America's unknown avifauna: the birds of the Mariana Islands

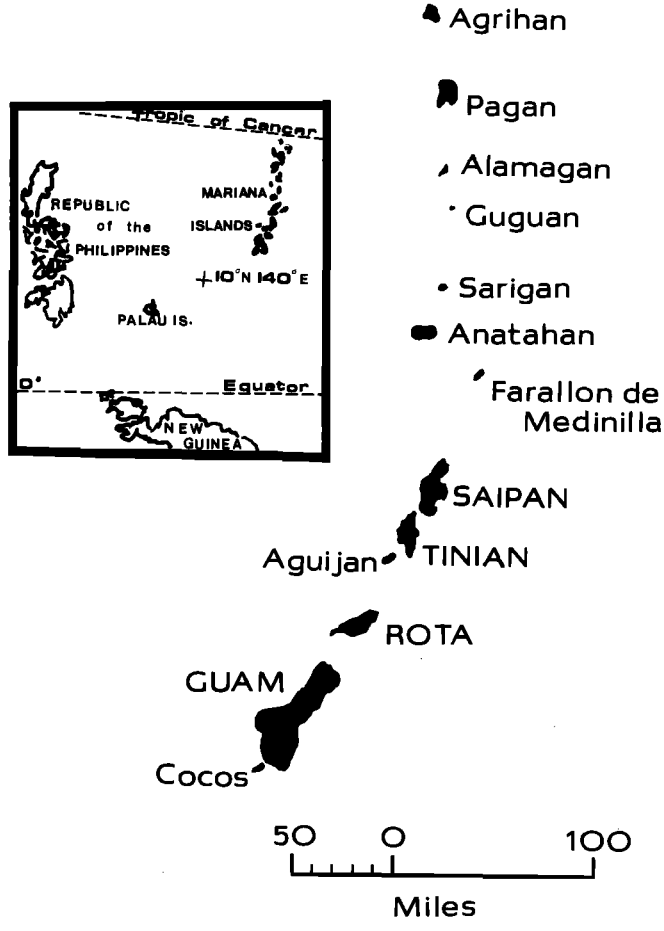
"Probably no other American birds are as poorly known as these."

H. Douglas Pratt, Phillip L. Bruner and Delwyn G. Berrett

"WHERE AMERICA'S DAY BEGINS" announces the sign that greets visitors to Guam. Few Americans realize that the nation's westernmost territories lie across the International Date Line in the far western Pacific. Guam, the largest and southernmost of the Mariana Islands, has been a United States possession since Spain surrendered her sovereignty over the island at the end of the Spanish-American War. The rest of the archipelago has seen a succession of foreign governments — Spain, Germany, Japan, and the United States. After World War II, these islands along with the Carolines and Marshalls to the south and east, became the U.S. Trust Territory of the Pacific Islands under the auspices of the United Nations. This political arrangement is scheduled to end in 1981. In a recent plebiscite, the citizens of the Northern Marianas voted overwhelmingly to become permanently affiliated with the U.S. as a commonwealth. Thus a look at the birds of these islands and those of Guam seems appropriate. Probably no other American birds are as poorly known as these.

The Marianas form a north-south chain lying about midway between Japan and New Guinea. Virtually all inhabitants live on the four largest islands of Guam, Saipan, Tinian, and Rota (Fig. 1) Little has been published on the birds of these islands since Gleize (1945), Downs (1946), Stophlet (1946), Stott (1947), Marshall (1949), and Baker (1947, 1948, 1951) discussed their observations made near the end of the war. All these writers had been involved with military activities and thus most had been restricted both in their time for bird observation and in their movements on the islands. Their studies were made in 1945 and 1946 when most of the Marianas were just beginning to recover from the ravages of war (Baker, 1946). Nevertheless, population estimates made at that time have been the basis for considerable concern (Vincent, 1967) and indeed appear to be the basis for the inclusion of several Mariana birds in the U.S. Fish & Wildlife Service (1976) list of Endangered Species. These brief wartime observations were important, but no significant investigations have been conducted in the ensuing thirty years to determine the extent to which the endemic avifauna of these islands may have recovered. Importantly, no assessments have been made of the impact of the military's aerial planting of the exotic scrubby tree known as tangantangan, *Leucaena glauca,* to promote revegetation after the war. This tree is known as *"koa haole"* in Hawaii.

DURING THE SUMMER OF 1976 the authors visited the islands of Saipan, Tinian, Rota, and Guam, and in 1978 Bruner and Pratt returned to Saipan and Guam. We have spent a total of 38 man/days on Saipan, four on Tinian,



Mariana Islands

six on Rota and 27 on Guam In 1975 Murray D. Bruce of Australia visited these same islands between April 10 and 18 to observe birds. He has made his field notes available to us, and some of his observations are incorporated into this report. The same year, Eugene Kridler of the U.S. Fish & Wildlife Service with Robert P. Owen, Chief Conservationist of the Trust Territory, visited Saipan, Tinian, and Guam. They, too, have shared their findings with us.

