

A preliminary desk study identifying important bird areas (IBAs) in the Solomon Islands

Draft for restricted circulation only

Prepared for BirdLife International

Catherine E. Filardi
David Boseto
Christopher E. Filardi

December 2007

DRAFT

The Solomon Islands lie at a biogeographic crossroads. Separating the rich continental faunas of Australasia and the isolated islands of a sprawling Pacific, no other oceanic archipelago supports a greater proportion of the Earth's living diversity, or a richer array of human ways of life and languages. To an ornithologist, this translates into exceptional patterns of endemism, which are increasingly being revealed as an evolutionary fulcrum generating diversity to the east and to the west. Significantly, as across much of the Pacific, the living diversity of the Solomons is threatened by a rapidly growing population and increasing pressure to liquidate forest resources. Hope lies in our collective efforts to capture pieces of these stunning landscapes in partnership with the diverse human communities whose futures have been entangled with the birds of the Solomons for all of living memory.

1. GENERAL NATIONAL INTRODUCTION

The Solomon Islands are located in the southwest Pacific, between latitudes 5° and 12° S and longitudes 152° to 170° E (see Maps). The nation stretches across 1450 km of the Pacific, from the Shortland Islands off the eastern edge of Bougainville (the westernmost and largest island in the Solomon Archipelago, but politically part of Papua New Guinea), to the Santa Cruz islands just north of Vanuatu. The country, which gained independence from Britain in 1978, includes seven major island groups (Guadalcanal, Malaita, Makira-Ulawa, Isabel, the New Georgia group, Rennell and Bellona, and Choiseul) and over 900 smaller islands, islets, atolls and cayes. With the exceptions of the Polynesian islands of Rennell, Bellona Ontong Java, Sikiana, and the Santa Cruz islands (Temotu), the Solomon Islands are Melanesian, with a total population of approximately 500,000 (Solomon Islands National Statistics Office 2007) and one of the world's highest growth rates at 2.8% (1999 National Population Census). More than 80% of the labor force is engaged in subsistence agriculture and fishing (Central Bank of the Solomon Islands, 2005 Annual Report). Timber, copra and palm oil are the most significant exports, with increasing interest and prospecting in the mining industry over the last decade. Notably, the country has exceptional cultural and linguistic diversity, with over 70 distinct languages.

Despite a diverse geologic history (Mayr and Diamond 2001 and refs therein), the islands of the Solomons share similar climates and habitats, and dense tropical rainforest blankets virtually all land not altered by human

DRAFT

activities. Proximity to the equator translates into modest seasonal variation in temperature, day-length and rainfall, with mean temperature of 27°C and a mean annual rainfall between 3,000 to 4,000 mm. Geographic variation in rainfall and seasonality is largely explained by effects of local topography (e.g. mountains creating a rain shadow) on the two alternating prevailing wind systems: the trade winds blow steadily from the southeast from May to September, with more variable winds from the northwest (the northwest monsoons) prevailing from December to March. Cyclones are common during the northwest monsoon season throughout much of the Solomons, and significantly influence variation in forest composition (Whitmore 1974). In fact, frequent deforestation by cyclones, in addition to earthquakes, landslides and volcanism, result in a subclimax state for much of the Solomon Island forests (Whitmore 1969, 1989; Mayr and Diamond 2001 and refs therein).

Nine Solomon islands exceed 900 m in elevation (Guadalcanal 2450 m, Kolombangara 1768 m, Isabel 1250 m, Rendova 1063 m, Malaita 1280 m, New Georgia 1006 m, Vangunu 1124 m, Makira 1040 m, Choiseul 970 m), and with increasing elevation the rainforest decreases in height. At high elevations, within a zone shrouded by clouds for parts of most days, trees are stunted, trunks and branches are gnarled and draped with moss and ferns, the canopy is more open, and palms and pandans (Pandanaceae) are plentiful (Hadden 1981). Notably, while similar habitats are often not encountered until almost 2000 m on nearby New Guinea, this “cloud forest” descends to c1200 m on Guadalcanal and Kolombangara, c650 m on Vangunu and Makira, and to c600 m on Gatokae, due to small island effects on climate.

Ongoing studies of the flora and fauna of the Solomons disclose exceptional patterns of inter-island diversity and high degrees of endemism. Patterns of avian endemism are particularly noteworthy, and have received the most attention (see below) despite deficiencies in basic taxonomic and distribution data. Nonetheless, studies in other taxonomic groups suggest notable patterns of endemism as well; more than half of the known palm and orchid species, and 75% of climbing *Pandanus* species are endemic (Whitmore 1969); 16 of 47 mammals are endemic (Flannery 1995), not including 2 extinctions

DRAFT

of an endemic giant rat, *Uromys imperator* and a bat, *Nyctimene sanctacrucis*. There is also high endemism of reptiles in the Solomon Islands, including nine endemic *Shenomorphus* skinks, the endemic skink genus *Corucia*, and the snake genus *Loveridgelaps* (McCoy 1980, 2006). Additionally, over 80% of all frogs are endemic, with new endemic species discovered on nearly all recent herpetological expeditions (e.g. Filardi 2004a; McCoy 2006; Brown et al, in prep). Ongoing work continues to expose even more exceptional patterns, making this archipelago one of the most unique insular systems in the world.

Forests and forest life continue to play an important role in defining and maintaining the cultural identities of Solomon Islanders, who still live predominantly in scattered rural communities largely dependent on subsistence gardening and fishing. Virtually all of the land in the Solomons is held under customary land ownership via traditional land tenure systems, with communities having the final say in resource stewardship and use. Increasingly, however, there is incredible pressure on forest systems to provide cash for landholding communities with little access to alternatives for school fees, medical care and other basic services. Recent civil strife and accompanying economic hardship has escalated unregulated large-scale logging over the last decade, with devastating ecological and sociological effects.

A recent study, the Solomon Islands National Forest Resource Assessment Update (hereafter Forests Report; AUSAID 2006), concluded that at the current rate of harvest forests would be completely depleted by 2015. The ecological and sociological consequences of this depletion are widespread and sobering: timber exports generate 60-70% of total foreign export earnings (from royalties), and it is estimated that 1 in 6 Solomon Islanders are employed by the industry. In addition to imminent threats to biodiversity, the demise of Solomon forests has severe implications for the national economy, political stability and rural employment. Facing growing civil unrest, in 2003 the Solomon Islands government requested international aid, and in response, the Regional Assistance Mission to the Solomon Islands (RAMSI) was created. Initially, foreign military personnel provided security and assistance to the Solomon Islands government in order to restore law and order, and as stability returned, a sizable civilian contingent has commenced the reconstruction of the government,

DRAFT

economy and finances. However, with no legislation in place to regulate resource extraction, and poor issuance practices in timber licenses, the state of the forests across this island nation is deteriorating rapidly (AUSAID 2006). The Nature Conservancy reports that the Solomon Islands is ranked among the top 10 most biologically diverse and imperiled nations on earth (TNC 2004). Without immediate and proper regulation, along with viable alternatives to large-scale resource extraction for customary landholding communities, the future of Solomon forests and this country's natural and cultural heritage remains bleak.

