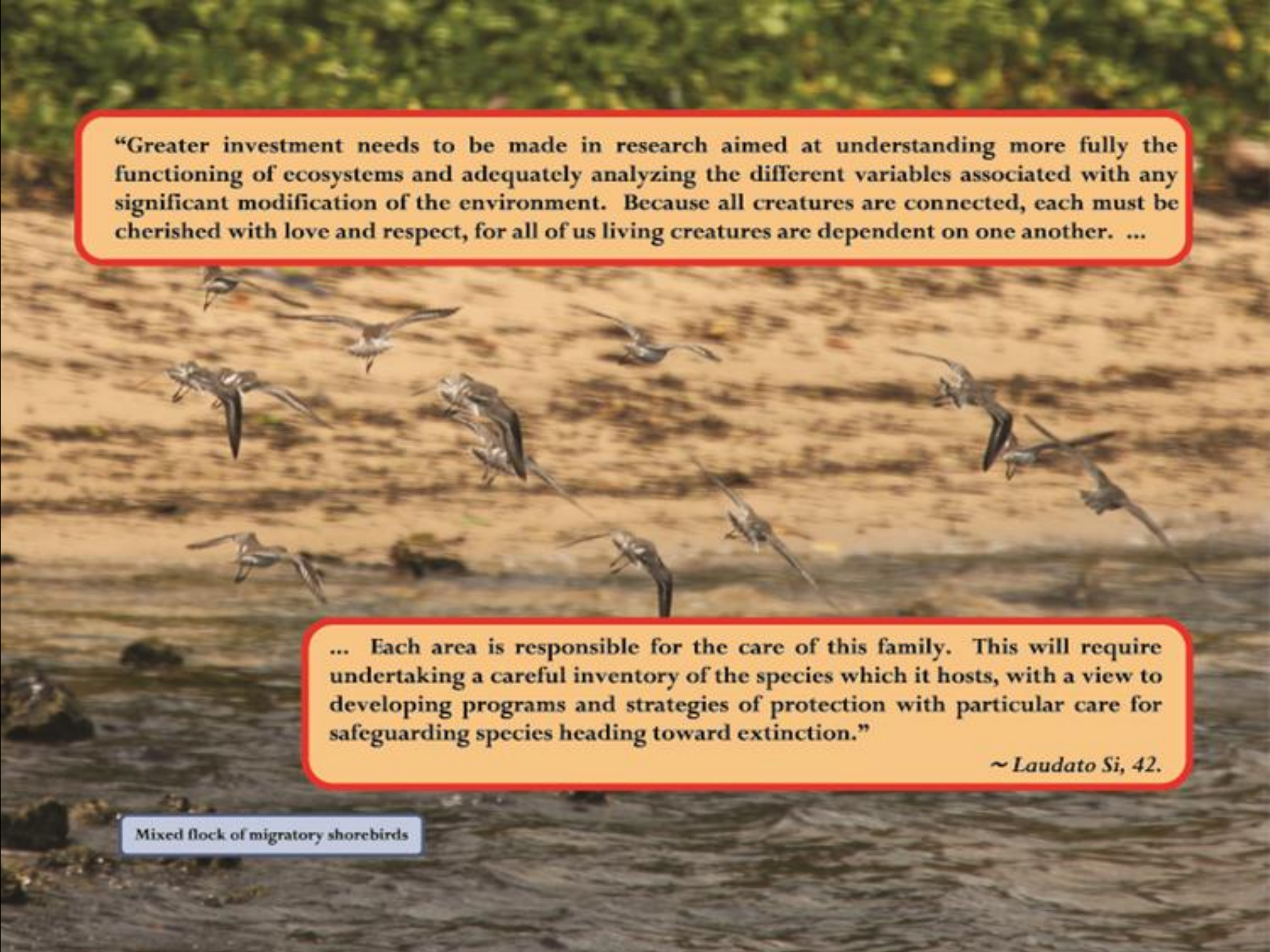


2015

STATE  
OF  
PALAU'S  
BIRDS



A photograph of a mixed flock of migratory shorebirds in flight over a body of water. The birds are captured in various stages of flight, with wings spread, against a background of water and a blurred green shoreline. The scene is brightly lit, suggesting a sunny day.

“Greater investment needs to be made in research aimed at understanding more fully the functioning of ecosystems and adequately analyzing the different variables associated with any significant modification of the environment. Because all creatures are connected, each must be cherished with love and respect, for all of us living creatures are dependent on one another. ...

... Each area is responsible for the care of this family. This will require undertaking a careful inventory of the species which it hosts, with a view to developing programs and strategies of protection with particular care for safeguarding species heading toward extinction.”

~ *Laudato Si*, 42.

Mixed flock of migratory shorebirds

**State of Palau's Birds 2015: Migratory Shorebirds**  
**6<sup>th</sup> Annual Report of the**  
**National Program for Monitoring Forest and Coastal Birds**