Saipan

SAIPAN IS THE LARGEST and most populous of the Northern Marianas. Stott (1947) described the topography and vegetation of the island. Since his account, tangan-tangan has become the dominant tree over most of Saipan. The island's substrate is of uplifted coralline limestone (Gressitt, 1954). Several towns and villages are scattered over the island, but large areas of undeveloped land occur throughout. The beautifully scenic and historically important district of Marpi in the north is virtually uninhabited. That part of the island was under military control for many years, but was opened to the public after unexploded ordnance and other dangerous debris from the war had been removed. Dominating the area is the infamous Suicide Cliff where many Japanese soldiers and civilians perished rather than face an unknown and possibly dishonorable fate at the hands of the Americans. Human bones, grim reminders of a time many would rather forget, are still being recovered from the forests below the cliff (Kiener, 1978). But although the cliffs are reminiscent of death, the forests are alive with birds. All of Saipan's known indigenous species can be found here, including the recently rediscovered Micronesian Megapode, *Megapodius laperouse* (Pratt and Bruner, 1978). On Marpi's eastern shore a rocky half-moon bay surrounds Bird Island where Brown Boobies, *Sula leucogaster,* and Brown Noddies, *Anous stolidus,* nest. Nearby, an undersea cave fills a pool known as the Blue Grotto where waters swell and recede with the waves and shimmer with green, indigo, and magenta. The shoreline of Marpi exhibits both sheer cliffs and placid beaches. Such scenic variety in a small area is remarkable and probably unequalled elsewhere in the Marianas. Marpi is at present unprotected and the inevitable plans for so-called development are under way (Pangelinan and Kapileo, 1971).

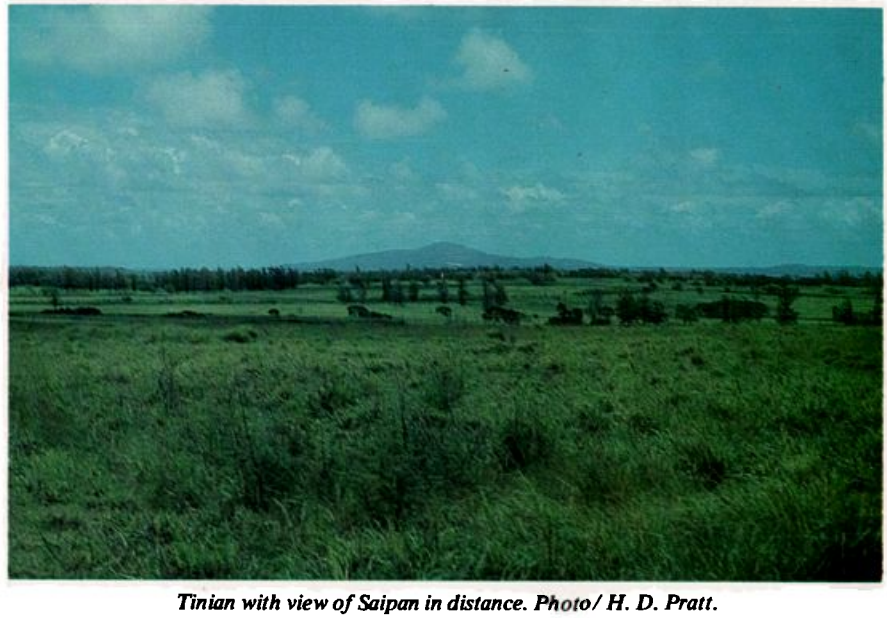
Suicide Cliff and Memorial Marpi, Saipan. Photo/H. D. Pratt.

Tinian

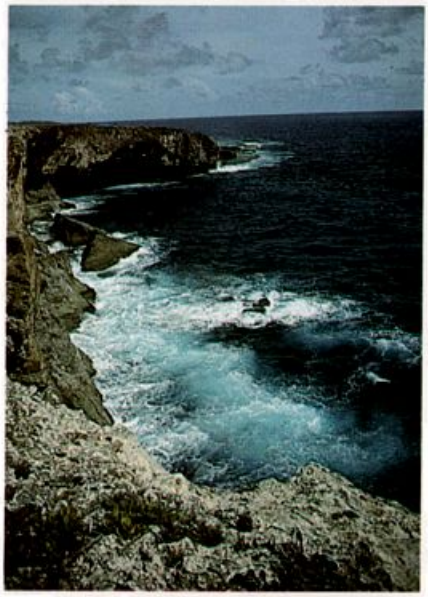
JUST SOUTH OF SAIPAN lies Tinian, a broad and relatively flat island only slightly smaller than its neighbor. Tinian supported a large Japanese population before and during the war, and extensive clearing of forests took place. Now the ruins and airstrips are overgrown with tangan-tangan. Marshall (1949) described the habitats that existed on Tinian in 1945. The Japanese road system is still in use today, making most of the island accessible to visitors. Tinian's approximately 800 residents live in the community of San Jose near its southern end. Future plans (Trumbull, 1973) call for the construction of a vast military base that will occupy most of the island.

Rota

ROTA WAS THE LEAST war-damaged of the larger Mariana Islands (Baker, 1946). The native forests are much more extensive there than on Saipan, Tinian, or Guam. Tangan-tangan is present but much less prevalent than on the other islands. On the plateau in the interior of the island, in an area called Sabana, extensive clearing for agriculture has reduced the native forest to scattered remnants. The lowlands are also cultivated to some extent, but substantial tracts of forest remain in areas unsuitable for farming. About 1500 persons live in the town of Songsong situated on a peninsula at the southwestern tip of the island.



Tinian with view of Saipan in distance. Photo/ H. D. Pratt.



Banzai Cliff, Marpi District, Saipan. Photo/ H. D. Pratt.

Guam

GUAM STANDS IN STRIKING CONTRAST to the Northern Marianas in virtually every respect. What natural beauty the island may once have had has largely disappeared beneath the heavy hand of so-called progress. Densely populated (*ca.* 100,000), Guam has had its soul sold to the military and the tourist industry. One cannot escape the noise of automobile traffic or airplanes anywhere on the island, nor is any panorama devoid of communications antennae. The northern two-thirds of Guam is uplifted coral limestone with a characteristic "limestone forest" (Key, 1968). Only a few remnants of this originally luxuriant native forest remain on terraces below the high cliffs that surround the northern end of the island. These areas are almost all within the boundaries of Andersen Air Force Base and off-limits to the public. Pratt was fortunate in being allowed to visit one such area at Ritidian Point when it was opened for hunting of Philippine Turtle Doves, *Streptopelia bitorquata,* on July 30, 1978.