2. A SUMMARY OF ORNITHOLOGICAL IMPORTANCE

Since its earliest exploration by western science, the Solomon Islands has unequivocally been identified as an area of exceptional avian endemism and ornithological importance. The most substantial contributions to the ornithology of the Solomons Islands were the Whitney South Seas Expedition carried out by the American Museum of Natural History, with exploration of the Solomons concentrated between 1927 and 1930. Spectacular patterns of morphological differentiation between islands documented during these expeditions influenced the development of classical biogeographic and speciation theory (Mayr 1942, MacArthur and Wilson 1967), and more recent analyses of this avifauna further highlight its significance (see below). For example, the Solomon group Endemic Bird Area (EBA; including Bougainville, excluding Rennell and Bellona and the Santa Cruz islands; Stattersfield et al. 1998) has the greatest number of Restricted Range (RR) bird species of all the world's EBAs. Significantly, virtually all of the larger islands have their own endemic species and/or subspecies (the New Georgia group has 10 endemic species, Malaita 3, Guadalcanal 3, Makira 13, Kolombangara 2, Vella Lavella 1, Ranongga 1, Ghizo 1, Rennell 5, Santa Cruz 3). In total, the Solomon Islands (including Rennell, Bellona and the Santa Cruz Islands) have 94 RR bird species, 16 of which are classified as threatened.

Importantly, despite international acclaim, Solomon Island birds have not received the same attention as birds from some other areas, and even basic taxonomic and distributional data in many cases is poorly known. In particular, there has been very little recent high elevation work, and interior habitats more

challenging to access have been commonly overlooked. This patchy knowledge-base is evidenced in recent surveys that have uncovered range expansions and new breeding records (Filardi et al. 1999, Dutson 2001, Filardi 2004a), improved understanding of species previously known from one or two historic records (e.g., Filardi 2004a), as well as significant descriptions of new avian taxa (Diamond 1991, Dutson 2006, Cleere et al. 2007). Furthermore, the current taxonomy of virtually all Solomon Island birds is based exclusively on morphological (primarily plumage) data from specimens collected nearly a century ago. A recent publication by Ernst Mayr and Jared Diamond (2001) compiled all available data on the ecology, distribution and morphology of birds from Northern Melanesia, and highlights the deficit of rigorous morphometric and modern molecular analyses.

Availability of tissue samples for genetic study has recently facilitated preliminary molecular analyses of some Solomon bird taxa (Smith and Filardi 2007, Filardi and Smith 2005, Filardi and Moyle 2005, Filardi 2003, Smith 2003). These studies have uncovered significant genetic differences between allopatric island populations in some Solomon Island birds (e.g. *Dicaeum aeneum*, *Rhipidura cockerelli*, *Monarcha barbatus*) that when coupled with more detailed behavioral and ecological data (e.g. see Diamond 2002) may result in species status designation of island population for far more taxa than currently recognized as such. Conversely, molecular analyses of some widespread species groups (e.g. *Monarcha*, *Zosterops*) reveal both recent and rapid rates of differentiation among species and island groups (Filardi and Moyle 2005, Moyle and Filardi *in prep*), exposing dynamic and idiosyncratic modes of genetic and morphological evolution. Furthermore, preliminary analyses of some more vagile, widespread species with ranges extending beyond the Solomons (i.e. not RR) suggest some of these taxa may be sufficiently distinct from other populations to warrant species (and thus RR) status (Smith and Filardi 2007). The more we learn about island avifaunas in this archipelago, the more (not less) distinctive the region's (and each island's) bird community becomes: collectively, these preliminary patterns of genetic differentiation further identify this region as a virtually unparalleled center of avian endemism (e.g. Stattersfield et al. 1998).

DRAFT

3. A SUMMARY OF KEY CONSERVATION ISSUES AND THREATS TO IDENTIFIED IBAS

By far the biggest threat to the persistence of intact avian communities in the Solomon Islands is forest clearance and degradation. In recent years, escalating human activities have decimated the country's lowland forests, leaving very little in pristine, old growth condition (AUSAID 2006). Extensive logging of lowland and hill forests and subsequent land clearing for copra and oil palm plantations have devastated much of the easily accessible forest. While some of the upland forests are in better condition, population growth puts pressure on these lands for subsistence agriculture, and aggressive and poorly regulated logging practices and mineral prospecting are increasing. In addition, altitudinal gradients in insular climate regimes appear highly sensitive to breaks in the lowland to montane forest continuum, and suggest some otherwise intact montane environments are being degraded due to shifts in microclimate associated with adjacent lowland forest degradation (C. E. Filardi and P. Pikacha pers. obs.). In short, poor governance and government instability have led to inadequate management of resources, and poorly managed deals with international resource developers, such as mining and logging companies. With ongoing international assistance, the government is attempting to reform timber harvesting policies with the aim of regulating logging practices to promote sustainability. In the meantime, aggressive efforts to protect what intact forests remain provide the only (albeit often stop-gap) means to prevent the tragic loss of this country's biodiversity.

The unregulated nature of recent resource plunder in the Solomons in part reflects the complexities of the customary land tenure system. Rather than legally codifying land ownership, these customs rely on a complex system of land dispute hearings to settle conflicting claims over land ownership or usage rights. Regrettably, all stakeholders are not always consulted, and social and cultural unrest commonly result from shady deals that provide tremendous monetary reward for a select few and few, if any, widespread community benefits. The success of conservation efforts therefore depends on working directly and transparently with the landholding communities that maintain

autonomy over their lands.

Although most Solomon birds appear fairly resistant to forest disturbance, relative abundances and overall community structure are more sensitive. Arguably, at the community level, all avian assemblages which occur in primary lowland and hill forest are threatened because of the scale of current and proposed logging activities, which at the present rate will result in all harvestable forest logged by 2015 (AUSAID 2006). Despite these increasing threats, however, the avifauna of the Solomons is still largely intact. This may in part reflect the catholic habits of many Solomon Island birds: while the majority of RR species occur in forests, many utilize other habitats including gardens and secondary vegetation, perhaps an adaptation to a cyclone-prone environment. However, there is little research or supporting data to document the significance of increasing proportions of secondary or structurally simplified habitats to the persistence of RR species in the Solomons.

Increasing amounts of secondary habitats resulting from large-scale anthropogenic disturbance regimes (e.g. logging, roads) certainly changes the abundance of some bird species, which may ultimately threaten the integrity of unique insular avian communities. For example, recent studies suggest once-vagrant species are capitalizing on newly disturbed habitats to establish breeding populations (e.g. *Aplonis cantoroides* and *Phalacrocorax carbo* on Rennell; Filardi et al. 1999 and refs therein). Significantly, the increased population of *P. carbo* on Rennell coincides with the introduction of the African fish *Tilapia* (in 1957) into Lake TeNgganno, which is also correlated with the demise (and putative local extinction due to disruption of food supply) of two duck species (*Anas superciliosa* and *Anas gibberifrons*). Although successful colonization by vagrant species following anthropogenic disturbance has probably been occurring across Pacific islands for thousands of years (Steadman 1993, 1995), the scale and rate of these disturbance regimes is exponentially greater now than at any historic time. Furthermore, both accidental and deliberate introductions of alien species, such as *Tilapia* are on the rise (see below).

This example highlights another major threat to the regions avifauna: invasive alien species are becoming increasingly widespread in the Solomons. Two non-native bird species are documented in the Solomons, the Common

DRAFT

Myna, *Acridotheres tristis* and the European House Sparrow, *Passer domesticus* (C. E. Filardi pers. obs) but appear confined to urban areas. Arguably, the spread of feral pigs, cats, rats and dogs over the past century poses a more significant threat to forest birds. Three large, ground-dwelling birds endemic to Solomon Islands (*Microgoura meeki* endemic to Choiseul; *Gallicolumba salamonis* endemic to Makira and several outlying islands and *Gallinula silvestris* endemic to Makira) have almost certainly been extirpated, their demise likely connected to the spread of domesticated animals (two species of ground-dwelling *Uromys* rats on Guadalcanal likely experienced a similar fate).