*Black-winged Stilt,*  
*Himantopus himantopus*



*Natural History Section*



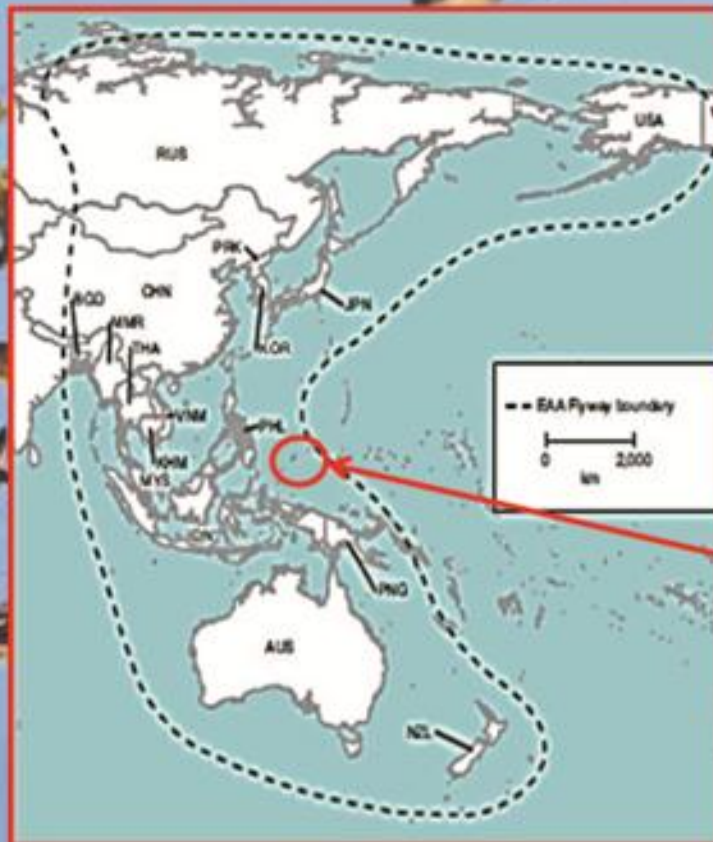
*Belau National Museum*

## The Global Importance of Palau for Conserving Migratory Birds

### EAST ASIAN-AUSTRALASIAN FLYWAY (EAAF)

### PALAU and the EAST ASIAN-AUSTRALASIAN FLYWAY for MIGRATORY BIRDS

Every year 50 million waterbirds migrate from their southern non-breeding areas in Southeast Asia and Australasia to their northern breeding grounds, mostly in Russia but also in China, Mongolia, Japan, the Korean peninsula and Alaska. The sum of these migration routes through 23 countries and over the open ocean is defined as the East Asian-Australasian Flyway (EAAF). The EAAF is the most species-rich of the world's nine major flyways. Unfortunately, the EAAF also has the highest proportion of declining waterbird populations. The loss of intertidal coastal wetlands (tidal flats) due to human disturbance, especially in the Yellow Sea, is the single greatest cause of the declining populations of waterbirds in the EAAF. Of all the threatened birds in the flyway, more than 25% are shorebirds (sandpipers, plovers, snipes and allies), which are at especially high risk because their tendency toward long-distance migrations makes them dependent on coastal wetlands as *en route* stopover sites to rest and feed before resuming their journeys.



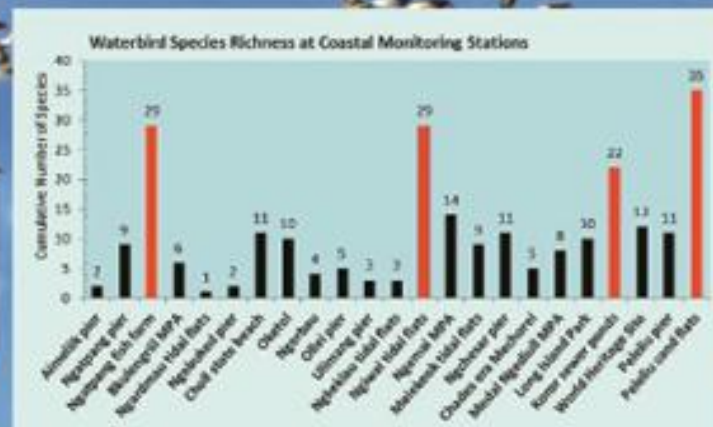
Palau is an important stopover for migratory waterbirds in the EAAF.

# The Global Importance of Palau for Conserving Migratory Birds

## WATERBIRD DISTRIBUTION IN PALAU

"Waterbirds" are birds that rely on wetlands for survival.

Between 16 June 2010 and 27 October 2015, the field ornithologists of the National Program for Monitoring Forest and Coastal Birds conducted a total of 432 counts of waterbirds (including shorebirds) at 23 coastal sites in Palau. The chart on the right summarizes the waterbird species richness values for the 23 sites that were surveyed. Each column represents the cumulative number of species of waterbirds (resident and migratory) detected at a site during the five-year survey. Red columns are hotspots of waterbird activity



## MIGRATORY SHOREBIRDS OF PALAU

"Shorebirds" are waterbirds that inhabit coastal wetlands. The table below lists the migratory shorebirds of Palau. The populations of species marked with an asterisk (\*) have been categorized by the World Wildlife Fund as at risk of extinction within the flyway due to loss of coastal wetlands along their migration routes.

### Checklist of the Migratory Shorebirds of Palau

Black-bellied Plover *	<i>Pluvialis squatarola</i>	Wood Sandpiper	<i>T. erythropus</i>	Red Knot *	<i>C. canutus</i>
Pacific Golden Plover	<i>P. fulva</i>	Green Sandpiper	<i>T. ochropus</i>	Sanderling	<i>C. alba</i>
Lesser Sand Plover *	<i>Charadrius mongolus</i>	Wandering Tattler	<i>Heteroscelus incanus</i>	Red-necked Stint	<i>C. ruficollis</i>
Greater Sand Plover *	<i>Ch. leschenaultii</i>	Gray-tailed Tattler *	<i>H. glareola</i>	Long-toed Stint	<i>C. subminuta</i>
Kentish Plover	<i>Ch. alexandrinus</i>	Common Sandpiper	<i>Actitis hypoleucos</i>	Pectoral Sandpiper	<i>C. melanotos</i>
Common Ringed Plover	<i>Ch. hiaticula</i>	Terek Sandpiper	<i>Xenus cinerus</i>	Sharp-tailed Sandpiper	<i>C. acuminata</i>
Little Ringed Plover	<i>Ch. dubius</i>	Little Curlew	<i>Numenius minutus</i>	Dunlin *	<i>C. alpina</i>
Oriental Plover	<i>Ch. veredus</i>	Whimbrel *	<i>N. phaeopus</i>	Curlew Sandpiper *	<i>C. ferruginea</i>
Red-kneed Dotterel	<i>Erythronyx cinctus</i>	Far Eastern Curlew *	<i>N. madagascariensis</i>	Broad-billed Sandpiper	<i>Limicola falcinellus</i>
Black-winged Stilt	<i>Himantopus himantopus</i>	Black-tailed Godwit *	<i>Limosa limosa</i>	Ruff	<i>Philomachus pugnax</i>
Common Greenshank	<i>Tringa nebularia</i>	Bar-tailed Godwit	<i>L. lapponica</i>	Swinhoe's Snipe	<i>Gallinago melaga</i>
Marsh Sandpiper	<i>T. stagnatilis</i>	Ruddy Turnstone *	<i>Arenaria interpres</i>	Common Snipe	<i>G. gallinago</i>
Common Redshank	<i>T. totanus</i>	Great Knot *	<i>Calidris tenuirostris</i>	Red-necked Phalarope	<i>Phalaropus lobatus</i>