The southern two-thirds of the island is of volcanic origin (Key, 1968) but is ecologically so ravaged that its original condition can only be surmised. Southern Guam is an ornithological wasteland. In several visits to that part of the island in 1976 and 1978, we have seen only one native passerine, a lone Micronesian Starling, *Aplonis opaca.* Bruce found no native songbirds in this area in 1975. But our investigations of the limestone forests of northern Guam in 1976 revealed good populations of most native birds. Our visit followed closely behind typhoon *Pamela,* which struck the island in May and caused severe damage. Storm damage was obvious in the forests, which had lost most of their canopy of *Pandanus,* but the distribution of birds did not seem to be correlated with such damage.

Native forest remnant; Ritidian Pt., Guam. Photo/H. D. Pratt.

In fact, we found birds most numerous in a particulary storm-ravaged area in the northeastern sector of the island. A seemingly undamaged woodland near Dos Amantes (Two Lovers) Point north of the city of Agana harbored few birds although Bruce had found most native passerines there the year before. By 1978, the situation had deteriorated further with native passerines missing from many places where we had found good numbers two years earlier. Tangan-tangan has become ubiquitous on Guam, and forms dense thickets.

Significantly, tangan-tangan thickets harbored good populations of native songbirds as well as kingfishers and doves in 1976. Two years later, however, we noted striking declines in the three smallest native birds (a broad-billed flycatcher, a fantail, and a white-eye). This alarmingly rapid disappearance of native birds is reminiscent of the extinctions of Hawaiian birds in the 1890s (reviewed by Warner, 1968 and Atkinson, 1977). Even at dawn on Guam, when forests should ring with the songs of birds as they do in the Northern Marianas, only the calls of introduced Black Drongos, *Dicrurus macrocercus,* and Philippine Turtle Doves, with an occasional contribution from a native crow, kingfisher, or starling, can be heard above the din of human activities.

WHAT IS HAPPENING to Guam's birds? Possible causes for their decline could include excess spraying of pesticides, habitat destruction, predation by introduced snakes or drongos, or even such exotic factors as excessive atomic or microwave radiation. Habitat destruction is often cited as a cause for decline of native bird species everywhere, but on Guam birds are obviously disappearing from seemingly undisturbed habitats such as the forest at Dos Amantes Point that has lost its passerines since 1975. Furthermore, many of the same species are abundant in degraded habitats on Saipan, Tinian, and Rota. Clearly careful investigations should be undertaken immediately to examine all of the possible causes. Delays may render any potential remedy powerless in preventing many extinctions. Fortunately the cliff terraces of northern Guam, which appear to be the last stronghold of the island's native passerines, are considered a wildlife sanctuary by the military.

The Birds

THE FOLLOWING ACCOUNTS deal primarily with the distribution, habitats, and status of the Mariana Island's land and freshwater birds. We made special note of numbers of the Endangered Species, and also several species (Mariana Fruit Dove, White-throated Ground Dove, Mariana Gallinule, Guam

Rail Guam Flycatcher Golden Honey eater, and Mariana Crow) that have been considered as additions to the Federal list (Kridler, *pers. comm.*). We conducted no rigorous censuses, but we believe our estimates and assessments of relative numbers will be useful until more precise data are available. Fortunately, the U.S. Forest Service (C. J. Ralph, *pers. comm.*) is currently conducting studies to accurately determine populations of birds throughout Micronesia, including the Marianas. Our notes on behavior and taxonomy will be published elsewhere. For a checklist of birds recorded in the Marianas, see Owen (1977).

Ixobrychus sinensis — YELLOW BITTERN

This small bittern is an essentially terrestrial bird of dry fields and grassy thickets. It is not uncommon on all the islands and is one of the few native birds still found in southern Guam. On Tinian, we saw a dozen Yellow Bitterns following a tractor in a single field near the airstrip. These birds are frequently seen in flight.

Egretta sacra — PACIFIC REEF HERON

This heron is an inhabitant of seacoasts. We never found it inland on any of the Marianas. Two color phases, gray and white, occur in about equal numbers with the gray morph perhaps slightly in the majority. We found reef herons on all four islands. They were nowhere abundant but we did not consider them rare even on Guam. Elsewhere in the Pacific (*e.g.*, French Polynesia, Western Samoa) we have seen reef herons far at sea apparently on flights between islands more widely separated than the Marianas. Thus interisland movement of these birds in the archipelago seems likely.

Anas oustaleti — MARIANA MALLARD

This duck, possibly of hybrid origin (Yamashina, 1948), was recently added to the U.S. list of Endangered Species. We saw no native ducks in the Marianas. Neither Lake Susupe on Saipan nor the Agaña Swamp on Guam produced any, but we did not visit Lake Hagoi on Tinian where Marshall (1949) found them. Kridler (*pers. comm.*) did not find any there in 1975, but did see two Mariana Mallards at Lake Susupe in 1978. Residents of the islands, particularly Saipan, report considerable hunting of ducks, both resident and migrant. Obviously the Mariana Mallard is truly imperiled. Perhaps only a captive breeding program can save the bird now.

Guam Rail/H. D. Pratt.

Megapodius laperouse — MICRONESIAN MEGAPODE

Pratt and Bruner (1978) rediscovered this species on Saipan after an absence of half a century. The bird is rumored to be present on Tinian also, and it is known to still exist on the small island of Aguijan just south of that island (Owen, *pers. comm.*). Efforts should be made to determine the bird's status on Tinian before the planned military developments are begun there. This Endangered Species seems to be making a comeback.

