was located at the end of a tunnel that went straight back and up at an angle of about 30° from horizontal for a distance of about 20 cm. The brood chamber at the end of the tunnel was roughly hemispherical and 12 cm in diameter. It contained a few pieces of white eggshell and a few deep blue feathers. The time of this nesting confirms the accuracy of reports to me by Solomon Islanders; however, it is not in keeping with a report from Bougainville (Baker 1948) of an egg taken from an oviduct in mid October.

Dollarbird *Eurystomus orientalis*

Three nests with young were observed on Santa Isabel, two in late June and the other in July. Two nests with young were discovered on Vella Lavella in June. All nests were in cavities in decrepit snags. The two broods that I was able to examine contained three chicks and exhibited great disparity in development among brood mates. The adults approached the nest directly and remained at the cavity opening to feed the young.

Chestnut-bellied Monarch *Monarcha castaneiventris*

Nesting of this species takes place on Isabel in June-July. The nest is a shallow inverted cone composed of leaves and bark bound in spider web, with an inner cup of fine rootlets and other vegetable material, placed in the fork of a branch 2-4 m above the ground. One nest was 80 mm outside diameter, 125 mm high, with an egg cup 50 mm in diameter and 35 mm deep. The three Santa Isabel broods examined each contained two grey-downy chicks. I have never seen the eggs.

Chestnut-bellied Monarch nest-building behaviour on Santa Isabel and Guadalcanal was the same as that described by Sibley (1951) for the closely related White-capped Monarch *M. richardsonii*. The nest of the Chestnut-bellied Monarch has a similar structure to that of the White-capped Monarch, but is found higher in the trees (2-4 m; cf. those of White-capped Monarch at 0.9 m as reported by Sibley 1951 and local informants on Vella Lavella). The breeding season of the Chestnut-bellied Monarch, which is between June and July on Santa Isabel and Guadalcanal, is earlier than the October-

November breeding season of the White-capped Monarch reported by Sibley (1951) and local informants on Vella Lavella. These are the first nesting accounts for Chestnut-bellied Monarch.

Yellow-throated White-eye *Zosterops metcalfei*

Breeds from September to October on Santa Isabel. Two clutches, both of two eggs unmarked and very pale blue, measuring 17×13 mm and 15×12 mm. The nest is a cup of fine vegetable fibre bound with spider web, hung from a horizontal fork of a shrub or tree, 2-3.5 m above ground. These are the first eggs described for this species.

Discussion

Among the Columbidae and Psittacidae of Santa Isabel there is a marked peak in breeding activity in the months from June to September. This roughly corresponds with nesting observations made by Schodde (1977) and Hadden (1981) and the condition of gonads in birds collected by Schodde (1977) on Bougainville, an island whose avifauna is closely related to that of Santa Isabel. This period corresponds with that of lengthening day and with a fruiting season for *Canarium* and several species of *Ficus* which compose a portion of the diets of these birds, but does not correspond with the breeding season reported by Sibley (1951) for several species of Columbidae on New Georgia, or with that period reported to me by local informants from Vella Lavella.

These nesting data for parrots indicate ways that parrot nesting sites on Santa Isabel and the whole Solomon Islands may be preserved. Most of the cited species require large mature trees for nesting. In most cases, these trees have suffered some damage, and resultant disease has caused a natural cavity or a condition which permits the birds to alter the bole of the tree for a nest. Currently, clear-felling is the most prevalent form of large-scale commercial logging in the Solomon Islands (Lees 1991) and it eliminates parrot nesting sites. However, even attempts at sustainable harvests of trees which do not permit trees to mature, or that cull damaged or diseased trees, would have a serious impact on parrot nesting.

Acknowledgements

I express my gratitude to the Frank M. Chapman Memorial Fund of the American Museum of Natural History for providing support that made this fieldwork possible. I must also acknowledge the help of Jared M. Diamond, Mary LeCroy, Bruce Beehler, Ron Matson, Stephen Debus and Ian Rowley who read the manuscript and offered suggestions in its preparation. Lastly, I thank Moses Biliki of the Solomon Islands Ministry of Forests, Environment and Conservation for his support and assistance.

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Received 27 April 1995, revised 7 August 1996