Other invasive species cover the taxonomic spectrum: red fire ants (*Wasmannia auropunctata*) have reached plague levels on many of the Solomon Islands, with unknown effects on the native ant community; the black twig borer compromises growth of some native vegetation; fruit flies have caused significant economic damage to agricultural products; the cane toad, *Bufo marinus*, has invaded virtually all river systems with undocumented effects on the native amphibian and fish populations; invasive plants such as *Merremia peltata*, *Browsonaetia papyrifera*, mimosa weed (*Mimosa* sp.), and water hyacinth (*Eichhornia crassipes*) capitalize on disturbance regimes characteristic of degraded or logged forest, with undocumented impacts on native flora and fauna. The Pacific Island Ecosystem at Risk project (PIER, US Forest Service) lists over 150 invasive and potentially invasive plant species for the Solomon Islands, and although little is known about the direct impact alien invasives are having on native bird communities, the spread of these non-native species surely threatens the integrity of terrestrial systems across the Solomons.

Summary of IUCN endangered birds

According to IUCN 2007 (includes all political Solomon Islands)

- Two avian extinctions in Solomons (*Gallicolumba salamonis*, *Microgoura meeki*)
- Two critically endangered species (*Gallinula silvestris*, *Pseudobulweria becki*)
- Three endangered species (*Columba pallidiceps*, *Zosterops luteirostris*, *Gallicolumba sanctacrucis*)

DRAFT

- 14 bird classified as vulnerable (*Accipiter imitator*, *Actenoides bougainvillea*, *Charmosyna palmarum*, *Clytorhynchus nigrogularis*, *Ducula brenchleyi*, *Haliaeetus sanfordi*, *Nesasio solomonensis*, *Numenius tahitiensis*, *Phylloscopus amoenus*, *Pitta anerythra*, *Puffinus heinrothi*, *Rhipidura malaitae*, *Zoothera turipavae*, *Zosterops splendidus*)
- 23 near threatened birds (*Aplonis feadensis*, *Aplonis zelandica*, *Caloenas nicobarica*, *Charmosyna margarethae*, *Charmosyna meeki*, *Coracina holopolia*, *Escacus giganteus*, *Gallirallus roviae*, *Limosa limosa*, *Mayrornis schistaceus*, *Megalurulus whitneyi*, *Monarcha barbatus*, *Monarcha browni*, *Myiagra cervinicauda*, *Myzomela malaitae*, *Nesoclopeus woodfordi*, *Ptilinopus eugeniae*, *Reinwardtoena crassirostris*, *Rhipidura cockerelli*, *Rhipidura tenebrosa*, *Woodfordia lacertosa*, *Zoothera margaretae*, *Zosterops vellalavella*)
- 1 data deficient (*Collocalia orientalis*)
- 181 birds least concern

4. A SUMMARY OF CONSERVATION ACTIONS AND MECHANISMS.

Given the lack of clearly defined legal land title and widespread and severe rural poverty throughout the country, the most promising conservation strategy is community-managed protection associated with community development activities. This needs to be done in combination with careful government regulation of logging and mining permits and legislation reform that provides a legal basis for protected areas and incentives for landowners who wish to sustainably manage their land. The Ministry of Forests, Environment and Conservation aims to develop this legislation as part of the government's commitments under the Convention on Biological Diversity. The national government is also currently undertaking the National Biodiversity Strategic Action Plan (NBSAP) to update the inventory of the country's biodiversity and identify priority areas for conservation. In the past, sites important for biodiversity conservation have been identified (e.g. Lees 1991) but with no national implementation plan, and in the recent climate of political uncertainty, no effective government action has been taken and some of these areas have already been partially converted into expanding agricultural or logging areas.

DRAFT

There is a pressing need to increase technical and financial support for conservation initiatives in the Solomon Islands. To date, international and local NGOs have played the main role in conservation in the region, often in partnership with government conservation agencies. Early conservation activities, primarily by WWF and TNC (below) focused on protection of the Solomon Islands unique marine environments, but increasingly efforts are expanding to include forest protection. A summary of some ongoing initiatives follows:

- World Wildlife Fund (WWF) has developed a forests conservation program to begin establishing community-managed protected areas in Choiseul, Kolombangara, and Guadalcanal, and to strengthen the existing community-managed protected area in Makira.
- The Nature Conservancy (TNC) works in partnership with communities on Choiseul and Isabel to manage a marine conservation project in the Arnavon Islands (and surrounding areas), home to important breeding sites for endangered marine turtles (e.g., Hawksbill, *Eretmochelys imbricata*, and Pacific Leatherback, *Dermochelys coriacea*).
- The Secretariat for the Pacific Regional Environment Programme (SPREP), a multi-governmental conservation and environmental organization, works closely with the Solomon Islands Government to promote sustainable development and biodiversity conservation.
- Conservation International (CI) works in partnership with the Makira Community Conservation Foundation (MCCF) in supporting and expanding the existing protected area in the Bauro Highlands of Makira.
- Several community partnerships have been developed on Kolombangara through initiatives with the American Museum of Natural History.
- Kolombangara Forests Products Limited, the only Forest Stewardship Council certified plantation forestry company in the

DRAFT

South Pacific, manages plantation forests on Kolombangara and remains a potential model for sustainable tropical forest management in the Pacific. The company has established several reserve areas within their forest management area and is working in cooperation with the American Museum of Natural History and WWF Solomons to support development of protected areas on the island

- World Heritage: In March of 2006 UNESCO funded a workshop in Marovo lagoon to begin identifying a tentative list of possible Solomon Islands World Heritage sites. After a subsequent workshop in mid-2007 three world heritage proposals were submitted for consideration, two with major terrestrial components: 1) Marovo-Tetepare Complex; 2) Tropical Rainforest Heritage of the Solomon Islands (a serial nomination including areas on Guadalcanal, Choiseul, Makira, and Kolombangara); and 3) Nearshore Marine Diversity of the Solomon Islands [a second serial nomination generally following the recommendations of TNC (2004)].

Perhaps the most promising national-level program is being developed and implemented jointly by AMNH and CI. This suite of initiatives relies on an approach linked to establishing protected areas via Community Conservation Agreements (CCAs). CCAs specify a package of social or development benefits to be raised in partnership with landholders, in return for which they commit to management of specified resources for conservation. The key to the approach lies in this explicit *quid-pro-quo* engagement with sovereign landholding groups, the terms of which are set down in a written and oral contract. Benefits are provided annually, upon completion of an annual conservation status audit. This approach may be one of the few ways to protect large areas in a way that is compatible with cultural survival of customary landholding communities. Pilot areas currently under CCA engagement include sites within both the Rain Forest Heritage and Marovo-Tetepare Complex World Heritage proposals (see above), with plans to nationalize the program in the interest of establishing long-term

endowed support for a protected areas network for the Solomons.