Rallus owstoni — GUAM RAIL

We found this flightless rail to be well distributed in northern Guam. It was apparently abundant in the recent past (Lint, 1968). We found the rails fairly common at Dos Amantes Point, where Bruce found them numerous in 1975, and around the Navy Golf Course at Barrigada. They were most common in an abandoned military base known as Andersen South near Yigo. We noted no change in numbers between 1976 and 1978. The rail's secretive habits make it difficult to census, but familiarity with its *keek* call notes lead us to believe that the species exists in healthy numbers. They are frequently seen on the shoulder of the highway, hence the local nickname "roadrunner."

Gallinula chloropus guami — MARIANA COMMON GALLINULE

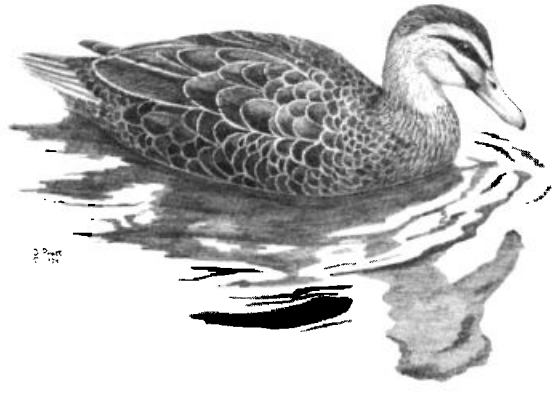
This endemic subspecies is apparently much reduced in numbers. We saw only three individuals, all on Saipan. One was on Lake Susupe and another on a small pond near a communications station north of Magicienne Bay. The latter pond had been drained in 1978, and no longer provides gallinule habitat. Kridler and Owen also found gallinules at these two localities. In 1978, we saw a gallinule on the road shoulder near the village of San Roque far from any open fresh water. Thus this species is not entirely dependent on open bodies of water. Residents confuse these birds with ducks, and hunting pressure is apparently great. Clearly the Mariana Common Gallinule deserves a place on the Endangered Species list. Its numbers are almost surely fewer than those of the Hawaiian Gallinule (*G. c. sandvicensis*) already so listed.

Gallicolumba xanthonura — WHITE-THROATED GROUND DOVE

White-throated Ground Doves are extremely secretive birds, but they reveal their presence by occasional high flights over the forest or by their low moaning calls. Bruner and Pratt saw only two on Guam in 1976, both near Yigo, but Pratt found them somewhat more numerous in the same area in 1978. Bruce saw one near Ylig in southern Guam in 1975. Ground doves are obviously rare to locally uncommon on Guam. On the other islands they are more numerous and rather frequently seen, especially in northern Saipan, but can not be considered common anywhere in the Marianas. This species also occurs on Yap in the Caroline Islands (Pratt *et al.*, 1977).

Ptilinopus roseicapilla — MARIANA FRUIT DOVE

The stuttering coos of these colorful doves are one of the dominant forest sounds on Saipan, Tinian, and Rota, but on Guam they are seldom heard. In 1976 we saw many more



Mariana Mallard/H. D. Pratt.

fruit doves than ground doves on that island but in 1978 the numbers were reversed. Probably the two native doves survive in about equally low numbers on Guam. Fruit doves are very shy and difficult to approach on Saipan and Guam, but less so on Rota and Tinian. This behavioral difference probably reflects varying amounts of hunting pressure on the four islands. The species is in no danger on the three northern islands, but it should be strictly protected on Guam to prevent further declines.

Streptopelia bitorquata — PHILIPPINE TURTLE DOVE

Introduced two centuries ago by the Spanish (Baker, 1951) this dove is well established in the southern Marianas, but is far from abundant. It is common on Guam, particularly in suburban areas, and can often be seen on poweflines along highways. The turtle dove does not appear to compete significantly with native doves. At Andersen South, where Pratt found the greatest numbers of ground doves and fruit doves in 1978, he also noted a high concentration of this species. On the islands less disturbed than Guam, at least the fruit doves substantially outnumber this exotic. Philippine Turtle Doves are legally hunted throughout the Marianas.

Aerodramus vanikorensis bartschi — VANIKORO SWIFTLET

These swiftlets are common in the interior valleys of Saipan but seldom seen elsewhere on the island. We saw them also in fair numbers on Rota and Tinian, but found none on Guam. The colony at Dos Amantes Point, mentioned by Wood (*in* Key, 1968) apparently no longer exists. Nor did we find any near the cliffs of northern Guam where they might be expected. However, a few swiftlets have recently been seen in southern Guam (Ralph, *pers. comm.*), thus the species is not extinct on the island. Residents of all the islands attest to the former abundance of swiftlets, and most attribute the birds' demise on Guam to heavy spraying of pesticides. Apparently, no analyses have been made of the ecological effects of such sprayings in the Marianas.

Halcyon cinnamomina — MICRONESIAN KINGFISHER

The kingfisher of Guam has apparently declined in numbers since Marshall (1949) found them abundant. Bruce failed to find the bird in southern Guam despite a diligent search, but we found them common throughout the northern part of the island. This species is, for a kingfisher, unusually retiring. Anyone unfamiliar with its vocalizations would probably consider it rare indeed on Guam. Occasionally, however, these birds perch in exposed places such as on powerlines. At least one pair of Micronesian Kingfishers held a territory in a patch of woods near the hotels at Tumon Bay in August 1978, and the kingfisher was the only native bird still present in the forest at Dos Amantes Point that year. Apparently the factors leading to declines of passerines on Guam are not adversely affecting kingfishers.

Halcyon chloris — COLLARED, or MANGROVE KINGFISHER

The kingfisher of Saipan, Tinian, and Rota is one of the most conspicuous components of the avifauna. The birds are large and noisy, and commonly choose exposed perches such as powerlines. Despite their conspicuousness, these birds are probably not as numerous as some other less obvious species. They are primarily forest birds, but are also found in disturbed habitats and in suburban areas.

Mariana Crow/H. D. Pratt.

