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Distribution, behaviour, and provenance of Oriental Dollarbirds *Eurystomus orientalis* in Micronesia, including the first two records from the Mariana Islands

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SUMMARY.—We document the status of Oriental Dollarbird *Eurystomus orientalis* in Micronesia, a region extralimital to the generally accepted geographic range of the species. Our review yielded 34 Micronesian records between 1938 and 2019, with 27 at Palau, four at Yap, and one at Pohnpei in the Caroline Islands, as well as one each at Guam and Saipan, which are the first for the Mariana Islands. Expanded observer effort since 2000 has produced an increase in regional sightings, with birds detected in ten of the 18 years from 2002 to 2019. Examination of museum specimens ($n = 3$) and photographs of wild dollarbirds ($n = 10$) confirmed all but one individual as belonging to the migratory Australasian subspecies *E. o. pacificus*. Timing of records, with nearly all between mid April and mid October, largely matches the known migration and overwintering periods for *E. o. pacificus*, further indicating that most records involved this taxon.

Oriental Dollarbird *Eurystomus orientalis* is one of the largest and most subtly coloured members of the family Coraciidae. Adults of both sexes exhibit blue-green body plumage, a dusky head, dark throat with bright purple streaks, red bare parts (bill, feet and thin eye-ring), and namesake pale blue ‘silver dollars’ in the outer primaries (Fig. 1a). Juveniles are not as brightly coloured as adults, particularly on the forehead and crown, with muted body plumage, restricted throat streaks, and bills that start all black and gradually turn red from the base (Fig. 1b, c). Adults often retain a small black tip to the bill.

The species is widely distributed across much of eastern Asia and Australasia (Fry *et al.* 1992, Fry & Boesman 2018). Ten subspecies are currently recognised, eight of which are non-migratory tropical populations that range from India and South-East Asia to western Melanesia (Fry & Boesman 2018, Gill & Donsker 2019). The other two subspecies are fully or partially migratory, with *E. o. cyanocollis*, formerly *E. o. calonyx* (Gill & Donsker 2019), breeding from south-eastern Siberia to eastern China and northern India, and wintering in South-East Asia and the Greater Sundas, and *E. o. pacificus* having migratory populations in northern and eastern Australia that spend the austral winter in New Guinea and the adjoining islands of western Melanesia and much of Wallacea (Coates 1985, Dutson 2011, Fry & Boesman 2018). These two subspecies differ sufficiently in plumage colour that adults can sometimes be distinguished in the field or from good photographs. Compared to *E. o. cyanocollis*, *E. o. pacificus* is somewhat paler with noticeably less colour saturation, a slaty-brown head, nape and upper back, and a paler turquoise belly. Juveniles of both subspecies are easily distinguished from adults in the field (HDP pers. obs.). For colour illustrations of representative subspecies, see Fry & Boesman (2018).

Dollarbirds typically forage in ecotones with an open component and prominent perches, including woodland, open forest, forest edge, roadsides, cultivation, and other areas with scattered trees, but sometimes also inhabit closed forest and forest canopy

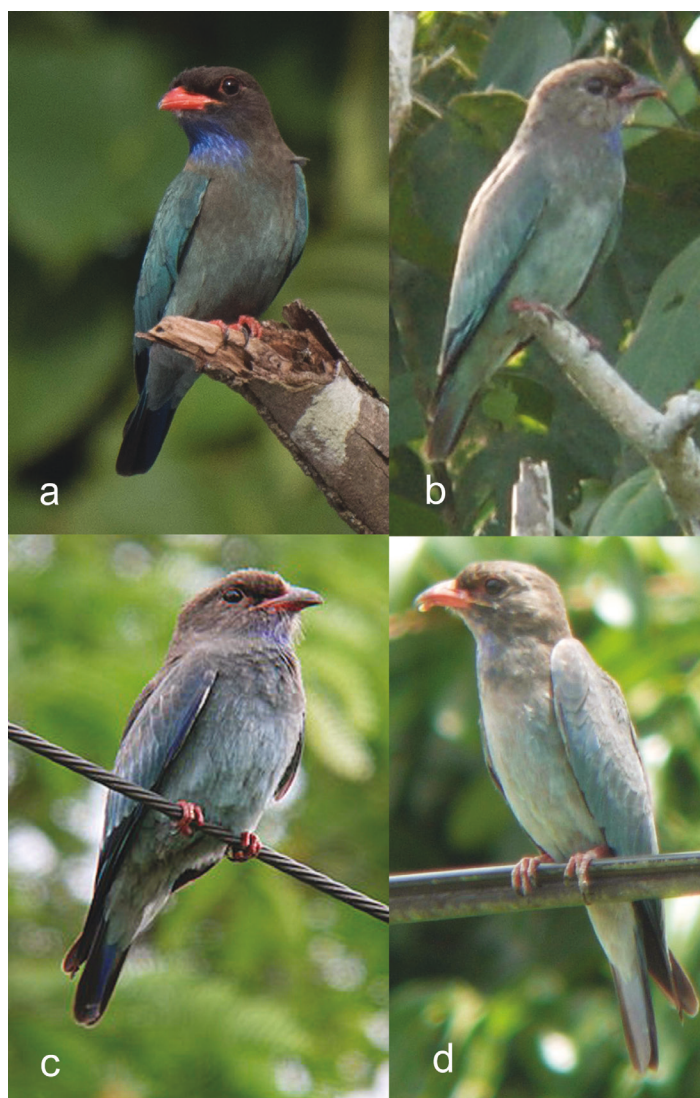


Figure 1. Plumage differences among four Oriental Dollarbirds *Eurystomus orientalis pacificus* of different ages photographed in Micronesia: (a) adult, Airai, Palau, 28 August 2019 (Glenn McKinlay), (b) juvenile, Ngeremlengui, Palau, 24–25 May 2008 (Alan Olsen, Palau National Museum), (c) older juvenile, Ngerkebesang Island, Palau, 7 June 2011 (Alan Olsen, Palau National Museum), (d) subadult, Aimeliik or Airai, Palau, 21 August 2008 (Alan Olsen, Palau National Museum). The subadult shows an all-red bill while retaining juvenile plumage.

