WE WATCH AND WE LISTEN. YOU AND I.

Ti matalo ao ti kakaaungo, ngai ma ngkoe. A bane n

ALL OUR SENSES ARE FINE-TUNED. YOU SEE

tauraoi ma ni kaantaninga ara bwai n namakin ni kabane.

ONE THING: I. ANOTHER. BUT HOW CAN

Ko noora te bwai teuana; ngai, teuana. Ma e kangaa n reke

THAT BE? WE ARE OF ONE WORLD. THERE IS

anne? Ti teuana ara aonnaba. Ti teuana te bwai ae e tei i

ONLY ONE ACT BEFORE US. I SEE ART, YOU

matara. I noora te banna; ngkoe ko noora ti te bwai. I ongo

SEE A MERE COMMODITY. I HEAR NOISE

te rongoaa, ngkoe ko ongo te katangitang ae tangiraai.

YOU HEAR BEAUTIFUL MUSIC. "COME. LET

"Nakomai, N na kaotia nakoim." I tuangko, ao ngkoe ko

ME SHOW YOU." I SAY TO YOU, AND YOU TO

tuangai. A uaiia ni karababaaki ara namakin.

ME TOGETHER. WE ARE ENRICHED.
MAIUUA
MANNIKIBANI
KIRITIMATI

The Birdlife of Christmas Island

H. Lee Jones, Ph.D.

I Kiribati Translations by Atanraoi Baiteke
# The Birdlife of Christmas Island

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Kirimitati
CHRISTMAS ISLAND (REPUBLIC OF KIRIBATI)
Kiritimati boni ngaia te kabanea ni bubura mai ibukon Kabilawakoron te Ribabereki ni Kribi te 33 mwaitiia, ake a tibwotibwaaki nakon tenua tajen aono. Te aono ni maeao, 17 abamwakorona ao e aranaki bwa te aono ni Rawaki, ao Tarawa, boni ngaia te atununba n te aono aio. Te aono are i nuka, e aranaki bwa te aono ni Binikite ao mwatin abamwakrorona boni wanua ao akeea kaiaa. Mai mainiku, e aranaki ngaanne bwa te aono n Raina ao mwaitin abamwakorona wanua naba, ao Kiritimati boni ngaia te kabanea ni bubura n abamwakorona n te aono aio. Ngkana a bootaki aban nako Kribi, ao buburan abana ni kabane ni bootaki, e nakon te bubura ae 480 km te tikuea. Ma e ngae ngkane ti buburan abana aio, ngkana e bootaki ma buburan ana marawa, ao e nakon te bubura ae 3.55 te mirion km te tikuea are e a rabuna te marawa ae 3,000 km mai mainiku nako maeao ao 2,100 km ni marawa meang nako maiaki. Nnenni ngaanne Kribi, e a boni mena i nuukan raoi te Betebeka ao e tei n okoro ma aaba ake nikirana iana ae ti ngaia te aba n te aonnaba e ae e roota mainikun ao maeao te rain are e babaairea bongin te aonnaba, (International Date Line) ao e a bon roota naba meangin ao maiaki nako iaonana.

Christmas (Kiritimati) Island is the largest of 33 islands in three widely scattered archipelagos that together comprise the Republic of Kribi. In the west is the 17-island Gilbert group, one of which, Tarawa, is the country's capital. In the central portion of the Republic is the virtually uninhabited 8-island Phoenix group, and in the east is another 8-island group, the Line Islands, of which Christmas Island is the largest. Although the combined land mass of all 33 islands is only 820 km², the country, including its territorial waters, comprises 3.55 million km², reaching across 3,000 km of ocean from east to west and 2,100 km of ocean from north to south. With its location squarely in the Central Pacific, Kribi has the distinction of being the only country in the world that lies both east and west of the International Date Line and north and south of the Equator.

Until recently, Christmas Island had the largest assemblage of seabirds of any island in the tropics, perhaps in the world. Few, if any, other places on Earth could match its spectacular 25 million seabirds of eighteen species. Ninety-five percent of these were Sooty Terns, maybe 4% were Wedge-tailed Shearwaters, and the other 1% were divided among the 16 other species. All that has changed. Now there are only 3 to 5 million Sooty Terns, and their numbers continue to decline. Other species, like the Masked Booby, are also declining. Why? Short-sightedness and greed on the one hand; cats and rats on the other. The people, recent arrivals, are going, and will they ever return? These questions will be addressed in the following pages.

The beauty and excitement of Christmas Island is one of the world’s best kept secrets. Yet it is only 3 hours from Honolulu by plane. Fishermen have discovered Christmas Island, and they account for 90% of its tourism. But with more than 40 million birdwatchers worldwide (recent surveys show that birdwatchers now outnumber fishermen!), Christmas Island’s birds are not likely to remain a secret much longer. Most of the island’s birds are easily approached, allowing close-up viewing, filming, and photography. Many have elaborated courtship rituals. Some are found virtually nowhere else in the world. In short, Christmas Island is a birdwatcher’s paradise! Birders alone have the potential to double Christmas Island’s tourism industry. But not if there are no birds to see!

The objectives of this book are simple – to enrich the appreciation and enjoyment of the island’s remarkable birdlife among the people who live on Christmas Island; to demonstrate the impressive economic and cultural

INTRODUCTION

Moantaeka
Why does Christmas Island have so many birds? In order to answer that question, one must first understand the uniqueness of the island itself. Christmas Island, at 2 degrees North Latitude in the East-central Pacific Ocean, is the world’s largest atoll in terms of contiguous land-mass. It stretches 53 km from end to end and encompasses an area of 375 km². To put this in perspective, Christmas is nearly as large as all the other 32 islands of the Republic of Kiribati combined. Most importantly for the birds, Christmas is dotted with hundreds of land-locked lagoons in addition to its one main lagoon. Most of these lagoons themselves have within them one or two to several dozen small islets. A hundred years ago, these islets may not have played a very important role in preserving the island’s birdlife. Today, they are the main reason for Christmas Island’s large and diverse population of seabirds. A hundred years ago, there were no terrestrial (land-based) predators on the island, except possibly the Polynesian rat. No one knows for sure when or how the Polynesian rat reached Christmas Island, but it may have arrived hundreds of years ago, perhaps transported by Polynesian explorers, perhaps more recently from a shipwreck. A century and a half ago the island had no cats and no people. In a sense, the birds were worry-free. Sure, they had predators — other birds like the frigatebird, for example, and large fish in the sea, and perhaps the diminutive Polynesian rat. But over the millennia, they had adapted defense mechanisms to protect themselves from the marauding frigatebirds and opportunistic fish; and the rats, if present, had little effect. El Niño took its toll long before we ever knew what an El Niño was, but we now know that the birds are well adapted to withstand the devastating, but short-term effects of El Niño.

The first permanent human population was established in 1882 after several failed earlier attempts. Not long after the first humans settled on the island, it is likely that the first cats arrived. Or, perhaps, they arrived even earlier from one of the several shipwrecks that preceded the first settlement. Not long after their arrival, both rats, if present, had little effect. El Niño took its toll long before we ever knew what an El Niño was, but we now know that the birds are well adapted to withstand the devastating, but short-term effects of El Niño.

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Ma mannikiba ake a kabwakabwaka n tenaan atimwakoro ake a uareereke, a tani mai iroiu bwaai aikai. A babanga n naua katamwa ao e kangaanga rokoia aomata n aia atimwakoro aikai bwa are akea baoia, ao iririkina, a bon toki naba nanooia aomata ma katamwa ni kakaai kanaia mannikiba ao bunntoai ake a uakan a ma aia kaaw.

Ma anuaia kaini Kiribati ni maiu, ma ni iango rekeni kanaia, e a reke bwa te marena imarenaia taani maeka ao mannikiba. Kaain te Betbebeke, bwa tera aia reeti, bwa kaaii Mwaikoronetia, Meranetia, ke Boreneta, a kamani bwaati n tarai aroni maiau ionan taian abamwakoro ake a karako kaubwaiwa. E tirua kanaia ke te in te maiu are kangaanga kanaia te ingemea ao te ati e a taa mwaitia. Ngkai, e a moanna naba n ake a tira iai mannikiba, ao e a reke nen te tanna nakoia aomata. E ngae ngke a a reke rekeni, kunikaia ao aia bwaai bwa aki aia aanga. A Taroa, ao a bane ikari ao baneawao ao taiani kima naba. E a ukenako riki kirira te nanonrang te rawa. Ao a baneawa ao e a reke konana te ingemea ao te ati e a tau mwaitia. Ngkai, e a moanna naba n ake a tun n aekai nako, ake a rangi n tirua rimoa.

Teuana te tienture n nako ait irabubua kaain Taroa. Ngkai, a maeka iaona 30,000 te aomata. Akea te abamwakoro ae buburan Taroa ae e kona ni kamaiuia te mwaii n aomata anne mani kaubwaiwa aonan. Ma aitibwa ngke a a taraa n ge e a moanna n aikai tau te amwaraake are e a reke maiu taari, are ai aeka aia aanga aomata ni maiu man te ab a a nguia are a a bita aronui maiuia aomata, ma ibukina bwa a a bon aeka riki aia aanga. A Taroa, ao a bane ikari ao baneawao ao taiani kima naba. E a ukenako riki kirira te nanonrang te rawa. Ao a baneawa ao e a reke konana te ingemea ao te ati e a tau mwaitia. Ngkai, e a moanna naba n ake a tun n aekai nako, ake a rangi n tirua rimoa.
Ti na bon riai n tabe iai; aikai bukina — na boni bane n rootaki kaini Kiriritimati ni kabane iai; n aron te maiu, te katei, te utu, tangirakiai bwaai aikai a tamaroa (aesthetics) ao te mwane. Kanakin te mannikibana ibukini kamaiaun te utu teuana ma teuana bon te bwa ae e kaakaraaoaki ni aonababa ao e na bon riai naba n aiko ororo iai Kiriritimati. Ma ngkana e anakai n te mwairi ae e rangi n tira, ao e raiaon ae e riai, ao e na boni kona n rootaki iai aia koraki aomata, raaraooia ao boni ngaiia. Ti a anaa te ikari bwa te katooot. Bon akeea ae e na kakeewa ngkani ti kaangai bwa Kiriritimati, ngaia kautun te tabo ni kanweaba. Ni kabane aomata ake a mena iioni Kiriritimati, a na boni bae ni bo bo noi mwenen te kanweaba. N aron are e taenakiani mai imwinea, taan akawa ngaia aike a boni karika 90 te katebubua mai ibukaooa taan neweaba. Ma tera bukin rookia taan akawa? Bwa a na akawa te ikari. Ma e na moanna n tawe ni bane te ikari ao ai unin naba ma taan neweaba aikai aikai ao aia mwamaane. A aiko moanna ni bane iki ake iwiwin akawaakiai iroia uakaai. Taan akawa aikai, a manga kaaki iki ake tarii, n aki tiriingiai imwinei rekeia. A boni moanna ni bane iki ibukiina bwa a anakai n te mwairi ae e rangi n korakor a on riao iroia aomata aikai a aiko tango, rao raaroom te ka boni kaain am utu. A rangi n korakor a anakai n te ar o e aekai rekoi iaia ti ni mani kaabung ni koaka mwattiaiia. Aeka te ikari, ao akeea na bana taan akawa. Ao anee beebeeten taekana. Ngkana akeea taan akawa, ao a na bon akeea kain riuin te outero ae e Kaben Kuuka Outero. A na karaka irua ibukin taian tabo n amwarake ao taian tito a ni mwaintangira. A na akee a na akoangi taian kaa, turakai ao botee. A na bon akeea ana bwaatintia te "Air Kiribati." A na akee aia mwakuri aomata ake a kakanweaba. Ngkana e reke aoe, a ko na kolutaai?

Angiia aomata a ataa te kangaanga aoe. Iai nabi taian tua ake a tia ni karaaoo akubini buokun tootoaan aekani mwakuri aikai. Ma e bon riki. Ibukin tera? Kiriritimati te tabo ae e taareeereeki mwattiaiia aomata iai. N aekan Ronton, are te kabanae ni bubura ni kaawa, bon ti 1,500 kaaii. Ao kaiinai, a boni kinaa iroia iroia. Angiia boni taian utu ao taian koraki. A ewa riki aike bon tenaari koraki naba ma a raroa riki. Ao te aomata temanna, e bon aki kona n uotoarikaaı utuna. Bon te bwaai a e a ko kakaaraaoo, a ngae ngkana te bwaai e a karaoaki, a na bon rooti utu ni kabane a taai aikai a na roko. Ma ae e na bon reke naba bwa iai ibukauoia taani urua te tua a e na aareeta te baki aoe. Ngkoe, ao ko aki tootoki ni urua te tua ao ko a butiaaik ni aikei. Ngkana ko taae mannikibana ao n anai bunnaoota, ko taoiingiai ni kan kaakaa maidiai am koraki a raaraam? Tao e koa aa ngkai, e rangi ni maiu raoi am utu, ao e a rangi ni maiu raoi riki nakon are rimoo. Tao ibukina a e e ewa kanam te iaao e e tiraana naba na bwaakaukaak. Ao iaai mai buukan ika akanne aikee tenaai aikei a ai biai? E reke naba aron am utu man te mwakuri ni kanweaba? A o e na kera e a na kangaang maidiai am utu ngkana aika akeea taan neweaba ao aikei te akei te ika?

Ma te boki aoe, boni ibukin rongorongo mannikibana, ma tiaki te ikari.

E ti kaboongaakaa te ikari bwa te bwaai ni katooot kiona bwa anee ngkai te bwa e aekai e bon riki a ngaiia aomata aatia. Te bwaai naba anai are a e riki nakoia tenaa mannikibana, ma angiia aomata a taaii na ataa raoi te kangaanga a e e riki. A rangi n tawe akeea taiai kuu, ai unin naba ma te taake ao te mouakena. Ibukin tera? Ibukina bwaai aomata a anai bunnaootin te teeu ao te karakaar, te io, te rauur, te matau, ao a taringiing taian taake ao mouakena n te mwairi a e e bon rangi n riao nakon are a boni kainnaano. Mannikibana aikai ake boni ngaiia tabeman mai ibukaoi mannikibani Kiriritimati aikai a rangi ni kamaakauka akoe a na atika nanoa taan roko n neweaba, are e na boni kamaatia mwattiai te mwane roko n te abga. Ngkai, a rangi n tiraana mooa ma bunnimoa ake e bwaakaukaukau akoo taianii mwaakete ao ake a kaakwakinaa iroia aomata ni mwengaia ibukini kanaa, ai ngaiia are anaaia mannikibana ma bunnaoota n te mwairi ae e rangi n riao, tiakie e bwaai e a na riai ni karaaoaki, ao bon te mwakuri ae e rangi n rawaawata man akeaa riaiania.

But in doing so, they ultimately harm their own kin, as well as their friends and themselves. Let’s use bonefish as an example. No one will dispute that Christmas Island’s leading industry is tourism. Everyone on the island benefits to some degree from the revenue that tourists bring in. As mentioned earlier, fishermen comprise some 90% of the island’s tourists. Why do the fishermen come? To catch bonefish. But the bonefish are rapidly disappearing, and so are the tourists and their money. The bonefish are not disappearing because the tourists have caught them all. Tourists release unharmed the bonefish they catch. They’re disappearing because a few unthinking people, people who live on the island — your friends, perhaps even someone in your family — are harvesting them in numbers so large, the population cannot replenish itself. No more bonefish, no more fishermen. It’s as simple as that. Without the fishermen, rooms at the Captain Cook Hotel will be empty. The restaurants and gift shops will have few customers. Cars, trucks, and boats will remain unrented. Air Kiribati will no longer be able to fill its planes. Guides will be out of a job. Would any of this affect your livelihood?

Most people are acutely aware of this problem. There are even laws in place that are designed to prevent this sort of activity. But it happens anyway. Why is that? Christmas is a small community. For example, London, the largest town, has only 1,500 people. Just about everyone knows everyone else. Many are family and close relatives. Many more are distant relatives. One does not disgrace a member of one’s own family. It’s just not done — even if your own livelihood is at stake. But at least some of the people who will read this book are the poachers. It is the poacher that is the subject of this appeal. If you are poaching birds or their eggs, do you wish to deprive your family and friends their livelihood? Sure, for the moment your family is doing fine, maybe better than ever before. Is it, perhaps, because you have plenty of fish to eat and sell? Are some of these fish gravid (pregnant) female bonefish? Does your family also benefit from tourism? How well off will your family be when both the tourists and the fish are gone?

But this book is about birds, not bonefish. Bonefish are used as an example because the bonefish crisis is real, it is happening now, and most people are familiar with it. The same thing is happening with the birds, only most people are not aware of its significance. The Sooty Terns are rapidly disappearing. So are the tropicbirds and the Masked Boobies. Why? Because people are taking tern eggs and killing tropicbirds and boobies in numbers far greater than that necessary to supplement their diets. These are among the most spectacular birds on Christmas Island and represent a potential major tourist attraction, which, in turn, represents a major economic boost. With chickens and eggs now readily available in the markets and being raised at home by many families, the harvesting of native island birds and their eggs is not necessary — and illegal.

Earlier, the question was posed, “Where are the birds going, and will they ever return?” Well, actually, they are not going anywhere. If adult birds fail to successfully raise young year after year, they will eventually die without raising enough young to maintain their numbers. With not enough young produced to replace those that die, the population will become smaller and smaller until it eventually disappears. It has not gone anywhere. But it is gone, nonetheless.
Ni moan te boki aio, ao ti tabeka te titiraki ae e kangi, “A nakea ngkai mannikibika aikai ao a na manga oki ke a na aki?” Ma ni bon tokina, ao bon ake te tabo ae a na nako iai. Ngkana mannikibika ake a ikawai, a aikoa kona ni kaivaiwa raoi natiia n te ririki teuana ma teuana, ao n tokina a na boni mate a o a aikoa reke oneai mwiia. Ngkana e aki tau mwaiitina mannikibika ake a uareereke n nuruuamwiiia ake a mate, ao ni bon tokina, e na kekeerikaiikaii mwaiitina ni karokoa aie ai bon ake. Aeka te tabo ae a nako iai, ma ai bon ake.

“Ma, ai bon tirauara riki aekani mannikibika n aaba ake tabeueba,” anne ae ko na taekinina; raon nabo te titiraki ae e kaangai, “A aki kona n roko tabeman mai ibuakoni mannikibika akanneni kikawakawaka iaoni Kiriritiitimi?” E na bon rangi ni kangaanga n reke aio. Mai imwi-in iaia kakaakaa taan rabakau iaia mannikibika, ake a kakaei noko rongorongoa mannikibikan te Betebekte ao te aanona, ao a tia ni kunea bwa e ngae a te ti toba taraakia aekani mannikibika ake a ereerekere n atimwakowar, bon iai okoroa n aron rikiaiia mannikibikan atimwakor ake nikirana. Te bwa ai e teretera ikai, bwa rikiaiia mannikibika aikai man te abeare ari a mki ai iai e oki rikiaiia iraua te atu ni mannikibika. Ngka arona, bwa mannikibika aikai a aki tootoki ni kikibakibaka man te abamwakowar teuana ma teuana ni kawakawakawa iai, ao tao a na bon ti tebei. Ai ngaia are, ngkana a nako mannikibika mai iaoni Kiriritiitimi, a boni kona n a mki aanga ni karokoa irabubuya riki ti ririki, ke a bon aki aanga oki naba.

Ni ikotaki ma anne, ao Kiriritiitimi, ai boni ngaia ngkai te tabo teuana ae e teimtosaia oiai aeiia aekani mannikibika aika uuua, aika, te ruroo ao te bwebwe ni marawa. Aekani mannikibika aika uuua aikai ai ake ma an atimwakowar ake a meemena naba iai bwa mwiiia katamwa, kimoa ao aomata. Kiriritiitimi, tao ai boni ngaia ngkai te kabane a abe a na aanona ae e e ne raek angani aiai iai. Ngkana ai ake mai iaoni Kiriritiitimi, ao boni kona naba a nnua man te aonnaba ni kabuta.

E bon rangi ni kамиma mi ni kakamataku aroni maiua mannikibika iaoni Kiriritiitimi. Aeka te kananououu bwa boni ngaia te anga ni kanewaa teuana ae e na rangi ni bububara te tuai moa ni karaoaki iaon te abe aei. Taa e a na aki kona n onto mwiiia anga ni kanewaa ake a rangi n atakaa a aki aron te akawa n te burae (fly-fishing) ao te tebo ma e na boni kona n rangi ni ibiuubii ni te kaarekmwana naba. Ni iangoan te rawetemvem oai kawakawakina mannikibika aikai, ao aomata ake a bon rangi n nano ni ai, ao a boni baa e naii kiairaia aia utu ni kabane. Aeka a aki rii nanoa ni te akawa ke te tebo, a na roko ti ibukibi manukakawina mannikibika aikai. Ma a a bon ai roko ngkana aekani mannikibika ake te mannikibika aei e na manukakawina. Ao a na bon ai roko ngkana ngkana a ongo bwa a tiringakai aika aikai mannikibika aika. Bon ake ae e na kan nori nori kanoa nanoa mannikibika n raee ke tenaani mannikibika ake a biribiribi iaontano mai imwiini kawmaatoaia biaia n aekani a e a tia n nooria te tia korokaraki.

Ma te tau man iroua aomata, tiaki ti ngaia aia kangaanga mannikibika. Katamwa ao kimoa Borenetia ngaia naba aia kangaanga mannikibika teuana ao e na maaiien rangi aroni katokaia, e ngae e ngkana ngkana e range ri nkoraaci a tevaki. N taabo ake a nako iai aomata, ao a a na baa ni rimiriw katamwa. E kangaanga raurenako aomata ma aia sia. Te tekaerai Kiribiti bwa e rangi ni maitoataana aua ikiin kikawakoa kamae aina. Ma e boni kangaanga kwakawuran te aek ka aua aio ibukiai katamwa. E aki rangi ni bibebe kinakiai aub ni katamwa aina ma bun ni katamwa mwaane. E rangi ni bibebe kikawakoa katamwa ni karaba aaka na nako te tua. Ao katamwa, a rangi ni bwaati aab ni karabaia na taini kaikuboe ao e nareke n te bon n aka noroki ngkana a e noroore te kaikuboe. Ma te bwaai riikie e e rangi n atakaa, bwa a kaman roko katamwa ikai imaiai e e kawakawakoa kikawakoa. Taini kamae iao abamwakowar a kuri ni kangaanga mauiai buakuonikai: ma katamwa a rangi ni kai mauiai buakonikai. Ne te aanona ni kabuta, ao katamwa boni ngaia ake a kabadui mataia tibitiiti ni mannikibika, nakonii bwaai rii tabeuba.

“But, there are plenty of birds on other islands,” you say. “Can’t some of these come to Christmas to breed?”

For a few species, perhaps. But for the others, most unlikely. Researchers studying birds on islands in the Pacific and the rest of the world have learned that, the same species found on each of the islands may look alike to us, genetically, they are different from those on all the other islands. What that tells us is that their ancestral lineage on their home island goes back many, many generations. If these birds were moving freely between islands to breed, then their genes would be essentially identical. So once the birds are gone from Christmas, they may not be replenished for hundreds of years.

Additionally, Christmas Island is now the last stronghold for two species, the Phoenix Petrel and the Polynesian Storm-Petrel. These two species have already been eliminated from most of their other native islands by cats and rats and people, and Christmas Island may be the last place on earth where they have a chance of surviving. If they disappear from Christmas, they could be gone forever!