Acrocephalus luscinia — NIGHTINGALE REED-WARBLER

This Endangered Species may be extirpated on Guam. We failed to find it in several visits to the Agaña Swamp, which is rapidly giving way to housing and shopping centers. This swamp may have been the species' last stronghold on Guam (Key, 1968). The bird is shy and retiring, but its spectacular song cannot be easily overlooked. Nightingale Reed-warblers are rather common on Saipan. Marshall (1949) reported its distribution on that island as spotty but we found it more generally distributed. Apparently the reed-warblers have benefitted from the planting of tangan-tangan. They are common to abundant in thickets of that plant throughout the southern part of the island, particularly around the airport where the chorus of singing males at dusk is truly impressive. The only area on Saipan where we failed to find the reed-warbler was in the tangan-tangan thickets below the Suicide Cliff in Marpi. The bird's preferred habitat seems to be low trees near semi-open grassy or reedy places, but it also occurs occasionally in dense forest. The Saipan population of the Nightingdale Reed-warbler probably numbers many thousands, and no extraordinary measures seem necessary to insure its survival. The species does not occur on Rota or Tinian.

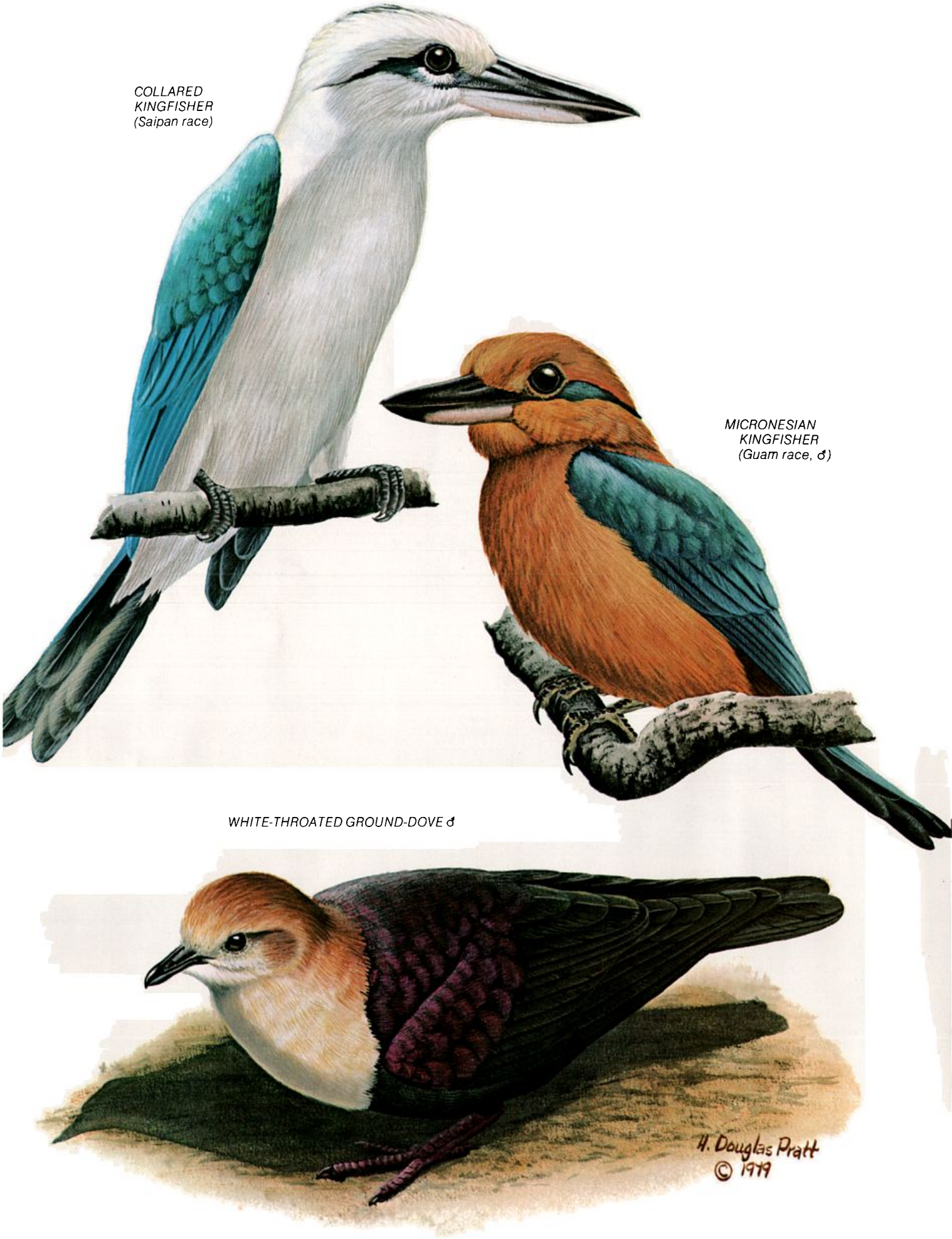
Monarcha takatsukasae — TINIAN MONARCH

The apparent reason for the designation of this Tinian endemic as an Endangered Species is a misreading of the report of Gleize (1945) that gave an estimate of 40-50 birds. A careful reading of that paper reveals that the figure represents the actual number of birds the author saw in a small part of the island and was not an estimate of the total population. Marshall (1949), in reference to the monarch in 1945, spoke of "the peak of its abundance," a phrase that could hardly have been applied to a population of 40-50 birds. As our observations and those of others show, the Tinian Monarch probably never deserved a place on the list of Endangered Species.

