

U.S. FISH AND WILDLIFE SERVICE

Incidental Observations

Marianas Expedition Wildlife Survey 2010

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Specific field observations, natural history accounts and/or historical notes that fall outside of subject matter contained in other chapters of the Marianas Expedition Wildlife Survey 2010 (MEWS2010) report are recorded below. These incidental observations are organized by island and general subject matter.

1) Anatahan

Vegetation

Since the 2003 - 2005 volcanic eruptions, the island's vegetation is slowly returning. *Hibiscus tiliaceus* is spreading and *Morinda citrifolia* is colonizing many sites. Larger trees which survived the volcanic eruption are sprouting new branches. Grasses and ferns are returning, particularly in ravine areas. Giant tree fern (*Cyathea aramagensis*) have been observed growing in higher elevations. Large areas of the island currently covered by barren ash are being colonized by the invasive mile-a-minute vine (*Mikania micrantha*). This vine, though problematic, may provide ground cover in barren sites stabilizing soil, retaining moisture and allowing tree species to become re-established.

Invertebrates

Flies (*Musca sorbens*?) are extremely abundant. In November 2010, flies were a significant annoyance to individuals conducting field work.

Since the volcanic eruptions, Anatahan has experienced large hatches of moths (Lepidoptera) and other insect species. Grasshoppers (Orthoptera) have also been observed on the island. Extensive insect damage is observed on vegetation (primarily leaves). The absence of avian predation, due to loss of several avian species post eruption, may be a factor contributing to high insect abundance.

Coconut crabs (*Birgus latro*) have not been observed on Anatahan since the 2003 eruption and may be extirpated. Extirpation of coconut crabs could be due the high volume of ash found on island.

Reptiles

Monitor lizards (*Varanus indicus*) survived volcanic activity in small numbers. Though currently, uncommon their populations are likely to grow in the near future.

Seabirds

The following observations are organized by species:

- a) Brown booby (*Sula leucogaster*) – Occasionally use the rock islet on Anatahan's south side (Bird Rock) and steep sea cliffs found at various locations to roost. No nesting is known from Anatahan.
- b) Masked booby (*Sula dactylatra*) – Not known from this island.
- c) Red footed booby (*Sula sula*) – Not known from this island.
- d) Sooty tern (*Onychoprion fuscatus*) – Not known from this island.
- e) Grey backed tern (*Onychoprion lunatus*) – Prior to the 2003 - 2005 eruptions, this species nested on Bird Rock. Following Anatahan's eruptions, Bird Rock was covered with ash. Subsequently, no grey backed tern nesting has been observed on Bird Rock though this species has been observed roosting on this islet. A colony of 15 - 25 grey backed terns were observed nesting on rock outcrop on the east side of Anatahan (16° 20' 32.17"N 145° 43' 09.41"E).
- f) Brown noddy (*Anous stolidus*) – This species was previously observed nesting on Bird Rock prior to Anathan's eruption. Brown noddy's have recently been observed roosting on Bird Rock and are believed to be nesting there again.
- g) Black noddy (*Anous minutus*) – Not observed on island.
- h) White-tailed tropicbird (*Phaethon lepturus*) – Observed frequently on the island's east side along sea cliffs. Believed to be nesting along cliff line (16° 20' 29.62"N 145° 43' 02.02"E).

Terrestrial Birds

The following observations are organized by species:

- a) Micronesian megapode (*Megapodius laperouse*) – Megapodes may have been extirpated from Anatahan during the 2003 - 2005 volcanic eruptions. During the eruption period, when the island was covered with ash and denuded of vegetation, megapodes were observed multiple times from helicopters and encountered on the ground prior to extirpation. Post eruption (2005 - 2009), no megapodes were observed on Anatahan. On 15 July 2010, megapodes (>10) were observed in response to playbacks on the northeast side of the island (16° 21' 23.92"N 145° 43' 17.49"E). On 22 November 2010, megapodes were observed in the village area in response to playbacks (16° 21' 50.35"N 145° 38' 03.59"E).
On 27 July 2010 two megapodes were banded at the aforementioned northeast side location. Blood and feather samples were collected and stored at the Burke Museum at the University of Washington, Seattle, WA. (USFWS band #1126-08136, #1126-08137). Megapode nesting was observed once prior to the eruptions (pre - 2003) by a helicopter pilot who was waiting for geologists to complete their work. Mike Cunningham

(Americopters) described a megapode digging a burrow in loose soil on a hillside in full sunlight on the east side of the island.