The birdlife of Christmas is truly remarkable. It is, without doubt, the greatest untapped source of tourism on the island. It may not replace fly-fishing and diving as major tourist attractions, but it will complement them in many ways. With the prospects of birdwatching and photography, avid anglers will be more inclined to bring their whole family. Those not interested in fishing or diving will come just to witness the spectacle of birds. They surely will not come if there are no birds to see. But they will also not come if they hear that the birds are being slaughtered. No one wants to see piles of bird carcasses or helpless birds running around with their wings broken off, as the writer and others have seen.

**CATS AND RATS**

Poachers are not the only problem faced by the birds. Feral cats and Polynesian rats present another problem, one that will take much longer to control, even under the best of circumstances. Wherever humans go, cats are never far behind. Humans and their pets are inseparable! Fortunately, Kiribati has a strict policy against the importation of female dogs. Unfortunately, such a policy is all but impossible to enforce with cats. Male and female kittens are not always so easy to tell apart. Cats are easier to import illegally. And cats have a tendency to stow away aboard ships, only to come ashore at night unnoticed once the ship has reached port. But more importantly, cats were already here in many ways. With the prospects of birdwatching and photography, avid anglers will be more inclined to bring their whole family. Those not interested in fishing or diving will come just to witness the spectacle of birds. They surely will not come if there are no birds to see. But they will also not come if they hear that the birds are being slaughtered. No one wants to see piles of bird carcasses or helpless birds running around with their wings broken off, as the writer and others have seen.

**The Birdlife of Christmas Island**

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and perhaps much longer, and there are still plenty of birds. Second, they’re too small to do much damage to a booby or a frigatebird, or even to a petrel with its wicked hooked bill, or a tern with its equally formidable dagger-like bill. And third, surely they cannot swim out to these islets. Or so you might think! These rats can swim, at least short distances. Polynesian rats are now on nearly every small islet, including Motu Upua, Motu Tabu and Cook Island in the main lagoon, and many of the islets in Isles Lagoon and the other lagoons near Carver Way. However, it is not likely that they swarm to the most isolated of these islands. Most likely, they were carried there by frigatebirds or stowed away on the many fishing and tourist boats that now visit the islands.

Surely, these tiny rats are no match for a big bird with a deadly beak. Unfortunately, evidence now coming in from other islands across the Pacific paints a different picture. More and more, Polynesian rats are being seen as one of the main culprits in the demise of seabird colonies. While one might think a small rat would be doomed when confronted by a much larger bird with a sharp beak, such is not the case. These birds are not adapted to defend themselves, or their eggs and offspring, against such a harmless appearing predator. In fact, they probably do not even recognize the rat as a predator. A small rat could slip underneath an incubating brown noddie, nibble a tiny hole in its egg, and suck out its contents while going virtually unnoticed. Perhaps this explains the tropicbird recently seen by the author incubating a hollow egg with a tiny, 3-millimeter-wide hole in its side. What else explains the many abandoned Brown Noddy eggs also found with similar holes in them?

But if the rats have been here for, perhaps, hundreds of years and there are still plenty of birds, what’s the problem? The rats may have been around a long time, but they have apparently only recently reached the islets — until now, the last safe haven for many of the island’s seabirds. Now that they are on these islets, as recent experience on other islands in the Pacific demonstrates, it is only a matter of time before the birds will be gone, especially those that nest on the ground.

Now, the much larger and much more dangerous black rat is being seen regularly in London. Without measures to eradicate it, it will too soon spread throughout the island. Black rats also carry diseases that are easily spread among humans, so there are reasons other than the birds, to keep this pernicious pest at bay.

The Norway Rat presents a similar problem. Although it has not yet been recorded on Christmas Island, with the expanding human population and increased off-loading of food and supplies from abroad, it is only a matter of time before it, too, invades the island — unless proper preventative measures are taken. Suggested measures are discussed in the next session.
## Conservation Plan

### KAAWAKINANA + TARAARUAAKINA = KAOKANI MWIINA (K + T = KM)

#### Karabwataana

Ai bon tibwa teuana te aek a ni mannikiba ae ai ake mai iaoi Kiriritimati, e ataak te mannikiba ia a ne arana ae te (Tuamotu Sandpiper), ao are ngkai iaoi kawaina ni bwa man te aonnaba. A bon ewa nikiraiia mannikiba ake te korakina n tiku, bwa 18 utunni mannikibanan taari aika a kakaokoro ao teuana utunni mannikiba ake a meemenia iao a te a. Na na riai ni manga oki mwaaia mannikiba aika i te tai ari a kamaunakakai iai bwaai ake a aki tootoki n titiriingia ke ni kaakeaeia. N te tai anne ngkane ao are a na konaa ni manga nooraki ni kibakiba 25 te mirion te mannikiba are te teuana utuni mannikiba ake a meemena iaon te aba. Ma te moani bwi, are moan te matoatoa karaona: Kaawakinaia mannikiba. Kaawakinaia mannikiba na karaokai n tenu mwakorona: (1) Kaawakinaia mannikiba mai iouria aomata, (2) Kaawakinaia mannikiba mai iouria kmoo ao (3) Kaawakinaia mannikiba mai iouria katamwa.

#### Kaawakinaia mai iouria Aomata

Iai te tua ibukini kawakinaia mannikiba. Te tua aio bon te Otenanti ibukini tararuakini Mannikiba 1975 ma taian onono nako iai. Iaan te tuo aio ao a tararuakini angiai mannikiba. Ibukiia mannikiba ake e a bwanin aroni kaawakinaia, e katabuuki kakaeeia n tiringiai ao n tauaki. Tiaki ti te mannikiba ake e katabuuki ni karaakoi aik aio nakoia, ma ai boni ngaona, bunnatoina ao bureana naba. Iaan te tuo aio, a a konaa ni kaeiakakai aomata ake a na tararuuaa maan ao e a baaiakakai naba iaan te tuo aio bwa iai taabo ake a na riki bwa nnea maan ao inaan taabo akanne, a na kaaokorakoo ngkane ngkane taabo ake e na katabuuki te roko iai. Tenaan Uooten ibukiia maan aika a a bon anangaki te mwaaka ni kakaaeea ma ni katikiri aomata ake a karamakakini bwa a ekanaako iaia tua, n ake a te ota mai inron te Tia Moti ao n ake a te beewba ni katiiki. Ma e ngaie ngkai iai te mwaaka aio iouria Uooten aikaai, a ek a konaa a kari karaa raaia aia mwakuri ngkana a aki ibuobuuki aomata te ao te kabowi. Ma a bon ewa aanga ibukiin kaungaana nanoia aomata bwa a na ibuobuuki.

Te mwamwananga ao te neweaba ibukini noorakini kaubwain abara na aanga ake a aki urubwai nakon te aonnaba (Ekotuaritim), ai boni ngaia ngkai te anga ni kare kemwe anea ibukiia aab ake a tabe ni riirikirake, ake a boni kaawakini kaubwain aiba. Ao ma imwiin te kakaaee, e a rangi n teretere bwa matukaakainaia mannikiba, emoanibwai n te ekotuaritim. Ma imwaain ae a na konaa n roko aomata ni mataku, ao ma na rawetanmeeia mannikiba iaoi Kiriritimati, a na riai moa ni kaawakinaiai mannikiba aikai. E a na kai ti koreaki kaawakinaia iaan te tuo a ma a na bon riai aomata ni boutokaada a bwa aroni kaawakinaia. A na riai aomata ni kaungaka nanoia bwa a na tangiria ni kani kaawakiniai aia mannikiba, a a na aki kagi. Ao a a riai ni reireinaki aomata ake a tiri mannikiba, bwa tara bukina, bwa tao ibukiin kanaia, aia kaakibotu ke ibukin aia karikirake, bwa e na rangi n tikiraao riki ibukiia ngkana a kaawakiniai aia mannikiba. Nikiraia aomata a bon ataa anne. Taaii iraa mannikiba a na riai ni reireinaki a a ndanganaki.

### Protection + Management = Recovery (P + M = R)

#### The Catalyst? Conservation

Only one native bird has disappeared from Christmas Island, the little known Tuamotu Sandpiper, and it is now on the verge of extinction. Populations of the other 18 species of seabirds and one landbird are still viable, if not completely healthy. Once the reasons for their decline are eliminated, their populations should rebound. Twenty-five million Sooty Terns can once again be a reality, not just a dream. And Christmas will regain its status as the place that has more seabirds than anywhere else in the world’s vast tropical zone. But first, the hard part: protection. Protection comes in three parts: (1) protection from people, (2) protection from rats, and (3) protection from cats.

#### Protection from People

On paper, the birds are already protected. The Wildlife Conservation Ordinance of 1975, with its several amendments, is the legal basis for conservation throughout Kiribati. It fully protects most birds. Fully protected species are not allowed to be hunted, killed, or captured. This includes not just the bird itself, but its nest, eggs, and even its feathers. The ordinance allows for the appointment of wildlife wardens and the designation of wildlife sanctuaries and, within wildlife sanctuaries, closed areas. Wildlife wardens are given the power to search and arrest anyone suspected of committing an offense without an order from the magistrate and without a warrant. But even with this authority, the wardens cannot be effective without the cooperation of the people – and the courts. There are strong economic incentives for the people to cooperate.

Ecotourism has become the economic cornerstone of most developing countries that still retain much of their original natural resources. And statistics demonstrate conclusively that birdwatching is at the forefront of ecotourism. But before the birdwatchers will come to see, photograph, and videotape Christmas Island’s birds, the birds must be protected – not just on paper, but in practice. The people must want to protect their birds, not eat them. The people who are killing the birds, whether for food, for sport, or for profit, must recognize that they will benefit more by protecting the birds. This is already known that. The poachers must learn that living birds are a more valuable resource than dead birds, just as living bonefish have become a more valuable resource in a cash-based economy than dead bonefish. Changing
bwa a ewa riki bonganaia mannikiba ake a maiu nakoni mannikiba ake a mate. Kaanga ai aroia naba ikari ake a maiu, auuana riki ibukin aaba ake te tianti te maiu iai nakoni ikari ake a mate. E rangi ni kangaanga bitaikini kateare are ti taeiai iai. Ma ngkana arona bwa boni ibukin kabwaiara, a na kai bitaki aroro ni kawai nakon aroro aika a boou. Kangi moa ma tai kangi taini taake, kana bunnimino te moa ma tai kana bunnatoin te karakara, te keeu, te io, te raurau ke te matawa. Ai bon anne beebeeten.

Kaawakinaia mai irouia Kimoa

Kauouani mwakoron te iango aio are ibukini kaawakinaia mannikiba, a boni kamaunaakini mataia kimoa. Aio are moan te matoatoa karaona. Te kimoa iao are moan te uareereke are te aranaki bwa kimoa Borennetia (Polynesian rat), a mena n taabo ni kabane. Tao e nakon te mwaiwi te teune ta mirion kimoa aikon te abamwakoro aei. Ai ngiia are, e aera ngkana ngkai ti aki kamena te iango te moan te matoatoa aio n te kabane? Ngkana arona bwa e a moti ari iango bwa ti nang kaaekaia katamwa ni kabane ao e a bwa arwa aika, anne, imwiina, ao ti a manga kataa ni kaakaekaia kimoa. N teina ae ngkai, e kakuaaki bwa e ariko mwaiwiitia kimoa ni te ware aki tebea te mirion ibukin tiruaiaa katamwa? Ma ni iangoana teunea, bwa tao ti na kaakaekaia moa kimoa ao imwiina katamwa, ke ni kaakaekaia kimoa ma katamwa n teunea te tae, te moan bwa e ao te moan te kakaekaia bwa n a kabaneeki moa ni kanakoaki taanga ng lomo kimoai aikai man taini atimwakoro ake a uareereke ake irabubua mwaiwiitia, ake a mena iain Kiritimati. Taabo aikan are a boni mena iaai mwaiwiitia mannikiban taare ma taaki te keeu. Atimwakoro aikan are aie boni neneni katikuitia. N ti a tae aie ai aika mannikiba aikai man atimwakoro aikai, ao are ngkani ake a bon akea nabi ma ai iain Kiritimati. Ngkana e na waakini te waaki ibukini kanakoakia kimoa aikai, ao te bwa are e na moan taraaki boni kakeaakaia bwa e ngaa te atimwakoro are e tatai ai mwaiwiitia mannikiba, bwa ngaia ngkani are e na moani waaki te iango aio iai. Ni butin te waaki ao n noorakina bwa e nanakorai, e a konna ngkana n reitakini te waaki aikai n atimwakoro ake tabeua ao rimwi aai. A waaki ae moa ni kago ake akiroo ake iai. Ma ngkana are a moa aikai atikini bwa n tabatai, te moani bwa e a roo ake a mena iain Kiritimati. Taabo akan aie a boni kaaung izi mannikiba n aron Dojin, Abaia taringiita ngi na waakiare e bubura? Boni inana aie a konaa ngkai te wae aikai ni kabane ake a bwai ara waaki, imwiina, teuana ni kabane a iai. Ma ngkana are a moa aikai aroo, te moan te bwa n taai aika taimi ake a waaki, te moan te bwa n taba ake a waaki. E a maraai ake a iai. Ni butin te waaki ao n noorakina bwa e nanakorai, e a konna ngkana n reitakini te waaki aikai n atimwakoro ake tabeua ao rimwi aai. A waaki ae moa ni kago ake akiroo ake iai. Ma ngkana are a moa aikai atikini bwa n tabatai, te moani bwa e a roo ake a mena iain Kiritimati. Taabo akan aie a boni kaaung izi mannikiba n aron Dojin, Abaia taringiita ngi na waakiare e bubura? Boni inana aie a konaa ngkai te wae aikai ni kabane ake a bwai ara waaki, imwiina, teuana ni kabane a iai. Ma ngkana are a moa aikai atikini bwa n tabatai, te moani bwa e a roo ake a mena iain Kiritimati. Taabo akan aie a boni kaaung izi mannikiba n aron Dojin, Abaia taringiita ngi na waakiare e bubura? Boni inana aie a konaa ngkai te wae aikai ni kabane ake a bwai ara waaki, imwiina, teuana ni kabane a iai. Ma ngkana are a moa aikai atikini bwa n tabatai, te moani bwa e a roo ake a mena iain Kiritimati. Taabo akan aie a boni kaaung izi mannikiba n aron Dojin, Abaia taringiita ngi na waakiare e bubura?

Protection from Rats

The second part of this three-part plan, rat eradication, is without question the hardest to implement. The diminutive Polynesian rat is everywhere. There may be a million rats on the island. So, why not save the hardest for last? Suppose we decided to get rid of the cats and were quite successful at it. Then we decided to go after the rats. Right now, the cats are perhaps the sole reason there are not 10 million rats on the island! But either way, whether we go after the rats first and the cats second, or both simultaneously, the highest priority is to rid the hundreds of small islets of rats. Except for Sooty Terns, that is where the majority of the seabirds are. This is their last stronghold. Once they are gone from these islets, they are gone from Christmas. Any rat removal program must first focus on those key islets that support the largest seabird populations. Once the program has proven successful, then it can be expanded to other islets and eventually to the main island. The best time to go after the rats on the main island? During and just after a major El Niño event. Why? The birds are temporarily absent. The cats have nothing else to eat. Rat populations should be at their lowest during the latter stages of a major El Niño. Hit them when they’re down, especially in key areas of the interior where many bird species still nest, such as Dojin, Cat Island, Tanguoua, and the KOIL Site. An intensive rat poisoning program must be initiated in London immediately. Rat poison can be dispensed in a way that makes it inaccessible to children and pets. It has worked in the rest of the world. It will work on Christmas. It is much easier to get rid of the rats while their numbers are still low than it will be when they are high, and the population has spread beyond the limits of London. If a permanent dock is established in London (or elsewhere), it is imperative that all docking lines have rat guards to prevent rats from walking down the lines to the dock and re-invading the island. All incoming ship supplies should be carefully inspected for the presence of rats (and other noxious pests) before they are off-loaded. An ongoing monitoring program for rats in London and other populated areas will serve as an early warning system, should rats begin to appear on the island again. Once detected, they should be eradicated as quickly as possible. This is likely to become a recurring cycle of local invasion and eradication as the human population and industry expand on the island.
Nkgana arona bwa e kateaki te taoki i Ronton (ke n te tabo riki teuana), e rangi e kakaawaki bwa a na iai iaon taian rain ake e tiki man te taoki, bwaai n tuukii kimoa bwa a na aki konaa n aerake man te kaibuke n ninia nako te aba. Taiani kaibuke ni kaako ake e roko ma uotaa te kaako, a na riai moa ni bane n tuooki aia kaako bwa a na akeaa taiani kimoa ke maan riki tabeun bai iai imwain are a kawakeraaeaki. Nkgana arona bwaai iai te waaki n tararu a ibukin kaakeaaia kimoa ae e wakinkina iaon Ronton ke n taako riki ake e maakankin aoe e na riai te waaki aio bwa kai atakistia kimoa ni moonatai ngkana a manganese moa moa oti riki mataia iaon te abamwakoro. Ngkanne, noorrikaa anne, ao a na riai ni kaakeaaki n te tai naba ann. Are nananona bwa n rikiraiken te botanaomaata ma te karikarake iaon te abamwakoro aio aao a boni bane nakaai kimoia ao a na riai n tiringaki nakaai n te tai e aie e waekoa.

Kaawakinaia mai irouia Katamwa

Mwakoro Tenua: Kaakeaia katamwa anti. Boni iai ana waaki n tau katamwa te Botaki n Tararu a ibukia Miaa. (Wildlife Conservation Unit.) E ngae ngkai iai nakoroon te waaki aio ibukini kauareerekeeni mwaitia katamwa n taabo tabeun iaon te aba are e bubura, ike a tira iai mannikika ni kawakawakabwa, a bon aki konaa ni baabane katamwa n te mwakuri ae e tau katamwa. E kainanoaki riki te waaki ae e ooowaka riki. Te moani bwaar are e riai ni karaaoki boni katokoni boton te kawanganga aio, are boni katamwa ake e maninakia iroia aomata. Ma tiaki nanona bwa a nang per bani n tiringaki katamwa ake e maninakia! Ma katamwa anti aiai, boni ngaia nakaake ake e buoka te kawanganga aio ibukina bwa a riki katamwa anti mai iroia. E na riai ni wakinkina kauareerkia katamwa aiai bwa a na aki kari n te arae e na tuukki tirauaia katamwa rimwe ake e nako ni maeka ni tinanki kaaw aki mena iai mannikika.

N teina, te kabane ni kakak ni waaki iibukini kakaawakiia katamwa anti bon kabutsen te manaoaaki ae e te “panleucopenia virus” ibukiai katamwa n aia tabo i buononikin. Te manaoaaki aoe e na boni buti ni waekoa ibuakoia utuia katamwa. Ma ibukini kanaakoraan te waaki aio, ao e na riai ni iiri anaki ma te tau katamwa ao te katii katamwa, ao e na riai ni waakinkini ni karokona aoe e bane ni ikaa aatmwa anti. E a bon tia ngkoo ni kakaaki te waaki aio rimoa ma e riki ni katokoni iaan aoe e ngkoo ni tona uoua iaoni bwaai aae e na kawanganaaki iaia, bwa a na tera mwiia nakoia aomata ao a bon aki reereka bane bbea ake e na riai ni karokesi iibukini waakinaakina. The manaoaaki aoe e te “feline enteritis virus” e bon aki kamaa mate nakoia aomata, ao katamwa ake e maninakia, a boni konaa ni bwa a n aekanaaki bwa a na aki rootaki ni te manaoaaki iibukiai katamwa aio.

Te waaki riki teuana are e na omwaaka iaia kauareerekeenia mwaitia katamwa boni katoraen aiaia kari kati katamwa anti. N taai aia a nako, iai kanaia katamwa ae e a tia ni katuuuraaki aee e boni katoka aiaia kari. Te amwakaare aio aoe e na boni konaa ni katukaa ni taabo ake e tira iai katamwa anti. N retiaki ma te waaki are e kawanganaaki iaia te manaoaaki aee e “feline enteritis virus”, te tau katamwa ao te katii katamwa, e na rangi ni oomwaaka naka te waaki aio e te taakaikia iiai iibukini kauareerkaaia aiaon katamwa mai iaon te abamwakoro. Ma te moiani bwaar are e na ukoraaki ma e taraaki bwa a na riai ni aki rootaki aomata ni kanaia katamwa aiai. Ke a na riai ni aki konaa ni rootaki aomata ngkana arona bwa a kangi mwanen ake e kanga aiai aiai. Aia taakita maan are e taneiai aia ma aia ni kakaai kari aiai, e na riai ni konaa ni kakaai aeken titiraki n aron aiai.

Te wakini iibukini katoraen aiaia kari katamwa, ni kairaki ma te tau katamwa, bon te waaki ae e na maani kareaa aee e na bon rangi ni omwaaka iibukini kaakeaiaia katamwa anti. E konaa ni kaunteekaaki bwa e rangi ni xemwwe te waaki aio; ma e boni konaa naa ni kaunteekaaki bwa e aki kaungaaki te tango are e nangi boni bane n tiringaki katamwa anti ni te tai e a ringi ni wataata. Bwa ngkana e karaaaki ni nangoaki, a na bon rangi ni ibuubuki katamwa aiai iibukini kaakeaakia kimoani Borenetia.

Protection from Cats

Part three: feral cat eradication. The Wildlife Conservation Unit has an ongoing cat trapping program. While somewhat effective in keeping cat numbers down in areas of the main island with vital seabird nesting colonies, cat trapping by itself will never eradicate the cats. A much more intensive and effective program is needed. The first step is to eliminate the problem at its source, the household pet. No, pet cats need not be eliminated! But they are part of the problem. They are the source population for the feral cats that roam the interior. A mandatory sterilization program would prevent the unchecked proliferation of cats and their inevitable spread away from populated areas to more remote regions where most of the birds nest.

Perhaps, the most effective way to rid the island of feral cats is through introduction of the feline enteritis or panleucopenia virus into the wild population. The virus will quickly spread through the population. However, in order to succeed, the program must be administered along with trapping, poisoning, and shooting, and must be continued until all the wild cats on the island have been eradicated. This procedure was attempted on the island once before, but because of misconceptions about its possible harmful effects on humans, the program was soon discontinued. The feline enteritis virus is not harmful to humans, and pet cats can be inoculated against the virus.

An effective feral cat eradication program also may entail sterilizing the feral cats. Recently an oral cat sterilization vaccine has been developed. This vaccine can be placed in cat food, and this bait can be distributed in areas of the island with high feral cat populations. In conjunction with the feline enteritis virus program, trapping, and shooting, this should be highly effective in eradicating the feral cat population from the island. But first, it must be determined that this vaccine has no effect on humans, or if it does, that it cannot be passed to humans through land crabs, for example, that may eat the bait and then be eaten by humans. A veterinarian familiar with this new vaccine should be able to answer these questions.