5. IBA SITE INVENTORY

Ongoing conservation and sustainable development work in the Solomons textures the identification of Important Bird Areas. Generally, ongoing work is in areas of general (not just avian) biological importance, and synergistic opportunities with established conservation and community-outreach efforts strengthen the case for identifying an IBA. But at the core of IBA identification in this country is protecting what intact forest remains. Significantly, dramatic patterns of inter-island avian diversity in the Solomon Islands are in sharp contrast to very little intra-island diversity. With the exception of elevational shifts on some of the higher islands, presence/absence of Solomon land birds can be predicted by island and by intact forest habitats within these islands. Thus, what has driven the distinctiveness of island avifaunas in the Solomons is separation by water and (to a lesser degree) elevation. Protected areas of intact forests on each island that include significant elevational gradients (where appropriate) therefore provide some of the best opportunities for bird conservation across the archipelago. Importantly, habitat protection should also include compromised forests (secondary/disturbed) in addition to intact and pristine habitats: as a probable result of a long history of forest disturbance from cyclones, many RR taxa persist in secondary habitats and probably always have.

Therefore, the IBAs proposed here were identified by three primary factors: 1) patterns of avian diversity and threatened and/or restricted range taxa; 2) presence of intact forest, as indicated by a 2006 forests assessment of the Solomon Islands (AUSAID 2006); and 3) active or potential protected areas initiatives. In the context of this desk study, the BirdLife species data sheets (2007) available on the internet provided the best proxy for recent distributional records of threatened and RR species, and were used in combination with published records and available grey literature.

DRAFT

Importantly, very little is known about the sea and shorebird populations of this area and as a result IBA designation relied almost exclusively on patterns of terrestrial avian diversity. Although it is likely that patterns of sea and shorebird populations in the region do not merit IBA status by strict definition, very little is known. Three points warrant mentioning, however. 1) there are large, consistent roosting aggregations of several species of seabird including *Fregata ariel*. 2) Shorebirds, including the threatened *Numenius tahitensis* and numerous other Charadriiformes are nowhere abundant as wintering adults or resident juveniles in the tropical Pacific, and thus all areas with consistent and significant numbers of such taxa may be collectively essential to the persistence of these boreal breeders, even though no single area in and of itself is critical. 3) *Puffinus hienrothi* and *Pseudobulweria becki* are so poorly known and rare that the parts of the Solomons potentially of significance for these species are worthy of some kind of formal recognition within the IBA context, even though breeding areas are unknown. Clearly, much more field research is needed to assay the global context and significance of sea and shorebird populations in the Solomon Islands.

Tentative list of proposed IBAs for the Solomon Islands

1. Western Province
 - A. Kolombangara cloudforest to coast reserve
 - B. Marovo-Tetepare complex
 - C. North New Georgia
 - D. *Monarcha* and *Zosterops* reserves
2. Choiseul and Isabel
 - E. Mount Maetambae, Choiseul
 - F. South Choiseul, Arnavon Islands and northwest Isabel
 - G. Mount Kubamitu, Isabel
 - H. Others: Shortland Islands, Ortega Channel/San Jorge
3. Guadalcanal
 - I. Lauvi, southcentral Guadalcanal
 - J. Mount Popomanaseu
 - K. Others: High elevation palm forest of eastern uplands, northern grasslands
4. Makira
 - L. Bauro highlands

DRAFT

M. West Makira swamps

5. Malaita
 - N. Central Malaitan highlands
 - O. Maramasike – Are'Are
6. Rennell/Bellona
 - P. Rennell
7. Temotu/Santa Cruz islands
 - Q. Vanikoro, Nendo

Western Province

The New Georgia group of Western Province is unique in the Solomons, being the only main island group not dominated by a single large island but instead comprised of numerous smaller islands. These islands formed almost entirely via volcanism between 5-10 million years, but several of the main islands formed as recently as the late Pleistocene (Coleman 1966, Mayr and Diamond 2001 and references therein). The resulting mosaic of islands vary dramatically in size, age, topography, and proximity to one another, and are home to approximately 85 species of breeding land birds, including 31 RR species and 10 endemic species. There are at least two high elevation endemic species confined to the stratovolcano Kolombangara (*Phylloscopus amoenus*, *Zosterops murphyi*) as well as at least three endemic subspecies of Oceanic taxa found nowhere else in the Solomon Archipelago (*Turdus poliocephalus*, *Phylloscopus poliocephalus*, *Petroica multicolor*). Eight lowland forest birds are endemic to the New Georgia group, with close relatives on other Solomon islands (*Gallirallus roviae*, *Monarcha richardsii* and *M. browni*, *Myzomela eichhorni*, *Zosterops vellalavellae*, *Z. splendidus*, *Z. luteirostris*, and *Z. rendovae*). Three of these species (*Monarcha browni*, *Zosterops rendovae*, and *Myzomela eichhorni*), as well as two forest passerines widespread across the Solomon archipelago (*Pachycephala pectoralis*, *Rhipidura cockerelli*) vary geographically within the New Georgia group. Thus the small water gaps between New Georgian islands form dispersive barriers for some bird species, mimicking on a smaller scale patterns of avian diversity across the Solomon archipelago as a whole.

DRAFT

Importantly, recent molecular studies suggest levels of avian endemism in the New Georgia group are likely to increase considerably with further study. For example, although morphological analyses have delimited subspecific differentiation in *Pachycephala pectoralis* and *Rhipidura cockerelli*, preliminary phylogenetic comparisons across the Solomon archipelago suggest genetic differences between putative subspecies comparable to species-level differences in other taxa (Smith and Filardi 2007). Additionally, populations of both *Zosterops vellalavellae* and *Monarcha browni* of Ranongga and Vella Lavella appear to be allied to taxa outside the New Georgia group rather than to other presumed conspecifics on adjacent islands (Filardi 2004b, Moyle and Filardi, in prep), suggesting considerable unrecognized species level endemism within this island group. Because of these exceptional levels of endemism, the New Georgia group is clearly one of the highest priority areas within the Solomon archipelago Endemic Bird Area (see Stattersfield et al. 1998).

Importantly, it appears likely that in addition to further molecular analyses, advanced exploratory expeditions into understudied islands will reveal still greater endemic diversity within the New Georgia group. There are several poorly known taxa that have been documented on New Georgian islands, including *Collocalia orientalis*, *Aplonis brunneicapilla*, *Falco peregrinus*, *Columba pallidiceps*, and *Gymnophaps solomonensis*, and nearly every expedition to remote areas of this group turns up either range expansions or records of poorly known taxa (e.g. *Collocalia orientalis* has only been collected on one other island in the world, Guadalcanal; Filardi 2004a, Birdlife 2007). Therefore, our approach to identifying IBAs is not only guided by the distribution of previously identified restricted range species and the location of remaining intact forest (AUSAID 2006), but also focuses on capturing portions of major New Georgian islands where we anticipate that further taxonomic exploration will expose additional restricted range taxa.

Patterns of avian diversity across the New Georgia group have long attracted the attention of biologists. Over recent years, however, industrial logging and plantations have dramatically altered the majority of this regions landscapes (AUSAID 2006), threatening these globally unique patterns. Due to increasing threats to shrinking forest resources, several national and

DRAFT

international organizations have ongoing efforts to work with communities to protect pieces of this unique mosaic. The government of the Solomon Islands has recently rejuvenated efforts to designate the globally unique Marovo Lagoon, Tetepare Island, parts of southeastern Rendova, and surrounding islets as a World Heritage site (Marovo-Tetepare Complex); a variety of international NGOs are working with the Tetepare Descendants Association (TDA) to set up long term protection of Tetepare, the largest uninhabited island in the south Pacific; ongoing meetings between international NGOs and local stakeholders on the stratovolcano Kolombangara are moving towards a coast-to-cloud forest protected area covering the central caldera, high ridgelines of Mounts Rano and Veve, and several forest corridors down into the lowlands totaling over 30,000 ha on this endemism hotbed (additionally, this site is part of a serial-site World Heritage proposal, see below). Not coincidentally, these areas are also home to many restricted range species, and momentum generated by ongoing efforts to protect these areas provides additional collaborative impetus and opportunity to include them in the context of IBA identification.