- b) Micronesian starling (*Aplonis opaca*) – Starlings, although once common on the island, were not observed during surveys. They are currently considered extirpated from Anatahan.
- c) White-throated ground dove (*Gallicolumba xanthonura*) – Have not been observed on the island since the 2003-2005 eruptions.
- d) Micronesian honeyeater (*Myzomela rubratra*) – Honeyeaters were believed to be extirpated from the island following 2003-2005 volcanic eruptions. This was the first avian species documented to have returned to Anatahan. Individual honeyeaters were heard in April 2008. Honeyeaters are now frequently heard on Anatahan and a juvenile was observed in November 2010.
- e) Collared kingfisher (*Todiramphus chloris*) – This species was absent from Anatahan prior to eruptions and remains absent.

Mammals

The following observations are organized by species:

- a) Mariana fruit bat (*Pteropus mariannus*) – Fruit bat population on Anatahan declined sharply after the eruptions, from greater than 2,000 down to less than ten. Currently the population appears to be rebuilding. Population levels stayed at approximately 150 individuals for several years post eruption. Bat numbers appear to be slowly climbing. In November 2010, 200 - 250 individuals were observed. This number is anticipated to increase as the island becomes more vegetated and trees mature. Illegal poaching could impact fruit bat recovery on Anatahan. The two main bat roosting areas are above the former village site on the west side and in big trees on the northeast side. Roosting sites (i.e., large trees) are extremely limited on Anatahan.
- b) Rats – Rats are still present, although in reduced numbers. Two rats were found in a cats stomach on the northeast side and a dead rat was observed in the village area on the west side. Morphological characteristics suggest that the rat species present is *Rattus exulans*. It is unknown if other species of rats are present. Island-wide rodent eradication should be considered for Anatahan. Reduced vegetation and no permanent human presence increases the chance eradication efforts will be successful on Anatahan.
- c) Feral cats (*Felis catus*) – Cats are still present on island. Their scat is frequently encountered on the northeast side of Anatahan. In 2008 a single cat was shot in this area.

2) Sarigan

Historical Notes and General Observations

Recorded history for this island starts with the German Administration when the island was visited for bird plume collection (D. Spennemann 1999; *Micronesica* 31(2): 309 - 318), shortly thereafter a minimal security penal colony was established that worked the island for copra production. This coconut plantation continued into the Japanese period (1914-1945) and a village with a small harbor was established on the west side of the island, complete with concrete buildings and cemetery. During WWII a small group of islanders along with a small Japanese weather detachment waited out the war. Following WWII, the islanders attempted recolonization of Sarigan. This attempt included introduction of domestic animals (including cattle). By 1980 these efforts had ceased and cattle (*Bos taurus*) haven't subsequently been recorded on the island. The island was nominated as a protected reserve when the CNMI achieved Commonwealth status. In 1998, a successful eradication of pigs (*Sus scrofa*) and goats (*Capra hircus*) was completed and now the island is now being used as a safe island for the translocation of native bird species. The status of the island as a reserve is unclear and recolonization could still occur. Sarigan is showing signs of being volcanically active as evidenced by continual active erosion on the island's south side since at least 1996 and the presence of small thermal vents in the upper forest.

Invertebrates

Coconut crab are uncommon, with only large individuals being observed. Large individuals were encountered at higher elevations within the island's interior. Occasionally a crab is found along the shore, but no small crabs have been observed. It was hoped that once pigs were removed from Sarigan coconut crab abundance would increase. During the ten years following ungulate eradication, the anticipated increase in crab abundance has not occurred.

Erythrina gall wasp (*Quadrastichus erythrinae*) were documented on Sarigan by MEWS2010 participants. *Erythrina* are an important native tree in the CNMI that seasonally is a food source for birds and bats. The introduction of the Erythrina gall wasp elsewhere in the Pacific has had significant negative impacts.