Management

Management programs are long-term and expensive, but they are extremely important, in fact essential, in protecting and ultimately recovering the bird populations on Christmas Island. But even if successful, they will be for naught if the bird populations are not managed properly. If any of the birds or their eggs are to be harvested as a food resource for the people, they must be harvested judiciously by people authorized and trained in this practice, so that nesting birds are not unduly disturbed or taken in non-sustainable numbers. Even if no harvesting is allowed, as is currently the case under recent legislation, colonies must be protected and monitored to discourage poaching, to prevent outbreaks of deadly avian diseases, and to ensure that pests like cats and rats never again become a threat.
Maiuia Mannikibani Kiriritiimi

Te Tararu

Waaki n tararu boni waaki ake a na rangi n reianaou ao ni kabanemwane, ma waaki aikai a bon rangi ni kakaawaki ao a riai ni karaoaki ibukin tararaukini ao kaokani utuia mannikib na aekaaia nako iaiowi Kiriritiimi. E ngae ngkane e nakoraoi te tararuu aio ma akea uuaa ngkana a aki tararuakai mwaitiia mannikib. Ngkana arona bwa a na karikirakeaki mannikib aie a bunntaia ibukin kanaia aomata, a ni riai n tararaukai te itera ni karikirake aio irouia aomata ake a bon tia n reaiakini n ti te itera aio n te aro are a na aki rootaki mannikibi ake a kaabung ao ma ni katautauaia naba anaaaki mwaiita n te aro are a na bon eewa naba inanoo taai aikai na nke. E ngae nba ngkana arona bwa e na akea te karikirake aio, a na boni riai nba n tararuukai mannikibi, ao a na riai nba naki kaungaaki niao aomata a bwa a na iia n tiri man ke ni kimoaibunnto. Trarkin anne, a na riai nba n tararuukai mannikibi aikai man te aoraki ao ma ni kataanki ma taianii kangaanga irouia katamwa ao kimoa n aekaaia nako.

Tao mai ibuakoni mwaitiia mannikibi iaoni Kiriritiimi, a na riai n rangi n tararuauki riki riutia ioruma mannikibi ake te runu ke te bneweni ni marawa. Bwa ngkana a bua aekanî mannikibi aikai, iai te kangaanga ae kon a nba n riki bwa a boni konaa nba ni bwa a naki mangaoki nakon te aonnaba. A kon a atongaki utuia mannikibi aikai bwa a nangi moanna ni bane man te aonnabae e tabwanin. Ain ngaia are a na boni konaa bootaki n te aonnabae ake a tabweakiinaa ma nang aia iabuobuoik a kon a nea na mwainedi ni iai aikai. Man te aonnaba e na kya iai iaoni Kiriritiimi. Ake a e atiai riao bwa iraia mwaitiia mai inano ae e na riai iubuia ao ni na bon aki tangiria naba ni kan ataia.

Ngkana a butiai aomata ma ni kaungaaki niaoibw a na aiki iraei bunntoai, ao e na konaa na nba ni kakaawai. Aoa e na aki aman ao e aoki nba mwainedi nakon aiai mwaiti irabwi te iriki n nako. E konaa na nba reke aoe, e ngae ngkana a na kanaki tao mwaitira bunntoai n te iriki. Ma ngkana a na kamanenanaka bunntoai, ao e na riai n tararuakai irouia aomata ake a tia a kariaiakaki ao ma n reireinakia ait a oke.

E konaa n riki Kiriritiimi bwa te abe are e na moani waakina tararuaukini ao kaokani utuia mannikibinaa tareeri n aekaaia nako ake a mena iaona. E na bon riki ngkane bwa a bana na katoooti iubuia te aonnaba e e bwanin. Ngkana a noorki iubuia iubuia kaaekakka kimoa ma katamwa bwa a rangi n nakoraai, a na konaa ngkane ni kabonganaanakiaiwaai aikaia na aaba riki tabeua a te aonnabae. N noorkiina nbaa iubuia aiakai bwa a rangi n nakoraai, a na konaa naa nba ni kabonganaanakiaiwaai bwa waaki ni kototoo n aban nako ten Beetebeke. N aron are e taekakini mai inwaainia, iai bootaki nako n tararuuaia maan ao babwata ake a tauroai ni mwainedi waaki n tararu aikai n te taei a noorkaiai bwa e buutokaai te iango aio irouia aomata ao e Tautaeka ni Kiribati. N te tai nba are e a e tei riao iai teiia iubuia aio e e na boni baai ni aii taiai nwaane ake a na reke te ekotuauritim ae e nakoraai e na konaa naa nba ni waakinka iubuia tararuaukini ao kaokani mannikib na aekaaia nako iaoni Kiriritiimi.

Kaokaia

A ewa ngkai utuia mannikibi iaoni Kiriritiimi ake a reke n te kangaanga, teuana mai ibuakoa, bon taiani keeu. Te utu ni mannikibia aio are ngaia are e tatao mwaitina iubuiko mannikibi ake nikirana. Ma e ngae n anee ao anuaia mannikibi aikai bwa a na boni bae ni bobootakini n ti tirmaiia naki ma naakaemakao. Ngkana arona bwa e ee mwaitiia nakon aiai mwaiti are a tataeiaiai, ai a kon a konaa na naki manga tiku iaoni Kiriritiimi. Akea e e atiai riao bwa iraia mwaitiia mai inano ae e na riai iubuia ao ni na bon aki tangiria naba ni kan atiaa.

Ngkana a butiai aomata ma ni kaungaaki niaoibwa a na aiki iraei bunntoai, ao e na konaa na nba ni kakaawai. Ao tao e na aki aman ao e aoki nba mwainedia naa aiai mwaiti irabwi te iriki n nako. E konaa na nba reke aoe, e ngae ngkana a na kanaki tao mwaitira bunntoai n te iriki. Ma ngkana a na kamanenanaka bunntoai, ao a na riai n tararuakai irouia aomata ake a tia a kariaiakaki ao ma n reireinakia ait a oke.

E konaa n riki Kiriritiimi bwa te abe are e na moani waakina tararuaukini ao kaokani utuia mannikibinaa tarii n aekaaia nako ake a mena iaona. E na bon riki ngkane bwa a bana na katoooti iubuia te aonnabae e e bwanin. Ngkana a noorkii iubuia iubuia kaaekakka kimoa ma katamwa bwa a rangi n nakoraai, a na konaa ngkane ni kabonganaanakiaiwaai aikaia a naa aaba riki tabeua a te aonnabae. N noorkiina nbaa iubuia aiakai bwa a rangi n nakoraai, a na konaa naa nba ni kabonganaanakiaiwaai bwa waaki ni kototoo n aban nako ten Beetebeke. N aron are e taekakini mai inwaainia, iai bootaki nako n tararuuaia maan ao babwata ake a tauroai ni mwainedi waaki n tararu aikai n te taei a noorkaiai bwa e buutokaai te iango aio irouia aomata ao e Tautaeka ni Kiribati. N te tai nba are e a e tei riao iai teiia iubuia aio e e na boni baai ni aii taiai nwaane ake a na reke te ekotuauritim ae e nakoraai e na konaa naa nba ni waakinka iubuia tararuaukini ao kaokani mannikib na aekaaia nako iaoni Kiriritiimi.

Perhaps more than any other species on Christmas Island, the Phoenix Petrel and Polynesian Storm-Petrel populations must be closely monitored. If these birds were ever to be lost, they may be gone forever. These two species may soon be classified as globally endangered. As such, they would be given special attention by international conservation organizations, and funding for their protection and management on Christmas Island may be more easily obtained, but only as long as the people who live on the island demonstrate a willingness to participate in a comprehensive management program.

Recovery

Several bird populations on Christmas Island are already in serious jeopardy, not the least of which are the Sooty Terns. Although still the most common species on the island, Sooty Terns are highly colonial birds. If their numbers are reduced below some critical level, they may cease to nest at all on the island. No one knows for sure what this minimum number is, nor do we want to find out.

If poaching of eggs is discouraged, numbers of birds should steadily increase, perhaps before long approaching those of several decades ago. This can happen even if a modest number of eggs are legally harvested each year by authorized and properly trained personnel.

Christmas could serve as a pilot program for the maintenance and recovery of its spectacular seabird resources. It would be the showcase for the rest of the world. Once demonstrated to be successful, the rat and cat control programs could be used on other islands throughout the world. The bird colony management and recovery programs, once demonstrated to be successful, could also serve as model programs to be employed on other islands across the Pacific. As mentioned earlier, a number of international wildlife conservation organizations and donor agencies may be interested in funding such a program once it has the support and commitment of the people and the Government of Kiribati. Once established, some of the revenues generated from a thriving ecotourism industry can also be committed to managing and recovering the bird populations on Christmas Island.
“Bokikokiko,” It’s not I-Kiribati. It certainly isn’t English. So what kind of name is it, anyway? Well, it’s onomatopoeic. Onomatopoeia is a long, unnecessarily complex word for a very simple concept. An onomatopoeia is a name that sounds like a sound. Quack. Hiss. Buzz. Ring. Splash. Bokikokiko. These are words derived from the actual sounds one hears…which leads one to wonder if there is something in nature that goes around saying “onomatopoeia, onomatopoeia, onomatopoeia.”

The Bokikokiko is said to speak its name. Or, more aptly, it was named for how it sounds. What I hear mostly is a harsh bo-keet; occasionally a slightly more elaborate bo-keet-eet. When so motivated, a pair will chatter back and forth bo-keet-bo-keet-eet, and so forth, especially in the breeding season. Not exactly bokikokiko, but close enough.

While no bird is unique to Christmas, the Bokikokiko comes close. Sometimes called the Line Islands Warbler, or even more specifically (if inaccurately), the Christmas Island Warbler, it is found nowhere else in the world except Washington Island. It was once found on Fanning Island but disappeared shortly after black rats gained a foothold there. Not only is it found on just two islands in the world, it is the only landbird found on Christmas Island. How its ancestors got here is one of life’s great mysteries. But similar warblers are found on most of the islands in the Pacific, each island or island group having its own variety. Their nearest relatives live in Asia. On islands near the Asian Continent are found warblers that do not look much different from their mainland counterparts. But as one travels farther and farther east out into the Pacific, they appear less and less like the ones on the mainland. The one on Christmas and Washington, in fact, looks quite different from any species on the mainland 9000 km to the west. It is still a warbler in the genus Acrocephalus, but to look as different as it does, it must have been here for many thousands of years, long before the early Polynesian explorers arrived in the region.

OCEAN BUTTERFLY

Te bwebwe ni marawa. “Butterfly of the sea.” The white-throated form of the Polynesian Storm-Petrel is one of the least common and most secretive birds that nest on Christmas Island. It comes to shore at dusk and leaves at dawn. While onshore, it remains hidden in its shallow nesting burrow, usually beneath a clump of grass, on the many protected islets. After the breeding season, it leaves the island altogether and does not

THE ONOMATOPOEIA BIRD

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nikiba aika tena “warblers” ake a aki rangi kaokoro tarakia ma mannikiba iaon Atia. Ma ngkana ko a borau roa rd nako mainiku, nako nanon te Betebeko, mannikiba aika a moana ni kaokoro tarakia ma ake a reke i Atia. Mannikiba ake a reke iaoni Kiritimati ao Teraina, a bon rangi ki kaokoro tarakia ma utuia ake a reke i Atia, are e mena 9,000 km maeaoia. Te mannikiba aio, boni ngaia utuia nako te “warbler” ake e aranaki naba n utuia e te “Acerocephalus,” ma ngkai e a bon rangi ki kaokoro tarakia te mannikiba aio, nanona bwa e a kamani mena n taabo aika irangaa te ririki imwaiin rokoia moan aomata n neweaba, ake a mwananga ma iaoi Borenetia.

TE BWEBWE NI MARAWA

“Te Bwebwe ni Marawa,” ke te “Polynesian ke White-throated Storm Petrel” boni ngaia teuana utunini mannikiba ake a karako aekiai ao boni ngaia naba te utu ni mannikiba teuana are e kaabung iaoi Kiritimati aei e rangi ki kaakaraba kawaina ma aroarina. E roko n te ab a buingin taai ao e manga kibo nako ngkana e tabwena mainiku. Ngkana e roko iaon te ab a, e kaakarabaaba ni kena nnena ni kaabung ao e aeki rangi ki n nano. Angiin te tai, ana tabo ni kaabung aeo e mena iaan te bariko n uteute ni taai atimwakore ake a uareereke ake a tan. Imwii ani taai ni kaabung, ao e akitana te ab a aki ngaia kaotki ni karokoa te ririki are imwiiin. Ai ngaia are a aki rangi ki n kakubanako te ti tabeman aomata aika aata a aekiai ni mannikiba aio. Aomata ake a bon ataa te mannikiba aio ma anuana bon taan akawa ake aikai tootoki n akawa i tinanikin te nama, ao i marawa. Naakai a ataa te mannikiba aio bwa te mannikiba are e reroo ma ni mainainana karana aeo e mmawwa are iaoi taari! Te mannikiba aekiai are e urereke ma ki mi ami aio, ia ani anuana aeo e kikibakibaki ma n taabeibebi moa iraua te mita iaoi taari imwaiin ae e titikurikika aika nabo nako taari ma ranga nae e karou i rikiai. Ngkannae, e aki ngaia naka tuku raoi iaon taari ma e a tabe ni mmawwa ma ni waerkiriki aika iaaon taari, a kuri n aki toko waena, ao n bae i keatebetebi kanana aika manin taari ake a uareereke ni wiina. Imwiiinii karoa ane, ao e a boni kibarake nako bae ma taari ni manga moana nabo anuana aio.

Te mannikiba ake te bwebwe ni marawa, e a karako mwaitina ngkai iaoi nako aban te aonana. E kuneaki ngkoo n aabai aika mai Vanuatu ma ni karokoa aban “Marquesas.” Ma imwiiinii kainakiai aabai aika irooia katamwa, kimao ao aomata, ao aii aekiai maninikiba aikai man te ab a teuana ma teuana. E a bon reke maion te mannikiba aio iaoi Kiritimati ibukina bwa n angiin atimwakore a mena iai, aeka katamwa iai ma imwiiin ao e manga roko kimao ma aomata. Ma ngkai, e aei ne a e a moana n aiata te mannikiba aio ma te kaanga nae e rangi ni bubura iaoi Kiritimati. E konaa nabo n aloatongi bwa ngkai nabo te karinana ni mannikiba aeo e a moana n aeka iaaon taari te aonana. Aeka iaaon ao e ataia. Ma ngkana bon te koua iaoi, ti te aikai re e na konaa n teimatoa maiua iai boni Kiritimati. Ibukina teraa? Ibukina bwa Kiritimati ai boni ngkai ngkai te karokoa aban “Marquesas.” Ma ngkana ko a borau raroa nako mainiku, nako nanon te Betebeko, mannikiba aika a moana ni kaokoro tarakia ma ake a reke i Atia. Mannikiba ake a reke iaoni Kiritimati ao Teraina, a bon rangi ki kaokoro tarakia ma utuia ake a reke i Atia, are e mena 9,000 km maeaoia. Te mannikiba aio, boni ngaia utuia nako te “warbler” ake e aranaki naba n utuia e te “Acerocephalus,” ma ngkai e a bon rangi ki kaokoro tarakia te mannikiba aio, nanona bwa e a kamani mena n taabo aika irangaa te ririki imwaiin rokoia moan aomata n neweaba, ake a mwananga ma iaoi Borenetia.

UEANI MARAWA

A rangi n tiraua bwasai aika a kamimi ki riki rinano te kariki bwaai – n ai aroa maan aika a kabuebebe raarai, aeka buraelia, iai baiai ni uuaa ao ma ni mamaekaa iaantari ni kabanea aia bong ni maun; iaai naua maan aika a kabuebebe raaraa ae iai wiaa kaanga wiin te aekiai ngkana a bung, ao a kabawakabwakai bunnotata; ao iaai naa ika aika a konaa ni irereke iaon te ab a ao n nakonaka iaon te ab a. Ngkana e konaa ki nakaaraio aiko te kariki bwaai, ao n taai te taia, ao a a reke aekiai mannikiba aikai a na konaa n kabung na ni kabawakabwa i taari. Ngkana e na reke aekiai ni mannikiba aio, e a boni bae n riki man te man e a aranaki bwa te “shearwater!” (tangiuoua, tinebu, nna, ruru).

The Polynesian Storm-Petrel now has a very small worldwide distribution. It was once found on archipelagos from Vanuatu to the Marquesas. But cats and rats and people have invaded most of these islands and together have eliminated this vulnerable species from one island after another. It has survived on Christmas Island only because of the many protected islets free of cats and, until recently, rats and people. Now, this species may also be in serious jeopardy on Christmas Island. It is one of the rarest seabirds on the planet. Christmas Island is its last hope for survival. Why? Because Christmas is the only remaining island in the world where we know it still nests.

MASTERS OF THE SEA

Evolution has produced some extraordinary progeny – hairless mammals with flippers that spend their entire lives underwater; a mammal that has a bill and lays eggs; an air-breathing fish that can walk on land. If evolution can do all this, then perhaps some day we will have birds that can lay their eggs in the sea. Such a bird, if it were ever to arise, would surely be the descendant of a shearwater!

Next time you’re standing at that fragile interface of land and sea shortly after dawn, watch a shearwater as it heads out to sea to feed. A Wedge-tail comes from your left, skims past the last saltbush, over the beach, and out to sea. It is truly in its element. It tacks in the wind with a command and grace that would turn the most seasoned sailor green with envy.

Even on the roughest days… no especially on the roughest days, the swells and whitespots are its ally. On still wings it glides just millimeters above the surface, wingtips almost – but never quite – touching the water. Then, just when it looks as if it will surely crash head on into an oncoming swell, it rises abruptly, wings arrow-straight and rigid, soars high above the whitespots, sets a new course slightly downwind, then drops down with outstretched legs. It does not land on the water but dangles and tip-toes along the surface, feet barely touching, picking tiny arthropods from the surface with its bill; then suddenly, it bounds back up away from the water to renew its cycle of alternate fluttering and gliding followed with swoops and patters at the surface.

The Polynesian Storm-Petrel now has a very small worldwide distribution. It was once found on archipelagos from Vanuatu to the Marquesas. But cats and rats and people have invaded most of these islands and together have eliminated this vulnerable species from one island after another. It has survived on Christmas Island only because of the many protected islets free of cats and, until recently, rats and people. Now, this species may also be in serious jeopardy on Christmas Island. It is one of the rarest seabirds on the planet. Christmas Island is its last hope for survival. Why? Because Christmas is the only remaining island in the world where we know it still nests.
Ngkana arona bwa n te tai ae e na roko ao ko tei n te tabo are imaren-nan raoi te abo ao taari imwiin tabwennani mainiku, ao boni karekea raoi taraakin te "shearwater" ngkana e nako ni katabea kanana i taari. Mai angamaming ni e kibo te tangi ni kibaka riaoao te mao ni kametai taari ni kakaakaa kanana. E a bon roko raoi n ana marawa. E riaki ni kibakiba i karawa n te aro are e mimitoiai ao ma ni kamatai nakoia taani borau ake a tataneiai ma marawa. E ngae naba ngkana e buaka karawa, tiaki anne, e na kangaai, boongi ni buaka ake a rangi ni korakora, ao bi akeea maakaan taian nai ake a buubura ma ni ngarengare irouen te mannikiba aio. N taai aikai, ao e na boni karauaa n tataakini baina ni katikui ma ni beti tebeua te mirimita iaron taari, a kuri ni koko baina ma taari ma a bon aki. Ngkann, ngkana ti tebo ma e nangi bon untaba ma taian nai ake a buubura, ao e a boni kibakibana nai ma ni katikui baina riaoon ngaarengaren taian nai. Imwiini kibakibena anne ao e a kihe matam ao e a mangu bua naba imarenan nako ake a toootoo. Ngkann, e a bon aki n nooraki bwa are a e boni karauaa ni kibaka iano. Ko kataia ni kataatau birina ma kawainai. Ma e riaki nakea, nakon te maing ke te atai? Ngkana ko tekerai ao ko kona ni mangu noorai. Ma ngkann, e a rangi ni rokoroo ni kaan ma te oraitan ao ni mango moana naba eekani kibakibana aio i karawa ao ma ni baktekeaa marenan naaoo ake a bubura.

Ma ai kaokorora anuan te mannikiba aio iaon te abo. Baina ake a ananau ma ni kaairariiki ake e a kikikibakiba ma ni beti iai riaon taari a boni kikimwiaa ngkana e kataia nai tiki rikaaki nakon ana tabo ni bung; Angaraain tikuna; ti ngkana e a kabanee naba kibamwaakan ni kibai rikaaki. Ngkana e kauruulaa n tikiu ake e a boobukitaawa naba. Ai ngaiia are e kabanee kibamwaakan n tiki rikaaki, e kaburekia, e orooroi baina ni kaabitaitiai, te taakiniin waena e moana, e buki ao akeea bwa e roko n ana tabo. Ibulina bwa rangan ao waen te mannikiba aio a mena mai inaino iaonrabwatana, (bwa e aenga ni konaa ni beti i taari ao tiaki ibukin te nakonako!) e a bon aki konaa n tei raoi de mannikiba aio. Ngkann, n tikuuna iaon te abo ao e a rangaranga ma ni kabonganaa rabwatana ni kookookia iai riaukonanai taai kai ma utete naaii ngaona. Ikanee, ike e a tiku iai ibukin te taarii ke te ngaaiia are e a bon nakon ana tai are e mena iai.

Ngkann e aki bo tebo naba anuan te mannikiba aio, ma de tangi ni aribeare are te kabanee ni babura mai ibukon ututu te mannikiba aio, te nna are te kabanee ni uareereke kaanga itirani bubbure te tangi ni tua. Ma ng rokoia ni ngaiao ka n aia tabo ni bung, a rangi ni kai k flakes akiani mannikiba aikai auu aikai, man tangitangiai, e ngae ngkana e a bon. Taian tangiuii aatangitang ma n tangininiwe (kaanga e bon aki kamimi?) ma tangini bwananaia ae ee nako eta ao ma ni bwaai kaanga ai aron ae a ike rako ao ma ni ike rikaaki. Te tinebu are e uareereke riki ma n roo riki matani kunna, e tangininiwe ni aki ma kaakoro tangina. Bwanana teuana, kaanga e rangi mai mayruiina ao tangina are teuana, kaanga e rangi ni kakaakauk, ni ai aron "uuuuuuuu....uuuu...."

On land, the story is quite different. The long, thin wings that keep it aloft at sea are its own worst enemy as it tries to land near its nest burrow. A high-speed landing is its only option. Too slow and it will stall out. Apply the brakes. Flap like crazy. Feet out-stretched. Thud. Home at last! Because its legs and feet are set far back on its body (an adaptation for swimming, certainly not walking!), it cannot stand upright. It waddles and pushes itself along, using its breast as a skid plate, over, under, and through the vegetation to its burrow. There, it will remain for the night — or day — depending on which shift it is on.

The story is similar, whether it be a Wedge-tailed Shearwater, the largest of the group, an Audubon’s Shearwater, the smallest at about half the size of a Wedge-tail, a Christmas Shearwater, or a Phoenix Petrel. But once at their nest site, the four species can easily be recognized, even at night, by their distinctive calls. Wedge-tails wail and moan (is it any wonder?) with alternating rising and falling sounds as if inhaling and exhaling. The smaller, darker Christmas Shearwater also moans, but with a different quality. One is nasal. Another is an eerie ow-000000 ow-000000 ow-000000. The still smaller black-and-white Audubon’s Shearwater emits a series of cat-like howls. The Phoenix Petrel is the most vocal of the lot. It bursts forth with an eerily musical, witch-like cackling and, unlike the others, frequently calls while in flight around the colony. All are silent at sea.

MASTERS OF THE SKY

The frigatebird is another remarkable creature. Frigatebirds glide effortlessly on wings that measure over two meters tip to tip. They can hang motionless in the wind for hours at a time, then dart off with the agility and grace of a falcon after a tern or a booby laden with a fresh catch of fish. As large and seemingly unwieldy as they are, these “flying wings” can turn in an instant. They are quite adept at picking flying fish out of the air without missing a beat as they cruise close to the water’s surface. They can force a booby to disgorge its catch in mid-flight, then swoop down, make a 180-degree turn, and snatch the morsel right out of the air as it plunges toward the earth.