We have identified four potential IBAs for the Western Province of the Solomon Islands.

- a. Coast to cloud forest reserve on Kolombangara
- b. Marovo – Tetepare complex (Marovo Lagoon, Tetepare Island, Hele Bar Islands, S.E. Rendova and Mborokua Island)
- c. North New Georgia
- d. *Zosterops* and *Monarcha* reserves -- Gizo, Ranongga, Vella Lavella

A. Kolombangara

1) Site description: Kolombangara is an extinct Pleistocene volcano, “of nearly circular outline, about 32 km across, and almost perfectly symmetrical in relief, rising increasingly steeply to a crater rim 6.5 km across and 1420 – 1580 m high (Whitmore 1989).” Recent mapping surveys actually place the highest point at nearly 1800 m making this island one of the highest in the Solomons despite its

DRAFT

relatively small size. The whole of the island is deeply incised by waterways of a great diversity of character, fitting its local name, Nduke, meaning 'Water King'. Detailed published descriptions of physical and ecological character of the island can be found in Whitmore (1969a, 1974). For a variety of historic reasons, inland Kolombangara has been uninhabited for at least the past century, though permanent settlement of the interior during the past is evident in the great abundance of kastom sites scattered throughout the upper drainages and within the crater bottom (e.g., see Filardi 2004a).

Kolombangara is the richest island in the New Georgia group, with 82 of 85 New Georgian species. On the crater slopes above approximately 600 m, pristine sub-montane and montane cloud forests are home to an extraordinary bird community. Although much of the lowland forest has been cleared for plantations and unregulated logging has proceeded at an alarming rate, several tracts of lowland rainforest still connect montane forest to coastal areas. The geographic boundaries of this IBA follow an area identified collaboratively by AMNH, Kolombangara Forest Products Limited (KFPL) and landowning communities on Kolombangara, who are working to set up incentives for landowners to formally agree to steward their forests and forest biodiversity in perpetuity. The proposed IBA covers the central caldera, high ridgelines of Mounts Rano and Veve, and several forest corridors down into the lowlands, totaling over 30,000 ha.

2) Bird species of conservation concern: The moss-covered montane forests of Kolombangara's caldera support some of the rarer Solomon Islands species. At least two endemic species (*Zosterops murphyi* and *Phylloscopus amoenus*) are found here and nowhere else, as well as three endemic subspecies of wide-ranging Pacific taxa found nowhere else in the Solomons (*Turdus poliocephalus*, *Phylloscopus poliocephalus*, *Petroica multicolor*). Recent ornithological work indicates a critical connection between high and low elevation forests with some montane birds commuting daily between large, flowering lowland forest trees and high elevation roosts. A recent survey (Filardi 2004a) documented both of the large mountain pigeons (*Gymnophaps solomonensis* and *Columba pallidiceps*) as well as two small lorikeets (*Charmosyna meeki* and *Charmosyna margartha*)

DRAFT

traveling between the remaining intact lowland forests where they feed, and the mountain peaks where they roost and presumably nest. The same study also encountered five montane species that had never before been documented on Kolombangara (*Collocalia orientalis*, *Falco peregrinus*, *Cacomantis variolosus*, *Gallicolumba beccarri*, *Gymnophaps solomonensis*). *Reinwardtoena crassirostris* was not recorded during this survey despite historical records indicating its presence. Clearly, the montane avifauna of this island is both exceptional and understudied. The remaining lowland forests of Kolombangara are home to all lowland New Georgian bird species except *Zosterops vellalavellae*, *Z. splendidus* and *Z. luteirostris* which are endemic to other New Georgian islands. Recently described *Gallirallus rovianae* (Diamond 1992) may be represented by an endemic form here though detailed taxonomic work on Kolombangara populations of this bird are lacking.

Four additional bird species warrant mentioning: *Esacus magnirostris*, *Numenius tahitiensis*, *Puffinus heinrothi* and *Pseudobulweria becki* are all listed on the IUCN red-list and have been recorded from or around Kolombangara. Notably, breeding areas for both of the Procellariiforms have never been found. These are poorly known, never historically abundant birds. *Pseudobulweria becki* has not been recorded since 1929 and given the habits of other members of the genus, this petrel is unlikely to breed on Kolombangara. Populations of the likely sedentary *Puffinus heinrothi* may number only in the hundreds, but the timing and geography of sight records for both adult and juveniles suggest breeding in the high elevation forests of Bougainville, Kolombangara, and Rendova (Buckingham et al. 1995, Gibbs 1996, Birdlife 2007). Significantly, given heavy logging impact to high elevations on Rendova (roads nearly reach the summit of Mount Mbuloru where this species would likely breed), intact moss forests on Kolombangara may be critical to the species' persistence.

3) Other endemic or threatened wildlife: The amphibians and reptiles of the Solomons are, in general, poorly known. This is particularly the case for high elevation forests such as those on Kolombangara. On Kolombangara, at least three bats (*Emballonura raffrayana*, *Hipposideres dinops*, *Melonycteris fardoulis*), one frog (*Discodeles malukuna*) and one skink (*Tribolonotus ponceleti*) have been

DRAFT

identified as threatened, endangered or vulnerable on the IUCN red list. A recent survey of amphibians uncovered at least five species of frog within the Kolombangara cloud forests, at least one of which is thought to be new to science (Filardi et al. *in prep*). Equivalent surveys of other faunal groups are lacking, but it is likely that other taxa will exhibit equally dramatic patterns once studied.

4) Conservation issues: Nearly all of the island's 700 square kilometers of land area was once covered in some of the richest forests in the Solomon Archipelago, but logging during the 1960s and 70s decimated forests below approximately 500 m. As early as the 1970s, protected areas strategies have repeatedly called for forest protection on Kolombangara to conserve spectacular patterns of endemism and species assemblages (Diamond 1976, Lees 1991, Paine 1989). In response, provincial and national governments designated several 500 m wide strips of forest from the seacoast up to the crater summit as forest reserves just before independence in 1978. But without the support of landowning communities and with no national legislation to formally protect such reserves, logging interests are relentlessly interfering with protection of the coast to cloud forest continuum on Kolombangara (see AUSAID 2006).

However, over the last five years, Dr. Chris Filardi of the American Museum of Natural History (AMNH) has spear-headed efforts to organize Kolombangara landowning communities and set up incentives to protect remaining forested regions of the island, including the lands designated in this IBA. In southeast Kolombangara, ongoing efforts by AMNH and partners are developing agreements for research and conservation activities on lands to be included in the Kolombangara Biodiversity and Kastom Use Reserve (see additional map). In collaboration with Kolombangara Forests Products Limited (KFPL), the only FSC certified timber operation in the Pacific, this partnership seeks to engage with customary landholding communities around the island, including landholders within the Vila river drainage, the largest catchment on the island that drains the crater through a massive breach in the caldera walls. The forests of this area have been maintained as a de facto reserve by KFPL. The Vila empties into the Vonavona Lagoon adjacent to several proposed Marine Protected Areas (MPAs) under development by WWF Solomons, adding to the

DRAFT

importance of watershed protection at this site. The area is also part of a serial World Heritage site proposed by the Solomon Islands National Commission for UNESCO.