(Coates 1985, Fry *et al.* 1992, Higgins 1999). Dollarbirds can be solitary, in pairs, or in loose feeding aggregations, and forage mainly by hawking large flying insects from high exposed perches, such as trees, snags and powerlines. They are most active from late afternoon to dusk, early morning, and during and after rain. The species is fairly common in much of its range and is not globally threatened (Fry & Boesman 2018).

The islands of Micronesia, which lie north and north-east of New Guinea and east of the Philippines, are considered outside the normal range of Oriental Dollarbird, with only 16 records previously published for the region. Over the past two decades, increased birding and biological field work in the region, plus the advent of eBird and other online databases, have produced more frequent reports of the species, many of which have not been published. Several authors have suggested that Micronesian records probably involve mostly *E. o. pacificus* (Engbring 1983, VanderWerf *et al.* 2006, Pratt & Etpison 2008, Pratt *et al.* 2010), but that hypothesis has not been confirmed, so the geographic provenance of Micronesian visitors is unknown. Here, we provide a listing of all known records of

Oriental Dollarbird made to date in Micronesia, summarise patterns of occurrence, and diagnose the subspecific identities of records where possible. We also provide supporting documentation for two records from the Mariana Islands, which are the first for that more northerly archipelago.

Methods

Review of records.—We reviewed all published reports, unpublished trip reports by visiting birders (www.cloudbirders.com), reports posted on eBird (<https://ebird.org>) and iNaturalist (www.inaturalist.org), records held in the Global Biodiversity Information Facility database (GBIF, www.gbif.org), and unpublished observations by birders living in Micronesia, to compile a comprehensive list of Oriental Dollarbird records for the region. We evaluated unpublished sightings for accuracy, and accepted those that came from experienced observers known to us and those supported by photographs. Because dollarbirds are so strikingly different from any resident bird species in Micronesia, with several obvious field marks, and because of their conspicuous behaviour, we also have high confidence in the accuracy of several reports from observers unfamiliar to us. When possible, we contacted observers to obtain supplemental information about their sightings and any photos they might have.

Subspecific evaluation of records.—HDP examined two of the three existing specimens (see Appendix) from Micronesia, which were loaned by their respective institutions (the Bernice P. Bishop Museum, Honolulu, Hawaii, USA [BPBH] and Brigham Young University, Hawaii, Laie, Hawaii, USA [BYUH]) to the National Museum of Natural History, Washington DC, USA, where adequate comparative specimens of the migratory and other subspecies are housed. He placed the specimens among series of *E. o. cyanocollis* and *E. o. pacificus* to determine visually their subspecific attribution. He also examined other specimens still in their cases and compared them directly with the two Micronesia ones to look for any matches. Additionally, HDP reviewed an online catalogue photograph of the third specimen, held at the Yamashina Institute for Ornithology, Chiba, Japan (YIO), as well as photographs taken of ten individuals in Micronesia, plus hundreds of images from other localities posted online, to assess subspecies identification of these birds. Photographs present several problems because they preserve an instant that may show deceptive coloration because of angles and intensity of light, whereas an observation of a live bird may better reveal true colours as the bird moves, but HDP has a lifetime of experience working with photographs as references for paintings, so we are confident of his comparisons.

Results

Summary of occurrence.—We compiled a total of 34 records of Oriental Dollarbird from Micronesia, 18 of which are previously unpublished (Appendix). Records were geographically distributed along a strong south-westerly gradient, with by far the largest number occurring in Palau (27 records; Fig. 2). Observations in Palau are primarily from Babeldaob ($n = 11$ records), the three main inhabited islands of Koror State ($n = 6$), Peleliu ($n = 3$), Angaur ($n = 3$) and the islets of the Southwest Islands ($n = 3$). Additional regional records were from Yap ($n = 4$), the Mariana Islands (Guam, $n = 1$; Saipan, $n = 1$), and Pohnpei ($n = 1$). Five records originated from atolls or atoll-like islands, including those from the Southwest Islands and Kayangel Atoll ($n = 1$) in Palau, and Ngulu Atoll ($n = 1$) in Yap.