The male frigatebird has an added feature sur passed by few other birds in the world. Most of the year he appears to be all black; but he has a patch of loose, withered red skin on his throat that is usually concealed under black feathers. When it comes time to court a female, he inflates this withered sac like an enormous red balloon! Now, how can any female resist that?

The Great Frigatebird’s nesting season is longer than that of any other bird on Christmas. The male and female take turns sitting on their one small egg for two months before it finally hatches. When the young bird enters the world, it is tiny and featherless. It grows slowly, and is ungainly at first. The nestling frigatebird is as awkward as the adult is graceful. When resting, it sometimes looks dead with its head down, make a 180-degree turn, and snatch the morsel right out of the air as it plunges toward the earth.

The Phoenix Petrel is the most vocal of the lot. It bursts forth with an eerily musical, witch-like cackling and, unlike the others, frequently calls while in flight around the colony. All are silent at sea.
Ngkanne te naa are te aekaki are e roro ma ni mainaina ao ma ni uareereke riki nakoia mannikiba aikai, e tang kaanga aekan tangia katamwa ake a tangi n tatakaara. Ma te ruru boni ngaia te kabanea ni karongooa mai ibuakoia mannikiba aikai. Tangina, e tangi ni kaka-maku, kaanga tangia anti aika a katake ma ni ngaengare ao anuana teuana ae e kaokoro ma are irouia mannikiba aikai, bwa ni kibakibana ni katobibia taiani mannikiba ao e aki tootoki n tang. Ma i taari, ao a bon aki konaa ni taikaroara mannikiba aikai ni kabane.

**UEANI KARAWA**

Te eitei boni ngaia te mannikiba temanna e ae rangi ni kamimi anua-n. Taai eitei a taabebiiti i karawa n tataakinni baiia ae e nakon uoua tabun te mita abwakina man taboni baina teuana nakon are teuana. A boni konaa ni beibebi te karawo n te maan ae iraua te aoa ao imwina ao a kiba rikaaki naba ni kiba ni bane rereia ma ni katotoonga te “falcon” ni kakaio te “fern” ke te “booby” are iai konana te ika. E ngae ni buburakei ao ma n tei ni kivai akeni baiia te mannikiba aikai, ma a bon rangi ni kai ria ki ni tei ae moan te waekoa. A bon rangin rabwakai ni kareeki kanaia onauti ake a kibarake, ma a kibakibana inannoni kiba ni kaania ao taari. A boni konaa naba n tuau “te booby” ma te matoa i karawo bwa e na kawakai konana ao ngkanne e waekoa naba n ria ki ni kiba rikaaki n tiboka te konana te e teuana ae e na awa nga kaineta te aba.

Te eitei ae te mwaane boni iai tein rebwatana ae e kuri a naki oreaki nako irouia mannikiba riki n te aonhana. Anggini te tai ni tei riiri, ao e bon tei ni roroo matani kunn a ma iai kunna ae uraura ae e tinetine ni bwarukuruku iaan rooraao ao n anggini te tai, e raba iani buraena aika a roro. N ana tai ni kan iin ma te aine ao e a katibutaua naba te kun ae e tinetine aio, kaanga ai aron te katibiu e ae uraura ae e uraura ma n tutoakahei! Ai antai ngkanne te aine ae e na nga nbaka nanona n taraakina?

E rangi ni ananu riki iai tai ni kaabung te eitei are e bubura nakoia mannikiba nako iaii Kiritimati. A bon taataina iai tai ni tekateka iaoni bunntaoia ae tei teuana ma ni uareereke, te eitei mwaane ao e tei aine, inanon te maan ae uoua te namwakina imwaaiin raurena. N rokona ianon te tai, te eitei ae e uareereke aio, e uareereke ma n akaa buraena. E waeremwe ikawaina ao tei te moantai, e rangi ni tei kimwai. Moan te tei ni kimwai te mannikiba ae uareereke aio e ngae ngkai a rangi ni tei ni uwa rebwakai na kikai. Ngkane a motira te mannikiba ae e uareereke aio, ao ai bon tei teo taraakina ma kaanga a mate, ma atuna ao wiina ni tinetine ni bwa ma iaii ngaona. Ngkane e uroaki matuna, e iut atuna, e raraa ni a aron te manging, e karara aia arii tei tina ngae baiia norooroi baina ni kikabaiti- tia. Moan te kamanga taraakina ngkane e karaoa aito. Imwina aua nakon nimaua te namakaina, ao a roko abwakini baiia n te abwaki are e a konaa ni kiba iai. Ao aero e a bon riai naba ni kiba ni tei tai. Bwa n tei tai, ao e a uutaao nakotaarinia (kuano) innoni ngaona, kaanga e roko n te bubua n ranga!

Ngkanne, e ngae ngkane arona bwa e a ewenako te mannikiba ae e uareereke aio, e boni kainanoa naba ana tararuu ma ana kaawakina ana karo. Aroni kibakibana i karawa bon te bwaai ae e reainaki. E rangi ni kibane tai tei aikiina ma ni kainanoa te irei e ae bate. Aito are a boni bubuokia iai ana karo. Imwina reikina ni kiba ni kikabani aekaa ana aaro, ao e a boni koru teuana tabun te irikiri imwina aia tai ni kibakibakwa ana karo. Ngkanne, ibukina bwa a ti kaabung eitei n tain te kaakarau, nanona bwa a na manga taningaa te irikiri are imwina bwa a na manga kawakabakwa iai.
AROA KOOTA

E a tia n ririo am iango bwa e reke mai ia aran te koota? N te tek­itinare, ao te taeke ni matang ae te “booby” ke te “boob” nanona te aomata ae e taribaba ke ake a kanao atuna. Kaanga e aki rangi n anai nano ke. Ko a tia ni bow taraa raoi kanaoan matan te kooota ke ni karaua n kabwaaatia? Ngkana ko a tia ao boi iana taraakini matan te kooota ae kaanga e taraa n taribaba ibukaikina mannikika. Ko a tia n noria kooota uoman ni kareke tai? Ngkana ko a tia, tao ko a boi bae n tia n noora aroia n nanakonako ni kararauu e boi irouia ma ni katoutou atua ao imwiina a boi waekoa naba ni bitti atua? Kaanga te mwaan ni baba ke? Ma ngke ko a tia n karaua ni iango bwa tao tero ana iango te kooota ngkana e a mataku n aroni katera? N aekan te rouia. Ke tao ae e tikiraai riki, te maie ni matang. I taku bwa iroun te kooota, kateria akanne bwe tenaani mwaan ni baba! E a bon nakon te aomata ke te man aron ana taratara.

Ngkana, n taaai aika a na roko, ngkana ko mena irariikia koota ai­kaa uoman aika a kareketai, ao boi kamwatauara taraakia, ao ko kata n taratara bwa angkaa ngkoe naba temanna te kooota. Ao bow taraa te kooota mwaaane ngkana e katoutoua atuna ni kakotobibia te kooota aina, ti tebo ma e kangi, nakon te kooota aina, Eng ke? Boona ngkkanne iroun te kooota aina bwa e a iaooa atuna kaanga e kangi, “Aia nggai!” E a waaki nako te katoutou atu ma te ioi atu airoiu mannikika aikaai kaanga e kangi te kooota aina, “I rawa!” Ma imwiina ao akeaa bwa e a manga katoutoua atuna kaanga e kangi, “Aia nggai!” E a waaki nako te katoutou atu ma te ioi atu airoiu mannikika aikaai kaanga e kangi te kooota aina, “I rawa!” Ma imwiina taaai e a manga kangi, “N na nooria,” ke tao “E a mino atuu!” Ma imwiina aiaa aiaaii aia, ao akeaa bwa e a tii oki naba naka aikaai ma ni kawwaaaii ni biiroiu. Imwiina teutaana te tao ao e kaaii naba ni kareei wia ma ni kawbooi wiaa a ake airoiu aikaai a ko imwiina te kooota. Te kooota mwaaane, e a angan naba ngkanne te kooota aina ane bainatangira, are te buaninem te tuaana. Ngkkanne, n aeeke te kaeetiie, ao akeaa bwa e kaaii naba na tannоко kooota aikaai ma ni katarakaree atuiaa naka karaua n taniikuiaa bwa naa koooi wiaa a akuaia. Ngkana ko karaua ni iango bwa bon akeaa akorkokoia ma aomata ake a tabwa kakarekkenano.

TAAN TIAKA I KARAWA

Tao ngkane e aranaki te eitei bwa bweani karawa, e na boni bae n aranak te ko minnikia e te taake bwa nggia aia bote taan tiaka i karawa. A boni konaa ni wakakina aia kamataku aeo moan te kakamataku i karawa aekane mannikika aikaai. E bane takaiikian mainainaining bukiai n tere­nako naa naawawawani karawa, e turubaka uraruani wia naa ururara karani bukiai a e e tiki anaanaa. Ngkana iai te rooro aiaoeni mataa ao ane ngkane e boni aranaki bwa te taake. Ao ngkana e karekkenano te mannikika mwaaane aio ao te minnikika aica i karawa, ao ai bon te kanoo teuana e ao na bon aki kona na mwaanin.

E taekeikiai n taaii boki bwa boni ti te mannikika aeo moan te aerooreeke e te “hummingbird” ae e kona ni kataa na aina i kibaa, 50 te tai n te teekan, ae e kina ni kibaa ni keekeekiai. Ma tao aomata ake a koroi booki akanne, a bon tuai ma noo naa teuana n ana ni aki kamataku. Te mannikika e te taake tiaka te mannikika ae e aerooreeke. Tineebuna, e nakon 700 grams; aen ee kanao naa atuiaa ao imwiina a boi waekoa naa ni bitti atuiaa? Ma iinaanacki ane kamataku te taanga ni mannikika, teuana, ao te mannikika are temanna a naa kaawwaimingi aina bwa naa taakiniai waena a a bubura naa ni ngakee ao bukiai ane e anaanaa, e tabe ni tinetine mn an ree. Imwiina ao o biko e te ang, akeaa bwa e a reke kibarake te man­nikika aio. N te tai naa aia, ao te mannikika are temanna a a kibaa rikaaki naa naa ni kibaa naa noko mabo, ao imwiina a e kibarake naa imatan toana. Ngkkanne, e a kararauru ni kibarake ao naa ni kibaa ni
AIA TAI N AMWARAKE TAIANI MANNIKIBA

Karekea matam ao kamwataua taraakia tenaani koota n akawa. Kaanga e a boo te buakar i karawa. Ai aekan te Kauoua ni Buakia te Aoneba ae a boo ma are ngkai ai bon aia buakak mannikib. A aki reke aia tenaai ika. A kiba n rain i karawa te nanai n koota, kaanga aekaia wanikiba ni buaka ake a uouo vai taiani boom ni boomuaia. Akea bwa e a teka n te kai ni katataara taiani ika ake a kianako ii taari ni kikioioi iroia tenaan atta, kaanga aekaia aomat a a aiai ataii ake a akakae nneia ni katatan man tenaani boom. Akea bwa a ti kuba naa n onikaki taraakia taiani mannikib aika a kabootauaki bwa aekaia wanikiba ni buaka nakon taraakia taiani boom. A kiba rikaaki ni katerei nako wiai aiai wiai kikiai ni koo ni kaiana, a boni aekaa aikai te ika are a boni kabwautia. A kiba rikaaki taiani koota aika a burauii matani kunia a ma mooaia ae te tebo ma iai iingiai aia na a taaki­ni waeia aika a uraura. Temanna imwiini temanna, a toko ma taari. Ma bon ti inan na inan te teekan. Ngkanne a manga oitirake temanna imwi­ni temanna kaanga taian ika iken ika iken akawa ma n teberake man iken te ran. N oitirakeia anne, a boni ti kibakibaka nabo koona karawa. Na te tai aino, aiai aanka koota ai aii a reke koena te ika iken a a boni kowautia naa ni koota, naa ni koota naa naa ni koota. A boni aika n naa ni koota. A kabaneei kibamwakaia ni kiba n koko, ni kiba inane tai­ni "shearwater." A kibakibaka ni kaantainga i karawa taian. A kibakibaka mai itaia hii kakatoobibi aiai ettei koo a atakiai bwa tebaaaii kabaneei ni aowawaa ni iau auaiai mannikib. Atei ettei koo a tajei naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa naa

WITLESS WONDERS?

Noddy (n). Simpleton; fool. Anous stolidus (Latin). Slow of mind; without understanding; witless; silly. These are the monikers so unjustly applied to noddies by 19th Century sailors. Because they did not fly away at the sailors' approach, noddies were seen as simpletons. The sailors came from Europe where any bird in its part ways. The booby rejoins its squadron. 

眼看kakaio ai imwiina akea bwa e a manga katoouonga kiband te man­nikib are temanna ao ngaia e a manga katoouonga kiband te mannikib are aron a ngaia e a manga katoouonga kibana. Imwiini kibakib- ia a aekan aia iaraa te tai, kaanga te-nei te wiira i karawa, a kiba nabo naa mannikib aika uomai aika, ni kibakibaka ni kamataku i karawa. Inanoni kikibakibaka ni kanga ao ni kanga i karawa ao roaria mannikib aika i boni iroia, a eaki raka ian teunae te miita.

Inanon aia tai ni karekenano aio ao a boni tango n tatakarua mannikib aika i bon iroia. Tao e rangi ni beebeete te taeka ae "tatakarua" ibukin kawararwakarin tangii mannikib aika. N nga n rangi n tikiraoi taraakia ma ni kakanan aroni kibai i karawa, bon tenani kabanei ni bwanabaaka mannikib aika iubokoia mannikiba ni aonanaa! Tangii a meo in kakaanaa e akanga e tango a aekan "A-rakk!!" are tagiina a aia tai ni karekenan, anne boni tango ni aia kabanei ni bwanaa raoi. Ngkana e roko te mannikib temanna nakoni ngaona bwa e na ruamuin are temanna, a boni tai tatakarua ni kanga, "A-rake! A-rake! A-rake!" Ma ngkana ko kakan minikiori ni kaania, a boni kabanei nabo tangaanwaakaana te mannikib are e tiku ni ngaona, kaanga ta tebo ma tangin te mannikib ae te "parrot" te a kabanei ni bubura, are e a koreaki biibiia! instantaneously crashed into the water just a few centimeters beneath them. With only their heads penetrating the surface, they grab a luckless squid. Prey in beak, they pitter furiously while pouring the water with their beating wings until they become airborne again. Noddy drop daintily from the sky and pick at the surface, never getting their feet wet. Like the others, they swallow their catch quickly. The frigatebirds watch closely from their lofty post. One grows impatient and goes after a booby that has had three or four successful catches. A hot pursuit unfolds. The booby screams. It turns to the left, then to the right. It doubles back. The larger frigatebird, barely a meter behind, matches its every move as if it were attached by an invisible string. It grabs at the booby's tail. Full of fish, the booby is not quick enough to shake the frigatebird. In an attempt to lighten its load, it disgorges its meal. In a flash, the meal is in the beak of the frigatebird. Aerial transfer. The booby and the frigate part ways. The booby rejoins its squadron. 

Coincidentally, noddies also nod. But this is not how they got their name. It was not until later, when the sailors paused long enough in their plunder to observe, that they noticed this mutual nodding display. Nodding, it turns out, is part of their courtship ritual.
Ee tei ai ngaia are e a kanakoi naba mwiini kanana bwa e aonga ni bee-bete riki ni birinako mai iroun te eeti. Akea bwa n te mimiti naba anne ao e a reke naba kanoani wiina bwa kanan te eeti are e a bon anaia i karawa. E a maenako te eeti te koota ao e a manga nako n okira ana nanai ni kooota.

**TAIANI KAMIMI AIKA AKEA AIA IANGO**

Te noody (te io) (te nauna). Nanona te buuraareei; te baba. Man te taeka n Ratine ae 'Anous stolidus.' Are nanona bwa te anua ni baba, akeea te wanawanana; te taribaba. Ao taeka akanne ake ai bon taekan te eek ni mannikikia aio irouni kaimoa te kiina nako bawara n te a-19 n tienture. Taeka aikiai ake bon akeea atiia. E a reke ekaan arariai ai kiona nge ne a kika nako mannikikiai aikiai n rokoia kaimoa ni kania. Kaimoa aikiai, a roko ma ian Eurobe ile e a tateiina mannikikia n aaba akanne ni kiba nako ngkana a kaaniaki irouni aomata. Ngkane e kiba nako te mannikikia ao nanona bwa e aonga te wanawana te mannikikia anne kionaa bwa e a kika naka ngkane te aow e a kaanma irounite a aikiai. Te buraareei; te baba. Man te TAIANITE TAMAI AIKA AKEA AIA IANGOA.

Ma te kangare teuana bwa taiani mannikikia aika tenaan io, boni mannikikia aika a a kika ti naoutou atiia. Ma e a reke araia man anuana ae te katou atu. Ao bina bawri riki, ngkane e reke aia taik ni teo totootok te aow e aow mala ni te ka-19 n tienture.

Ma te kangare teuana bwa taiani mannikikia aika tenaan io, b mistakes, we only don't fly away, they fly toward the intruding human. You simply cannot walk through a bird colony at Christmas without being closely scrutinized by a bevy of inquisitive White Terns. In fact, they follow so temptingly close that, if you're quick enough, it seems you could snatch one right out of the air! But they are more like an apparition, than a real bird. All white but for two beady black eyes and an oddly shaped black-and-blue bill, they remain as elusive as a cloud, always just beyond reach, delicately balancing on the wind.

**A REMARKABLE BALANCING ACT**

If noddies are fools, White Terns are bigger fools! They not only don't fly away, they fly toward the intruding human. You simply cannot walk through a bird colony at Christmas without being closely scrutinized by a bevy of inquisitive White Terns. In fact, they follow so temptingly close that, if you're quick enough, it seems you could snatch one right out of the air! But they are more like an apparition, than a real bird. All white but for two beady black eyes and an oddly shaped black-and-blue bill, they remain as elusive as a cloud, always just beyond reach, delicately balancing on the wind.

But that is not its only balancing act. It is the only bird in the world that lays its egg on the bare branch of a tree. Other birds build at least some semblance of a nest — a few strategically placed twigs, some grass, a little seaweed. The White Tern does none of this. It finds a secure horizontal branch with a flat surface, or a slight depression where two or more branches join, and attaches its egg there. A typical Noddy courtship may go something like this.

First, a male and his prospective mate fly higher and higher into the sky, then descend in tandem in a slow downward glide. Once they have landed, the male attracts the female by moving his head back and forth with his bill alternately closing and opening, all the while keeping his tail cocked straight up. Then he nods his head up and down a few times, pauses and stares down at his feet. The female, whose interest is now aroused, begins pecking at the male's bill. The male raises his head and opens his bill, exposing a bright orange mouth lining. He then raises his neck while at the same time lowering his head and wide-open bill. For the coup de grâce, he regurgitates his last meal, which the female enthusiastically eats! All of this is followed by a bout of allopreening — that is, the two birds mutually preen each other's feathers with their bills. The ritual ends when both birds point their bills skyward and make a strange rattling noise. Now, that's love!

The Birdlife of Christmas Island

A REMARKABLE BALANCING ACT

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Akea n te aonnaba aio ae e roko ni kamimia taiani keeu i Kiririmata. Iroun te aomata are e aiki taneia ma te aeki ni kamimia aei ao e on boni kubukera n noorakini mannikiba aika a mwaiwikuriku ni kiba o te tai are e ta teuana ietan te ba. E katautauangki ngoka bwa e raka iason 25 te mirion mwaitiia ni bane mannikiba aikai ao iteran te mwaiti ai ao e a nonoorakini o dia tai ni kabakakawaba ake uatai ake a bon ataaki o. Ti tabebong man te bwaka ni kiba ni kibakiba o teuana te mwaitiia. Ao ikanne are o a tiku n ikawairake te man ane ni karokoa are e a konaa ni kiba. Iikubuki kaawakakana man te bwaka ni moara riki ikanne tabebong imwiini iatana te bun ni maitawa aia a kana na o aonkaroo waena a kani. Mwaitiia o te tamnei are o iteran 45!

N TIKU N OKORO I BON IROUNA

Akea n te aonnaba aio ae e roko ni kamimia taiani keeu i Kiririmata. Iroun te aomata are e aiki taneia ma te aeki ni kamimia aei ao e on boni kubukera n noorakini mannikiba aika a mwaiwikuriku ni kiba o te tai are e ta teuana ietan te ba. E katautauangki ngoka bwa e raka iason 25 te mirion mwaitiia ni bane mannikiba aikai ao iteran te mwaiti ai ao e a nooroomakini o dia tai ni kabakakawaba ake uatai ake a bon ataaki o. Ti tabebong man te bwaka ni kiba ni kibakiba o teuana te mwaitiia. Ao ikanne are o a tiku n ikawairake te man ane ni karokoa are e a konaa ni kiba. Iikubuki kaawakakana man te bwaka ni moara riki ikanne tabebong imwiini iatana te bun ni maitawa aia a bonomu rasi waena a kani. Mwaitiia o te tamnei are o iteran 45!

The Great Navigators

Not every bird on Christmas Island nests here. Some fly thousands of kilometers across the open ocean from arctic Alaskan and Siberian nesting grounds to spend their non-breeding days on Equatorial islands. How they find a tiny speck of land in such a vast ocean and lays its egg right on the branch! There the egg sits until the young bird hatches. And there the young bird sits until it is old enough to fly. To protect itself from falling off, especially in the first few days of its life, the young White Tern has unusually well developed feet and claws at hatching.

But, alas, the White Tern is no fool. It knows an opportunity when it sees it. When Black Noddies are not nesting, their nests do not always remain idle. Witness the picture on page 45!

In A Class of Its Own

The spectacle of Sooty Terns at Christmas is matched nowhere else in the world. For a person who has not grown up amidst this spectacle, the sight of a million birds in the air at one time is an awesome scene! The total island population was once estimated at more than 25 million birds, with half that number present in each of two distinct breeding seasons. Few people can even comprehend a number so large! While it may no longer be possible to see such large numbers at Christmas, several hundred thousand, perhaps close to a million, still congregate twice a year between Aeon Field and South-east Point, and 100,000 pairs still nest twice a year on Cook Island. Smaller colonies nest near the Captain Cook Hotel and on the Paris Peninsula.

The combined pressures of egg-collecting by humans, and decimation of their eggs and young by cats and rats have taken their toll. If these practices continue unchecked, eventually the Sooties will come no more. If curtailed, their numbers will again surpass the 10 million mark, maybe even 20. Will this breathtaking avian spectacle ever again fill the skies above Christmas? Many a tourist would surely come to witness it — and go home to tell his friends.

The Sooty Tern may not only be one of the world’s most abundant species, it is unique in another way. Young birds may fly for up to eight years without ever landing! Now, how could anyone possibly know this? No, no one has devoted eight years of their life to following a Sooty Tern just to verify the authenticity of this statement. But a little deductive reasoning leads one inescapably to this conclusion. Consider the following: Sooty Terns cannot swim. Once on the water, their feathers quickly become soaked, and they cannot remain afloat. Young birds master the art of flying at about three to four months; then they head out to sea. They are not seen again near land until they reach breeding age in their 6th to 8th year. And even after returning to land to breed after all this time, they fly around day and night for a month or so until all the birds in the colony have returned. Only then do they come to earth to court and nest! All other seabirds rest, at least occasionally, on the ocean surface or never venture so far from land that they cannot return at night to rest.
karokoa okiia ni kabane kaain te botaki anne. N te tai anne are a tikubara iai ibukin te karekenano ma te kabwakabwaka. A bon reke aiata aeka ni mannikiba ake te korakina ni motirawa n tabetai ni beibeti iaontari ke a bon aki rangi ni kararoaia ma te aba, rimwi e ake reke kawia n okira nneia n te bong.