## Introduction: Common Migratory Shorebirds of Palau

### PACIFIC GOLDEN PLOVER (DERARIIK)

The Pacific Golden Plover (*Pluvialis fulva*) (Charadriidae) is a medium-sized (9 – 11 inches long), migratory shorebird whose summer breeding grounds, shown in green on the map below, are in the tundra of the Arctic Circle from Siberia to Alaska. At the end of summer, tens of thousands of Pacific Golden Plovers fly south to spend the non-breeding season (September through March) in places as distant as Southeast Asia, Indonesia and northern Australia. Hundreds of these birds spend the entire non-breeding season in Palau where they are a common sight along coastal shores and roadsides as well as in grassy areas such as lawns and athletic fields. The markers on the map indicate wetlands where Pacific Golden Plovers congregate during the non-breeding season and staging areas where they gather for the springtime pilgrimage to their breeding grounds in the Arctic Circle



## Introduction: Common Migratory Shorebirds of Palau

The breeding plumage of Pacific Golden Plovers is very different from the non-breeding plumage. The picture on the right compares a Pacific Golden Plover in non-breeding plumage (top bird) with one in full breeding plumage (middle bird). The pictures on the lower right side of the page show alternate plumages of Pacific Golden Plovers that have not reached full breeding status.

While in Palau, Pacific Golden Plovers may intermingle with flocks of other migratory shorebirds. The background picture shows a Pacific Golden Plover in a mixed flock of Gray-tailed Tattlers and Greater Sand Plovers. The Pacific Golden Plover is the tallest bird in the flock.



## Introduction: Common Migratory Shorebirds of Palau

### OTHER PLOVERS (CHARADRIIDAE)

Several species of small (7 – 9 inches long) plovers pass through Palau on an annual basis including the Greater Sand Plover, Lesser Sand Plover and Kentish Plover. In general, these small plovers breed in Central Asia. Many of the small plovers in the East Asian-Australasian Flyway migrate as far southward as New Zealand during the non-breeding season.

Lesser Sand Plover  
*Charadrius mongolus*



Kentish Plover  
*Charadrius alexandrinus*



Greater Sand Plover  
*Charadrius leschenaultii*



Breeding plumage





## Introduction: Common Migratory Shorebirds of Palau

### SANDPIPERS and ALLIES (SCOLOPACIDAE)

The ornithological Family Scolopacidae (Sandpipers and Allies) is a diverse group of small, medium and relatively large-sized (6 – 24 inches long) migratory shorebirds. Twenty-six species are known to pass through Palau during the migratory season (see table on the right). Many species have enormous geographical ranges that span continents.

The Common Sandpiper (Bengobaingukl), for example, breeds throughout northern Eurasia (green area on map). After the breeding season, they migrate to Australia and Africa. Hundreds of Common Sandpipers spend the non-breeding season in Palau.

Common Sandpiper  
*Actitis hypoleucos*



### CHECKLIST OF THE SCOLOPACIDAE OF PALAU

English Name	Scientific Name
Marsh Sandpiper	<i>Tringa stagnatilis</i>
Wood Sandpiper	<i>Tringa erythropus</i>
Green Sandpiper	<i>Tringa ochropus</i>
Common Greenshank	<i>Tringa nebularia</i>
Common Redshank	<i>Tringa totanus</i>
Wandering Tattler	<i>Heteroscelus incanus</i>
Gray-tailed Tattler	<i>Heteroscelus glareola</i>
Common Sandpiper	<i>Actitis hypoleucos</i>
Terek Sandpiper	<i>Xenus cinerus</i>
Little Curlew	<i>Numenius minutus</i>
Whimbrel	<i>Numenius phaeopus</i>
Eastern Curlew	<i>Numenius madagascariensis</i>
Black-tailed Godwit	<i>Limosa limosa</i>
Bar-tailed Godwit	<i>Limosa lapponica</i>
Ruddy Turnstone	<i>Arenaria interpres</i>
Great Knot	<i>Calidris tenuirostris</i>
Sanderling	<i>Calidris alba</i>
Red-necked Stint	<i>Calidris ruficollis</i>
Long-toed Stint	<i>Calidris subminuta</i>
Pectoral Sandpiper	<i>Calidris melanotos</i>
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>
Dunlin	<i>Calidris alpina</i>
Curlew Sandpiper	<i>Calidris ferruginea</i>
Ruff	<i>Philomachus pugnax</i>
Swinhoe's Snipe	<i>Gallinago melaga</i>
Common Snipe	<i>Gallinago gallinago</i>

ALL birds of the Family Scolopacidae in the EAAF are in steep decline according to the UN Convention on the Conservation of Migratory Species of Wild Animals

## Introduction: Common Migratory Shorebirds of Palau

### SANDPIPERS and ALLIES (SCOLOPACIDAE) – *Calidris* spp.

The Genus *Calidris* is the most diverse group in the Family Scolopacidae with 24 species worldwide. Eight of the 24 species occur in Palau. The common *Calidris* of Palau vary in size from the Great Knot at 11 inches long to the medium-sized (8-9 inches) Sharp-tailed and Pectoral Sandpipers to the diminutive (6-7 inches) stints. Two *Calidris* species that are rare in Palau and not pictured below, are the Dunlin and the Sanderling.