Micronesian records spanned the period from 1938 to 2019, but have recently increased, with 23 in the past two decades (Appendix). Dollarbirds appeared in ten of the 18 years from 2002 to 2019 for the region as a whole, including in nine years in Palau alone. Records

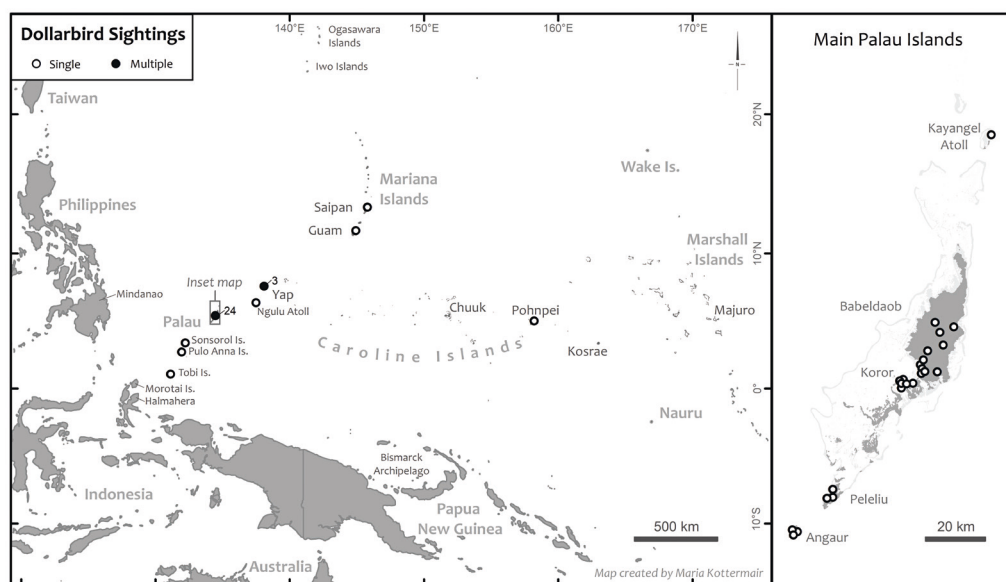


Figure 2. Locations of 34 known Oriental Dollarbird *Eurystomus orientalis* records from Micronesia.

demonstrated a highly seasonal pattern, all falling between 12 April and 17 December (Fig. 3). Numbers of records were highest between May and August, then dwindled through December. November was the only month in this period without a record.

Eighteen of the 22 dollarbird observations in which habitat was noted were in areas with a mix of open land (e.g., cultivated plots, roadsides, lawns or golf courses) and small or large patches of trees or forest (Appendix). Three individuals on atolls or atoll-like islets were in strand forest. Among described perch sites, powerlines were used about half the time ($n = 11$), while others included trees ($n = 6$), snags ($n = 3$) and a radio antenna ($n = 1$). The bias in favour of powerlines may reflect observer opportunity more than the birds' preference.

Adults predominated in our small sample of photographed individuals and museum specimens, with 11 adults, one subadult transitioning into adult plumage, and three juveniles recorded. All but three records involved singles, the exceptions being two pairs and a small group of unknown size (Appendix). One of the pairs was seen copulating, but the month of this observation was not reported. Twenty-nine records were of birds seen on one or several days only, while five others were of individuals that were present for longer periods ranging from c.17 to at least 50 days (Appendix). Multiple individuals were detected per year in the region in 1992 ($n = 2$ birds), 2005 ($n = 3$), 2008 ($n = 2$), 2014 ($n =$ probably ≥ 8), 2018 ($n = 2$) and 2019 ($n = 2$) (Appendix). The year 2014 was exceptional for sightings, with multiple birds found in southern Babeldaob (including four on one day) and Koror in Palau, as well as one bird in Yap.

Subspecific identification.—Both specimens examined by HDP were well within the range of colour variation for *E. o. pacificus*, and outside the range for *E. o. cyanocollis* or any other subspecies. The third specimen (YIO), the first from the region, was originally assigned to *E. o. connectens* (Yamashina 1940), now subsumed in *E. o. orientalis*, but Mayr (1945) considered it to represent *E. o. pacificus*, which is the designation the specimen tag now bears. Based on the online photo of the specimen, HDP concurs with that designation. Thus, all existing Micronesian specimens pertain to the migratory Australasian form.

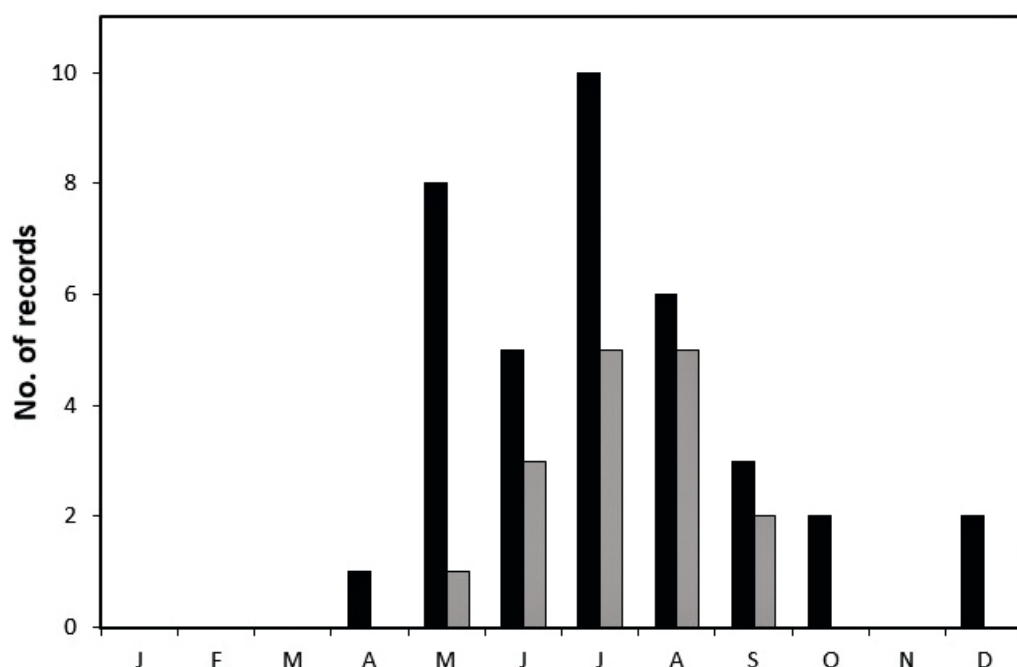


Figure 3. Monthly distribution of Oriental Dollarbird *Eurystomus orientalis* records in Micronesia in which the month(s) of occurrence is known (Appendix). Included are records for all individuals ($n = 34$, dark bars) and those confirmed as *E. o. pacificus* ($n = 12$, grey bars). Records over multiple months were tallied once for each month seen.