TAANI BORAU AIKA ATOATONGAKI

E aki bung te mannikiba ni kabane are e nooraki i Kiritimati n te aba aio. Iai tabeman ake a kiba man aia tabo ni bung iraua te ngaa te kiromita iai marawa man taabo ai a kamwaitoro i Aratika ma Tiberia ni kawarri aab a n te ekuetoa. Bon te karaki teuana taekani karekean abaa ae te bwai ae bingiingi taraana inanoni marawa ae moan te raababa. A kaokoro mannikiba ma aomata bwa iai aia bwaini borau ae te GPS ni kaburoroia! A kabongana taai ma itoi ibukini karekean kawiaao ake naba aia kangaanga ngkana e unanginang karawa, ke n tain te maabubu ae e korakora. E nooraki naba imwiini kakae ni bon taai naba aikai bwa a kona n namakina itin aonnaba n aron are a mwakuri iai kambwati. E aki kan rotaki naba rabakuia ni borau irouia taani borau ake atongatongaki ngkoangkoa mai Mwaikoronetia!

Aekaki ni mannikiba ake a aki toki n nonooraki ni kawara Kiritimati bwa te kun, te kiriri ao te kewe. A bane ni mena n te botaki ni mannikiba are e aranaki bwa taan nakonako i mataniwiin taari. A kiba n aron te keeu n aki motirawa iaontari mai Aratika ni karokoa Kiritimati n aki tikutiku. Tabeman mai ibuakoia a tekeroa bwa e reke motirawaia teutana i Awai n akea aia "visa"!

Temanna ae e rangi ni kinaaki mai ibuakoia taan roko man taabo ake a kamaitorotoro, bon te kun are a aki toki n nonooraki ni kangi mwani ake a mate irarikin te kawai. E aki toki n nonooraki naba te kiriri ma te kewe ni kakaemi kanaia i mataniwiin taian nama.

Te kewe boni ngaia temanna mai ibuakoia mannikiban Kiritimati ae iai kamimia. E bung n te tabo ae e uareereke i nukan Aratika aoe kiba nakon ti tabeua aaba i nukan te Betebeke. Botani mwaitiini ake na bane n te aonnaba, ti tabeua te ngaa ao Kiritimati boni ngaia teuana mai ibuakoia aikai are a kona n nooraki iai mannikiba aikai, (anne naba bukina teuana are a roko iai i Kiritimati taani matakukaniia mannikiba!).

is a story unto itself. Unlike humans, birds have something akin to a global positioning system or GPS built right into their brains! They use the sun and the stars to find their way, but they do just about as well under cloudy skies, and even in fog. Recent studies have shown that they can actually detect the Earth’s electromagnetic field, which is what makes compasses work. Even the famous Micronesian and Polynesian navigators of yore never came close to matching the navigational skills of migratory birds!

The three most frequently seen migratory birds on Christmas Island are the Pacific Golden-Plover, the Wandering Tattler, and the Bristle-thighed Curlew. All are in the group of birds called shorebirds or waders. Since, like the Sooty Tern, they do not land on the water, they must fly all the way from Alaska to Christmas Island non-stop. A lucky few, however, stop for R&R in Hawaii along the way (they don’t even need a visa!). The golden-plover is the most common of these Arctic visitors, and is often seen feeding on dead crabs on the road. The tattler is almost always seen around the edges of the lagoons, as is the curlew.

The Bristle-thighed Curlew is one of Christmas Island’s special birds. It nests only in a small area of interior Alaska and migrates to just a few islands in the Central Pacific. Its total world population is only about 6,000 birds, and Christmas Island is one of the best places to see this species (yet another reason for birdwatchers to come to Christmas Island!).
The highest grouping of organisms is the Kingdom, in this case the Animal Kingdom. The animal kingdom is comprised of Phyla (singular form is Phylum). Birds are in the Phylum Chordata, as are humans, fishes, and other animals with backbones. Birds are grouped together in the Class Aves. The taxonomic level just below Class is called the Order. Within each Order are one or more Families, within each Family are one or more Genera (plural), and within each Genus are one or more Species. The scientific name of a species consists of two words. The first word is the genus, and it is always capitalized. The second is the species, and it is never capitalized. The Sooty Tern, for example, is classified as follows:

**KINGDOM:** Animal  
**PHYLUM:** Chordata  
**CLASS:** Aves  
**ORDER:** Charadriiformes  
**FAMILY:** Laridae  
**GENUS:** Sterna  
**SPECIES:** fuscata

The nineteen species of birds that breed on Christmas Island are grouped into four orders and seven families. Two additional families have several representatives on Christmas Island, but they are visitors and do not breed on the island. Add to this, two more orders (with one family in each) that have been introduced by man to the island, and we have eleven families of birds grouped into six orders represented on Christmas Island. Below are brief descriptions of the orders and families of birds on Christmas Island.
OTA: Procellariiformes
MANNIKIBA N TAARI AKE IAI KAIN AONI BWAIRIIA
Mannikiba ake iai kain aoni bwairia a mena bwangawbangani bwairia i tabon te kai e ae e uareereke ae e mena i moi bwairia, ao e bwaka nako naano, n ai aron te matau, taboni wiia. Angiia, a bane aia tai i taari n ti okioki ni kaei aia tabo ni matu ione te aba. Aekani waeia, kaka tenua taboni waeia e a kaai n nim ngakea. Ni kaban mannikiba ake iai kain aoni bwairia a konaa n nima taari kionia ngkai boni iai te bwai e ae e bubura a e mena in atiuia e ae anaa te taoro man taari ma ni kanakoa mani bwangawbangani bwairia.

UTUNI MANNIKIBA AIKA TENAA N GAIKOA, TIE NINE, TEE NNA
MA TE RURU AO TE BWEBWE NI MARAWA (Utu: Procellariidae). Iai baia aika a irariki ma n anaanau ake a aki toki ni kaakaakiki ma n taakiinini n eti ruru inanoni kibakibakia. Angiia a mata roo karai ke a bon rooro o tabeman mai ibuakoia a mainaina aoni bwawawaaia. Iai aua aekani mannikiba aikai ake a kabwakabwaka iao Kiritimati a o iai riki nanai tabeua ake a konaa n nooraki in nanoni marawa n raroa ma te aba, ma mannikiba a ke a kabwakabwaka n aban riki te Betebeke ake tabeua, ma tiaki Kiritimati.

TE UTU NI MANNIKIBA AE TE BWEBWE NI MARAWA
(Utu: Hydrobatidae). E uareereke riki nakon utun te “Procellariidae” ao a ari rangi n abwawakwe ke a aki roko n abwakini baia kaain te ota ni mannikiba aei ao a aki roko naba n abwakan baia kaain te Ota te kaang a niti taraaki n mron aoni baia. A anaanau riki rangaia ma ni uareereke riki wiaia. A ewa mai ibuakoia eai aai te bwai ae e mainaina iao bukiia aai o tabeman, n aekan aekan iaoi Kiritimati, aai iai naba te mainaina ni bueriaa. Te mannikiba ae te Bwebwe ni Marawa bon ti ngaia aekan utuna iaoi Kiritimati e bukinaki ngkoa bwa uaeaki aekana. Te Bwebwe ni Marawa e roo rabwatanai n kaban, aekana are teuana are e aranaki bwa te White Throated Storm Petrel, e mainaina roroana, bwawawaan, birotona, aai bainia ao aoni bukina. Aekani mannikiba aikai a kuneak aitumwakoroka tabeua, ma ngkai e a kakaoaaka wia e ngae ngke e kaakoroka karai mannikiba aikai, bon ti te kara ae e kaakoroka ma tiaki nanona bwa e kakaakoroka aekan nanaini mannikiba aikai. Mannikiba ake iaoi Kiritimati a kaai riki aia kara ma te mainaina (white-throated morph).

OTA: Pelecaniformes
TE TAAKE, TE MOUKENA, TE KIBWI.
TE KOOTA AO TE EITEI
Te ota ni mannikiba ae e bubura a, aia e reke naba iai tenaanini “pelicans,” “cormorants (ke shags)” ao “antinga”? A ewa aekana ni te aonnaba ni kubata. A kinaaki mannikiba aikai bwa kaka aua tabon ni waeia e toma ngakea. Ni kaban mannikiba a bane ni iai te kun ak aang a kaanga te buu (gular prouch) ae e mena iaii wiia are e kabonganaaka bwa nenni kanaia n te tai ae e uareereke (pelicans ao cormorants) are e mena iaii wiia are e kabonganaaka n te tai ni karekenano (eitei). Ti te taake ae aekas te aek a niwai aei ioruna. Irouia mannikiba aikai te mouakena, te kibwi, ao te koota iai naba te aekani bwai aio ma bon aek auaana iorua.

TE TAAKE (Utu: Phaethonidae) e kuri ni kangaanga iangoana bwa kaain te ota ni mannikiba raa a ae e mena iai ma e a karaini n te ota ae te Pelecaniformes” ibukina bwa a toma naba ngakeni waena aia auia. Iai kaakoroka ma mannikiba a n te karaini aio ibukina bwa aekas kunik rooria ke te buuare are e mena iaii wiia (gular prouch) ao te iaii buuria natiai ngkana a raunga. Angiia taian taake a mainaina, iaii buraen bukiia a ae e rangi n ananao a e tokatoko karani wiia. Bon ti tenua aekan tibitiiti ni te taake n te aonnaba, teuana mai ibuakoia ae e reke iaoni Kiritimati.

ORDER: Procellariiformes
TUBE-NOSED SEABIRDS
Tube-nosed birds have their nostrils at the end of a short tube on the top of the bill, and the tip of their bill is hooked. Nearly all spend most of their lives out at sea, coming ashore only to nest. They have three webbed toes. All tube-nosed birds can drink salt water because they have a large gland in their head that concentrates salt from the water, which is then excreted through the nostrils.

SHEARWATERS AND PETRELS (Family: Procellariidae) have long, narrow wings which are held stiff and stretched straight out when flying. Most are dark sooty brown or blackish, and some have white underneath. Four species nest on Christmas Island, and several more can be seen at sea far offshore, but they nest on other islands in the Pacific, not on Christmas Island.

STORM-PETRELS (Family: Hydrobatidae) are smaller than the former, and have shorter, more rounded wings. They also have longer legs and a shorter bill. Many have a large white patch at the base of their tail, and some, like the one on Christmas Island, have other white patches in their plumage as well. The Polynesian Storm-Petrel, which is the only storm-petrel on Christmas Island, was once thought to be two species. One (the Polynesian Storm-Petrel in the narrow sense) is all dark; the other (the “White-throated” Storm-Petrel) has a white throat, lower breast and belly, underwing coverts, and rump patch; but both forms, as well as intermediates, are found on some islands, and it is now believed that these plumage differences represent color morphs, not different species. Those on Christmas Island are closest to the White-throated morph.

ORDER: Pelecaniformes
TROPICBIRDS, BOOBIES & FRIGATEBIRDS
This large order of birds, which also includes pelicans, cormorants (or shags), and anhingas, has representatives throughout the world. They are characterized by having four toes with webbing between each. All but the tropicbirds have a loose flap of skin called a gular pouch at the base of their bill that may be used to temporarily store food (pelicans and cormorants) or in courtship display (frigatebirds). The boobies have only a small patch that has no obvious function.

TROPICBIRDS (Family: Phaethontidae) do not fit easily into any bird order but are placed in the Pelecaniformes because they have webbing between all four toes. Unlike others in this order, they do not have a gular pouch and their young are feathered when they hatch. Tropicbirds are mostly white and have long tail streamers and a brightly colored bill. There are only three species in the world; one of which is found on Christmas Island.

BOOBIES (Family: Sulidae) do not have nostrils that open to the outside like most other birds. Therefore, they have to breathe through their mouth. They have long pointed wings, a straight, pointed bill, and a pointed wedge-shaped tail (think of them as being pointed at all four corners). All species have brightly colored facial skin which probably functions to attract a mate in courtship and in species recognition. Of the nine species worldwide, four are found on Christmas Island.
**Charadriiformes**

**TE KUN. "SANDPIPERS". AO TE KARAKARA.**

**TE KEEU. TE MATAWA**

This is a very large group of seemingly very diverse birds; however, they all have similar skeletal characters that are not visible on the outside. There is no one external character shared by all birds in this order.

**PLOVERS, SANDPIPERS & TERMS**

These are small birds with short, pigeon-like bills and medium-length legs. Of the 65-70 species worldwide, only one occurs on Christmas Island, but only as a visitor from the Arctic.

**SANDPIPERS**

They are graceful flyers with pointed wings and thin, pointed bills. Most have a forked tail, but a few, like the noddies, are similar in ways that are not visible on the outside. There is no one external character shared by all birds in this order.

**TERNS**

These are graceful birds with pointed wings and thin, pointed bills. Most have a forked tail, but a few, like the noddies, have a wedge-shaped tail. Seven of about 40 species worldwide nest on Christmas Island.

**Frigatebirds**

These are very aggressive toward other birds and often intimidate them into disgorging their food, which they will then eat. Two of the world’s five species live worldwide nest on Christmas Island.
**OTA: Columbiformes**
**RUUBE “PIGEONS”**

Ai bon ti teuana te utu ni mannikiba inanon te Ota ni mannikiba aio ae e boni maiu ngkai, ae e aranaki bwa te “Columbidae”. Te mannikiba ngkoi aare e ebura ma n aki kona ni kiba ae e aranaki bwa te “Dodo” (utu: Raphidae) boni iai naba rekrekena ma te rube ma te mannikiba aore e a e karani bua man te aonnaba 300 tabun te ririki n nako. Te mannikiba aio ma te mannikiba aore teuana te utun te Raphidae ngaia ngkoa mannikiba ake a aki kona ni kiba ake e mena n abamwakoro ake e mainikun Aberika.

**TE RUBE (Utu: Columbidae)** Mannikiba aikai boni mannikiban te aba ao bon akeae ae e roko iaoni Kiritimati ni karokooa e e roko te rube ae e maninni iaon te aba inanon te tai ae e tuai n rangi ni maan bwa tao e toka ni nabanako iaon tenaani kaihuke ni bwai. Wiia ruube, a kaniboo ma wiia tiaian kun, ma ia waeia ae te kaeai ae e tanrikaaki are e kakabonganaa ibukin tootokaia iaon te kai. E raka iaon 300 aia tibiitiiti mannikiba aikai iaon te aonnaba.

**OTA: Psittaciformes**
**PARROTS**

Manikiba aikai tenaani baerote (parrots) iai wiia aikai a matenten oia ma ni koti ao iai kaanga te matau ae e kakang i taboni wiia ibukini ibeakin tiaian ati. Iai uoua taboni waia aikai a kaiataraa moa ao ia waeia aikai uoua aikai a kaiataraa bukiia ao anggia tibiitiiti ni mannikiba aikai e waikakang bukiia. Anggia tenaani baerote a makaeka n aaba ake a bubura ao ti tabeana mai ibukia aikai a maka n tiaian abamwakoro. Akaea te baerote ae boni kaain raoi Kiritimati.

**“LORIES”** (Utu: Loridae) Mannikiba aikai bon tenaani baerote aikai a uareereko e anggia a waikakang bukiia. Iai ngkaike kaakoraia ma baerote ake nikiran ake ti teba kaira mwaane ma aine, bwa irouia tenaai “lories” e kokiokan karon te mwaane ma te aine, bwa te mwaane, moan te matatokatoka karana. Teuana te tibiitiiti ni mannikiba aio are e kuneaki ngkoi n te abamwakoro teuana n te Betbeke Maiaaki, e uotaki irouia taani borau mai Borenedia nakon te aono ni Raina mai Meang ma a bon aki konaa n teiataai maiuia iai Kiritimati. Ma a boni kaakarokia ake i diia n tei noo ni ko Bokikokiko.

**OTA: Passeriformes**
**MANNIKIBA AKE A TOOTOKA I MWAANGANI KAAI**

Te ota ae te “Passeriformes,” e nakon te mwaiite ae e raka nakoni iterani mwaiitiia mannikiba iaon te aonnaba Iai teia mannikiba aikai a mena n ota aio, ae kaanga e tei oko: iai tein riini ngangaakea ae e a koi koi, bwaiin rabwataia are e kakaawakina iai te oera (oil glands), ae e a mena irariki bukiia, ao iai mwaiiterin baiia mai moa ao mai buki ao waia ae e maraurai are a boni konaa n tootoka iaai i mwaangan te kai.

**MANNIKIBA N AROIA TENNAI BOKIKIKOKO AKE MAN TE AONABA NIKAWAI (Utu: Sylviiidae)**

Te utu ae te kabanea bwa bubura bwa 550 mwaiitiia n aia tibiitiiti inanan te ota ae te kabanea naba ni bubura irouia mannikiba. Mannikiba aikai, a uareereko ma ni mata baareka ke e taraa n roo karani buraeia ao a irariki ma ni mataroo karani wiia. Anggia kaain te utu ni mannikiba aio a boni maeka ma ni kaabung iaon anggii aban te Betbeke inanoni ngaa n ririki ao e rangi n tirau aekan aia tibiitiiti aika e kakaokoro. E kona ni kooa ni oirou te aekai a tibiitiiti ni mannikiba teuana ae te Bokikikoko aekai e a rangi n kokaoro ngaik teina ma aekan nako utuna n te aonnaba.

**ORDER: Columbiformes**
**PIGEONS**

There is only one living family in this order, the Columbidae. The large, flightless Dodo (family: Raphidae) was related to pigeons, but it became extinct more than 300 years ago. It and the only other member of the Raphidae were flightless birds that lived on islands off the east coast of Africa.

**PIGEONS (Family: Columbidae)** are landbirds, and none had ever made it to Christmas Island until the domestic pigeon reached the island fairly recently, probably as a stow-away on supply ships. Pigeons have plover-like bills, but have feet with a fourth, hind-facing toe designed for perching on limbs. There are over 300 species in the world.

**ORDER: Psittaciformes**
**PARROTS**

Parrots have short, thick-based bills with a sharp hook at the end used for breaking open large seeds. They have two forward-facing toes and two rear-facing toes, and many species have pointed tails. Parrots live primarily on the continents, with very few representatives on islands. No parrots are native to Christmas Island.

**LORIES (Family: Loridae)** are small parrots, and most have a pointed tail. Unlike other parrots in which the sexes look nearly the same, male lories differ from the females in being very colorful. One species, originally found on only one island in the South Pacific, was brought by the early Polynesian explorers to the northern Line Islands, but they never survived for long on Christmas Island. They are still brought here occasionally from Washington Island.

**ORDER: Passeriformes**
**PERCHING BIRDS**

The order Passeriformes, with about 5,700 species, comprises more than half of all the world’s birds. Birds in this order share several unique characteristics: a distinctive bony palate (roof of the mouth), oil glands near the tail, and forelimb and hindlimb muscles, along with a flexible hind toe, that are adaptations for perching on limbs.

**THE OLD WORLD WARBLEERS (Family: Sylviidae),** with about 550 species, is the largest family within the largest order of birds. They are small birds, most with dull brown- or gray-colored plumage and thin, blunted-tipped bills. Members of this group have successfully colonized most of the Pacific islands where they have evolved over the millennia into distinct species. Such is the case in the northern Line Islands where one species, the Line Islands Warbler, or Bokikokiko, has evolved to the point where it is now quite distinct from all other species in the world.
ENGLISH:

**TE RURU**
*Pterodroma alba*

**IDENTIFICATION:** Adult is similar in size to the Christmas Shearwater, but has a white belly. Bill short and stocky compared with the other three shearwaters. Often seen flying about nest sites and elsewhere on the island during the day. Chick has gray legs and black feet, short, thick bill, gray facial skin.

**VOICE:** In flight and at the nest, an eerie “witch-like” cackling with a musical roll—*keh keh keh keh keh keh keh keh.*

**BREEDING BIOLOGY:**
Nests throughout the year, but with two fairly distinct seasons, roughly November-January and April-June. Present at the island year round. Nest is a scrape or shallow depression, usually under matted vegetation, occasionally in the shade of low bush or in a shallow burrow. Lays one white egg. Incubation takes 4½ weeks. Age at which chick is able to fly is not known, nor is age at sexual maturity.

**FEEDING:** Primarily juvenile flying squid, mostly at night.

**DISTRIBUTION:** Found only in the central South Pacific Ocean (possibly, now only on Christmas Island). The colony on Phoenix Island, if it still exists, has always been small (~200–250 birds), so protection on Christmas Island is essential to the continued existence of this species.

**STATUS ON CHRISTMAS ISLAND:** Common over most of the island except the Southeast Peninsula. For nesting, restricted to cat-free islets in the lagoons. Past estimates have ranged from 20,000-25,000 birds, but numbers are surely much lower than that now.

**RESIDENT SPECIES**

**AEKANA:** *Ikawain* te mannikiba aio e kaniboo buburana ma te Tinebu (Christmas Shearwater), ma iai birotona ae e mainaina. E uareereke ma ni matenten wiina ngkana e kabotauaki ma te Tanguuoua, te Tinebu ao te Nna. E aki tootoki n nonooraki ni kibakiba riaon taian ngaio ni man ao n taabo ni kabane iao te aba n auan te ngaina. *Natina,* e kuri ni mata roo karan rangana ma n rooro waena, a matenten ma ni koti wiina ao e mata roo karani moana.

**TANGINA:** Inanon ana tai ni kibakiba ao ngkana e boni mena ni ngaona, e tangi n anti, kaanga “*keke keke keke keke keke keke*.”

**ANA TAI NI KABWAKABWAKA:** E kabwakabwaka inanon te ririki, ma iai aia tai ni kabwakabwaka ae kaanga e ataaki, inanon uoua te au (seasons). Aikai imarenan namakaina aika Nobemba nakon Tianuare, ao Eberi nakon Tuun. E mamaeka n te aba ni kabanea bongin te ririki. Ngaona, te mwanono ao n angiin te tai e mena iaan taiani kai n nuun te aroka ke e mena n te mwanono ae e aki rangi n nano. Ti teuana bunnatoina n ana tai ni kabwakabwaka are e nako uua ao e iterana te wiiki imwaaia ne rauere. E aki ataaki te ririki are e kona iai ni kiba *natina* ae e uareereke ao e aki ataaki naba ana ririki are e kona iai n iein.

**AMWARAKENA:** Angiini kanana te riro are e uareereke are e a bon anaia n te tairiki.

**TIBWATIBWAANA:** E ti kuneaki i nukan marawan te Betobeke Maiaki, (tio ngkai, e a boni baen ti reke iaoi Kirimitami). Te bootaki ni mannikiba are e mena n aban Rawaki, ngkana arona bwa boni iai naba ngkai, e uareereke mwaiitia ai ngaia are a riai n tarawauaki roai aekani mannikiba aikai iaoi Kirimitami bwa a aonga n kona n teimatoa maiua.

**MWAITIHA IAONI KIRIMITAMI:** A ewa iaon angiin atimwakoro, a ti akea n te benintura are mai Maiaki-mainiku. Aia tabo ni kibwakabwaka, a mena n atimwakoro inanon te nama akei iai taiani katamwa. Te katauia iaoi mwaiitaa, e nakon 20,000 nakon 25,000 te mannikiba.
The Birdlife of Christmas Island

**WEDGE-TAILED SHEARWATER**

*Puffinus pacificus*

**IDENTIFICATION:** Most adults are dark, sooty brown (dark morph), but a few have noticeably paler throat. The true light morph with all white undersides has not been found on Christmas Island. Larger than Christmas Shearwater; tail wedge-shaped. Most often seen flying to and from breeding sites to offshore areas where it feeds during the day. Chick has fleshy-gray legs and feet, long, thin dark gray bill and facial skin.