Reptiles

Monitor lizards are present, commonly encountered, and are of large size. There is some interest in the taxonomic status of Sarigan monitors compared to monitors found elsewhere in the CNMI as they appear to have a redder and brighter colored throat patch.

Seabirds

No booby's are known to nest on Sarigan. Brown booby's roosting has been observed on the southeast cliff face of Sarigan. Brown noddy's and grey backed terns nest near the large sea cave and rock pinnacle on the island's southeast side. Black noddy's are suspected to nest within the cave. Tropicbirds are occasionally observed flying over Sarigan but are not known to nest on the island.

Terrestrial Birds

Micronesian megapodes are abundant on Sarigan. Though megapodes were common prior to ungulate eradication, abundance of this species on Sarigan has increased substantially following completion of this effort. Nesting of megapodes has not been observed on Sarigan although suspected burrowing activity has been documented. Megapodes on Sarigan are noticeably naïve about humans. They can be approached up to six feet prior to fleeing.

On 15 July 2010 one megapode was banded along the west side trail leading from helicopter landing area to village area (16°42'37.5"N 145° 46' 12.2"E). Blood and feather samples were collected and are stored at the Burke Museum at the University of Washington, Seattle, WA. (USFWS band #1096-96517).

Micronesian starlings and Micronesian honeyeaters are particularly common in native forest found on the island's upper plateau. In January to February, *Erythrina* bloom and the aforementioned species along with fruit bats can be seen feeding on these flowers. White-throated ground dove are present on Sarigan however are not commonly encountered. Mariana fruit doves (*Ptilinopus roseicapilla*) appear to have colonized the island naturally. Bridled and golden white-eyes (*Zosterops conspicillatus* and *Cleptornis marchei*, respectively) have been introduced in an effort to have additional populations distinct from those threatened by the brown tree snake (*Boiga irregularis*) in the southern islands of the CNMI.

The collared kingfisher is a common forest species. On 10 August 2010 a nesting pair with eggs was observed near the helicopter landing area. This was unusual because the kingfishers were nesting in burrow in the hillside at ground level. Kingfishers typically nest in tree cavities. A kingfisher was caught by hand while in the nest and two eggs were observed. A pair of kingfishers has also been observed for many years nesting in the seaside cliffs along the trail from the helicopter pad to the village.

Mammals

Mariana fruit bats are commonly encountered on Sarigan. The island has a several roost sites that rotate seasonally. In recent years, this island has typically had between 150 - 250 resident bats. This number has remained relatively constant for the past ten years.

Rats are present on Sarigan. Morphologically they appear to be Polynesian rat (*Rattus exulans*), but it is unknown if other rat species or mice are present on the island.

Feral cats are present on island.

3) Guguan

Historical Notes

Guguan was occupied during WWII by a small detachment of Japanese weather forecasters. Feather collectors visited the island during the early 1900's. Human presence on Guguan prior to 1944 is indicated by fragments of large clay pots. Eruptions were recorded in 1882 and 1884.

Invertebrates

Coconut crabs are relatively common however cryptic. Crabs were encountered at least once a day if not more. Most crabs were over three inches carapace length. It appears that human harvest pressure on this species in the interior of Guguan may be lower than other sites in the Northern Islands based on the number of larger size class crabs commonly encountered.

Reptiles

Monitor lizards were not observed on Guguan. The potential absence of this species from the Guguan is significant since it is a top predator in the Northern Islands.

Seabirds

Brown booby's were observed nesting (eggs and chicks) on 15 July 2010. A total of 10 - 15 nests were observed directly with many more are scattered about the island. All brown booby nesting occurred on the ground. Many nests were observed on an east facing ridge with good updrafts to assist in takeoff. Nests were also observed in low areas in the valley to the northeast. This site requires birds to walk over ground cover to reach a suitable high rock to take to the air. This effort is slow and laborious, adults do not appear to be concerned with the presence of large land predators as evidence by their nest site choice.