Owens (*pers. comm.*) found the Tinian Monarch to be abundant in 1974. Bruce confirmed his observation in 1975 and Bruner and Pratt found a similar situation in 1976. This drab flycatcher is the most conspicuous bird on Tinian, and is often seen flying across roads. The monarch is most numerous in dense stands of tangan-tangan that now cover most of the island, but the bird is absent only from the cleared pastureland in the central area. The population is surely in the tens of thousands. We doubt that Tinian could support a larger population. The monarch's adaptability to, and even preference for, man-altered habitats indicate that it is a highly resilient species and one that is not likely to be imperiled barring the total disappearance of trees from the island of Tinian.

Myiagra freycineti — GUAM FLYCATCHER or GUAM BROADBILL

This endemic may be the least numerous of Guam's surviving songbirds. These flycatchers do not require primary forest, and indeed seem to prefer thickets of tangan-tangan (Beaty, 1967; Key, 1968). They are more secretive than the fantails and white-eyes in such habitat and are most often located by their calls. We found Guam Flycatchers in forests and thickets throughout the northern part of the island in 1976. They were locally common but always difficult to see. However, in 1978, Pratt could find them in only one of the 1976 localities. A few individuals were present at Andersen South near Yigo, but in apparently suitable native forest below the cliffs south of Mt. Santa Rosa the flycatchers, as well as the white-eyes and fantails, had disappeared. Pratt saw four Guam Flycatchers in forests below cliffs at Ritidian Point on July 30, 1978.


COLLARED
KINGFISHER
(Saipan race)
MICRONESIAN
KINGFISHER
(Guam race, ♂)
WHITE-THROATED GROUND-DOVE ♂
H. Douglas Pratt
© 1979


MARIANA CROW
imm.
Saipan-Tinian
MICRONESIAN STARLING
BLACK DRONGO
Guam
ad.
BRIDLED WHITE-EYE
Rota
♀
♂
CARDINAL HONEYEATER
♂
♀
GUAM FLYCATCHER
VANIKORO SWIFTLET
GOLDEN HONEYEATER
TINIAN MONARCH
Saipan
RUFOUS-FRONTED FANTAIL
BARN SWALLOW
ad.
Guam
imm
NIGHTINGALE REED-WARBLER
H. Douglas Pratt © 1979

Bruce had noted this species at Dos Amantes Point in 1975, but we found none there in 1976 or 1978. For whatever reason, the Guam Flycatcher appears to be withdrawing from its last few strongholds. We considered the species only moderately threatened in 1976, but the outlook in 1978 is grim, indeed.

Rhipidura rufifrons — RUFOUS-FRONTED FANTAIL

This spritely bird is abundant on Saipan and Tinian, particularly in thickets of tangan-tangan. The fantail is less numerous, but still common, in dense forests. On Rota, where considerable forest remains, the bird is common but not abundant. Apparently the Rufous-fronted Fantail declined in numbers during World War II (Stott, 1947) but has since recovered except on Guam. In 1976, we found the Guam population to be much smaller than that of other islands, but the birds were not uncommon in forests and thickets in the northern third of the island. But by 1978 the fantails, like the flycatchers, had disappeared from most of this area. Bruner and Pratt could find only a single individual in the areas where two years before the bird had been present in fair numbers. Only in the limestone forests near Ritidian Point, visited by Pratt on July 30, were fantails to be found in any numbers. Rufous-fronted Fantails are highly vocal with high-pitched tinkling vocalizations, and thus are not easily missed where they occur. Their songs could be heard at every hand throughout the day on Saipan in July, while on Guam the woods remained silent. Thus we believe that our lack of observations on Guam reflects a real absence of birds, rather than a seasonal lull in singing. Clearly the Guam subspecies (*R. rufifrons uraniae*) is in serious trouble.

Zosterops conspicillatus — BRIDLED WHITE-EYE

The Bridled White-eye is the most abundant bird on Saipan and Tinian and moves about in large flocks. We saw the Guam subspecies (*Z. c. conspicillatus*) frequently in the northern part of the island in small flocks of up to 15 birds in 1976 but by 1978 they were absent from these same areas. Pratt saw only two flocks of four or five birds on July 30, at Ritidian Point, and could find none elsewhere. Similarly the distinctive Rota subspecies (*Z. c. rotensis*) is rare and local. We could find no white-eyes in the lowlands of that island, although they had been reported "numerous" in 1945 (Baker, 1951). We found only three small flocks in patches of scrubby *Pandanus* woods on the central plateau. Bruce saw only six individuals in 1975, also on the plateau. If, in fact, the white-eye is confined to the plateau woods on Rota, the population cannot be large.

Why the white-eyes of Guam and Rota should have declined so drastically, while those of Saipan and Tinian remain abundant we cannot say. Rota has suffered less ecological damage than the other islands (Baker, 1946) yet is the home of what may be the most critically threatened passerine in the Northern Marianas. The only obvious ecological factor shared by Guam and Rota but not Saipan or Tinian is the presence of the introduced Black Drongo. Wood (*in* Key, 1968) claims that drongos eat small birds as well as insects, but Vaurie (*in* Thomson, 1964) says "they do not molest small or harmless birds." We doubt that such depradations alone, if they do occur, could produce the apparent alarming declines of small birds on Guam. Perhaps the drongo is only one of a kaleidoscope of inimical factors.

Myzomela cardinalis — CARDINAL HONEYEATER

These handsome red and black birds are common on Rota, but we found them in only a few places on the other islands. On Saipan and Tinian the endemic songbirds vastly outnumber this widespread Pacific species. The Cardinal Honeyeater's preference for flowering trees often brings it into gardens and yards. We found them in coconut palms around the resort hotels of Guam's Tumon Bay in 1976. They were uncommon but widespread elsewhere in northern Guam in both 1976 and 1978. This species seems to be withstanding the forces that are causing declines in Guam's other small native passerines.