**VOICE:** At the nest, a moaning dove-like on inhaling, sometimes louder with emphasis in the middle, followed by a braying like a lamb on exhaling.

**BREEDING BIOLOGY:** Nests in dense colonies from May–October; leaves the island after the nesting season and does not return until the following year. Nest is a burrow 30–100 cm deep. Lays one white egg. Incubation takes 7½ weeks. The chick leaves the burrow after 15-16 weeks and flies out to sea. Young birds reach sexual maturity at about 4 years.

**FEEDING:** Larval squid (mostly) and fish, primarily flying squid, Goatfish, Squirrelfish, Mackerel. Food size, generally 7-8 cm. Feeds primarily in the daytime. Plunges from a low angle, submerging only head and neck; also feeds while sitting.

**DISTRIBUTION:** Abundant in tropical and subtropical Pacific and Indian oceans.

**STATUS ON CHRISTMAS ISLAND:** Found nearly throughout. Populations may fluctuate widely, with estimates over the years ranging from 6,000-1,000,000 birds. Massive die-offs have been observed, also suggestive of widely fluctuating numbers. Complicating the picture is the fact that numbers of this species are especially difficult to estimate because it nests in burrows and spends most of its time when away from the nest well out at sea. It nests primarily on small islets that are free of cats.

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**TE TANGIUOUA**

*Puffinus pacificus*

**ANEKANA:** Angiia mannikiba ake a ikawai a roo ma n roo ni buraua (dark morph), ma iai tabeman mai ibuakoa ae e kuri ni mai teutana riki roroaia. Te mannikiba are e mai karana ni mannikiba (true light morph) e tuai man reke iaoni Kiritimati. E bubura riki nakon te tinebu: ao bukina kaanga te ei ni mai teutana riki roroaia. Angiin te tae e nonooraki ni kikibakiba nako ao n oki man ana tabo ni kawakaewaka ni kaakakiao taari, ike e amwaawarake tae n te ngaina. Natina e kau motomoto ma ni mataroo karan rangana ao waena, iai wiina ae e irariki ma ni mataroo ao e mataroo naba kara ni moana.

**TANGINA:** Ngkana e mena ni ngaona, ao ai moarara riki n te tairiki, e tang kaanga tangin te taobe ae e iriba. Angiin te tai e nonooraki ni kikibakiba nako ao n oki man ana tabo ni kawakaewaka ni kaakakiao taari, ike e amwaawarake tae n te ngaina. Natina e kau motomoto ma ni mataroo karan rangana ao waena, iai wiina ae e irariki ma ni mataroo ao e mataroo naba kara ni moana.

**ANA TAI NI KABWAKABWAKA:** A boni bane ni kabwakabwaka te bootaki ni mannikiba aion te tai ae ti teuana man namakaina aika Meei nakon Okitobwaa; a kitana te aba imwiina aia tai ni kabwakabwaka ao a aki oki ni karokoa te ririki are imwiina. Ngoaia kaanga te mwanono ae e nakon 30 nakon 100 te tientemiti (centimetres) nanona. E kabwakaa ti teuana ana bunnato imataeni Meei nakon Tuurai. E nakon 7 ao te iterana te wiiki imwaalena natina mai inanon bunnatoina. Imwiin 15 nakon 16 te wiiki, ao e kitana ngaona te mannikiba e a uareereke aiao ma ni kiba nako marawa. Mannikiba aika a uareereke aikai, a kona ni iein ngaonkana e a koro 4 aia ririki.

**AMWARAKENA:** Angiini kanana, buun te riro ae e uareereke aoe te taka, te riro are e kikibiba, aekan te tewe ma te meabo, te ku ma te ta, ao te tawatawa ma te kimokimo. Buburani kanana e nakon 7 nakon 8 te tientemiti. Angiin te tai, e amwaawaratke te ngaina. Aron akawana, e tebo man te rieta ae e aki rangi n tietaa, n ti katabca atauna ma roroana; e amwaawaratke naba n tekateka.

**TIBWATIBWAANA:** E tira ni marawan te Betbeke ma marawan Inria aika a kabuebue (tropical) ma ake a aki rangi ni kabuebue (subtropical).

**MWAITIIA IAONI KIRITIMATI:** A kuri n reke iaoni Kiritimati ni kabutaa. Man te wareman are e a tia ni karaaako, ao neina, e bibitaiki inwaitiia mannikiba aikai, ao mai imwiin te wareman iroua amata aika a kakakoro, inwaitiia mannikiba aikai, e a nakon 6,000 nakon 1,000,000. E a bon tia naba n nonooraki bwa a rangi n tiraua naba mannikiba aikai ni maamate, tao anne naa bukini bibitaki ni inwaitiia. E riki naa ni kangaang raweani mwaitiia mannikiba aikai kioina bwa e mena ngaona inanon te bwanga ao n angiin te tai ngaana e a akina ni ngaona, e mena i taari. Angiin te tai e kawakaewaka ma ni karooi ngaona ni taian atimwakoro ake a uareereke ake akeaa tai taiani katamwaa ma kimoa.
IDENTIFICATION: Adult is smaller and darker than Wedge-tailed (nearly black) with a shorter, rounder tail and more rapid wingbeats; wings held straighter in flight. Lacks brown scaling on upper wing coverts. More likely than Wedge-tailed to be seen flying around nesting sites and elsewhere over land during the day. Chick has black legs and feet, long, thin bill, black facial skin.

VOICE: At the nest, a very harsh, nasal , a moaning , and an eerie moaning .... Males and females give different calls, but it is not clear which calls are attributable to which sex. Usually silent in flight.

BREEDING BIOLOGY: Nests throughout the year, but with an apparent seasonal peak in December-February. Nest is similar to that of Phoenix Petrel, but more frequently nests under bushes, seldom in burrows. Lays one white egg. Incubation takes 7½ weeks. Chick is able to fly at about 14 weeks. It is not known how long the young take to reach sexual maturity.

FEEDING: Foods eaten are apparently similar in size and types to those of the Wedge-tailed Shearwater. Probably feeds in a fashion similar to that of Wedge-tailed Shearwater.

DISTRIBUTION: Central Pacific Ocean from Hawaii south to the Marquesas.

STATUS ON CHRISTMAS ISLAND: Common over most of the island except the South-east Peninsula. Nests on protected islets in the lagoons. Population estimates have varied from 6,000-15,000 birds.
**TE NNA**  
Puffinus iherminieri

**AUDUBON’S SHEARWATER**

**IDENTIFICATION:** Adult is smaller than the other shearwaters; black above, all white below. Seldom seen away from the nest. Feeds at sea and commutes to and from nesting sites primarily at night. Chick has gray plumage with white throat; small, slender bill.

**VOICE:** Typically, cat-like howls, especially at night.

**BREEDING BIOLOGY:** Little is known about this species on Christmas Island. It was not definitely found breeding on the island until 1965, although earlier reports exist. The peak egg-laying period appears to be June-November. Nest is usually in a shallow burrow, but may be in a deep depression, or a shallow depression under matted vegetation. Lays one white egg. Incubation takes just over 7 weeks. Chick is able to fly after 10-10½ weeks. Young first breed at about 8 years.

**FEEDING:** Foods taken at Christmas Island are not known, but presumed to be larval squid and fish like the other shearwaters. Generally feeds at the surface while sitting on the water.

**DISTRIBUTION:** Common throughout much of the tropical oceans worldwide.

**STATUS ON CHRISTMAS ISLAND:** Thus far, found only in the Central Lagoons area. Population has been estimated at about 2,000 birds in the past, but numbers appear to have increased significantly since 1980.

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**AEKANA:** *Ikawaia* mannikiba aikai e uareereke riki nakon te tinebu ao te tanguiuua. E rooro karan aona ao e mainaina aana. E kuri n aki nonooraki ni kitana ngaona. E amwaamwarake i taari ao e kikiba nako ma ni ngaona angiin te tai n te tairiki. *Natica* e mataro burae-na, e mainaina buuana ao e uareereke ma ni irariki wiina.

**TANGINA:** E tang kaanga tangin te katamwa, ao e taatang angiin ana tai n te tairiki.

**ANA TAI NI KABWAKABWAKA:** E uareereke te atatai ianon rongorongon te mannikiba aio iaoni Kiritimati. E a bon tibwa kuneaki ni kabwakabwaka n 1965 ma iai ribooti tabeuia are a bon tuku bwa a kamani kabwakabwaka imwaain te tai aio mannikiba aikai. Aia tai ni kabwakabwaka mannikiba aikai are moan te tiraua iai bunnaitoa, e taraa n ae man namakaina aika Tuun nakon Nobembwa. Ngaolia, e mena n te bwanga ae e aki rangi n nano, ma n tabetai a kona ni mena i mwanono aika a nano ke a aki rangi n nano iaan tenaani kai aika a mangaongao. N ana tai ni kabwakabwaka, ti teuana bunnatoina ae e mainaina ao e raure ngkana e a koro 7 tabun wiikina. E kona ni kib ka mannikiba ae e uareereke aei imwiin 10 nakon 10 ao e iterana te wiiki. E kona ni kabwakabwaka mannikiba aikai e uareereke aikai ngkana tao e a koro 8 ana ririki.

**AMWARAKENA:** E aki ataaki bwa tera kanana ae e kangi iaoni Kiritimati ma e katautauaki bwa bunin te riro ao te ika n aekani kanaia tenaani tanguiuua ma te tinebu. Angiin te tai ao e amwarake iaontari ni karaua n tekateka.

**TIBWATIBWAANA:** E angii ni marawa ake a kabuebue (tropical oceans) ianon te aonnaba.

**MWAITIIA IAONI KIRITIMATI:** Ni karokoa ngkai, a ti kuneaki n taian nama ake a mena mai nuka. N taai aika a nako, ao a tia ni katautauaki mwaitiia bwa e nakon 2,000 ma e a tia n nooraki te mwaiti aio bwa e a tia n rangin ewa mai imwiin 1980.
**POLYNESIAN STORM-PETREL**

**IDENTIFICATION:** Adult is very distinctive; a small black-and-white, short-winged bird with notched tail, mostly white underparts except for a sooty black breast band; white bar across rump. Like all the seabirds at Christmas, it has webbed feet, but its legs are longer than most and appear thin and fragile. At sea, feeds by “bouncing” up and down at the water’s surface with legs dangling as if dancing on the water. Flies with alternating shallow wingbeats and brief gliding. Commutes to and from the island at dawn and dusk. *Chick* has same basic pattern as adult.

**VOICE:** Unknown?

**BREEDING BIOLOGY:** Nesting season is primarily from July or August–January. All birds leave the island after the breeding season and return the following year. Nest is a shallow burrow either in an open, sparsely vegetated area or in dense, matted vegetation; also nests in crevices in coral rubble. Lays one white egg. Incubation period is unknown, as are length of time to fledging and age at sexual maturity.

**FEEDING:** Tiny arthropods including the pelagic water strider and various crustaceans. Feeds by picking at the water’s surface.

**DISTRIBUTION:** Found almost exclusively in the tropical South Pacific, but now eradicated from many island groups by rats and cats; thus protection on Christmas Island may be essential to the continued existence of this species.

**STATUS ON CHRISTMAS ISLAND:** For nesting, Central Lagoons, Motu Tabu, Motu Upua, and (at least formerly) Manulu Lagoon, which is now mostly drained for salt production. The population has been estimated to be about 1,000-2,000 birds, but it may be much smaller now.
TE TAAKE
Phaethon rubricauda

RED-TAILED TROPICBIRD

**IDENTIFICATION:** Adult is a distinctive tern-like bird; white with black mottling in the wings, red bill, and long red central tail streamers. Flies with rapid, shallow wingbeats. Immature lacks tail streamers and has black barring on back and head. Chick, fully feathered with down at hatching, is light gray-brown to white with black bill.

**VOICE:** In flight at nesting colony, a loud, harsh, ringing *rack!* or *arack!* At the nest typically a very harsh *arack-arack-arack*; when disturbed, a similarly harsh, unpleasant *рарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарарара ра
**Masked Booby**

**Identification:** Adult is mostly white with black flight feathers (including the tail). Blackish area of skin around face; yellow eye. Bill yellow to greenish-yellow, brighter in male than female. Feet olive-drab. Immature has mostly blackish head and neck, white collar, mottled black back, and white lower breast and belly. Superficially similar to Brown Booby. Chick is white with dark gray bill, facial skin, and feet.

**Voice:** Male gives a loud hissing whistle; female a nasal hank.

**Breeding Biology:** Nests throughout the year nearly island-wide, except for islets in the main lagoon. Most common near South-east Point and in the Central Lagoons area. Nest is a slight depression on bare ground usually adjacent to a bush. Typically lays one, sometimes two, chalky white eggs. Incubation takes 6 weeks. Only raises one chick, even if it lays two eggs. Chick is able to fly after about 17 weeks. Young reaches sexual maturity in about 4 years.

**Feeding:** About 60% flying fish and mackerel and 40% squid; eats fewer and larger fish than other boobies (usually in the range of 10-20 cm). Feeds by plunging vertically from 15-30 meters high. Once under water, will often swim after prey using wings as flippers.

**Distribution:** Widespread in the tropical and subtropical Pacific, Indian, and Atlantic oceans.

**Status on Christmas Island:** This species has declined significantly as a result of poaching. Estimates in the late 1960s to early 1980s ranged from 1,000-3,000 birds; however, in recent years the numbers have been considerably lower. It now may be scarcely more common than the Brown Booby.
TE KIBWI
Sula leucogaster

IDENTIFICATION: Adult is brown with distinctive white belly sharply separated from brown breast. Bill and feet yellow; facial skin blue (male) or yellow-green (female). Immature is similar to adult, but belly is light sooty brown, becoming mottled with white in second year. Chick is white with black bill and facial skin.

VOICE: Male gives a wheezy, whistling schweee; female a loud, harsh honking similar to Masked.

BREEDING BIOLOGY: Appears to have two distinct nesting seasons, one from April–June and another from October–December, but may breed at any time of the year. A few birds remain around the island year-round. Nest is simple construction of twigs and leaves on the ground, usually adjacent to or near a bush. Lays from 1-4 chalky white eggs (typically 2). Incubation takes 6 weeks. Only raises one chick (rarely two), which is able to fly after 13½ weeks, noticeably sooner than Masked. Age at sexual maturity is about 4 years.

FEEDING: About 95% fish (mostly goatfish) and 5% squid. Feeding method similar to Masked, but typically plunges at an angle rather than near vertically, and generally from only 9-12 meters high.

DISTRIBUTION: Widespread in the tropical Pacific, Indian, and Atlantic oceans.

STATUS ON CHRISTMAS ISLAND: Less widespread and less common than Masked, with nesting sites primarily in the vicinity of South-east Point (where it may have been eliminated recently by poaching) and the many islets in the Central Lagoons. Estimates have ranged from 80-600 birds. This may be the least common nesting bird on Christmas Island.

AEKANA: Ikawaina e buraun karana ma birotona ae e otara mainaina n okoro karana ma bwabwaana ae e buraun. A baabooboo wiina ma waena; e buru karani moana irouia mwaane ao irouia aine, e mata mawaawa ni baabooboo. Te mannikiba are e tuai n rangi ni ikawai, e kaniboo taraana ma are te ikawai, ma birotona e mai buraun ni iai te mainaina teutana iai n ana kauoua n ririki. Natina e mainaina ma wiina ae e rooro ao ai uana naba ma karani moana.

TANGINA: Te mwaane e kanimomoi n ai aron ae e a kani bono ikena, ao te aine, e bubura tangina n tang kaanga aekan te mouakena.

ANA TAI NI KABWAKABWAKA: E tei n ae uoua te au a ana tai ni kabwakabwaka, teuana, boni man Eberi nakon Tuun ao are teuana man Okitobwa nakon Ritembwa, ma e boni kona ni kabwakabwaka n te tai ae e aki akaka n te ririki. Tabeman mai ibuakoia mannikiba aikai a tiku iaon te aba ni kabanee te ririki. Ngaonia, te bae e a karaoaki n ai aron ao tei boni ikena, ao te aine, e bubura tangina n tang kaanga aekan te mouakena.

AMWARAKENA: 95 te katebubua mai ibuakoni kanana te maeko ke te tewe (goatfish) ao 5 te katebubua, te riro. E kaniboo aron amwarakena ma te mouakena, ma e aki kiba rikaaki ni baatetei ma kaanga e kiba rikaaki n tebo mai irarikina man te rieta ae e nakon 9 nakon 12 te miita.

TIBWATIBWAANA: E reereke ni marawan te Betebeke, Inria ao te Ateranteke ake a kabuebee ao a aki rangi ni kabuebee.

MWAITIYA IAONI KIRITIMATI: E aki rangi n roko n ewaan te mouakena ao e aki mena n angiin taabo ake mena iai, ao ngaona ma ana tabo ni kabwakabwaka a mena i tabon te aba mai Maiaki-mainiku (southeast Point). Mai ikai ao e tei ni karako mwaitiina imwiin anaakia irouia aomata. Ana tabo ni kibwakabwaka are teuana are a mena naba iai ngaona, a mena n atimwakoro ake a uareereke ake a mena n taian nama mai ruka. Te katautau iaia mannikiba aikai bwa e nakon te mwaiti aei 80 nakon 600 mwaitiia. Aekani mannikiba aikai, boni ngaia tenaani kabanee ni karako mwaitiina ni kibwakabwaka iaoni Kiritimati.
IDENTIFICATION: Adult is superficially similar to Masked Booby but smaller with white tail and sulphur-yellow suffusion about the head, various amounts of dusky-brown in back and wing coverts. Bill blue-gray, face pink, feet bright red. Has a thinner bill than the other boobies with a noticeable angle between the bill and forehead. Immature has medium-sooty brown mantle, paler on rest of body, with a diffuse narrow dark band across the breast. Second-year birds have dirty whitish body but retain the diffuse breast band. Chick is all white with black wings, bill, and facial skin.

VOICE: At the nest, harsh grunting gräh gräh gräh gräh gräh and a raspy răăăăăă; chick gives a coarse ġăăăăăă. When attacked by frigatebirds, emits a sharp kraak!

BREEDING BIOLOGY: Nests throughout the year, with peak generally from December–June. Nest is a platform of twigs lined with grasses in a bush or tree (rarely on the ground), primarily in Beach Heliotrope, but also in Salt Bush and Suriana. Lays one chalky white egg. Incubation takes 6½ weeks. Chick is able to fly after 14 weeks. Age at sexual maturity is about 4 years.

FEEDING: About 75% fish (flying fish and goatfish) and 25% flying squid; most prey items 6–10 cm long. Feeds in similar fashion as Masked Booby.

DISTRIBUTION: Widespread in the tropical Pacific, Indian, and Atlantic oceans.

STATUS ON CHRISTMAS ISLAND: Widespread, nesting on most protected islets with tall shrubs, but not on Cook Island or Motu Tabu. Population estimates have ranged from 8,000–12,000 birds.
TE EITEI ARE E BUBURA
Fregata minor

GREAT FRIGATEBIRD

IDENTIFICATION: Ages and sexes all differ. Adult male all black with greenish sheen on upper wing. During courtship and nesting, frequently inflates loose patch of red skin on throat like a balloon. When deflated, concealed by black throat feathers. Adult female also mostly black but has white breast, becoming grayish on throat: distinctive blue-gray eye-ring. Juvenile has entire head rusty orange, usually with full black breast band, white belly. Rust color becomes white, black breast band replaced with white after first molt (immature plumage); thus by end of first year has full white head, throat, and breast. Chick all white with blue-gray bill.

VOICE: Complex array of calls. In courtship, male gives eerie gurgling whoop. At other times, may give soft quiq calls near nest; also hoarse cackling, warbling, and bill clapping. Silent away from nesting colony.

BREEDING BIOLOGY: Nests from March-October nearly throughout. Present throughout the year. Nest is crude platform of twigs in shrub or small tree, but also occasionally on ground. Gathers nesting material while in flight. Lays one white egg. Incubation takes 8 weeks. Chick able to fly after 20 weeks but not completely independent of parental care for another 6 months to a year. Does not reach sexual maturity until 8-10 years.

FEEDING: About 80% fish and 20% squid; also chicks of other birds. Feeds by dipping bill just below surface while in flight; also pirates other birds in aerial pursuits.

DISTRIBUTION: Common throughout tropical Pacific, Indian, and South Atlantic oceans.

STATUS ON CHRISTMAS ISLAND: Very common and conspicuous throughout; however, does not nest on Cook Island, Motu Upua, or Motu Tabu. Population estimates have ranged from 10,000-12,000 birds.
IDENTIFICATION:
Often confused with Great Frigatebird. 
Adult male is all black with a small white patch on the side of the body at the base of each wing. Adult female has white breast and black hood, including the throat. Juvenile and immature are very similar to Great Frigatebird, but rust coloring on head is brighter and usually retained longer; partial black breast band, and white lower breast. Chick is also similar to Great Frigatebird.

VOICE: Not described?

BREEDING BIOLOGY: Nests in one large colony from April–October. Nest is a platform of twigs in a low bush, usually Suriana, or on the ground. Lays one white egg, usually in May–July. Incubation takes 6 weeks. Chick does not fledge until 22 weeks after hatching, and like the young Great Frigatebird, is dependent on parental care for a lengthy period after fledging. Age at sexual maturity is not known.

FEEDING: Unknown, but probably similar in most respects to the larger Great Frigatebird.

DISTRIBUTION: Found discontinuously in the Pacific, Indian, and South Atlantic oceans.

STATUS ON CHRISTMAS ISLAND: Common, but confined for nesting to one large colony. It was not discovered nesting until 1959. Its original nesting colony on the main island was destroyed by cats, but it soon relocated to a nearby islet now known as "Frigatebird Island" in the lagoon south of Isles Lagoon. The population has been estimated at about 10,000 adult birds but may now be only half that number.
TE KARAKARA

*Sterna bergii*

IDENTIFICATION: *Adult* is the largest of the terns on Christmas Island; medium gray above, white below, with a black crown that forms a shaggy crest posteriorly. Bill yellow. Tail forked. Outside the breeding season, loses much of the black color in the anterior portion of the crown. *Immature* has dark, scaly feather edges on light brownish upperparts. *Chick* has same basic pattern as immature.

VOICE: A very harsh *raak*, a more drawn out *craaak*, and a raspy *kerrak* or *kirreak* are typical.

IDENTIFICATION: *Adult* is the largest of the terns on Christmas Island; medium gray above, white below, with a black crown that forms a shaggy crest posteriorly. Bill yellow. Tail forked. Outside the breeding season, loses much of the black color in the anterior portion of the crown. *Immature* has dark, scaly feather edges on light brownish upperparts. *Chick* has same basic pattern as immature.

VOICE: A very harsh *raak*, a more drawn out *craaak*, and a raspy *kerrak* or *kirreak* are typical.

ANAKA: *Ikawaina* ngaia te kabanea ni bubura mai iuakoa tenaani mannikiba ake utuna, ake te keeu, te tarangongo, te raurau, te io, te mangkiri, ao te matawa. E mataroo kunna mai ieta, e mainaina aan rabwatana ao e boroo taubukin atuna ao iai bwaron taubukina. E baaboobu karani wiina ao e manga bukina. Ngkana tiaki ana tai ni kabwakabwaka ao e aki rangi n boroo bwarona. Te karakara are e tuai n rangi ni ikawai, e mai buraunin etan rabwatana ma buraena aika a roo taraakii mai tabona. Te karakara ae e a tibwa raure, e kaniboo taraakina ma are e tuai n rangi ni ikawai.