On 16 May 2010 a pair of masked booby's was observed to have fidelity to a specific nesting site. These adults were reluctant to leave the area even after being approached to a 25 foot distance. Some courtship observed was observed with this pair (e.g. pebble carrying by one adult). One fledged / immature masked booby appeared to be staying with the pair and looking for guidance. The pair, although interested in the immature, seemed more intent on guarding the nest site from other potential nesters. On inspection of photos it was noticed one of the adults possessed a USFWS aluminum band. The band number was not observed in the field and can't be seen in the photo. No banding of masked booby's has occurred in the Mariana Islands for at least 15 years.

On 15 July 2010 masked booby nests were observed to be very sparsely scattered over the visible part of the island. An estimated 5 - 8 pairs could be seen in the island's over grassy interior and more pairs and/or individuals were suspected present. This species was not common. At least one nest observed had a big downy chick.

On 15 July 2010, 15 - 20 red footed booby's were observed roosting in a tree (17°18'55.4"N 145°50'33.62"E). These are the only individuals of this species observed on Guguan.

On 16 May 2010, sooty terns were observed nesting primarily in Guguan's larger cinder cone (17°18'48.20N 145°50'28.19"E). Approximately, 20,000 m² was covered by nests. It is thought that there could have been as many as 10,400 nests at this site. Nesting was not observed on the lower cinder flats, although there was evidence of recent nesting in the form of disturbed vegetation, egg shells, and bird carcasses. One or two immature sooty terns were also observed.

On 15 July 2010 several hundred sooty terns were observed flying about the island and were very vocal all day and night. No nesting by sooty terns was observed.

On 21 November 2010, sooty tern nesting was observed with many eggs on the ground. Both the cinder cone and the lower cinder flats were saturated with sooty terns. The cone nesting area was roughly estimated at 20,000 m² and the lower cinder flat (17°18'34.26N 145°50'10.40"E) is estimated at 200,000 m². It is estimated that there were a total of 114,400 sooty tern nests. An intermediate egret (*Mesophoyx intermedia*) was observed hunting amongst the terns, and is suspected to be feeding on eggs and/or young chicks.

On 16 May 2010 many black noddy's were observed on nests in tree branches. Multiple nests were observed in a single tree with other scattered about.

On 15 July 2010, black noddy nesting was observed in trees. It is estimated that the number black noddy's nesting on Guguan at this date was in the thousands.

On 21 November 2010, at least two separate red tailed tropicbird (*Phaethon rubricauda*) nests were observed on the ground under small bushes (17°18'37.86"N 145°50'29.91"E). Observing tropicbirds nesting in such a vulnerable location suggests that Guguan may have lower levels of predator abundance compared to other sites in the Marianas.

Terrestrial Birds

On 27 April 2010 a single Micronesian megapode was observed on Guguan. On 16 May 2010 many adult birds were heard and observed. Efforts to capture and band individual megapodes were attempted however no individuals were captured at this time. On 13 December 2010 two megapodes were banded (17°18'33.6"N 145°50'37.5"E) and blood and feather samples were collected and stored at the Burke Museum at the University of Washington, Seattle, WA. (USFWS band #1096-96519, #1096-96520). Nesting for this species was recorded on Guguan by Glass and Villagomez 1986 (CNMI DFW Progress Report to the US Fish and Wildlife). Nesting took the form of dug out burrows in the cinder fields. Nesting appeared to be communal with many nests in the same area, apparently using the black cinders as a solar heat source.

Starlings, white-throated ground doves, and honeyeaters were observed commonly throughout the season. The collared kingfisher was noticeably absent from this island.

Mammals

On 15 July 2010, a colony of 15 Mariana fruit bats were sighted in the central part of island (17°18'31.11"N 145°50'19.24"E). In November 2010, 50+ individuals were observed flying in a line along the east side ridge of the island potentially utilizing thermal updrafts. These individuals appeared to be engaged in some type of social activity.

Rats were commonly observed on the forest floor. The rats appeared to be the Polynesian rat. Individuals appeared smallish, light brown with a long tail (tail equal to length of body).