HDP identified nine of the ten dollarbirds documented by colour photographs as *E. o. pacificus* with certainty, the only exception being a bird photographed on Peleliu, Palau, by K. Swindle. The latter is borderline in the photos, which were apparently taken in deep shade, because it seems within the range of variation of both *E. o. pacificus* and *E. o. cyanocollis*. Given the May date and the shady conditions, it probably belongs to *E. o. pacificus*, but we cannot be 100% sure. Greyscale photos of an additional individual that were published in Engbring (1983) could not be identified to subspecies and the colour originals were not available. Results of both the specimen and photo examinations are shown in the Appendix. Records of confirmed *E. o. pacificus* generally corresponded with the same monthly pattern of occurrence documented among all dollarbirds, but without any observations made in April, October or December, and just one in May (Fig. 3).

First records for the Mariana Islands.—We describe the first two records of Oriental Dollarbirds in the Mariana Islands, both in 2018 and confirmed as *E. o. pacificus*. JC observed and photographed one at c.18.30 h in Marpi, northern Saipan, Commonwealth of the Northern Mariana Islands (15°15'19.4"N, 145°47'32.1"E) on 2 July. J. Fraser (pers. comm.) photographed the bird on 3 July 2018, and JC found it again on 4 July and 8 August. It was identified by its heavy bill, blue-green body plumage, red feet, a body size slightly larger and thicker than that of a Micronesian Starling *Aplonis opaca* perched nearby, pale patches in the primaries visible in flight, and undulating flight pattern (Fig. 4a). Based on photographs showing a half-black bill, no eye-ring and brown feathers on the forehead, HDP determined it to be an older juvenile. During the sightings, the bird perched on a powerline above a dirt road and repeatedly performed aerial sallies to catch insects in mid-flight. All observations occurred along the same 100-m stretch of road 40 m from the edge of a golf course. Habitat in the immediate area consisted of 50% open space and 50% native limestone forest mixed

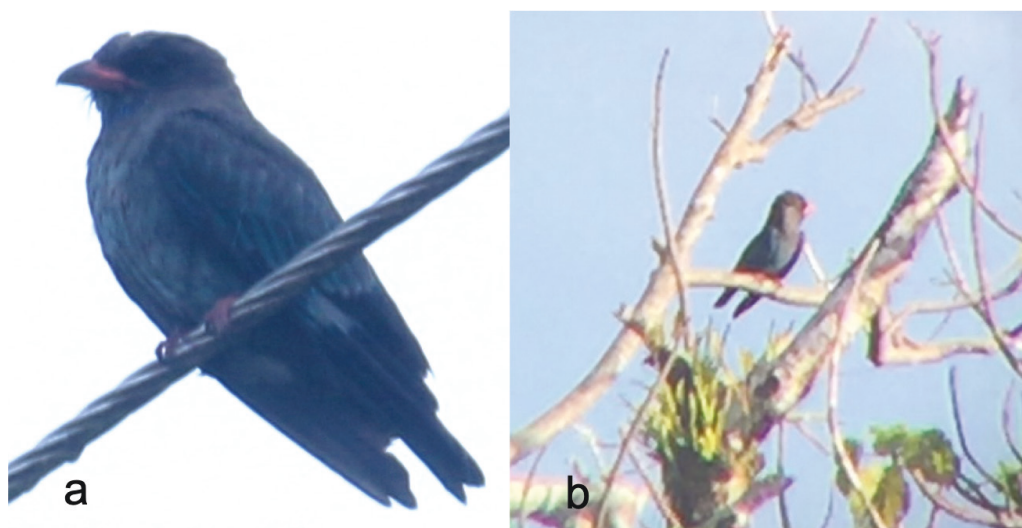


Figure 4. New records of Oriental Dollarbirds *Eurystomus orientalis* from the Mariana Islands: (a) a bird photographed on Saipan, 2 July 2018 (Janelle Chojnacki); lightening of shadows in Photoshop enabled HDP to categorise this individual as a juvenile; (b) an adult photographed on Guam, 24 September 2018 (Megan M. Pendred).

with non-native *Leucaena leucocephala* trees. JC's video, taken on 2 and 4 July, recorded the bird's short, raspy, squawk-like call.

In the late afternoon of 24 September, MMP & MK watched a dollarbird in native limestone forest 40 m from the edge of a golf course on Andersen Air Force Base, north-eastern Guam. They observed and photographed the bird for ten minutes from c.50 m as it perched above the forest canopy on an exposed branch of a *Macaranga thompsonii* tree. It then flushed suddenly and flew out of view towards the cliff to the east. Photographs show a medium-sized bird with turquoise-blue plumage over most of its upperparts and wings, a large, dark grey or brownish head with a short and slightly hooked orange-red bill tipped in black, bright red tarsi and feet, and long wings held below the body (Fig. 4b), indicating that it was an adult. The bird was noticeably larger than several Micronesian Starlings and Black Drongos *Dicrurus macrocercus* that later perched in the same tree. Although repeated visits to the site in the following days did not yield additional sightings, the observers heard a credible but unconfirmed report of a dollarbird on the edge of a golf course at the LeoPalace Resort in central Guam (K. Conroy pers. comm.) c.1 week later. Although timing would not preclude it, the Guam bird cannot be the same individual seen in July and August on Saipan because the latter was a juvenile, with much more black on its bill.