B. The Marovo-Tetepare complex

1) Site description: The geographic scope of this IBA loosely follows the region delimited by the Solomon Islands National Commission for UNESCO in their proceedings towards drafting a Tentative List of Solomon Islands World Heritage Sites. Although considerations of the Commission extend well beyond avian patterns of diversity, the marine and terrestrial landscapes included in this area are important to terrestrial and coastal bird communities of both the Solomon Islands and Western Province. Furthermore, this complex captures marine and coastal habitats important to avian diversity not included in other IBAs in the region.

The Marovo-Tetepare Complex includes the Marovo Lagoon (the world's largest and best-defined double barrier enclosed lagoon system), the uninhabited island of Tetepare, marine and coastal areas of southwest Rendova Island, the uninhabited barrier islands of Hele, and the uninhabited island of Mborokua to the southeast. Marovo Lagoon itself encloses an area of 700 km² within which there are hundreds of small islands of varied geomorphology: sand cays, mangrove islets, raised reef islands, and small islands of volcanic origin. The Hele Bar Islands provide functional ecosystem linkages between Tetepare Island and Vangunu Island and the Marovo Lagoon. The remote and uninhabited Mborokua Island is a complete island ecosystem, seldom visited and with an undisturbed system whose ecological processes are relatively intact.

2) Bird species of conservation concern: Significantly, the avifauna of much of this region has not been recently or thoroughly surveyed, but the spectrum of habitats included is arguably essential to the integrity of Western Province's bird communities. Notable RR species documented from this IBA include: *Zosterops rendovae* (all three subspecies), *Monarcha browni* (two subspecies), an endemic

DRAFT

subspecies of *Myzomela eichhorni*, an endemic subspecies of *Rhipidura cockerelli*, *Haliaeetus sanfordi*, and *Aplonis bruneicapilla* (on Rendova). Notably, huge numbers of resident *Caleonas nicobarica* inhabit the Hele Bars, and unparalleled populations of *Ducula pistrinaria* commute between roosting and nesting areas on the islands to Tetepare and Rendova to the west and Vangunu and the Marovo to the east. Recent observational surveys by TDA scientific associates documented over 500 *Caleonas nicobarica* on a single island and estimated over 13,000 *Ducula pistrinaria* commuting daily to Tetepare alone during a 5-day December 2007 survey (TDA unpublished field report). These barrier islands are also important stopover and foraging areas for migrant and resident juvenile wading birds and potential roosting (and nesting?) sites for several species of seabirds (such as *Sterna bergii*, *Fregata ariel*, though the significance of incidental observations need further field research). In partnership with TDA, Dr. Chris Filardi will initiate a pilot pigeon-banding program in the Hele Bars during the early fledging season of 2008 (mid to late February).

3) Other endemic or threatened wildlife: The proposed IBA is home to a rare monkey-faced bat (*Pteralopex taki*; Parnaby 2002, Flannery 1995) recorded from Vangunu and on New Georgia island. Critically endangered leatherback turtles nest throughout the proposed IBA in significant numbers on Tetepare and southwest Rendova. Several other species of marine turtles, including hawksbill and green, as well as dugong and saltwater crocodiles are also throughout the area. The endemic Solomon Islands prehensile-tailed skink (*Corucia zebrata*) is found throughout the proposed property, and other endemic reptiles and amphibians are likely to be discovered in this poorly surveyed area. Recent discoveries of new endemic freshwater fish species and genera, as well as a potential new gobioid fish family on the island of Tetepare illustrate the area's biological significance (D. Boseto, pers. comm.).

4) Conservation issues: The Marovo-Tetepare Complex is a mixture of habitats – some long altered by human activities (e.g. Rendova), others relatively pristine and intact (e.g. Mborokua, Tetepare). The terrestrial area of south-west Vangunu includes some of the last unlogged transitional zones from montane forest to

DRAFT

coastal areas on Vangunu. Critically, the logging on Vangunu has not yet resulted in large-scale conversion of logged forest to agriculture (except for oil palm plantation development in the southeast) and the opportunity exists to allow natural forest recovery in conjunction with control of invasive plant species. Because many of New Georgia's RR species inhabit secondary forest as well, these habitats should not be overlooked, and may in fact afford easier opportunities for protection. Momentum generated by ongoing attempts to list this region as a World Heritage site provide added incentive and opportunity to identify this region as a IBA.

C. North New Georgia, Pundokona-Mase Catchments and Mount Masae Kaarst Uplands.

1) Site description: This proposed IBA focuses on the forests of mainland New Georgia island important for interior forest bird communities of this region. Whereas the previous IBA (Marovo-Tetepare Complex) contains lagoonal and coastal habitats unique to the southwest New Georgia group, the North New Georgia IBA contains a swath of variable coast-to-high-elevation forest, ascending from sea level up to the crater area of Mt. Vinamari/Masae at nearly 850 m. Exact boundaries of this proposed IBA need to be defined via fieldwork and remote imagery data as logging in this area presents an ongoing threat (AUSAID 2006). However, the general area proposed here includes the Tomoko and Punokona catchments to the SW and the north fork of the Masae River catchment in the NE. The area includes disjunct tracts of lowland forest and palm swamps, upland hill forest and some relatively extensive and poorly known kaarst forest, and upland habitats associated with the deformed, eroding caldera of the highest points on New Georgia (that have not been logged; AUSAID 2006). The forests of this part of northern New Georgia are home to some of the largest remaining pieces of intact interior forests and tall regrowth in Western Province (outside of Kolombangara and Tetepare; AUSAID 2006). Significantly, the higher elevation areas of mainland New Georgia are poorly surveyed. Although further exploration of this area is needed to define the boundaries of this IBA, this area may provide the best opportunity to capture

DRAFT

habitats critical to the mainland New Georgia avifauna and, likewise, the complex interisland avian diversity of the entire New Georgia group

2) Bird species of conservation concern: Restricted range taxa in this IBA overlap with those found in the Kolombangara IBA, and include all but the high elevation endemics (although there is a significant possibility that the poorly surveyed high elevation forests of New Georgia may contain some of the high-elevation elements of the Kolombangara avifauna). Notably, *Coracina caledonica* was commonly recorded in lower parts of the Pundokona and Masae drainages (CEF pers. comm).

3) Other endemic or threatened wildlife: Due to the poorly surveyed nature of this IBA, the status of other endemic or threatened wildlife is largely unknown. However, the recent discovery of a new monkey-faced bat, *Pteralopex taki* (Parnaby 2002) suggests that more unique taxa may be uncovered with further exploration.

4) Conservation issues: Mining and logging interests are a persistent threat to this region and there is an absence of any meaningful conservation initiatives here.