Great Knot  
*Calidris tenuirostris*



Sharp-tailed Sandpiper  
*Calidris acuminata*



Pectoral Sandpiper  
*Calidris melanotos*



Curlew Sandpiper  
*Calidris ferruginea*



Long-toed Stint  
*Calidris subminuta*



Red-necked Stint  
*Calidris ruficollis*



Red-necked Stint  
Breeding plumage

## Introduction: Common Migratory Shorebirds of Palau

### SANDPIPERS and ALLIES (SCOLOPACIDAE) – *Tringa* spp.

The diversity of the Family Scolopacidae in the EAAF embraces several species of medium-sized (10-13 inches long) shorebirds of the Genus *Tringa*, including several species of sandpipers and tattlers as well as the Common Greenshank (center) and Common Redshank (lower right). In Palau, the birds pictured on this page often mingle with flocks of other shorebirds.

The background photograph shows the typical resting posture of *Tringa* spp.



Marsh Sandpiper  
*Tringa stagnatilis*



Wood Sandpiper  
*Tringa erythropus*



Gray-tailed Tattler  
*Tringa brevipes*



Common Greenshank  
*Tringa nebularia*



Common Redshank  
*Tringa totanus*

## Introduction: Common Migratory Shorebirds of Palau

**SANDPIPERS and ALLIES (SCOLOPACIDAE) – *Numenius* spp.**  
The WHIMBREL (*Okak*) is a large (17 – 18 inches long) shorebird that journeys down the East Asian-Australasian Flyway from Siberia to overwinter in Palau, Australia and other tropical and subtropical places. A few young, nonbreeding Whimbrels can be found in Palau all year long.



Young Non-breeding Whimbrel  
*Numenius phaeopus*



Adult Whimbrel  
*Numenius phaeopus*



Little Curlew  
*Numenius minutus*

Two closely related species occur in Palau during the non-breeding season: the smaller Little Curlew (left) and the larger Far Eastern Curlew (right). The Far Eastern Curlew is the largest (24 inches long) shorebird in the world.



Far Eastern Curlew  
*Numenius madagascariensis*

## Introduction: Common Migratory Shorebirds of Palau

### SANDPIPERS and ALLIES (SCOLOPACIDAE) – Other Species

Among the more unusual members of the Family Scolopacidae that pass through Palau every year are the Broad-billed Sandpiper, the Terek Sandpiper, the Ruff and two species of godwits. These birds range in size from 8 to 16 inches long. Although each is a member of a different Genus, they are all related within the sandpiper Family Scolopacidae. The two species of godwits found in Palau, the Black-tailed Godwit and the Bar-tailed Godwit are similar in appearance except during breeding season when the Black-tailed Godwit (pictured) develops a black and white pattern of stripes on its breast and flanks while the breast and flanks of the Bar-tailed Godwit are rusty red with no stripes.



Black-tailed Godwit  
*Limosa limosa*



Broad-billed Sandpiper  
*Limicola falcinellus*



Terek Sandpiper  
*Xenus cinereus*



Ruff (adult female)  
*Philomachus pugnax*



Ruff (young, non-breeding)  
*Philomachus pugnax*

## Introduction: Common Migratory Shorebirds of Palau

### SANDPIPERS and ALLIES (SCOLOPACIDAE)

The **RUDDY TURNSTONE**, *Arenaria interpres*, is a medium-sized (9 – 10 inches long) shorebird that breeds in tundra habitats on the shores of the Arctic Ocean (green areas on the map). During the non-breeding season, they disperse throughout the world and it is said that every continent has Ruddy Turnstones. Every year, hundreds pass through Palau.

The Ruddy Turnstone population that traverses the East Asian-Australasian Flyway is in decline due to habitat degradation at Asian stopover points along their migratory routes.



## Introduction: Common Migratory Shorebirds of Palau



**RUDDY TURNSTONES** have a unique way of hunting for small crabs and other marine invertebrates. The picture sequence below of a bird turning a stone (arrow) over with its beak to expose prey hiding beneath the stone shows how the turnstone got its name.



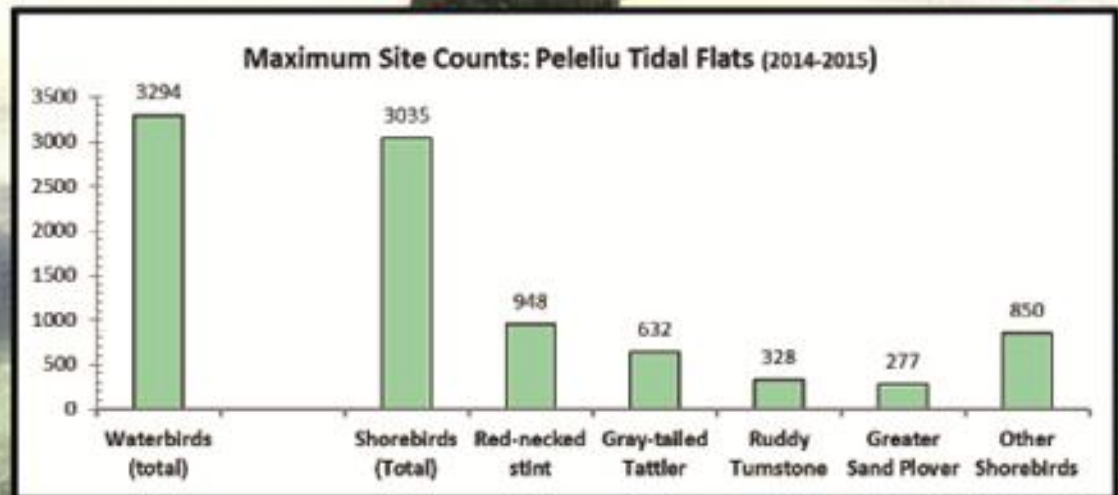
## Pressure: Protecting Coastal Wetland Habitats of Migratory Birds

### Peleliu Intertidal Sand Flats

Every year, thousands of migratory waterbirds in the East Asian-Australasian Flyway descend on the Peleliu sand flats (outlined in red on the map below). The site is an important stopover for at least 30 species of migratory waterbirds that depend on the tidal flats as a feeding ground during the winter (non-breeding) season. Islets on the sand flats also harbor the endangered Palau Megapode and other endemic landbirds that prefer coastal habitats. The rich diversity of migratory and endemic birds marks the site as an important coastal wetland and hotspot for bird tourism.