4) Alamagan

Historical Notes and General Observations -

A village exists on the northwest side of the island. In recent years Alamagan had a population that ranged between 2 - 20 residents. The island was abandoned prior to the MEWS2010 survey due to damage by a typhoon in 2009. There are plans to rebuild the village and members of the Santos family have expressed an interest in returning to Alamagan as soon as possible. An older homestead area is located on the southwest end of the island. This is where the camp for this

project was located. Alamagan has had eruptions during recorded history and is considered active as evidenced by steaming fumaroles on the northwest side. There are no sand beaches on Alamagan, only stretches with large cobbles or “alatong.” Landing and storing small boats on Alamagan is difficult.

Invertebrates

Coconut crabs were present however their relative abundance is unknown.

Reptiles

Monitor lizards are present.

Seabirds

Brown booby, masked booby, red-footed booby, sooty tern, black noddy, brown noddy, and tropicbird can all be observed as roosting or as casual passerby's. It is unknown if any nest on the island. If they do, it is in small numbers. It is unlikely any ground nesting species are present due to high abundance of feral mammals.

Terrestrial Birds

Micronesian megapodes are present on island. See separate MEWS2010 report for further details. Nesting areas on Alamagan are unknown and the method of nesting is unrecorded.

Micronesian starling, white throated ground dove, Micronesian honeyeater, and collared kingfisher are all present. One kingfisher was observed with a white head like the Saipan color morph.

Nightingale reed warbler's (*Acrocephalus luscinius*) are common on Alamagan. This species is endangered and is found only on Saipan and Alamagan. In April this species could be commonly heard singing near the MEWS2010 southwest camp. For additional information please see separate MEWS2010 report on this species.

Mammals

Mariana fruit bats are present, although the numbers did not appear to be what an island of this size could support. One reason could be a result of the 2009 typhoon the devastated the island. Following the typhoon, all trees were denuded of leaves and many were knocked down. Local lore had a large colony in the crater that was normally inaccessible. Villagers had observed bats

flying in that area. A search of the crater via helicopter revealed no trees in the crater that could be used for roosting, only sword grass. It is believed bats found in the crater may be utilize ravines on its far side which is also inaccessible.

Feral goats, pigs, cattle and cats are present throughout the island. Rats are present although the exact species has not been confirmed.

5) Pagan

Invertebrates

Coconut crab is present although restricted to certain areas likely due feral pigs and human hunting. The MEWS2010 report on the species reported that no crabs were caught during surveys. The yellow legged crazy ant (*Anoplolepis gracilipes*) is established on the island and may be impacting coconut crabs as well. It should be noted that many areas on Pagan that would be expected to have coconut crabs are not occupied by this important forest species. This underlines the fact that something is happening to Pagan's ecosystems. Overabundance of a range feral and invasive species are likely to be major contributing factors to ecosystem degradation. Local villagers did have areas that they could visit to harvest crabs, however villagers were reluctant to identify these sites.

Reptiles

Sea turtles, thought to be predominately green sea turtles (*Chelonia mydas*), were commonly observed in the waters around Pagan. Sea turtles were particularly noticeable in the small bay at the end of the airstrip on the island's west side. No turtle nesting crawls were observed on the black sand beaches on the west side of the island in the vicinity of the village. This is notable because turtle crawls were commonly observed on the black sand beaches of nearby Agrihan. Also no turtle crawls were reported on Pagan's eastside white sand beaches. Regular beach surveys of these areas were performed by Greg Camacho (CNMI-DFW turtle tagging team) at least once every week during these surveys. Additionally beaches were usually passed daily by technicians and biologists who knew to alert someone if turtle tracks were observed. Furthermore, local residents did not report turtle nesting to survey participants. The reason why turtles were not observed on Pagan's beaches is unknown however high densities of feral pigs and cows utilizing (degrading) beach habitat could be aversive to turtles attempting to nest. In mid-June 2010 one juvenile green sea turtle was observed (J. Omar, CNMI - DFW Conservation Officer) to be hauled up on the black sand beach to the north of the Bandeira Peninsular at the village. It is believed that this individual was resting.

Monitor lizards are present on Pagan and were observed. Survey efforts are summarized in a separate chapter. This species does not appear to be as common on Pagan as observed on other Northern Islands.

Broader herptofaunal surveys were conducted on Pagan. Please refer to this separate MEWS report.