Cleptornis marchei — GOLDEN HONEYEATER

The Golden Honeyeater was long thought to be endemic to Saipan, but Owen (*pers. comm.*) found it on Aguijan in 1954. Like that of the Tinian Monarch, this species' status has been the subject of conflicting reports. Stott (1947) reported the bird in only one locality in dense forest. Nevertheless, Marshall (1949) described the honeyeater as "numerous." Bruce found it in good numbers but somewhat localized in 1975. We went to Saipan expecting to have difficulty finding the bird, but located several just outside our hotel within ten minutes of beginning our search. The Golden Honeyeater turned out to be abundant throughout the island. Its habitat includes dense forest, tangan-tangan thickets, and scrubby woods near open fields. We even saw several in exotic poinciana (*Delonix*) trees that surrounded a recently demolished building in the main shopping district. Every Saipan resident we queried was familiar with the conspicuous "kanario." Kobayashi (1970) also reported the bird common in exotic vegetation. The Golden Honeyeater appears to exist at the saturation level of its habitat. Clearly this adaptable bird is not endangered.

Lonchura malacca — CHESTNUT MANNIKIN

We found this introduced finch widespread in northern Guam, and particularly abundant in the residential areas around Barrigada. Bruce found it locally common in the Mt. Sasalaguan area. We met with small flocks in relatively open areas. We found no evidence that these birds compete in any way with native species.

Passer montanus — EURASIAN TREE SPARROW

This exotic was apparently introduced recently in the Marianas as Baker (1951) did not include it. Wood (*in* Key, 1968) referred to it as ubiquitous on Guam. These sparrows are common in all urban areas on the island. We also found them in small numbers in towns on Rota, Tinian, and Saipan in 1976. They appeared by 1978 to be increasing rapidly on the latter island.

Aplonis opaca — MICRONESIAN STARLING

This starling is a conspicuous bird throughout the larger Mariana Islands, but its numbers vary considerably from island to island It is abundant on Rota, common on Tinian, and uncommon on Saipan and Guam. Micronesian Starlings are usually bold and inquisitive but on Saipan we found them shy and retiring Although still easily seen on Guam, this bird is reduced from its former abundance (Stophlet, 1946; Baker, 1951) and apparently declining We saw no large flocks such as those mentioned by the earlier writers.

Dicrurus macrocercus — BLACK DRONGO

Introduced to Rota from Taiwan by the Japanese in 1935 (Baker, 1951), the Black Drongo spread to Guam, apparently unaided, in the early 1960s (Wood *in* Key, 1968). It is abundant in the lowlands of Rota but less numerous on the plateau. It is now also abundant throughout northern Guam. True to their nature elsewhere (Vaurie *in* Thomson, 1964) Black Drongos on Guam are quarrelsome and pugnacious and often harass other large birds and fruit bats (*Pteropus*) (Perez, 1972; Bruner and Pratt, 1979). For an account of possible interactions of drongos with small native birds, see Bridled White-eye.

Corvus kubaryi — MARIANA CROW

Known only from Rota and Guam, this small crow is now greatly reduced in numbers We found it only with difficulty on Guam in 1976, when we saw about 20 in the area of Mt Santa Rosa. However, in contrast to the situation with the smaller passerines, the crows appeared in 1978 to be holding their own or even increasing on Guam. Unusually wary for crows, these birds are more often heard than seen in most places. Pratt heard or saw Mariana Crows on every visit to Andersen South in 1978, and found them surprisingly numerous, tame, and conspicuous near Ritidian Point on July 30. Bruce failed to find the bird at Mt Sasalaguan where it formerly could be seen regularly (Pettingill, 1967), but Ralph (*pers comm.*) found small numbers in another part of southern Guam. On Rota, the crows are still relatively common. We found them in all parts of the island, and we believe they are not in any serious trouble there. Nevertheless, this interesting species needs protection. A favorite excursion, we were told by some Saipan residents, is a trip to Rota "to shoot crows" Since Rota's human population is small, an effective education campaign could do much to save the Mariana Crow on that island.

Conclusions and Recommendations

THE AVIFAUNA OF THE MARIANA ISLANDS, except for Guam, has largely recovered from the damage inflicted during World War II. But the ravages of civilized man are everywhere apparent on Guam, and are beginning to be felt in the Northern Marianas. The survival of birds in these islands will depend largely on the decisions that are made during the next decade. Such decisions should be based on sound data, and fortunately such data are currently being gathered.

We believe that the establishment of more realistic lists of Endangered Species is important so that research efforts will not be misdirected. In our opinion, the Tinian Monarch and the Nightingale Reed-warbler need no special attention and should be dropped from the lists. Nor should birds such as Saipan's Golden Honeyeater be considered Endangered simply because they are found on only one or two islands. If that philosophy were adopted universally, hundreds of insular endemics, many of which are abundant within a limited range, will have to be considered Endangered. The listing of such common birds could destroy the credibility of the list in the eyes of the islands' human residents, in whose hands the ultimate fate of the birds will lie Rather, attention should be focused on those critically endangered species that require immediate extraordinary measures to insure their survival.

We believe our observations provide sufficient data to warrant the placement of several Mariana Islands birds on the Federal list of Endangered Species. These include the White-throated Ground Dove, Mariana Common Gallinule, Mariana Crow, Rota Bridled White-eye, Guam Flycatcher, and the Guam subspecies of Bridled White-eye and Rufous-fronted Fantail. Two others that probably should be protected as Threattened Species are the Mariana Fruit Dove and the Guam Rail. The declining population of the Vanikoro Swiftlet should be watched closely, although the species is not in serious trouble yet.

Habitat preservation will never be any easier in the Marianas than it is now while human populations are at reasonable levels. Saipan's Marpi district would be an ideal natural reserve perhaps even worthy of national park status. Such an arrangement would not only help protect the island's native birds but would be an asset economically by attracting American tourists for whom the term "national park" has a special mystique. The coastal cliff area of northern Guam is another one worthy of preservation in its natural state. Rota, perhaps the most scenic of all the larger Marianas, has many uninhabited tracts suitable for parks or preserves. The coming military developments on Tinian need not be detrimental to the island's birds if ecological factors are considered.