Discussion

Although most previous authors have described Oriental Dollarbirds as rare migrants to Micronesia (e.g., Pratt *et al.* 1987, Wiles *et al.* 2004, Pratt & Etpison 2008), our compilation and analysis of records provides significant new insights into the species' occurrence in the region. This study more than doubles the number of records known for Micronesia and establishes that the species is a regular visitor in very small numbers. Records originate predominately from Palau, where sightings have been documented in 50% of the years since 2002 (Appendix). However, because observer effort remains relatively low across Micronesia, we expect dollarbird occurrence to be more frequent than demonstrated

by available records, so the species probably reaches the region in most years. Presence is perhaps most under-estimated in Yap, which is 395 km north-east of the main Palau islands and is particularly under-watched. The lack of an indigenous Palauan name for the dollarbird (Engbring 1988; M. Eberdong pers. comm.), compared to other migrant landbirds such as Oriental Cuckoo *Cuculus optatus* and Barn Swallow *Hirundo rustica*, suggests that dollarbirds have always been rare there.

We identified 12 of 13 dollarbirds that were either photographed or collected as museum specimens in Micronesia as belonging to subspecies *E. o. pacificus*, with the lone unconfirmed bird probably also being this subspecies based on its May observation date. Additionally, all but two of the 34 regional records were between mid April and mid October, a pattern that aligns closely with the known migration and overwintering periods for *E. o. pacificus*. Australian populations move north to their austral wintering range in March–May and return south to their breeding range in September–November (Draffan *et al.* 1983, Coates 1985, White & Bruce 1986, Higgins 1999, Dutson 2011). Together, these results provide strong evidence that *E. o. pacificus* is the predominant subspecies reaching Micronesia.

Two other regional records are from December, but neither was identifiable to subspecies. Both could possibly represent lingering individuals of *E. o. pacificus* or members of the migratory East Asian race *E. o. cyanocollis* (Pratt *et al.* 2010). The latter scenario is supported by at least one dollarbird record from the Iwo Islands (Higuchi 1984, Brazil 1991), which are north of the Marianas and outside Micronesia, and are apparently too far north to be visited by *E. o. pacificus*. That individual, a specimen (YIO 30237) collected on 25 May 1929, is labelled as *E. o. calonyx* (now *E. o. cyanocollis*) and was confirmed as this subspecies via examination of the online catalogue photograph by HDP. This record gives credibility to the possibility that East Asian birds may rarely wander over the western Pacific Ocean during migration and perhaps reach Micronesia. Furthermore, the May collection date of this specimen indicates that occurrence of *E. o. cyanocollis* in the region could overlap with that of *E. o. pacificus*.

The northern lowlands of New Guinea serve as a major wintering area for *E. o. pacificus* (Schodde *et al.* 1975, Higgins 1999) and represent the most likely route of dollarbirds reaching Micronesia. In addition, the Moluccas, including the islands of Morotai and Halmahera in the north, appear to be another important non-breeding region for the subspecies (Coates & Bishop 1997) and may be a further source of birds arriving in Micronesia. Proximity to New Guinea and the northern Moluccas undoubtedly accounts for the significantly larger number of dollarbird records in Palau compared to other Micronesian archipelagos. Palau's main island complex lies 815 km north of New Guinea and 775 km north-east of Morotai, whereas the Southwest Islands, a string of small remote atoll-like islets and one atoll which are also part of Palau, are even closer to New Guinea (375–630 km) and Morotai (275–500 km) (Fig. 2). Although the Southwest Islands are rarely visited by observers, the three dollarbird sightings there represent nearly 10% of all records from Micronesia, suggesting that visitation rates may be higher there than elsewhere in the region. Distances from New Guinea to other Micronesian islands with dollarbird observations are Ngulu Atoll, 1,070 km; Yap, 1,200 km; Guam, 1,800 km; Pohnpei, 1,850 km; and Saipan, 2,020 km. These distances are much greater than the over-water distances of 150–600 km that *E. o. pacificus* must negotiate when migrating between Australia and New Guinea, or Australia and the nearest of the Moluccas or Lesser Sundas. Our Mariana records appear to be the northernmost records for *E. o. pacificus* and are probably two of the northernmost for any breeding Australasian landbird.

Neither Dickinson *et al.* (1991) nor Kennedy *et al.* (2000) mentioned any subspecies in the Philippines other than the resident form *E. o. orientalis* (reported therein as *E. o. cyanocolлис*), which remains the case through 2019 (D. Allen *in litt.* 2019). Given the frequency and distances flown by dollarbirds reaching Micronesia, we speculate that small numbers of *E. o. pacificus* may also visit the southern Philippines on migration. The island of Mindanao is 470 km from Morotai, 660 km from the Southwest Islands and 830 km from Palau's main islands, and thus seems within the flight range of occasional *E. o. pacificus* migrants.