Seabirds

Brown booby, masked booby, red footed booby, sooty tern, black noddy, and tropicbird were not observed nesting on the island. Again this is probably due to the introduced animals. Seaside cliffs may provide some nest and roosting habitat especially for species that use caves or ledges. The Togari rock islets on the east side of Pagan likely have nesting seabirds. Brown noddy's and grey backed terns are two species that may nest at this site. Booby's were also observed on the islets roosting. No survey was conducted of these rocks due to weather and boat availability, only helicopter flybys were conducted. White terns (*Gygis alba*) are common on Pagan and undoubtedly nest in the trees.

Terrestrial Birds

Micronesian megapodes were present on Pagan. This species is surprisingly rare. It is unknown where or how megapodes nest on Pagan. This ground nesting species could be impacted by pigs, human depredation or ants. Refer to MEWS2010 report for survey results.

Micronesian starling, white throated ground dove, Micronesian honeyeater were present. Collared kingfisher was present. At least one kingfisher was observed with the white head of the Saipan color morph. Refer to MEWS2010 report for survey results.

Mammals

Mariana fruit bat is present. Please see MEWS2010 report.

Rats are present. Please see MEWS2010 report. Cats, dogs, chickens, goats, pigs, cattle were all commonly encountered and have established feral populations. Overgrazing by ungulates appears to be the major factor in the collapse of the native Pagan ecosystems. Refer to MEWS2010 survey report for further details.

Cetaceans are present in waters off Pagan and commonly encountered. A pod of spinner dolphins (*Stenella longirostris*) is resident in the bay on the west side and commonly joined any

small boat activity in that area. Dolphins could also be observed anywhere around the island. The following two records are typical of what is observed near Pagan on a daily basis.

- 1) On 16 July 2010, 20 - 25 individuals of what are believed to be spinner dolphins were observed from helicopter on the east side of Pagan by the arches of Togari Rock. Calves were present.
- 2) In August 2007, at least 30 individuals including two calves were observed from a helicopter loafing in the shallows of the west side bay, south of the airstrip. They were identified as spinner dolphins.

Whales were also observed by camp personnel just off the airstrip on Pagan's west side. No positive species identification was made.

6) Agrihan

Historical Notes and General Observations

Agrihan has a village on the west side that until recently was occupied by a family of ten. This family left the island. Currently, the village is periodically populated by a few young men who maintain the buildings, cut the vegetation, and gather resources for the Mayor. In the beginning of the 20th century the island was populated and a copra plantation existed. In the 1960's Agrihan was a destination for Peace Corps teachers. The volcano is active and has a steaming vent in the central crater that emits boiling water and sulfur. Agrihan is the highest island of the Marianas at just over 3000 ft. It is unique due to its high elevation, frequent rains and a very humid ecosystem. This island, although one of the largest in the Marianas, is probably the least known due to its extreme terrain and vegetation. It is plagued by flies. Unfortunately, over the years, many invasive plants and animals have been brought to Agrihan and are established and spreading. Invasive species are rapidly changing this island's native ecosystems prior to them being properly described.

Invertebrates

Coconut crabs were present however the status of this population is unknown.

Reptiles

Monitor lizards are present.

Sea turtles using the southwest black sand beaches for nesting were identified by the numerous turtle crawl tracks. In July 2010, an aerial survey counted 18 crawl tracks along the southwest

beaches from the village beach to the north. It should be noted that these beaches had a healthy strand of beach morning glory vines (*Ipomoea* spp.) covering the sand above the high tide mark. These vines were noticeably absent on Pagan due to ungulate grazing.

Seabirds

Brown booby, masked booby, red footed booby, sooty tern, brown noddy, black noddy and tropicbirds could be observed over the ocean near Agrihan. It is unknown if these species nest on this island. White terns were common and undoubtedly use trees on Agrihan for nesting.

Terrestrial Birds

Micronesian megapodes are rare on this island. This is unusual in that an early report from the Japanese period (1914-1945) discusses a megapode nesting area in the village.

Refer to MEWS2010 report for further findings.

Micronesian starling and honeyeater were present and common. White throated ground dove was present. Collared kingfisher was present and at least one pair had white on the back of their heads, much like the Saipan color phase. On 1 May 2010 nesting by two adults was noted associated with a burrow about 15 feet off the ground in an oceanside embankment on the village beach.