TANGINA: E bwanaa buaka, kaanga te tang ae, "raak" ke "craak" ae te tang ae e bwanaa kee.

ANA TAI NI KABWAKABWAKA: A titiraua mwaiitaa ni kabwakabwaka. E ngae n ae kaanga ti tebo ma iai namwakaina ake e kabwakabwaka iai, a bibitaki ana tai ni kabwakabwaka aikai n te ririki teuana ma teuana inanoni ririki aika a mwaiiti. Ngaona, kaanga te mwanono ae e aki rangi n nano iaotano n te tabo ae kaanga akeba kaa ai n roroa ma te bike. Ti teuana bunnatoinae e manabina anina. E nakon 4 te wiiki imwaain ae e raua. Te karara ae e uareereke, e a kona ni kiba imwiin 5 ao te iterana te wiiki. Ana ririki are e kona ni iein iai, e nakon 3 te ririki.

AMWARAKENA: Angiini kanana te ika, te riro ao taani mwanai aika a uareereke. E aki tootoki ni kiba n te ro rikaaki n anai kanana man te rieta ae iraua te mwaia rietana.

TIBWATIBWAANA: E reereke ni marawan Inria, te Betbeke Maeao ao te Betbeke Nuka.

MWAITIIIA IAONI KIRITIMATI: E aki tootoki ni kabutaa te aba ma e a karako noorakina n te benintura are mai Maiaki-mainiku (South-east Peninsula). Ana tabo ni kabwakabwaka nukan te atimwakoro ae "Cook Island". E katautauaki mwaitiia bwa e nakon 500 nakon 700.

AMWARAKENA: Angiini kanana te ika, te riro ao taani mwanai aika a uareereke. E aki tootoki ni kiba n te ro rikaaki n anai kanana man te rieta ae iraua te mwaia rietana.

TIBWATIBWAANA: E reereke ni marawan Inria, te Betbeke Maeao ao te Betbeke Nuka.

MWAITIIIA IAONI KIRITIMATI: E aki tootoki ni kabutaa te aba ma e a karako noorakina n te benintura are mai Maiaki-mainiku (South-east Peninsula). Ana tabo ni kabwakabwaka nukan te atimwakoro ae "Cook Island". E katautauaki mwaitiia bwa e nakon 500 nakon 700.

FEEDING: Fish, squid, and small crabs. Usually plunge dives from a few meters up.

DISTRIBUTION: Common throughout the Indian and Western and Central Pacific oceans.

The population has been estimated at 500-700 birds.
TE TARANGONGO

Sterna lunata

IDENTIFICATION: Adult is similar to the much more common Sooty Tern, but upper parts are gray, not black. White forehead patch extends back as a white line to just posterior of the eye. Underwing white nearly to the feather tips, giving it a much whiter overall appearance from beneath. Immature is much different than Sooty, being mostly pale brown above, white below, with fine, scaly black and white edges to the back and wing feathers. Chick has same basic pattern as immature.

VOICE: Similar to Sooty Tern but higher-pitched, tinnier.

BREEDING BIOLOGY: Nests in colonies from March–September. Nearly all birds leave the island after the breeding season, returning in December–January. Nest is on bare ground in sand or coral gravel with sparse, low-growing vegetation. Lays one heavily speckled, well camouflaged egg. Incubation takes 4 weeks. Chick is able to fly after 7 weeks. Age at sexual maturity is not known.

FEEDING: About 90% fish and 10% squid. Feeds by plunge diving and dipping at the surface.

DISTRIBUTION: Found throughout much of the tropical and sub-tropical western and central Pacific, but its distribution is patchy.

STATUS ON CHRISTMAS ISLAND: Nests on islets in the Central Lagoons area, and to a lesser extent in Manulu Lagoon, where it was once common before water in the lagoon was lowered, thereby connecting most of the islets to the main island. The population has been variously estimated at 2,500–10,000 birds.
The Birdlife of Christmas Island

**TE KEEU**
*Sterna fuscata*

**SOOTY TERN**

**IDENTIFICATION:** Adult is black above and white below with a white forehead patch that does not extend behind the eye; tail forked. Underside of flight feathers medium to dark gray, contrasting with white underwing covers. **Immature** is blackish with pale speckling and scaling in the wings; white on lower belly and undertail covers only. **Chick** is brown with dark motting for camouflage.

**VOICE:** In flight at nesting colony, a nasal **araranack**, often interpreted as I’m wide awake! as a reminder of its ability to remain in constant flight at sea for months at a time. At the nest, a shrill, rough, nasal **rāāāāāāāāāā.**

**BREEDING BIOLOGY:** Two distinct populations, one nesting December-March, another May-August. Birds congregate above prospective colonies in immense swirling masses for several weeks before settling down to nest. Nest is a slight scrape in sand, cobble, or leaf litter in the open or under open bushes and trees. Lays one heavily speckled egg. Incubation takes 4 weeks. Chick is able to fly in 8 ½ weeks. Young birds reach sexual maturity in 6-8 years.

**FEEDING:** Small squid and fish, mostly at night. Feeds in similar fashion as Gray-backed.

**DISTRIBUTION:** Common to abundant in the tropical oceans worldwide, but numbers have declined drastically in many areas throughout its range.

**STATUS ON CHRISTMAS ISLAND:** At an estimated 25,000,000 birds, Christmas Island formerly held the largest colony of Sooty Terns in the world, perhaps representing as much as a quarter of the world’s population; but in the past 30 years the population has been reduced to only a fraction of its former size. Still, at 3-5 million birds, it remains the most abundant bird on the island. Yet, at its present rate of decline, it will be gone in another two decades. Five main colonies: (1) Cook Island (and recently Motu Tabu), (2) west of Main Camp (Captain Cook Hotel), (3) Paris Peninsula, (4) near Aeon Field, and (5) South-east Point. The locations of the last two colonies vary somewhat from year to year. Birds nesting near Main Camp formerly nested at North-west Point; however, as a result of heavy poaching by residents of nearby London and Tabakea, they have gradually moved farther and farther east.

**MWAITIIA IAONI KIRITIMATI:** E katuatauaki bwa e nakon te mwaiiti ae 25,000,000 iaoni Kiritimati, te ware aio are e katiai bwa ngaia te kabanea ni bubura ni mwaiiti ibukina mannikiba aika tenaani Keeu iaon te aonana. Irarikin naba anne, ao e katuatauaki mwaiitiia aia bwa e a nakon te kuataa mwaiitiia mannikiban te aonana ngaana a bootaki ni kubane. Ma imwiin 30 te ririki, ao e a tia n nooraki te mwaiiti aio bwa e keeikaaki nakon te mwaiiti te ika na te mwakoron te ware ae 25,000,000 aio. Ma, e ngac ngaana e uareereke ana mwaiiti nakon 3 nakon 5 te mirion, boni ngaia te kabanea ni bubura mwaiitia iaoni Kiritimati. Ma ngaana e teinaia a ikekekaaki mwaiiti a aik aaio, ao e a auia na bani manon uabwi te ririki. Nimaau ana tabo ae a titiku iai nanaina: Cook Island (ao a tibwa ngkai, iaoni Motu Tabu), i maeao te kaembe are e bubura ni kaan ma te Kaben Kuaka Outero, i taboni Bariti, ni uakaan ma te marea ae te Aeon Field ao i tabona n te tabo ae e aranaki bwa Maaiki-mainiku (South-east Point). Ana tabo ngkanne ake uoua riki a bibihi te a ririki te mwaiiti akatia tabona. Mannikiba ake a kubawa irarikin te kaembe are e bubura, a kubawabwaka ngkoi i tabon te aba ae e aranaki bwa tabona mai Meang-maeao. (North-west Point). Ma imwiin anaanaaia iroiuia taani maeka mai Ronton ao Tabakea, ao a tia ni mwaing n raroa riki ni kaa mainiku.
IDENTIFICATION: Adult is larger than Sooty and dark brown throughout except for white forehead and fore-crown that gradually merges with brown hindcrown and nape. Tail wedge-shaped and disproportionately long. Immature is similar to adult except that the white cap is reduced to a narrow white area on the forehead. Chick is all brown.

VOICE: A harsh, gravelly grŏw grŏw grŏw grŏw and a very rough cheeooww.

BREEDING BIOLOGY: Nests throughout the year but primarily from December-June or July. Nest is often only a slight depression or scrape on the ground, but in many instances may be a collection of small twigs, leaves, and shells, usually in sparse, matted vegetation or on the upper edge of the beach. Does not nest in bushes or trees on Christmas Island. Lays one pale brown egg lightly to heavily speckled dark brown. Incubation takes 5 weeks. Chick is able to fly at 6½ weeks. Sexual maturity is attained in 4-5 years.

FEEDING: Predominantly flying fish and flying squid in about equal parts. Feeds in flocks by hovering and swooping to the water to nab its prey at the surface; sometimes belly-flops into the water. Unlike most terns, rests frequently on the water.

DISTRIBUTION: Found throughout the world’s tropical oceans.

STATUS ON CHRISTMAS ISLAND: Nests throughout the island except the South-east Peninsula, with nesting colonies now confined to protected islets. Estimates of the population have been from 6,000-10,000 birds.
**Identification:** Adult is similar to Brown Noddy but smaller, darker (blackish, not brown), and with a more extensive white cap. Bill noticeably longer and thinner and tail shorter, giving the bird more balanced body proportions than the longer-tailed, shorter-billed Brown. *Immature* is similar to adult but with white cap sharply set off from black nape. *Chick* is all black with white forecrown.

**Voice:** In flight, a ratchet-like *t-t-t-t* or *teh-eh-eh-eh*. Also, a frog-like *kik-krrrrr*. At the nest, a shrill, hoarse *reeeeee*.

**Breeding Biology:** Season primarily March-July. Unlike the preceding, nests exclusively in trees, usually in beach heliotrope, and on Motu Tabu, in Puka Tea. Nest constructed of twigs, grasses, beach heliotrope flower stalks, and small pieces of coral in the fork of a horizontal branch; cemented together with excrement. Lays one pale brown egg speckled and streaked with dark brown. Incubation takes 5 weeks. Chick is able to fly after 5½ weeks. Young take about 3 years to reach sexual maturity.

**Feeding:** Foods and feeding habits are similar to Brown Noddy, but eats about three times as much fish as squid, typically in the 1–5-cm range, and is more inclined than Brown to feed while sitting on the water.

**Distribution:** Found throughout the tropical Pacific and Atlantic oceans, but absent from the Indian Ocean.

**Status on Christmas Island:** Nests on Cook Island, Motu Tabu, Motu Upua, and islets in the Central Lagoons, but absent from Southeast Peninsula. Estimates have ranged from 10,000–20,000 birds.
**TE RAURAU**  
*Procelsterna cerulea*

**BLUE-GRAY NODDY**

**IDENTIFICATION:** *Adult* is a small, all bluish-gray tern (the smallest tern in the world) with short, needle-like bill and notched tail. Beady black eye set off in uniformly pale gray head is distinctive. *Immature* and chick resemble adult.

**VOICE:** At the nest, a distinctive, nasal *ruurr* or *ru-err* with emphasis on the second syllable.

**BREEDING BIOLOGY:** Nests year round, but primarily from August-December. Nest is a small scrape in the sand or sparse vegetation, usually at the base of a clump of grass or other erect vegetation; also nests in crevices in coral rubble. Lays one finely speckled egg. Incubation takes just under 5 weeks. It is not known how long it takes before the chick is old enough to fly, nor how long it takes for the young to reach sexual maturity.

**FEEDING:** Tiny fish (50–60%), crustaceans, and small sea striders (insects). Feeds by dipping and pattering at the surface. Less pelagic than other noddies.

**DISTRIBUTION:** Found throughout much of the tropical western and central Pacific Ocean.

**STATUS ON CHRISTMAS ISLAND:** Fairly common and widespread, nesting on many islets within the Central Lagoons, Manulu Lagoon (formerly?), and on Cook Island, Motu Tabu, and Motu Upua. The population has been estimated at 2,500-5,000 birds.
**TE MATAWA**
*Gynis alba*

**WHITE TERN**

**IDENTIFICATION:** Adult is a distinctive, small, all white tern with a black eye and needle-like blue-based black bill. Immature is like adult but with dusky markings in wing. Chick is pale sandy brown with fine black mottling.

**VOICE:** In the vicinity of its nest, a rough yak yak yak yak yak yak, dropping in pitch and slowing slightly; also a soft tonk tonk tonk and a high-pitched, thin seet.

**BREEDING BIOLOGY:** Nests throughout the year with no clear peak. Does not build a nest; instead lays its single heavily speckled egg on a bare branch or notch in a tree or large shrub. However, it will use old nests of the Black Noddy when available. Incubation takes just over 5 weeks. Chick is able to fly after 7 weeks. Young take 5 years to reach sexual maturity.

**FEEDING:** Small fish and squid in about equal parts, but will take whatever is available. Feeds mostly inshore by picking from the surface while hovering. Unlike other terns, can carry several fish at a time cross-wise in its bill.

**DISTRIBUTION:** Found throughout much of the Pacific, Indian, and South Atlantic oceans.

**STATUS ON CHRISTMAS ISLAND:** Fairly common. Nests in relatively small groups on Cook Island, Motu Tabu, and Motu Upua, and on many islets in the Central Lagoons area. Population estimates have ranged from 2,000–8,000 birds.

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**AEKANA:** Ikawaina, e tei n okoro ni uareereke ni mainaina rabwatana ni kabane ma matana ae e rooro ao wiina ae e buru n rooro n tei n neirai. Te matawa are e tuai n rangi ni ikawai, e kaniboo taraakina ma are e ikawai ma tai bwaai aika a matabareka ake a mena iapon baina. Natina, e mai buraun, kaanga karan te bike ao iai bwaai aika a rooro aoaona.

**TANGINA:** Ngkana e mena ni ngaona, ao e tang ni kaanga, "yak, yak, yak, yak," ao tangina aio, e nene n te moantai ao e a keekeerikaaki naba ma ni karaurau, e kona naba n tang n aamarau, ni kaanga, "tonk, tonk, tonk," ke e kona naba n rangi n tangi n rietata ma ni iririki.

**ANA TAI NI KABWAKABWAKA:** E kabwakabwaka n rinanon nako te ririki, kaanga ake a raoi ana tai. Akia ngaona, ma e a ti kabwakabwaka naba iaoni mwangan te kai ke ni bwangabwangan te kai ke e aroka ae e bubura. Bunnatoina e rangi n tei ni manibinou. Ma, ngkana iai ngaon te mangkiri are e aki kabonganaa ao e boni kona naba ni kabwakabwaka iai. E nakon 5 tabun te wiiki imwaain ae e raure ma ni bunnatoina ao e a konaa ni kiba te mannikibake ae e uareereke aio, 7 te wiiki imwiin raurena. E nakon 5 ana ririki imwaain ae e kona ni ietin.

**AMWARAKENA:** Taian ika aika a uareereke ao te riro, ao ti tebo mwaitini kanana te ika ma te riro ma e a bon anaa naba are e konaa n anai. N angiin te tai e amwaamwarake ni kaani ni eeta ao aron amwarakena, e katebebe ni kanana inanon ana tai ni kikibakiba riaontari. E kaokoro ma mannikibake ake utuna bwa e kona ni uotii tai ake tabeman ni bangaki inanoni wiina n te tai ae ti teuana.

**TIBWATIBWAANA:** A reereke ni marawan te Betebeke, Inria ao te Ateranteke Maiaki.

**MWAITIHA IAONI KIRITIMATI:** A boni mwaiti. E kakabwakabwaka ibuakon te nanai ae e uareereke n te Cook Island, Motu Tabu ao Motu Upua ao iapn taiani atimwakoro ake a uareereke ake a mena ni mwaiken te nama are mai nuka. E katuatauaki mwaitiha bwa e nakon 2,000 nakon 8,000.
TE BOKIKOKIKO
Acrocephalus aequinoctialis

AEKANA: Kaanga e buraun ni mataroo rabwataia ni kabane ao e mai taboni baina ao e mai naba taboni bukina. E rangi ni kai kinaaki kiona ngkai bon ti ngaia mannikiban te aba ae boni kain Kiritimati.

TANGINA: E tang ni bwanaa buaka, kaanga e kangai, "chē" ke e kangai, "cheet-cheet"; ke ti tebo ma ngkana e karaua n rangi ni kabanania.

ANA TAI NI KABWAKABWAKA: E kakabwakabwaka n tain te kakaiau. Aroni ngaona, kaanga tein te mwangko ae e karaoaki man taian uteute, kunin te ni ao taian ewanin ake e a kameni n oini mwaagan taiani kai aika a ririeta ke te nii. 3 nakon 4 bunnatoina aika a mataroo ke a mata mawaawa ma vai bwaai aika a buraun ni mronron ni mena mai taboia. E aki ataaki bwa a raure nningai mai inanon bunnatoia. Natiia, akea buraeria a o a matakii ni moan raureia, ma a waekoa ni matairiki ma n reke buraeria. E aki ataaki bwa te rorora mannikiba aikai imwaain ae a kona ni kiba ao e aki ataaki naba bwa te rorora imwaain ae a kona ni iein. Ma te katautau bwa a boni kona ni iein, ni koron teuana aia ririki.

AMWARAKENA: E kaakang taiani man aika a uareereke ma taiani baanikai, kain aroka ao taiani uue.


MWAITIIA IAOI KIRITIMATI: A kuukuneaki n angin tabo iyon te aba, ma ake a taabo ake n te benintura are mai Maiaki-mainiku. Mwaitiia, ti tebo ma a aki rootaki iroia katamwia ake a tia ni kaabung n te aba imwiin te Kaouua ni Buaka n te Aonnaba te kimoa noror. E katautauaki mwaitiia mannikiba aikai bwa e nakon 300 nakon 400 mwaitiia iion te aba. Aio are te katautau are n te 1960 tabun ao n te 1970 tabun, ma te katautau aio, kaanga e bon rangi n tei ni uareereke. Tao bon etina ao tao mwaitiia, e nakon te mwaiti ae 1,000.

BOKIKOKIKO OR LINE ISLANDS WARBLER

IDENTIFICATION: Rather uniform drab brownish-gray with pale edges to wing feathers and pale tail tip. As the only native landbird on the island, it is unmistakable.

VOICE: A harsh *bweet*; a rough *chē*; a dry *chē cheet-cheet*; occasionally, more prolonged chatter.

BREEDING BIOLOGY: Nests during the rainy season. Builds a cup nest of grasses, bark, and coconut husk fibers at the base of a cluster of branches in a tall shrub or tree. Lays 3-4 pale gray to greenish eggs with dark brown spots concentrated at the large end. Incubation period is not known. Nestlings are unfeathered and blind at hatching, but gain eyesight and down feathers rapidly. Fledging period and age at sexual maturity are unknown, but the latter is probably one year.

FEEDING: Gleans tiny insects from leaves, stems, and flowers.

DISTRIBUTION: Found only on Washington and Christmas islands and formerly on Fanning.

STATUS ON CHRISTMAS ISLAND: Found in suitable habitat over much of the island, but absent from most of South-east Peninsula. Numbers do not seem to have suffered at the hand of cats, which have proliferated on the island since at least World War II, but black rats, notorious tree-climbers, could pose a serious threat. Estimates of 300-400 birds island-wide in the 1960s and 1970s are probably low; it may be closer to 1,000.
**TAIBORA 1: TAAI NI KABWAKABWAKA**

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<th>Maaniia imwaain rauren te bunnatoi</th>
<th>Roroia imwaain kibaia</th>
<th>Roroia n tain aia kabwakabwaka</th>
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<td>Te Ruru</td>
<td>Nob-Tian; Ebe-Tuun</td>
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<td>Te Io</td>
<td>Rit-Tuun</td>
<td>1</td>
<td>35</td>
<td>45</td>
<td>4-5</td>
</tr>
<tr>
<td>Te Mangkiri</td>
<td>Maati-Tuun</td>
<td>1</td>
<td>35</td>
<td>39</td>
<td>3</td>
</tr>
<tr>
<td>Te Raurau</td>
<td>Aok-Ritembwa</td>
<td>1</td>
<td>34</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Te Matawa</td>
<td>Ni kabanea bongin te ririki</td>
<td>1</td>
<td>36</td>
<td>49</td>
<td>5</td>
</tr>
<tr>
<td>Te Bokikokiko</td>
<td>Taai ni kakarau</td>
<td>3-4</td>
<td>?</td>
<td>?</td>
<td>1?</td>
</tr>
</tbody>
</table>

*Awereti*

**TAIBORA 2: AEKANI NGAOIA**

<table>
<thead>
<tr>
<th>Tibitiitti</th>
<th>Ngaoia ao aia Tabo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Te Ruru</td>
<td>Te mwanono te bwanga ae aki rangin nano: angiin te tai e mena iaan taian aroka aika a mmatenten baia iaia</td>
</tr>
<tr>
<td>Te Tangiuoua</td>
<td>Bwanga e mena n taabo aika a maareare kaai iai ao e korakora mwaitiia iai</td>
</tr>
<tr>
<td>Te Tinebu</td>
<td>Te mwanono ke te bwanga ae e aki rangin nano; angiin te tai e mena iaan taian aroka aika a mmaten ten baiaia iaia</td>
</tr>
<tr>
<td>Te Nna</td>
<td>Te bwanga ke te mwanono ae nano n taabo aika a karako ke a rangi ni mwaiti kaai iai</td>
</tr>
<tr>
<td>Te Bwebewe ni Marawa</td>
<td>Te bwanga ae e aki rangin nano ke te mwanono ae e nano ibuakon tenaani kai aika a mmatenten baia iaia ke n te bwangabwanga</td>
</tr>
<tr>
<td>Te Taake</td>
<td>Te keniken ae e kataneaki iaan ke aroka</td>
</tr>
<tr>
<td>Te Mouakena</td>
<td>Te keniken ae e kataneaki n te tabo ae e uki ni kaani ma aroka</td>
</tr>
<tr>
<td>Te Kibwi</td>
<td>Taboningaangao ao baanikai iaontano n te tabo ae e uki</td>
</tr>
<tr>
<td>Te Koota</td>
<td>Taboningaangao ibuakon te buakoako ke n te kai</td>
</tr>
<tr>
<td>Te Eitei</td>
<td>Taboningaangao ae mareare n te buakoako ke iaontano</td>
</tr>
<tr>
<td>Te Eitei (Uarereke)</td>
<td>Taboningaangao aika maareare n te buakoako</td>
</tr>
<tr>
<td>Te Karakara</td>
<td>Te keniken ae e kataneaki n te tabo ae a karako aroka iai; e tira mwaitiia</td>
</tr>
<tr>
<td>Te Tarangongo</td>
<td>Te keniken ae e kataneaki ibuakon te atama n te tabo ae a karoko iai kaai</td>
</tr>
<tr>
<td>Te Keeu</td>
<td>Te keniken ae e kataneaki n te tabo ae e karako kaina ke n te bikebike</td>
</tr>
<tr>
<td>Te Io</td>
<td>Taboningaangao ao baanikai iaontano ke akea ngaona</td>
</tr>
<tr>
<td>Te Mangkiri</td>
<td>Taboningaangao, mwakoron uee, taian uteute, atiibun te ane ake a bane ni kanimwaki ni butaena</td>
</tr>
<tr>
<td>Te Raurau</td>
<td>Akea; iaontano n te bikebike ke n te tabo ae e karako kaina, ke ibuakon atiibun te ane</td>
</tr>
<tr>
<td>Te Matawa</td>
<td>Akea; mwaangan te kai ae e bangaki</td>
</tr>
<tr>
<td>Te Bokikokiko</td>
<td>Te mwangko ae e karaoaki man te uteute ao mwakoron taian aroka; mwanokani mwaanga n te buakoako ke te kai</td>
</tr>
</tbody>
</table>
TABLE 1: BREEDING CYCLE