Observer effort, or lack thereof, probably influences several other patterns noted in Micronesia's dollarbird records. First, the brevity of most records, usually just one or several days, may be more attributable to a lack of extended observer coverage of birds than to ongoing movement or poor survival. Observations of dollarbirds during August–October, plus several records of individuals remaining three weeks or more, suggest that some successfully overwintered in Micronesia and departed on their southbound migration. Second, approximately half of Palau's records are concentrated in the Koror area and southern Babeldaob, where the human population and hence observer effort are much higher than elsewhere in the archipelago. Third, Palau records show a somewhat irruptive pattern with groups of sightings often clumped within a year or over several years. Many of these records, however, coincide with known periods of observer presence as follows: the late 1970s when J. Engbring conducted extensive bird observations in Palau; June 1992 when A. K. Kepler visited the Southwest Islands; April–May 2005 when Palau-wide bird surveys were conducted; and the broader period since 2002 when more biologists and birders began visiting or working in Palau and when eBird came into existence.

Habitat and perch use in Micronesia resembles that elsewhere in the species' range (Coates 1985, Fry *et al.* 1992, Higgins 1999), with open and edge habitats preferred and high natural or artificial perches used. Our small sample of Micronesian birds of known age was composed mainly of adults and indicates this age class may be more capable of moving substantially longer distances during migration than juveniles, or that adult survival rates are higher when migrating to and overwintering in the extreme northern edge of its winter range.

Among the few migratory landbirds that regularly visit Micronesia, most are of East Asian origin (Western Osprey *Pandion haliaetus*, Chinese Sparrowhawk *Accipiter soloensis*, Oriental Cuckoo, Barn Swallow, Grey-streaked Flycatcher *Muscicapa griseisticta* and Eastern Yellow Wagtail *Motacilla tschutschensis*) as are the majority of vagrants (Stinson *et al.* 1997, Wiles 2005, Pratt *et al.* 2010, Otobed *et al.* 2018). Confirmation of *E. o. pacificus* as a regular migrant of Australian origin is therefore noteworthy. Among other austral landbirds recorded in Micronesia, only Pacific Long-tailed Cuckoo *Urodynamis taitensis* (Pratt *et al.* 1987) and possibly Sacred Kingfisher *Todiramphus sanctus* (GM unpubl. data) occur regularly.

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References:

- Baker, R. H. 1951. The avifauna of Micronesia, its origin, evolution, and distribution. *Univ. Kansas Publ., Mus. Nat. Hist.* 3: 1–359.
- Brazil, M. A. 1991. *The birds of Japan*. Christopher Helm, London.
- Coates, B. J. 1985. *The birds of Papua New Guinea*, vol. 1. Dove Publications, Alderley.
- Coates, B. J. & Bishop, K. D. 1997. *A guide to the birds of Wallacea: Sulawesi, the Moluccas and Lesser Sundas, Indonesia*. Dove Publications, Alderley.
- Dickinson, E. C., Kennedy, R. S. & Parkes, K. C. 1991. *The birds of the Philippines: an annotated check-list*. BOU Check-list No. 12. British Ornithologists' Union, Tring.
- Dutson, G. 2011. *Birds of Melanesia: Bismarcks, Solomons, Vanuatu, and New Caledonia*. Princeton Univ. Press.
- Draffan, R. D. W., Garnett, S. T. & Malone, G. J. 1983. Birds of the Torres Strait: an annotated and biogeographical analysis. *Emu* 83: 207–234.
- Engbring, J. 1983. First Ponape record of a Dollarbird, with a summary of the species' occurrence in Micronesia. *'Elepaio* 44: 35–36.
- Engbring, J. 1988. *Field guide to the birds of Palau*. Conservation Office, Koror, Palau.
- Fry, H. & Boesman, P. 2018. Oriental Dollarbird (*Eurystomus orientalis*). In del Hoyo, J., Elliott, A., Sargatal, J., Christie, D. A. & de Juana, E. (eds.) *Handbook of the birds of the world Alive*. Lynx Edicions, Barcelona (retrieved from <https://www.hbw.com/node/55863> on 5 December 2018).
- Fry, C. H., Fry, K. & Harris, A. 1992. *Kingfishers, bee-eaters & rollers: a handbook*. Princeton Univ. Press.
- Gill, F. & Donsker, D. (eds.) 2019. IOC world bird list (v 9.2). <http://www.worldbirdnames.org/> (accessed 26 September 2019).
- Higgins, P. J. (ed.) 1999. *Handbook of Australian, New Zealand and Antarctic birds*, vol. 4. Oxford Univ. Press, Melbourne.
- Higuchi, Y. 1984. List of birds in the Ogasawara Islands, including the Iwo Islands and Minamitorishima. *Strix* 3: 73–87.
- Kennedy, R. S., Gonzales, P. C., Dickinson, E. C., Miranda, H. C. & Fisher, T. H. 2000. *A guide to the birds of the Philippines*. Oxford Univ. Press.
- Kepler, A. K. 1993. *Terrestrial biota of the Southwest Palau Islands, western Pacific*. Unpubl. report. Haiku, Hawaii.
- Mayr, E. 1945. *Birds of the Southwest Pacific*. Macmillan, New York.
- Otobed, D., Olsen, A. R., Eberdong, M., Ketebebang, H., Etpison, M. T., Pratt, H. D., McKinlay, G. H., Wiles, G. J., VanderWerf, E. A., O'Brien, M., Leidich, R., Basilius, U. & Yalap, Y. 2018. First report of the Palau Bird Records Committee. *Western Birds* 49: 192–205.
- Pratt, H. D. & Etpison, M. T. 2008. *Birds & bats of Palau*. Mutual Publishing, Honolulu.
- Pratt, H. D., Bruner, P. L. & Berrett, D. G. 1977. Ornithological observations on Yap, western Caroline Islands. *Micronesica* 13: 49–56.
- Pratt, H. D., Bruner, P. L. & Berrett, D. G. 1987. *A field guide to the birds of Hawaii and the tropical Pacific*. Princeton Univ. Press.
- Pratt, H. D., Falanruw, M., Etpison, M. T., Olsen, A., Buden, D. W., Clement, P., Gupta, A., Ketebebang, H., Yalap, Y. P., Herter, D. R., Klauber, D., Pisano, P., Vice, D. S. & Wiles, G. J. 2010. Noteworthy bird observations from the Caroline and Marshall Islands 1988–2009, including five new records for Micronesia. *Western Birds* 41: 70–101.
- Schodde, R., van Tets, G. F., Champion, C. R. & Hope, G. S. 1975. Observations on birds at glacial altitudes in the Carstens Massif, western New Guinea. *Emu* 75: 65–72.
- Stinson, D. W., Wiles, G. J. & Reichel, J. D. 1997. Migrant land birds and water birds in the Mariana Islands. *Pacific Sci.* 51: 314–327.
- VanderWerf, E. A., Wiles, G. J., Marshall, A. P. & Knecht, M. 2006. Observations of migrants and other birds in Palau, April–May 2005, including the first Micronesian record of a Richard's Pipit. *Micronesica* 39: 11–29.
- White, C. M. N. & Bruce, M. D. 1986. *The birds of Wallacea (Sulawesi, the Moluccas & Lesser Sunda Islands, Indonesia)*. BOU Check-list No. 7. British Ornithologists' Union, London.
- Wiles, G. J. 2005. A checklist of the birds and mammals of Micronesia. *Micronesica* 38: 141–189.
- Wiles, G. J., Johnson, N. C., de Cruz, J. B., Dutson, G., Camacho, V. A., Kepler, A. K., Vice, D. S., Garrett, K. L., Kessler, C. C. & Pratt, H. D. 2004. New and noteworthy bird records for Micronesia, 1986–2003. *Micronesica* 37: 69–96.
- Yamashina, Y. 1940. Some additions to the "List of the birds of Micronesia." *Tori* 10: 673–679.
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Appendix: List of 34 known Oriental Dollarbird *Eurystomus orientalis* records documented in Micronesia between 1938 and 2019.