Mammals

Mariana fruit bat is present. Refer to separate MEW2010 report.

Rats are present on island although the species is unknown.

Feral cats are present on island and what was thought to be cat scat was observed in the crater.

Feral dogs are present and villagers have asked for help in reducing the dog population. Feral dogs likely have an impact on native species.

Feral pigs are present on island and pig tracks were observed in the central crater.

Cattle were brought to the island in 1990's. They haven't been observed since and their status is unknown.

Goats are present on island.

Cetaceans – On May 1, 2010 a pair of whales was sighted from a helicopter between Agrihan and Asuncion. The species were not identified, but a blurry picture was taken and they appear to be sperm whales (*Physeter macrocephalus*). What was unusual was that this pair was almost touching each other as they traveled at what can only be described as at “top speed.” They were heading from west to east. It is of note that orcas (*Orcinus orca*) were observed by biologist P. Wenniger (NAVFACMAR) feeding on an unidentified carcass / item near Farallon de Medinilla. It is hypothesized that the two whales seen on 1 May 2010 were fleeing the area due to the presence of the orcas.

7) Asuncion

Historical Notes and General Observations

This island, along with Agrihan, is one of the tallest in the Marianas. Asuncion’s peak is usually shrouded in clouds due to its height. The island is lush and the large amount of plant respiration contributes to this cloud bank. The island has thousands of birds. During the 1900’s bird feather gatherers were on island. One story tells of feather gatherers being found dead on island when the boat came to pick them up. Since the 1900’s, no one has lived on Asuncion.

Invertebrates

Coconut crab are present and commonly encountered. Their large size is indicative of a population that has low hunting pressure.

Reptiles

Monitor lizards are not found on Asuncion.

Seabirds

Asuncion is a treasure from the perspective of seabird abundance. Thousands of black noddy’s were observed nesting in trees. Sooty terns use the grassland above the jungle for colonial nesting. On 1 May 2010, nesting was observed on the island’s slope above tree line in the vicinity of a small saddle with bare cinders. The area is approximately 28,000 m² and is estimated to contain 14,560 nests. On 22 December 2010, nesting was observed up at the cone summit. This area is approximately 14,000 m² and could have 7,280 nests. White terns are abundant and use the trees for nesting. Brown noddy’s were commonly seen roosting along the shore in large numbers and in mixed flocks of seabirds following fish. Tropicbirds were

commonly sighted, and red footed booby's were observed to be roosting in trees. It is unknown if brown and masked booby's use the island.

Terrestrial Birds

Micronesian megapodes are common and very naïve about humans. They often approach very close to humans and largely ignore them once their curiosity is satisfied. Please see separate MEWS2010 report for survey findings. On 8 August 2010 one megapode was banded (19°41'34.0"N 145°23'27.3"E) and blood and feather samples were collected and stored at the Burke Museum at the University of Washington, Seattle, WA. (USFWS band #1126-08140). It is unknown where or how this species nests on Asuncion.

Micronesian starling, white throated ground dove, Micronesian honeyeater and collared kingfisher are common. A kingfisher with a blue cap like the Rota color morph was observed.

Mammals

Mariana fruit bats were present and commonly observed. Please refer to separate survey report for results.

Rats were present. Morphologically they appear to be Polynesian rats (*Rattus exulans*). Rats were commonly encountered during the day.

8) Maug

Historical Notes and General Observations

This island is actually three islands that surround a lagoon that was once the volcanic center. Only one island, the east island, could be visited due to the lack of helicopter landing areas on the other two islands. Small patches of forest could be seen on all islands. A small boat would have been helpful for surveys however there is no safe area to haul the boat out in the case of bad weather. Maug had a Japanese weather station that consisted of a generating house, bath house, cistern, and station house with tower all made out of concrete. The remnants of the house and generator remain along with numerous bottles. No one has lived on Maug since the Japanese were removed in 1945. There is a story that US soldiers visited Maug and a small fight with the few Japanese troops stationed there occurred.