D. *Zosterops* and *Monarcha* reserves

1) Site description: The unique geography of the New Georgia group necessitates an innovative approach to IBA identification. To capture the full breadth of diversity across the New Georgia group demands protection on each main island. The suite of small sites proposed here attempts to capture important elements of documented (and also currently undocumented) bird diversity of this island group that are not included in other proposed IBAs. Specifically, these sites focus on protecting the patterns of diversity in *Monarcha* spp. and *Zosterops* spp. that have made the New Georgia group famous for avian endemism and speciation across very short water gaps. The site includes forested tracks on Vella Lavella, Ranongga, and Ghizo. There are still intact

DRAFT

forested tracks on Ranongga and Vella Lavella, although ongoing logging activities continue to alter habitats on these islands. The limited forest left on the densely populated island of Ghizo needs to be preserved if this island's endemic white-eye, *Zosterops luteirostris*, is to survive. More detailed surveywork and collaborative efforts with local landowners at each of these sites is needed to identify specific IBA boundaries. At the very least, knowing there are certain elements of diversity not yet captured by IBAs, thought should be given to some level of protection on each island that is home to an endemic species. Both Diamond (1976) and Lees (1991) provide similar recommendations for lasting avian conservation in this island group.

2) Bird species of conservation concern: Recent studies of *Monarcha* and *Zosterops* species complexes across the New Georgia group disclose patterns of diversity that, to be preserved, must involve habitat protection on several of the smaller islands of the New Georgia group. *Zosterops vellalavella* is confined to Vella Lavella and Bagga, *Z. splendidus* to Ranongga and *Z. luteirostris* to Ghizo. Similarly, unique subspecies of *Monarch browni* are found on Vella Lavella and Bagga (*M. b. nigrotectus*) as well as Ranongga (*M. b. ganongae*). Notably, preliminary genetic analysis suggests the Vella Lavella and Ranongga populations of *Monarcha browni* to be allied to taxa outside the New Georgia group rather than presumed conspecifics on adjacent islands (Filardi 2004b). Importantly, given recent trends, it would not be surprising if ongoing genetic studies reveal other polytypic New Georgian species (e.g. *Myzomela eichhorni*, with three recognized subspecies; *Pachycephala pectoralis*, with three recognized subspecies, *Rhipidura cockerelli*, with two subspecies) to have significant genetic diversity indicative of independent evolutionary trajectories of island populations (and perhaps distinct enough to be considered full species). Thus a network encompassing these islands is an important component for regional IBA identification.

3) Other endemic or threatened wildlife: Ghizo, Vella Lavella and Ranongga have not been well-surveyed, but given recent findings (TNC 2004, Brown et al. *in prep*, D. Boseto pers comm.) it would not be surprising to find endemic

DRAFT

reptiles, amphibians, fresh-water fish, invertebrates etc. on any of these islands. Arguably, levels of endemism across many animal groups will only increase as further biological surveywork is conducted.

4) Conservation issues: Across the New Georgia group logging is having a dramatic influence on landscapes. Increasingly, however, communities are looking for alternatives so large-scale resource extraction to fulfill their economic and lifeway needs. Ongoing efforts in other parts of Western Province are making headway towards uniting communities in efforts to protect forests in perpetuity. Preliminary discussions with communities on Vella Lavella and Ranongga (AMNH) and meetings with the Provincial Government (based in Gizo on the island of Ghizo) suggest a widespread desire to protect the natural heritage of the islands included in this IBA. This IBA proposal area needs assessment in both regional and Solomon-specific contexts, but recent colloquia on conservation issues in Western Province have repeatedly corroborated interest in protecting the unique interisland variation among *Zosterops spp.* and *Monarcha spp.* that have, in part, made the New Georgia group well-known within the scientific and conservation communities.

Choiseul and Isabel

In context of IBA identification, we consider Choiseul and Isabel jointly because of large overlap in restricted range species and geographic proximity. Furthermore Isabel has no endemic species and the one species endemic to Choiseul, *Microgoura meeki*, is now presumed extinct. Isabel and Choiseul each have 28 restricted range species, 25 of which are shared. *Aplonis bruneicapilla* and *Columba pallidiceps* are found on Choiseul, in addition to the extinct *Microgoura meeki*. *Charmosyna meeki*, *C. margarethae* and *Coracina caledonica* are found on Isabel (but not Choiseul), as well as one or more other islands in the archipelago. The avifaunal similarity between these two islands likely reflects connectivity via a low-lying landbridge during Pleistocene times of lower sea levels (see Mayr

DRAFT

and Diamond 2001 and references therein). Importantly, however, the avifaunas of both islands are poorly known and it would not be surprising if further survey work of interior forests in particular disclosed even more shared species.

With small human populations and large island sizes, population density on both islands is comparatively low (around 5 people/km²). While historically this has resulted in reduced pressure on these islands forests, over the last decade logging on both islands has been widespread, adding urgency to protecting the remaining intact forests. Isabel in particular has been devastated by ruthless and unregulated logging over the past decade, with the only remaining large tracts of intact forest on its most eastern and western ends. This has functionally left two “islands” of intact forest (the Mount Kubamitu area and the northwest end of Isabel, below), isolated by a sea of logged area (AUSAID 2006). Significantly, two threatened species, *Accipiter imitator* and *Nesasio solomonensis*, are found on both Choiseul and Isabel, and nowhere else in the Solomons (although ranges of both extend to Bougainville). As top predators, presumably their persistence (as well as *Haliaeetus sanfordi*, also threatened) depends on large tracts of intact forest, which are rapidly disappearing.

We propose three possible IBAs for these two islands and suggest that two other areas (Shortland Islands, San Jorge/Ortega Channel area) need further exploration. It is important to acknowledge that little detailed surveywork has been done to explore the specific distributions of birds in these islands, the current integrity of the forests, or landowner interest in forest protection.

- E. Mount Maetambae area, Choiseul
- F. Southeast Choiseul, Arnavon Islands and northwest Isabel
- G. Mount Kubonitu area, Isabel
- H. Others: Shortland Islands, Ortega Channel/San Jorge

E. Mount Maetambae

1) Site description: The geographic scope of this IBA follows both the Mount Maetambae protected area proposed by Lees (1991), and the UNESCO-backed serial site proposal to the World Heritage committee. This site encompasses a

DRAFT

coast-to-peak tract of intact forest on the southwestern coastline of Choiseul, spanning from sea level to 800 m, between the Sepa and Vurulato rivers. This region of central Choiseul is the best-preserved example of forest growing on kaarst limestone in the Solomons. The limestone has eroded over time, forming a unique landscape of caves and subterranean rivers. Mount Maetambae, an extinct volcano, supports distinctive forests inside and surrounding its crater. The region is poorly surveyed.

2) Bird species of conservation concern: Presumably, this forest supports most if not all of Choiseul's restricted range species, including the threatened species *Accipiter imitator*, *Nesasio solomonensis*, *Pitta anerythra*, *Aplonis bruneicapilla*, *Haliaeetus sanfordi*, *Columba pallidiceps* and possibly *Nesoclopeus woodfordi*. The newly described endemic genus of frogmouth, *Rigidipenna inexpetatus* likely also resides in primary and/or secondary forests of this proposed IBA below 500 m (Cleere et al. 2007).

3) Other endemic or threatened wildlife: Recent surveys on Choiseul have resulted in the discovery of endemic frogs, butterflies and new records of rare mammals, including the endemic and endangered Poncelet's Giant Rat (*Solomys ponceleti*). Given that this island is poorly surveyed, including the Mount Maetambae area and the unique cave and subterranean rivers, it would not be surprising if further surveywork revealed more species new to science.

4) Conservation issues: The latest report on the state of Solomon forests (AUSAID 2006) indicates that this proposed IBA remains unlogged and intact. The AMNH-CI Solomon Islands Community Conservation Partnership has recently commenced a set of initiatives in the Maetambae area, and WWF Solomons has identified the area as a focus within their Forest Strategy for the Solomons (WWF 2006). For at least 30 years, this area has repeatedly been identified as a high priority site in a variety of conservation contexts (e.g., Diamond 1976; and see Lees 1991).