Date range	Island group	Location	Notes
11 Jul 1938	Palau	Babeldaob	Adult male specimen (YIO 30238; Yamashina 1940, Baker 1951). Photo available in the museum's online specimen catalogue. Confirmed as <i>E. o. pacificus</i> .
1950s	Palau	Koror, Koror State	One bird, observed by R. Owen, date unknown (Engbring 1983).
18 Jun 1976	Yap	near airport, Yap Island	Adult male specimen (BYUH 2000). Observed by HDP & P. L. Bruner perched on a high dead snag over an open garden. The carcass possessed moderate fat levels (Pratt <i>et al.</i> 1977). Confirmed as <i>E. o. pacificus</i> .
8 Oct 1977	Palau	Angaur	One bird, observed by J. Engbring (Engbring 1983).
20 Sep 1978	Palau	Angaur	One bird, observed by K. Axelson (Engbring 1983).
19 May 1979	Palau	Pulo Anna, Southwest Islands	Two birds, observed by J. Engbring (Engbring 1983).
May, Jun 1982	Pohnpei	near Kolonia	One bird, observed by R. R. Vega, photos (Engbring 1983). Exact dates unknown but first seen in May, captured and released in early June, then remained on-site for another week. It used trees at the edges of small fields, perching on exposed branches to hawk insects. At times, it harassed Hunstein's Mannikins <i>Lonchura hunsteini</i> . Subspecies was undetermined.
Sep or early Oct 1988	Yap	near Gitam, Yap Island	One adult, brought dead to M. Falanruw, but the specimen was not preserved, photo (Pratt <i>et al.</i> 2010). Precise date unknown; a conflicting date of occurrence in Pratt <i>et al.</i> (2010) was later confirmed by M. Falanruw (pers. comm.) as being in Sep or early Oct. Confirmed as <i>E. o. pacificus</i> .
2 Aug 1989	Palau	Ngcheangel Islet, Kayangel Atoll	One bird, observed by H. L. Jones, seen well as it flew south over the island with seven Barn Swallows (Pratt <i>et al.</i> 2010; H. L. Jones <i>in litt.</i> 2019; eBird).
4, 9 Jun 1992	Palau	Tobi, Southwest Islands	Adult specimen (BPBM 178864), sex undetermined. Observed by A. K. Kepler in good quality strand forest, perching in fairly dense foliage and making short foraging flights 8–13 m high (Kepler 1993, Wiles <i>et al.</i> 2004). Confirmed as <i>E. o. pacificus</i> .
15–16 Jun 1992	Palau	Sonsorol, Southwest Islands	One bird, observed by A. K. Kepler (Kepler 1993, Wiles <i>et al.</i> 2004). Perched in a <i>Tournefortia argentea</i> tree in strand forest.
Between 1999 and 2008	Palau	Malakal, Koror State	Two adults, observed by R. Leidich (<i>in litt.</i> 2018), date unknown but sometime within this period. Seen copulating on a powerline in town.
10 May 2002	Palau	Peleliu	Number of birds unreported, observed by M.-C. Tsai and C.-L. Hsueh (eBird).
Dec 2003	Palau	Peleliu	One bird, observed by A. Gupta and R. Leidich, date unknown (Pratt <i>et al.</i> 2010).
8 May 2005	Palau	Angaur	One bird, observed by M. Knecht (VanderWerf <i>et al.</i> 2006). Perched in a dead tree in the middle of an open area composed mostly of taro patches.
15 May 2005	Palau	Ngerekebesang Island, Koror State	One bird, observed by VanderWerf <i>et al.</i> (2006). Seen in flight, being mobbed by 10–12 Palau Swiftlets <i>Aerodramus pelewensis</i> .
17 May 2005	Palau	Ngechsar State, Babeldaob	One bird, observed by GJW (VanderWerf <i>et al.</i> 2006). Perched for lengthy periods on a roadside powerline through forest.
24–25 May 2008	Palau	Ngeremlengui State, Babeldaob	One juvenile, observed by A. Olsen (<i>in litt.</i> 2008) and M. Eberdong (pers. comm.), photo. Seen hawking insects from a perch in a tree next to a river. Confirmed as <i>E. o. pacificus</i> .
13 Jul–3 Aug 2008	Yap	Ngulu Islet, Ngulu Atoll	One adult, observed almost daily by D. W. Buden, photo (Pratt <i>et al.</i> 2010). Regularly perched atop a communications antenna protruding above the surrounding strand forest mixed with coconut. The bird died from an injury sustained on 3 August, but the specimen was not preserved. Confirmed as <i>E. o. pacificus</i> .