### An internationally Important Site for Migratory Shorebirds

*No other site in Micronesia has larger numbers or more kinds of migratory waterbirds. Over 90% of the migratory waterbirds on the Peleliu sand flats are shorebirds (plovers, sandpipers and allies). There are 10 times more migratory shorebirds at this site than at all of the other intertidal sand flats in Palau combined. Maximum counts of four shorebird species (chart below) exceed international thresholds for declaring the sand flats an Internationally Important Site for conservation. The site is also home to three endangered shorebirds - Far Eastern Curlew, Bar-tailed Godwit and Great Knot - which, under the UN Convention on the Conservation of Migratory Species of Wild Animals, urgently require concerted and cooperative protection by Palau and the other signatory nations within the range of the species.*





## Pressure: Protecting Coastal Wetland Habitats for Migratory Birds

### Peleliu Intertidal Sand Flats - Shorebird Diversity

The checklist on the right shows the 24 species of migratory shorebirds that are known to occur on the Peleliu sand flats. The list may grow because reports of additional shorebird species are currently under review by the Palau Bird Records Committee. The birds in red typeface on the checklist are redlisted as endangered. Recent counts of the birds marked with an asterisk (\*) exceed international high-priority thresholds for coordinated conservation action by nations within the migratory range of the species. Under the UN Convention on the Conservation of Migratory Species of Wild Animals, the Republic of Palau and has an obligation to protect the Peleliu sand flats as an Internationally Important Site for globally significant populations of migratory shorebirds.



Peleliu Intertidal Sand Flats and the islets of Belualasmau and Ngedebus

### CHECKLIST OF THE SHOREBIRDS OF THE PELELIU INTERTIDAL SAND FLATS

<b>Bar-tailed Godwit</b>
Black-tailed Godwit
Broad-billed Sandpiper
Common Greenshank
Common Redshank
Common Sandpiper
Curlw Sandpiper
Dunlin
<b>Far Eastern Curlew</b>
Gray Plover
Gray-tailed Tattler*
<b>Great Knot</b>
Greater Sand Plover*
Kentish Plover
Lesser Sand Plover
Long-toed Stint
Marsh Sandpiper
Pacific Golden Plover
Red-necked Stint*
Ruddy Turnstone*
Sanderling
Sharp-tailed Sandpiper
Terek Sandpiper
Whimbrel

## Pressure: Protecting Coastal Wetland Habitats for Migratory Birds



### NGI WAL COASTAL WETLANDS

The Ngawal coast of eastern Babeloab is dotted with picturesque seaside villages and pristine sandy tidal flats that reach from the shore to the barrier reef. Ngawal residents share their idyllic beaches with a rich diversity of migratory shorebirds. Traditional fishing practices and a deep respect for the environment have allowed the people and shorebirds of Ngawal to peacefully coexist for millennia. For visitors, the best locations to spot shorebirds are with the incoming tide along the causeway at the Ngemai Marine Protected Area and at the Ngirangemelas monument by the Ngawal state office.

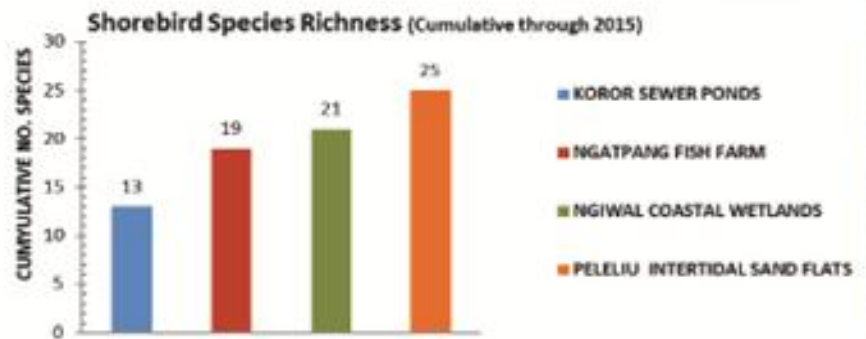


A gathering of migratory shorebirds near the Ngawal state office.

## Pressure: Protecting Coastal Wetland Habitats for Migratory Birds

### NGIWAL – AN ACCESSIBLE DESTINATION FOR WATCHING MIGRATORY SHOREBIRDS

Ngiwal has more migratory shorebirds than any other place in Palau except Peleliu. The chart on the left compares the maximum counts and average counts of migratory shorebirds at the three main sites on Koror and Babeldaob where shorebirds congregate. Although the numbers of shorebirds at these sites fall short of the large flocks seen at Peleliu, the diversity (species richness) of Ngiwal's shorebirds is comparable to the diversity at Peleliu. The chart on the right compares the species richness of migratory shorebirds at Ngiwal and the other sites with the species richness of the Peleliu sand flats. Only a short drive from Koror, Ngiwal is more accessible than Peleliu for birdwatchers seeking a glimpse the shorebird diversity of Palau.