Citizens of the Marianas are proud to be Americans. But we have done little in the past to inspire confidence with regard to environmental matters We have allowed our ecological vices to run rampant on Guam for eighty years. Perhaps it is not too late for the people of the Northern Marianas to learn from that bad example. Perhaps also we can still rescue a fragment of Guam's ruined ecosystems. But continued neglect of our responsibilities in the Marianas may mean that this unique avifauna will disappear before most of us even knew it existed.

Acknowledgements

OUR VISITS TO THE MARIANA Islands have been supported in part by grants from Brigham Young University Hawaii Campus, Frank M. Chapman Memorial Fund, and Louisiana State University Museum of Zoology. We thank Robert P. Owen, Eugene Kridler, Murray Bruce, and C. John Ralph for sharing their observations with us. J. Michael Fitzsimons read the manuscript and made helpful suggestions. Shigemaru Shimoyama, Visiting Professor at L.S.U., translated pertinent sections of the Kobayashi (1970) paper. E. H. Bryan, Jr. allowed us access to his extensive files on the Marianas at the Pacific Scientific Information Center, Bishop Museum, Honolulu.

Literature Cited

ATKINSON, I. A. E., 1977. A reassessment of factors, particularly *Rattus rattus* L., that influenced the decline of endemic forest birds in the Hawaiian Islands. *Pac. Sci.* 31: 109-133.

BAKER, ROLLIN H., 1946. Some effects of the war on the wildlife of Micronesia. Trans. 11th. N. Amer. Wildlife Conf.: 205-213.

____, 1947. Size of bird populations at Guam, Mariana Islands. *Condor* 49:124-125.

____, 1948. Report on collections of birds made by United States Naval Medical Research Unit No. 2 in the Pacific war area. Smithsonian Misc. Coll. 107 (15):1-74 + 6 plates.

____, 1951. The avifauna of Micronesia, its origin, evolution, and distribution. *Univ. Kansas Publ., Mus. Nat. Hist.*, 3:1-359.

BEATY, JANICE J., 1967. Guam's remarkable birds. *S. Pac. Bull.* 17:37-40.

BRUNER, PHILLIP L. and H. DOUGLAS PRATT, 1979. Field notes on Micronesian bats. *'Elepaio.*

DOWNS, T., 1946. Birds on Tinian in the Marianas. *Trans. Kansas Acad. Sci.* 49:87-106.

GLEIZE, D. A., 1945. Birds of Tinia. *Bull. Massachusetts Audubon Soc.* 29:200.

GRESSITT, J LINSLEY, 1954 Insects of Micronesia Vol 1, Introduction B P Bishop Mus., Honolulu.

KEY, ROBERT E., Ed., 1968. A naturalist's guide to Guam. Guam Science Teachers Assoc., Agana.

KIENER, ROBERT, 1978. A bulwark of the Pacific. *Glimpses of Micronesia and the Western Pacific* 18:32-38.

KOBAYASHI, KEISUKE, 1970. Observation of the birds on Mariana Islands. *Tori* 20 24-29.

LINT, K. C., 1968. A rail of Guam. *Zoo Nooz* 41:16-17.

MARSHALL, JOE T., JR., 1949. The endemic avifauna of Saipan, Tinian, Guam, and Palau. *Condor* 51:200-221.

OWEN, ROBERT P., 1977. A checklist of the birds of Micronesia. *Micronesica* 13:65-81

PANGELINAN, JESUS B. and RAMON I KAPILEO, 1971. Land capability report of Marpi. Mariana Islands District Land Management Office, Saipan. 24 p.

PEREZ, GERALD S. A., 1972. Observations of Guam bats. *Micronesica* 8:141-149.

PETTINGILL, OLIN S., 1967. Guam — boondocks unspoiled. *Audubon* 69:8-20.

PRATT, H. DOUGLAS and PHILLIP L BRUNER, 1978. Micronesian Megapode rediscovered on Saipan. *'Elepaio* 39:57-59

____, ____ and DELWYN G. BERRETT, 1977. Ornithological observations on Yap, western Caroline Islands. *Micronesica* 13 49-56.

STOPHLET, JOHN J., 1946. Birds of Guam *Auk.* 64:534-540.

STOTT, KEN, 1947. Notes on Saipan birds *Auk.* 64:523-527.

THOMSON, A. LANDSBOROUGH, Ed., 1964. A new dictionary of birds. McGraw-Hill Book Co., New York. 928 p.

TRUMBULL, ROBERT, 1973. Cattle roam over historic Pacific airfield. Honolulu Star-Bulletin, Nov. 28, p C-4.

VINCENT, JACK, 1967. Birds in danger of extinction, threatened species of birds: general report. *Bull. Int. Council Bird Preservation* 10:82-100.

WARNER, RICHARD E., 1968. The role of introduced diseases in the extinction of the endemic Hawaiian avifauna. *Condor* 70 101-120.

U.S. Fish and Wildlife Service, 1976. Endangered and threatened wildlife and plants *Federal Register* 41 (208):47180-47198.

YAMASHINA, YOSHIMARO, 1948. Notes on the Marianas Mallard. *Pac. Sci.* 2:121-124.

—Museum of Zoology, Louisiana State University, Baton Rouge, Louisiana 70892 (Pratt); Division of Mathematics, Natural Science, and Technology, Brigham Young University Hawaii Campus, Laie, Hawaii 96762 (Bruner), Division of Mathematics, Natural Science, and Technology, B.Y.U.-H Present Address: 131 West Third So, Rexburg, Idaho 83440 (Berrett)