<table>
<thead>
<tr>
<th>Species</th>
<th>Laying Period*</th>
<th>Number of Eggs Laid</th>
<th>Incubation (days)*</th>
<th>Fledging (days)*</th>
<th>Age at 1st Breeding* (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phoenix Petrel</td>
<td>Nov-Jan; Apr-June</td>
<td>1</td>
<td>53</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Wedge-tailed Shearwater</td>
<td>May-July</td>
<td>1</td>
<td>53</td>
<td>109</td>
<td>4</td>
</tr>
<tr>
<td>Christmas Shearwater</td>
<td>Year Round</td>
<td>1</td>
<td>53</td>
<td>96</td>
<td>?</td>
</tr>
<tr>
<td>Audubon's Shearwater</td>
<td>June-Nov</td>
<td>1</td>
<td>51</td>
<td>72</td>
<td>8</td>
</tr>
<tr>
<td>Polynesian Storm-Petrel</td>
<td>Aug-Dec</td>
<td>1</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Red-tailed Tropicbird</td>
<td>June-Nov</td>
<td>1</td>
<td>42</td>
<td>89</td>
<td>2-3</td>
</tr>
<tr>
<td>Masked Booby</td>
<td>Year Round</td>
<td>1-2</td>
<td>42</td>
<td>118</td>
<td>4</td>
</tr>
<tr>
<td>Brown Booby</td>
<td>Year Round?</td>
<td>1-4</td>
<td>43</td>
<td>95</td>
<td>4</td>
</tr>
<tr>
<td>Red-footed Booby</td>
<td>Year Round</td>
<td>1</td>
<td>45</td>
<td>98</td>
<td>4</td>
</tr>
<tr>
<td>Great Frigatebird</td>
<td>Apr-July</td>
<td>1</td>
<td>55</td>
<td>140</td>
<td>8-10</td>
</tr>
<tr>
<td>Lesser Frigatebird</td>
<td>May-July</td>
<td>1</td>
<td>45</td>
<td>154</td>
<td>?</td>
</tr>
<tr>
<td>Great Crested Tern</td>
<td>Apr-July</td>
<td>1</td>
<td>28</td>
<td>39</td>
<td>3</td>
</tr>
<tr>
<td>Gray-backed Tern</td>
<td>Mar-Aug</td>
<td>1</td>
<td>29</td>
<td>49</td>
<td>?</td>
</tr>
<tr>
<td>Sooty Tern</td>
<td>May-July; Dec-Feb</td>
<td>1</td>
<td>28</td>
<td>60</td>
<td>7</td>
</tr>
<tr>
<td>Brown Noddy</td>
<td>Dec-June</td>
<td>1</td>
<td>35</td>
<td>45</td>
<td>4-5</td>
</tr>
<tr>
<td>Black Noddy</td>
<td>Mar-June</td>
<td>1</td>
<td>35</td>
<td>39</td>
<td>3</td>
</tr>
<tr>
<td>Blue-gray Noddy</td>
<td>Aug-Dec</td>
<td>1</td>
<td>34</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>White Tern</td>
<td>Year Round</td>
<td>1</td>
<td>36</td>
<td>49</td>
<td>5</td>
</tr>
<tr>
<td>Bokikokiko</td>
<td>Rainy Season</td>
<td>3-4</td>
<td>?</td>
<td>?</td>
<td>1?</td>
</tr>
</tbody>
</table>

* Average

TABLE 2: NEST TYPE

<table>
<thead>
<tr>
<th>Species</th>
<th>Nest Construction and Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phoenix Petrel</td>
<td>Depression or shallow burrow usually under matted vegetation</td>
</tr>
<tr>
<td>Wedge-tailed Shearwater</td>
<td>Burrow in sparsely vegetated areas; dense colonies</td>
</tr>
<tr>
<td>Christmas Shearwater</td>
<td>Depression or shallow burrow usually under matted vegetation</td>
</tr>
<tr>
<td>Audubon's Shearwater</td>
<td>Burrow or deep depression in sparse to dense vegetation</td>
</tr>
<tr>
<td>Polynesian Storm-Petrel</td>
<td>Shallow burrow or deep depression in matted vegetation, or in crevice</td>
</tr>
<tr>
<td>Red-tailed Tropicbird</td>
<td>Slight scrape under bush</td>
</tr>
<tr>
<td>Masked Booby</td>
<td>Slight scrape in open, usually adjacent to bush</td>
</tr>
<tr>
<td>Brown Booby</td>
<td>Twigs &amp; leaves on ground in the open</td>
</tr>
<tr>
<td>Red-footed Booby</td>
<td>Loose construction of twigs in bush or tree</td>
</tr>
<tr>
<td>Great Frigatebird</td>
<td>Flimsy construction of twigs in bush or on the ground</td>
</tr>
<tr>
<td>Lesser Frigatebird</td>
<td>Flimsy construction of twigs in bush</td>
</tr>
<tr>
<td>Great Crested Tern</td>
<td>Slight scrape in sparse vegetation; dense colonies</td>
</tr>
<tr>
<td>Gray-backed Tern</td>
<td>Slight scrape in coral gravel with sparse vegetation</td>
</tr>
<tr>
<td>Sooty Tern</td>
<td>Slight scrape in sparse vegetation or sand</td>
</tr>
<tr>
<td>Brown Noddy</td>
<td>Twigs &amp; leaves on ground, or no nest</td>
</tr>
<tr>
<td>Black Noddy</td>
<td>Twigs, flower parts, grasses, coral in tree, cemented with excrement.</td>
</tr>
<tr>
<td>Blue-gray Noddy</td>
<td>None; on ground in sand, sparse vegetation, coral rubble</td>
</tr>
<tr>
<td>White Tern</td>
<td>None; horizontal tree limb</td>
</tr>
<tr>
<td>Bokikokiko</td>
<td>Deep cup of grasses and plant fibers; base of branches in bush or tree</td>
</tr>
</tbody>
</table>
Irua Man Te Aketeke
VISITORS FROM THE ARCTIC

**TE KUN**
*Pluvialis fulva*

**PACIFIC GOLDEN-PLOVER**

**IDENTIFICATION:** Unmistakable in breeding plumage (May) with its finely flecked black and gold back and all black underparts. In non-breeding plumage (August–April), it is much less distinctive; mottled brownish-gray above, paler below. However, its small, compact size and short, round-tipped bill distinguish it from the other shorebirds.

**VOICE:** A soft, clear, whistled per-it.

**DISTRIBUTION:** Nests in the Arctic and migrates south to the islands of the Pacific and along the mainland coasts of southern Asia, Australia, and New Zealand.

**STATUS ON CHRISTMAS ISLAND:** Common visitor nearly throughout the year, however, absent (or nearly so) in June and July when it is on its Arctic breeding grounds.

**TE KIRIRI**
*Heteroscelus incanus*

**WANDERING TATTLER**

**IDENTIFICATION:** Lead-gray shorebird about the size of a Golden-Plover. In breeding plumage, it has fine gray and white barring underneath, but in non-breeding plumage (most of the year) the underparts are unbarred.

**VOICE:** A clear, ringing klee klee klee klee.

**DISTRIBUTION:** Nests in the Arctic and migrates to the western coast of North America and the islands of most of the Pacific Ocean.

**STATUS ON CHRISTMAS ISLAND:** Fairly common throughout most of the year, but absent in June and July.
**TE KEWE**

*Numenius tahitiensis*

**IDENTIFICATION:**
Largest shorebird on the island, mottled dark and light brown with white belly and long curved bill. Orange-buff rump and tail conspicuous in flight.

**VOICE:** A soft to rather loud whistled *pe-a-rit* and a more subdued, slightly rough *perwit*.

**DISTRIBUTION:**
This species has a very restricted range, nesting only in western interior Alaska, and migrating to islands in the central Pacific outside its short breeding season.

**STATUS ON CHRISTMAS ISLAND:** Fairly common winter visitor from August to May. Christmas Island is one of the best places in the world to see this species.

**AENAKA:** Ngaia te kabanea ni buubura mai ibuakoia mannikibani mataniwin te aba, e roroo ma ni maii buraun rabwatana ma ni mainaina birotona ma n abwabwaki ma ni bwaouarikaka wiina. E aoranti maii aona ma bukina ma ni kona n nooraki inanoni kibana.

**TANGINA:** E tangi ni kanimomoi ni moa man ae e aamarau ni karoko aae e nene n aron ae e kangai, *"pe-a-rit"* ao imwiina kaanga e nuu ma n aki itiaki - *"perwit"*.

**TIBWATIBWAANA:** E ti meemen na taabo tabeua, e kakabwakabwaka i nukan Aratika Maceo ao imwiina e a manga kiba nako ni kawarii aban te Bethebeke nuka imwiina ana tai ni kabwakabwaka ae e aki rangi ni maan.

**MWAITIIIA IAONI KIRITIMATI:** E aki tootoki ni kaakawara Kiritimati man Aokati nakoni Meei.

**TE KITIBWA**

*Arenaria interpres*

**IDENTIFICATION:**
Small plump black, brown, and white shorebird with orange-red legs. In breeding plumage, distinctive mosaic of black and white foreparts and rich orangish-brown back. In non-breeding plumage, less distinctive mosaic of dusky gray and white foreparts and brown back.

**VOICE:** Oily or guttural *chew* and a rapid, dry string of *tuk* notes.

**DISTRIBUTION:**
Breeds in the Arctic and migrates to nearly all mainland coasts and islands worldwide.

**STATUS ON CHRISTMAS ISLAND:** Winter visitor from July to May; less common than the preceding three.

**AENAKA:** Mannikibani mataniwin te aba ae e uareereke ma ni motomoto ma n roroo buraun ao ni mainaina rabwatana ao rangana aika a aoranti ni uraura. Karana n ana tai ni kabwakabwaka, e terenako man otara ae e roroo ma ni mainaina moan rabwatana ao e aoranti ma ni buraun nuukana. Ngkana tiaki ana tai ni kabwakabwaka, ao karana e aki rangi n otara ao e mataroo ma ni mainaina moan rabwatana ao e buraun nuukana.

**TANGINA:** E bwanaa beeti, kaanga ti tebo ma e kangkanta te bwai teuana ao imwiina te tang ae e kangai, *"tuk"* ae e tata ma ni itiaki.

**TIBWATIBWAANA:** E kakabwakabwaka n te Aketeke ao imwiina ao e a kiba nako ni kawarii angimi mataniwin aaba ma abamwakoro n te aonnaba.

**MWAITIIIA IAONI KIRITIMATI:** E rooroko bwa iruan te winta ngaia man Tuurai nakoni Meei, ao e aki rangi n nonooraki n aron te kun, te kiriri ao te kewe.
**Taobe, Bitin, Rube**
*Columba livia*

Feral pigeons come in a variety of patterns, mostly various shades of gray with black and white markings. Small populations of pigeons, which probably arrived on supply ships, have become established in London and more recently in the village of Banana. They eat seeds.

**Te Kura**
*Vini kuhi*

A small red and green parrot with a purple nape, hooked beak, and pointed tail. Occasional individuals or groups of birds are brought here from Washington and Fanning Islands, but they do not survive long. Introduced to Washington and Fanning from its native Rimatara Island more than 300 years ago.

**Mannikiba Ake Tiaki Manin Kirimati**

**Non-Native Species**

**Mannikiba Aikai a Mwaiti a Ekaani Kuniia; n Angin Te Tai a Mataroo Ma n Roroo Ma Iai Bwaai Aika a Mainaina Iaonia. A Moanna N Ewa Ngkai Taiani Bitin Iaon Ronton Ao Iaon Nba Banana, Taa a Bon Reke Rokoia Ikai Bwa a Toka Iaoni Kaibuke. A Kaakang Taiani Koraa.**

Mannikiba aikai; a mwaiti aekani kunia; n angin te tai a mataroo ma n roro ma iai bwaai aika a mainaina iaoia. A moanna n ewa ngkai taiani bitin iaon Ronton ao iaon nba Banana, taa a bon reke rokoia ikai bwa a toka iaoia kaibuke. A kaakang taiani koraa.

**Te Kura**

A small mottled brown shorebird with a short, straight bill and moderately short legs. Once found on Christmas Island, it disappeared years ago (no one knows exactly when). It is now found only on a few small, rat- and cat-free islands in the Tuamotu Archipelago, where it is threatened with extinction.

**Mannikiba Ake A Bua Man Te Aonnaba**

**Extirpated Species**

**Prosobonia cancellata**

A small mottled brown shorebird with a short, straight bill and moderately short legs. Once found on Christmas Island, it disappeared years ago (no one knows exactly when). It is now found only on a few small, rat- and cat-free islands in the Tuamotu Archipelago, where it is threatened with extinction.
## SPECIES NAMES FOR SPECIES MENTIONED IN THE TEXT

<table>
<thead>
<tr>
<th>KIRIBATI (I-KIRIBATI)</th>
<th>INGIRITI (ENGLISH)</th>
<th>ARANA N TIAENTI (SCIENTIFIC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAAN AKE A KAMMAMMA (Mammals)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Te kimoa roroo</td>
<td>black rat</td>
<td>Rattus rattus</td>
</tr>
<tr>
<td>Te kimoa Noruee</td>
<td>Norway rat</td>
<td>Rattus norvegicus</td>
</tr>
<tr>
<td>Te kimoa ni Boreneta</td>
<td>Polynesian rat</td>
<td>Rattus exulans</td>
</tr>
<tr>
<td>IKA (Fishes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Te ikari</td>
<td>bonefish</td>
<td>Albulidae</td>
</tr>
<tr>
<td>Te onauti</td>
<td>flying fish</td>
<td>Exocoetidae</td>
</tr>
<tr>
<td>Te maebu, te tewe</td>
<td>goatfish</td>
<td>Mullidae</td>
</tr>
<tr>
<td>Te kimokimo, te tawatawa</td>
<td>mackerel scad and jacks</td>
<td>Carangidae</td>
</tr>
<tr>
<td>Te ku, te ta</td>
<td>squirrellfish</td>
<td>Holocentridae</td>
</tr>
<tr>
<td>Te Baewe, te baiura, te ingimea</td>
<td>tuna</td>
<td>Scombridae</td>
</tr>
<tr>
<td>MAAN AKE AKEA RIAA (Invertebrates)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Te riro</td>
<td>flying squid</td>
<td>Ommastrephidae</td>
</tr>
<tr>
<td>KAAI (Plants)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Te arora</td>
<td>[none]</td>
<td>Suriana maritima</td>
</tr>
<tr>
<td>Te buka</td>
<td>puka tea</td>
<td>Pisonia grandis</td>
</tr>
<tr>
<td>Te mao</td>
<td>salt bush</td>
<td>Scaevola taccada</td>
</tr>
<tr>
<td>Te ren</td>
<td>beach heliotrope</td>
<td>Messerschmidia argentea</td>
</tr>
<tr>
<td>Te uteute</td>
<td>grass</td>
<td>Lepturus repens</td>
</tr>
</tbody>
</table>
BIBLIOGRAPHY


KINAAKIN TAIAñ TAMNEI (KEY TO PHOTOGRAPHS)
Tamnei ni kabanea a raweaki iroun Lee Jones ti ngkana a kaotaki bwa e raweaki te tamnei iroun riki temanna
(All photographs by Lee Jones unless otherwise credited.)

Tamnein tinanikun te boki:
Matawa (Mark Rauzon)

Ruru (it. 28)
a. Ikawai ae e kiba
b. Ikawai ma bunnatoi (Michael Phillips)  
c. Bunniman

tanguoua (it. 29)
a. Bunniman (Michael Phillips)  
b. Ikawai ni bwangana

c. Ikawai itinanikuni ni bwangana

tinebu (it. 30)
a. Bunnatoi
b. Bunniman
c. Ikawai woman (Mark Rauzon)

nna (it. 31)
a. Ikawai ma bunnatoi
b. Bunniman
c. Ikawai ma bunniman iai i bina

Bwebe ni Marawa (it. 32)
a. Ikawai ma bunnatoi
b. Bunniman (Michael Phillips)

Taake (it. 33)
a. Bunniman ikawai riki
b. Bunniman ataei

c. Ikawai iai ona ngaona

Mouakena (it. 34)
a. Ikawai woman
b. Ataei
c. Ikawai ma bunnatoi
d. Bunniman

Kibwi (it. 35)
a. Ikawai ae e kiba
b. Ikawai iaoni ngaona
c. Bunnatoi
d. Ikawai ma bunniman

e. Ikawai woman (Mark Rauzon)

Koota (it. 36)
a. Ikawai iaoni ngaona ma bunnatoi
b. Bunniman
c. Ikawai
d. Ataei

e. Ikawai

Eitei (it. 37)
a. Bunniman ikawai riki
b. Ikawai mwaane (Mark Rauzon)
c. Bunniman ataei
d. Ikawai aine

e. Ikawai

Eitei (it. 38)
a. Ikawai mwaane ae e kiba (Kimball Garrett)
b. Ikawai aine ae e kiba (Kimball Garrett)
c. Bunniman
d. Bunnatoi
e. Nanai - kabwakabwaka

Karakara (it. 39)
a. Ikawai ae e kiba
b. Bunnatoi ao bunniman (Michael Phillips)
c. Bunnatoi (Michael Phillips)
d. Ikawai tabo ni kabwakabwaka

tarangongo (it. 40)
a. Ikawai ae e kiba (Kimball Garrett)
b. Ikawai ma bunniman iai i bina (Mark Rauzon)
c. Bunnatoi (Kimball Garrett)
d. Bunniman (Mark Rauzon)

e. Ikawai

Keeu (it. 41)
a. Ikawai ae e kiba
b. Ataei ae e kiba
c. Ikawai - kamwarakea bunniman (Mark Rauzon)
d. Ikawai ma bunnatoi (Mark Rauzon)

e. Ikawai

Io (it. 42)
a. Bunnatoi
b. Ataei
c. Ikawai

Mangkiri (it. 43)
a. Bunniman
b. Ikawai - kabwakabwaka ma bunnatoi
c. Ataei

e. Ikawai

Keriru (it. 44)
a. Bunnatoi
b. Bunniman
c. Ikawai (Mark Rauzon)

Matawa (it. 45)
a. Bunnatoi
b. Bunniman ni ngaon te Mangkiri
c. Ikawai ae e kiba
d. Ikawai

e. Ikawai

Bokokokoko (it. 46)
a. Ikawai - kamwarakeia bunniman (Robert Kennedy)
b. Ikawai (Mark Rauzon)

Kun (it. 49, eta)
a. Buraena ae e kinaaki iai (Kimball Garrett)

Kiriri (it. 49, nano)
a. Buraena ae e kinaaki iai (Kimball Garrett)

Kewe (it. 50, eta)
a. Ikawai (Mark Rauzon)

Kitibwa (it. 50, nano)
a. Aekani buraena teuana (Kimball Garrett)

c. Ikawai ma bunnatoi

Cover:
White Terns (Mark Rauzon)

Title page:
Bokokokoko (Mark Rauzon)

Back Cover:
A. Bird reserve sign (Mark Rauzon)
B. Great Frigatebird (Mark Rauzon)

Phoenix Petrel (p. 28)
a. Adult in flight
b. Adult with egg
c. Chick

Wedge-tailed Shearwater (p. 29)
a. Chick (Michael Phillips)
b. Adult in nest burrow
c. Adult outside burrow

Christmas Shearwater (p. 30)
a. Egg
b. Chick
c. Adult pair (Mark Rauzon)

Audubon's Shearwater (p. 31)
a. Adult with egg
b. Chick
c. Adult with chick under its wing

Polynesian Storm-Petrel (p. 32)
a. Adult with egg
b. Chick

c. Adult with chick under its wing

Red-tailed Tropicbird (p. 33)
a. Older chick
b. Young chick
c. Adult on nest

Masked Booby (p. 34)
a. Adult pair
b. Juvenile
c. Adult with egg
d. Chick

Brown Booby (p. 35)
a. Adult in flight
b. Adult on nest
c. Egg
d. Adult with chick
e. Adult pair (Mark Rauzon)

Red-footed Booby (p. 36)
a. Adult at nest with egg
b. Chick
c. Adult

d. Juvenile

Great Frigatebird (p. 37)
a. Older chick
b. Adult male (Mark Rauzon)
c. Young chick
d. Adult female

Lesser Frigatebird (p. 38)
a. Adult male in flight
b. Adult female in flight
c. Chick
d. Egg
e. Nesting colony

Great Crested Tern (p. 39)
a. Adult in flight
b. Juvenile in flight
c. Adult feeding chick

d. Adults in nesting colony

Gray-backed Tern (p. 40)
a. Adult in flight (Kimball Garrett)
b. Adult with chick under its wing (Mark Rauzon)
c. Egg (Kimball Garrett)
d. Chick (Mark Rauzon)

e. Adult

Brown Noddy (p. 42)
a. Egg
b. Juvenile
c. Adults

Black Noddy (p. 43)
a. Chick
b. Adult at nest with egg
c. Juvenile

Blue-gray Noddy (p. 44)
a. Egg
b. Chick
c. Adult

White Tern (p. 45)
a. Egg
b. Chick in old Black Noddy nest
c. Adult in flight
d. Adult

Great Crested Tern (p. 39)

Eitei (it. 37)
a. Bunniman ikawai riki
b. Ikawai mwaane (Mark Rauzon)
c. Bunniman ataei
d. Ikawai aine

e. Ikawai

Eitei (it. 38)
a. Ikawai mwaane ae e kiba (Kimball Garrett)
b. Ikawai aine ae e kiba (Kimball Garrett)
c. Bunniman
d. Bunnatoi
e. Nanai - kabwakabwaka

Kibwi (it. 35)
a. Ikawai ae e kiba
b. Ikawai iaoni ngaona
c. Bunnatoi
d. Ikawai ma bunniman

e. Ikawai woman (Mark Rauzon)
TAEKAN TE TIA
KORORONGORONGO

E a tia Lee Jones n reirei aroia mannikiba ma ngke 8 ana ririki ni maiu.

E reke ana beeba ae te Bachelor of Science n taeakaia maan man te North Carolina State University ao te Ph.D man UCLA ibukin ana kakaaei iaon taeakaia mannikiba iaon tain abamwakoro. 21 te ririki n nako ao e a tia ni mwakuri bwa te kontiaretante ibukin te enwaeromenta ao te tia kakaae ibukini maiuia maan. E a tia naba ni ibuobuoki n aaba tabeua i Atia ao n te Betobeke ni katei ma ni waakini mwakuri ibukini kanakoraoan ma tararu-aan te enwaeromenta. A mwaiiti beeba n rabakau ma rongorongoia mannikiba ake a koreaki n taiani maekatin iroun Dr Jones ao ni bon taai aikai a tia naba ana boki aika Birds of California’s Channel Islands ao A Field Guide to the Birds of Belize.

ABOUT THE AUTHOR

Lee Jones has been studying birds since he was 8 years old. He received a Bachelor of Science degree in zoology from North Carolina State University and a Ph.D. from UCLA for his biogeographical studies of birds on islands. For the past 21 years, he has been working as an environmental consultant and research biologist. He has assisted several developing countries in Asia and the Pacific in establishing and implementing environmental protection measures and procedures for conducting environmental impact assessments. Dr. Jones has written a number of scientific papers and magazine articles on birds, and recently completed two books: Birds of California’s Channel Islands and A Field Guide to the Birds of Belize.