Date range	Island group	Location	Notes
21 Aug 2008	Palau	Aimeliik or Airai State, Babeldaob	One subadult transitioning to adult plumage, observed by A. Olsen (<i>in litt.</i> 2008) and M. Eberdong, photo. Perched on a powerline along the main highway through Airai and Aimeliik. Confirmed as <i>E. o. pacificus</i> .
12, 14 Apr 2010	Palau	Ngiwal State, Babeldaob	One bird, observed by A. Olsen (<i>in litt.</i> 2010) and D. Sargeant (<i>in litt.</i> 2019).
7 Jun 2011	Palau	Ngerekebesang Island, Koror State	One juvenile, observed by A. Olsen, photo (eBird). Perched on a powerline in mixed urban, forested and open agricultural habitat. Confirmed as <i>E. o. pacificus</i> .
12–14 Oct 2013	Palau	Ngerekebesang Island, Koror State	One bird, observed by GM. Seen several times and present for an unknown period before the observer's initial sighting. In an area with a mix of hillside forest, buildings and agricultural clearings.
19 Jul 2014	Palau	Aimeliik State, Babeldaob	One bird, observed by G. Pettigrew and M. Eberdong (pers. comm.; eBird). Perched on a powerline along the main highway in an area of farms with open areas, roadside and patches of forest. Different from three other individuals seen on this date (see other records for 19 Jul 2014).
19 Jul 2014	Palau	Aimeliik State, Babeldaob	One bird, observed by G. Pettigrew and M. Eberdong (pers. comm.; eBird). Perched on a powerline along the main highway in an area of farms with open areas, roadside and patches of forest. Different from three other individuals seen on this date (see other records for 19 Jul 2014).
19 Jul 2014	Palau	Airai State, Babeldaob	One bird, observed by G. Pettigrew and M. Eberdong (pers. comm.; eBird). Perched on a powerline along the main highway in an area of farms with open areas, roadside and patches of forest. Different from three other individuals seen on this date (see other records for 19 Jul 2014).
19 Jul 2014	Palau	Airai State, Babeldaob	One bird, observed by G. Pettigrew and M. Eberdong (pers. comm.; eBird). Perched on a powerline along the main highway in an area of farms with open areas, roadside and patches of forest. Different from three other individuals seen on this date (see other records for 19 Jul 2014).
23 Jul, 10 Aug 2014	Palau	Airai State, Babeldaob	One adult that was probably the same individual, observed on 23 Jul 2014 (GM photos) and 10 Aug 2014 (M. Eberdong pers. comm.; eBird), but probably different from the four seen on 19 Jul 2014 (see previous records). Perched on wires along the main highway in an area of farms with open areas, roadside and patches of forest. Confirmed as <i>E. o. pacificus</i> .
Jul 2014	Palau	Koror, Koror State	More than one bird, observed by G. Pettigrew (pers. comm.), date unknown. The birds comprised a small group, but other details lacking. Seen on the edge of town and forest.
17 Dec 2014	Yap	Yap Island	One bird, observed by R. Carlisle (eBird).
2–4 Jul, 8 Aug 2018	Marianas	Marpi, northern Saipan	One juvenile, observed by JC and J. Fraser, photos, vocal recording (eBird). See text for sighting details. Confirmed as <i>E. o. pacificus</i> .
24 Sep 2018	Marianas	north-eastern Guam	One adult, observed by MMP & MK, photos (eBird). See text for details. Confirmed as <i>E. o. pacificus</i> .
3 May 2019	Palau	north-western Peleliu	One adult, observed by K. Swindle, photos (eBird). Perched on a roadside powerline through forest. Repeatedly flew ahead of the observer before flying away. Subspecies undetermined.
Jul–18 Sep 2019	Palau	1.2 km north-east of airport, Airai State, Babeldaob	One adult, observed on 28 Aug 2019 by GM, photos (eBird). In an agricultural area near a river, with farm fields, several buildings and adjacent forest. Perched on a snag and live trees. A farm worker reported the bird was present most days between July and September, and that it had arrived after a storm with strong westerly winds. Confirmed as <i>E. o. pacificus</i> .