## Response: What Is Being Done to Protect Migratory Shorebirds

### THE NATIONAL PROGRAM FOR MONITORING FOREST AND COASTAL BIRDS

The month of May 2015 marked the fifth anniversary of the official launch of the National Program for Monitoring Forest and Coastal Birds. The national program was created by executive order in response to the call for the establishment national environmental monitoring programs in the Program of Work on Island Biodiversity of the UN Convention on Biological Diversity. Pursuant to Action 2.1 of the National Biodiversity Strategic Action Plan to develop monitoring plans for high priority species including threatened and endangered species, the national program is mandated to (1) monitor bird diversity and bird indicator species on a regular basis and (2) analyze the data from the monitoring activities and (3) perform other tasks that have a “positive impact on high priority national activities involving conservation, wildlife management, sustainable land management and climate change.”



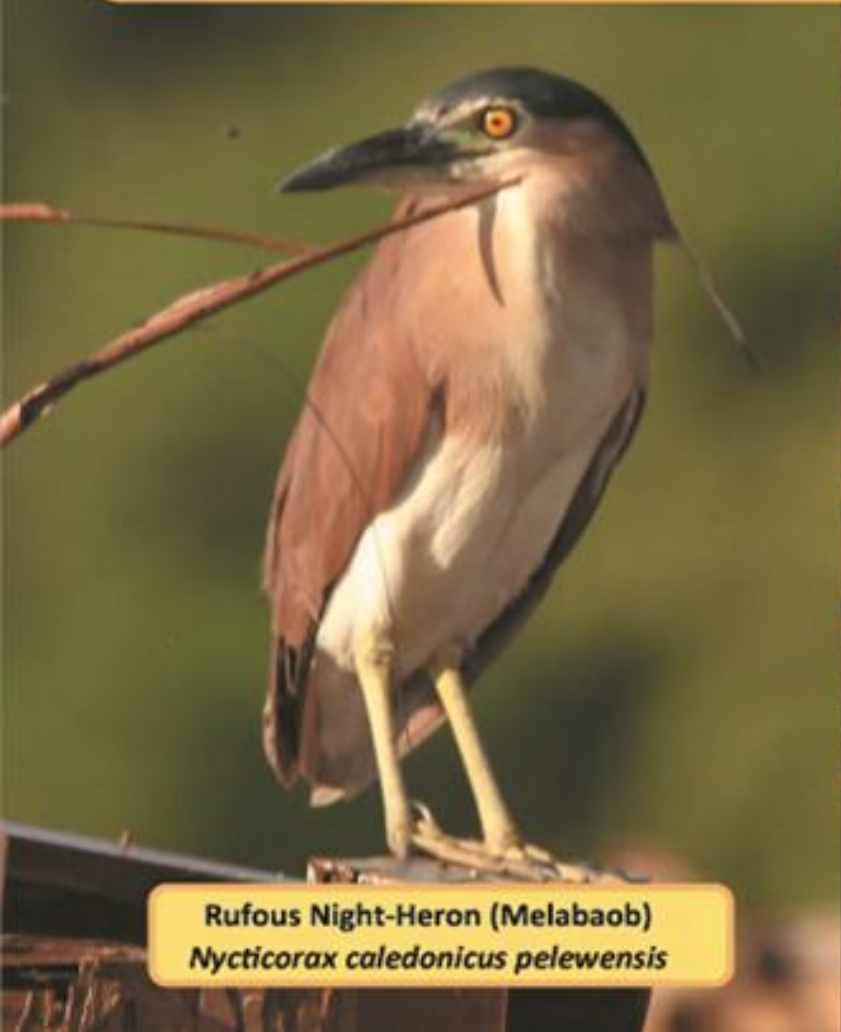
In 2015, the National Program for Monitoring Forest and Coastal Birds pursued its mandate by:

- ✓ Completing 123 field trips for a total of 280 separate bird counts at monitoring stations throughout Palau
- ✓ Posting the results of the field trips on the *eBird* website
- ✓ Initiating a monitoring program for migratory birds
- ✓ Publishing an analysis of the results of the recent national survey of the Palau Megapode (Bekal), an endangered species
- ✓ Mentoring local conservation officers to assume monitoring responsibilities for their protected areas
- ✓ Establishing a Palau Bird Records Committee

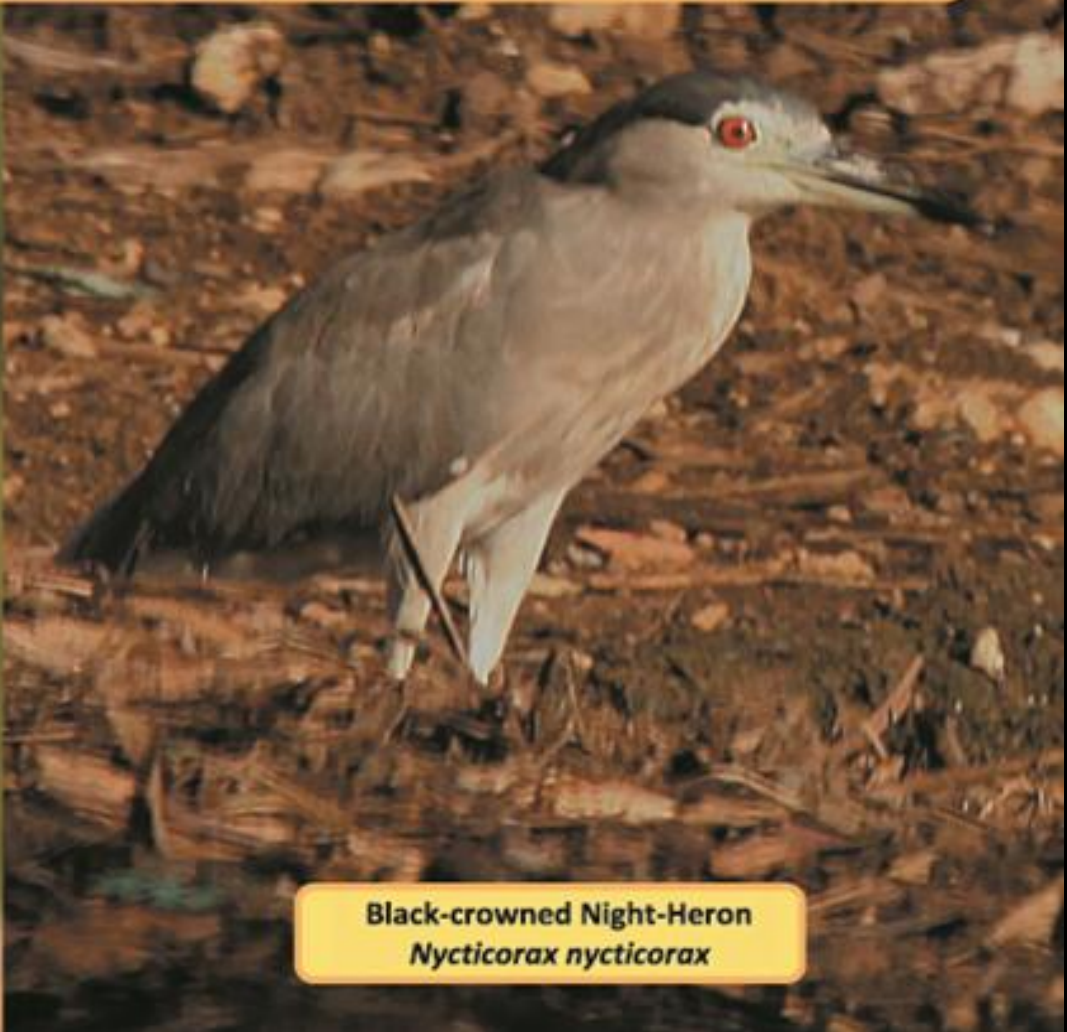
## Response: What Is Being Done to Protect Migratory Shorebirds