Invertebrates

Large coconut crabs were commonly encountered. This indicates a population that is rarely hunted. The old weather station on the top of the island has collapsed and its concrete rubble provides habitat to many large coconut crabs.

Reptiles

Monitor lizards were not observed.

Seabirds

Maug is another treasure from the perspective of seabird abundance. Many ground nesting species are found on island. Brown booby and red-footed booby and are suspected of nesting. Masked booby's are present and nesting was observed. In early April 2010, a juvenile ready to fledge was observed. On 22 December 2010 a masked booby nest was observed with two eggs. Other masked booby's could be seen on all islands.

Sooty terns, tropicbirds and brown noddy's were observed flying about the islands, nesting is unknown. Black noddy's were observed nesting in the trees in large numbers. On 22 December 2010, one white tern chick in downy feathering was observed on remnant concrete at the old weather station. The chick's parents were in attendance feeding fish. Many white terns were observed about the island.

Terrestrial Birds

Micronesian megapodes were common and naive. See accompanying MEWS2010 report for details. On 6 - 7 August 2010 three megapodes were banded (20°01'15.3"N 145°14'11.3"E) and blood and feather samples were collected and stored at the Burke Museum at the University of Washington, Seattle, WA. (USFWS band #1126-08138, #1126-08139, #1096-96518). It is unknown how or where this species nests on Maug.

Micronesian starling, white throated ground dove, Micronesian honeyeater and collared kingfisher were all present and common. A kingfisher was observed to take a small rat or mouse.

Mammals

Mariana fruit bats were present and commonly observed. Please see MEWS2010 report for further results.

Rats were present. Morphologically rats appeared to be Polynesian rats. They were commonly encountered during the day.

Sheath-tailed bats (*Emballonura semicaudata*) had been reported from Maug in the 1970's as using the weather station as a roosting site (Ludwig 1979). A trip was made to see if any could still be found. Unfortunately the weather station has since collapsed. This would exclude its use by sheath-tailed bats. Cliff habitat might support bats; however this needs to be surveyed with an anabat recorder to determine sheath-tailed bat presence. Surveys may be logistically challenging.

9) Uracas

Uracas has had no known human presence. This volcano has recently been active and last erupted in 1967. A comparison of a map from 1960 to current satellite images indicates a large part of the island is missing. Uracas is rarely visited.

Vegetation

No trees were observed on Uracas. There is a small area on the south side of island that was not visited due to logistics. Vegetation is sparse consisting mainly of cinder fields covered in patches of grasses and sedges and a'ua lava fields covered in old growth *Ipomoea* vines, some as thick as a wrist.

Invertebrates

Coconut crabs were not observed in the area surveyed.

Reptiles

Monitor lizards are not present on this island.

Seabirds

Brown booby's were observed on 17 July 2010 to be nesting. At least 50 brown booby nests were counted and many more were present in other parts of the island.

Masked booby's were observed to have downy young on 2 May 2010. Many masked booby's were nesting in the flats along the west side of Uracas. On 17 July 2010, about 50 pairs were estimated to be nesting on the flats on the west side of Uracas.

Sooty tern nesting was observed on 2 May 2010 in an area estimated to be 38,000 m². It is estimated that this area contained 19,760 nests. During a subsequent visit on 17 July 2010 sooty terns were gone and no nesting was observed. At this time only a few individuals were observed flying along the shore.

Brown noddy's were observed by helicopter on 2 May 2010 within the volcanic crater and are suspected of nesting there.

Black noddy and tropicbird were observed flying near the island. Red footed booby was not observed.

Terrestrial Birds

Micronesian megapodes were not observed and did not respond to playbacks. Micronesian starlings, honeyeaters, white throated ground dove and collared were not observed. A young white tailed sea eagle (*Haliaeetus albicilla*) was observed and filmed. What appeared to be an owl pellet with rodent bones was collected. On 17 July 2010 a cattle egret (*Bubulcus ibis*) in breeding plumage with beige on the head along with a whimbrel (*Numenius phaeopus*) and ruddy turnstones (*Arenaria interpres*) were observed.

Mammals

Mariana fruit bat was not observed on this island.

Rats were observed and a skull collected. It is unknown what species is present.