### NIGHT-HERONS: Indicators of the Health of Coastal Ecosystems

The Rufous Night-Heron, or *Melabaob*, (left) is a non-migratory year-round resident of Palau. The Black-crowned Night-Heron (right) on the other hand is a highly nomadic species that wanders all over the world, including occasional visits to Palau. As apex predators at the top of the food chain, both night-herons are primary bird indicator species for monitoring the health of coastal wetlands throughout the tropics and subtropics. The National Program for Monitoring Forest and Coastal Birds regularly monitors night-heron populations in the coastal wetland habitats and Marine Protected Areas that are essential for the survival of Palau's shorebirds and of fish stocks for coastal fisheries.



Rufous Night-Heron (Melabaob)  
*Nycticorax caledonicus pelewensis*



Black-crowned Night-Heron  
*Nycticorax nycticorax*

## Response: What Is Being Done to Protect Migratory Shorebirds

### The Palau *eBird* Crowdsourcing Project

The *eBird* website ([www.ebird.org](http://www.ebird.org)) is a global crowdsourced database of field observations of bird activity submitted by field ornithologists and experienced birdwatchers. It is operated by Cornell University in coordination with the Audubon Society and BirdLife International. Although the data are submitted by experienced citizen-scientists, the *eBird* database can be explored by anyone with an interest in birds.

In 2015, citizen-scientists teamed up with Palau Conservation Society to develop a brand-new application for handheld devices that provides a convenient guide for the identification of the birds of Palau. The *iBird* technology complements the *eBird* crowdsourcing project by enhancing the capacity of citizen-scientists to accurately identify the birds that they report to the *eBird* website and to the Palau Bird Records Committee.

The *iBird Hawaii & Palau* application is available from <https://itunes.apple.com> and companion *eBird* applications for reporting bird observations are available through the *eBird* website.



The Palau *eBird* Project is funded by the Global Environment Facility Small Grants Programme (GEF/SGP), implemented by UNDP.  
The Palau *iBird* project is funded by the Palau Conservation Society and the Aage V. Jensen Charitable Foundation.

## Response: What Is Being Done to Protect Migratory Shorebirds

### CITIZEN-SCIENTIST CROWDSOURCING - 2015

The *eBird* website is Palau's gateway to a global community of scientists, conservationists and tourists who appreciate and study bird diversity. Palau is now on the global *eBird* map thanks to local citizen-scientists who share their observations of the comings and goings of resident and migratory birds with the global community on the *eBird* website. In 2015, the number of participating citizen-scientists from Palau tripled compared to 2014 as did the number of checklists submitted to *eBird*. The markers on the Palau map (left) denote the locations of a few of the 620 checklists of bird observations that were posted on *eBird* by Palau's citizen-scientists in 2015.

The Cornell Lab  
of Ornithology

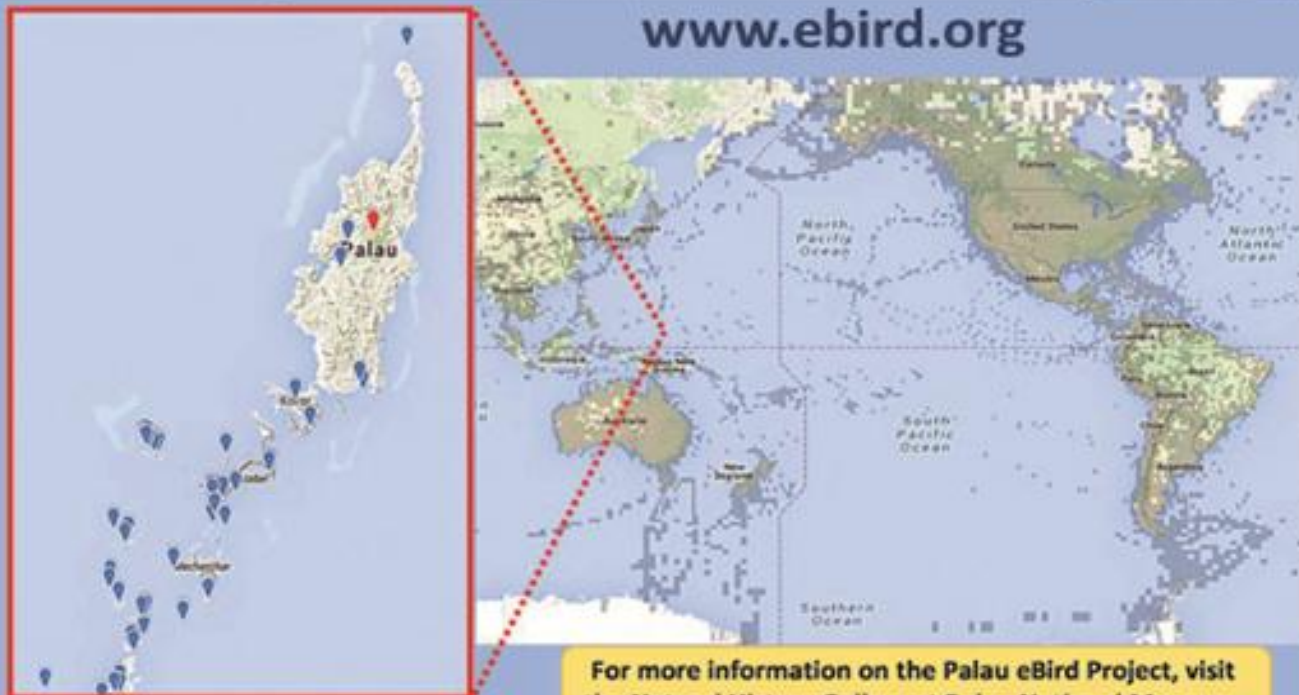
eBird



BirdLife  
INTERNATIONAL

Together for birds and people

[www.ebird.org](http://www.ebird.org)



For more information on the Palau eBird Project, visit the Natural History Gallery at Belau National Museum.

## Response: What Is Being Done to Protect Migratory Shorebirds

### PALAU BIRD RECORDS COMMITTEE

The Board of Trustees of Belau National Museum established the Palau Bird Records Committee in order to reduce Palau's reliance on off-island interventions for managing biodiversity information. The primary duties are: (1) review reports of field observations of Palau's birds and (2) maintain and publish an official Checklist of the Birds of Palau.

The decision to form a bird records committee is in response to recent advances in information management technology, especially the emergent need to manage observations of migratory birds that are crowd-sourced on global internet websites. The Palau Bird Records Committee is chaired by the President of the Board of Trustees of Belau National Museum and administered through the National Program for Monitoring Forest and Coastal Birds.

### COMMITTEE MEMBERSHIP

(1) Records Panel that administers the monitoring and review of bird reports and maintains an official list of Palau's birds. Membership is restricted to residents of Palau. Current members: Milang Eberdong, Heather Ketebengang and Alan R. Olsen

(2) Report Review Panel that reviews noteworthy bird reports forwarded by the Records Panel and recommends acceptance or rejection for inclusion of each report in the Checklist of Palau's Birds. Membership includes resident and off-island experts in the field identification of birds, especially birds that are likely to appear in Palau. Current members: Mandy T. Etpison, Mark O'Brien, H. Douglas Pratt, Eric A. VanderWerf, and Gary J. Wiles.

(3) Liaison Panel of conservationists. Current members: Umai Basilius, Ron Leidich, Glenn McKinlay and Yalap Yalap.

The committee can be contacted by email: [palaubirdrecords@gmail.com](mailto:palaubirdrecords@gmail.com)

Background: "From Ridge to Reef" mural on the grounds of Belau National Museum



## Response: What Is Being Done to Protect Migratory Shorebirds

### Protected Areas Network (PAN) Mentoring Program

The National Program for Monitoring Forest and Coastal Birds has a new program that offers one-on-one mentoring for PAN field personnel in the monitoring of birds as indicator species. The program includes on-site mentoring in the field identification of birds and in computer skills for the use of *eBird*, *iBird* and other applications to report and track the results of field monitoring of bird indicators. In 2015, site managers and conservation officers from two PAN sites, Lake Ngardok and Medal Ngediull, successfully completed the mentoring program and now manage their bird data using cutting-edge information technology.



Lake Ngardok Ramsar Wetland, Melekeok



Medal Ngediull Marine Protected Area, Arai



## Response: What Is Being Done to Protect Migratory Shorebirds

### INTERNET ACCESS FOR CITIZEN-SCIENTISTS

Director Olympia Morel of Belau National Museum (BNM) recently presented a state-of-the-art computer system to Director Mario Katosang of the Palau Conservation Society (PCS). The new computer technology is part of a growing network of data input stations for local citizen-scientists to crowdsource bird diversity on the eBird website <[www.ebird.org](http://www.ebird.org)>, a global database that is managed by Cornell University and BirdLife International. Another eBird computer station is located at BNM whose National Program for Monitoring Forest and Coastal Birds is the national focal point for eBird. Now that computer stations at PCS and BNM are available for use by citizen-scientists who lack easy access to the internet, all experienced birdwatchers in Palau are able to contribute their observations of bird activity to the eBird global database.



*The national program holds community birdwatching events at Long Island Park and Conservation Area on the first Saturday of every month. Bird observation checklists from each event are submitted to the eBird website.*

The Palau High School Science Club at a Long Island birdwatching event.



Bird enthusiasts are invited to join the field ornithologists from Belau National Museum at 6:00 AM on the first Saturday of every month at Long Island Park. Bring your own binoculars.

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A large flock of birds, likely terns, is seen flying in a clear blue sky. The birds are scattered throughout the frame, with some in the foreground and others in the distance. In the background, there are dark, silhouetted mountains and a body of water at the bottom of the image.

### HOW DO THEY KNOW?

In all that endless blue of space,  
Where latitude and longitude are words,  
not numbered lines.

How do they know,  
the way to go.

Between a home and a home;  
Returning and returning.

What guides them, directs them,  
Along the skyroads and across oceans.  
Who guards them, looks over them,  
Amongst the cloudways and the thunder.

How do they know,  
the way to go.

Between a home and a home;  
Returning and returning.

J. Bamford