DRAFT

F. Southeast Choiseul (Lauru Mangroves), Arnavon Islands and northwest Isabel

1) Site description: The geographic scope of this proposed IBA circumscribes two protected area proposed by Lees (1991); South Choiseul and North-western Isabel. The proposed IBA goes from mainland Isabel's western extreme, across the reefs and smaller islands that extend out into the Manning Strait, across the tiny Arnavon Islands, and over to Wagina and Robroy islands as well as the southern end of mainland Choiseul. South Choiseul is characterized by a mosaic of ultrabasic, schist and volcanic landscapes; a drowned coastline of swampy forest and adjacent low hills and islands still supports primary forest. The hills and ridges of northwest Isabel (which never exceed 150 m in elevation) are exposed to strong prevailing winds and cyclones, resulting in an unusual hill forest dominated by species tolerant of disturbance. In between are hundreds of smaller islands, islets, reefs, shoals, and sand bars, including a TNC-run marine protected area in the Arnavon islands. The IBA is characterized by a wide variety of forest types, including large areas of mangrove forest, dense tropical lowland forest and scattered scrub on sand cayes.

2) Bird species of conservation concern: The forests of the mainland portion of this area are home to many RR species, including the threatened *Nesasio solomonensis*, *Accipiter imitator*, and *Haliaeetus sanfordi* (Leary and Pita 2000). Significantly, Leary and Pita (2000) recorded *Nesasio solomonensis* from two sites within this area. Leary and Pita (2000) also recorded nesting sites for *Caloenas nicobarica* within this area. Although *C. nicobarica* is not a RR species, it appears declining globally in number (BirdLife 2004) and worthy of conservation concern. It is possible that the newly described *Rigidipenna inexpectatus* (Cleere et al. 2007) also resides in the forests of northwestern Isabel.

3) Other endemic or threatened wildlife: This area includes important crocodile habitat and significant nesting beaches for threatened turtles. Unique plant communities are known from ultrabasic soils, and it is likely that this unusual forest on south Choiseul supports yet unidentified animal and plant species

DRAFT

endemic to this area. The forests of northwest Isabel may be home to the endemic giant rat *Solomys sapientis*. Again, little detailed surveywork gives conservative estimates of this areas uniqueness: with further work, surely more unique flora and fauna will be documented.

4) Conservation issues: Ultrabasic rock underlies much south Choiseul, and the high metal content of these rocks has led to prospecting in the past by mining companies. Interest in mining this area at this time is not known. Recently logged areas abut the proposed IBA to the west on Choiseul and to the east on Isabel, and presumably logging could envelop the mainland portions of this IBA in the near future (AUSAID 2006). At the time of preparation of this report, several logging operations were active around the Robroy Passage, the impact of which has yet to be assessed. Notably, of all of the Solomon Islands, Isabel has been most devastated by large-scale logging over the past decade. The portion of mainland Isabel protected in this proposed area is isolated from the only other intact forest tract on Isabel (Mount Kubonitu area, below). Community supported marine conservation efforts are already established in the Arnavon islands (TNC), and expanding these efforts to include protection of imperiled forests on mainland Isabel and Choiseul is essential for the persistence of both islands' understudied forest life. Because of the Arnavon Islands Marine conservation area, conservation awareness is likely heightened among area villages, and communities may be particularly amenable to efforts to find alternatives to resource extraction.

G. Mount Kubonitu

Mount Kubonitu is the highest point on Isabel, rising 1250 m above sea level. Significantly, the recent forest status report (AUSAID 2006) identifies the Mount Kubonitu region as one of the few remaining unlogged areas of Isabel. This prospective IBA, whose geographic boundaries have yet to be defined, would encompass high elevation forest and lowland primary forest down to the coast. The lowland primary forest in this area supports many restricted range species, including the threatened species *Accipiter imitator*, *Nesasio solomonensis*,

DRAFT

and *Haliaeetus sanfordi*. Although there are no known bird species endemic to Isabel, the interior forests of this island have not been thoroughly surveyed. However, recent surveywork at middle elevation forest (500 m) in the Tirotonga area above Buala revealed the presence of *Pitta anerythra* (Kratter et al. 2001), as well as the newly described podargid *Rigidipenna inexpectatus* (Cleere et al. 2007). Given lack of surveywork and current ignorance as to the regional and local biological significance of the flora and fauna of Isabel's forests, as well as current levels of threat from ongoing logging, it is difficult to overlook this area as a possible IBA. To our knowledge, there are no conservation initiatives in this area and community interest in alternatives to logging are not known.

H. Others

Two other peripheral areas are worth mentioning and perhaps merit further exploration in the IBA context. The Ortega Channel area (including San Jorge island) of Isabel is home to the largest freshwater swamp on this island, with distinctive (and still intact) swamp forest not recognized on any other island in the Solomons. No recent surveywork has been conducted in the region but given the unique regional context of this forest, it could contain as yet undocumented flora and fauna.

The Shortland Islands, off the eastern end of Bougainville, but politically part of the Solomons, have significant intact and unique forests that share many RR species with Bougainville. They may or may not merit inclusion in part of Papua New Guinea's IBA strategy, depending on the social and conservation context of any IBA efforts focused on Bougainville's avifauna.

Guadalcanal

Guadalcanal is the largest and most geologically complex island in the Solomon Islands (and second only to Bougainville in the archipelago). A high rugged mountain range ascends to 2400 m and creates two distinct climates: the southern "weather" coast of Guadalcanal experiences some of the highest rainfall

DRAFT

in the Solomons, whereas the northern plains are in a rainshadow and sheltered from the prevailing winds. Its natural systems reflect this variety of physical parameters, with specific forest and grassland types found on the relatively dry northern coasts, on the ultrabasic areas, and on the high cloud-capped mountain peaks. It remains unclear whether or not Guadalcanal was joined to Choiseul and Isabel by Pleistocene land bridge (Mayr and Diamond 2001 and refs therein), but regardless, historical proximity has resulted in the avifauna sharing broad affinities with Choiseul, Isabel and Bougainville.

The interior montane forests of Guadalcanal have rarely been reached by scientists, but what little work has been done discloses an exceptionally unique avifauna. Guadalcanal is home to 102 species of birds (39 of which are RR; Stattersfield et al. 1998) and a very distinct high elevation bird community. Three montane species are endemic: the monotypic honeyeater genus, *Guadalcanaria* is represented by *G. inexpectata*, the honeyeater *Myzomela melanocephala* (both are encountered frequently throughout parts of their ranges; Doughty et al. 1999), and the thrush *Zoothera turipavae*, which has been recorded only three times from the type locality on Guadalcanal, most recently in 1997 (BirdLife 2007). Three other species are confined to montane forest but also occur on Bougainville: *Pachycephala implicata*, *Rhipidura drownei* and *Actenoides bougainvillei*. The former two appear to have healthy populations (BirdLife 2007) while the latter species is suspected to be declining in parts of its range, although only one montane site has been visited (BirdLife 2007). One high-elevation species found on Guadalcanal, *Megalurulus whitneyi*, is also encountered on the northern Islands of Vanuatu. This species, however, is known on Guadalcanal from only three records at the type locality between 1200 and 1550 m (BirdLife 2007). Given recent trends in modern systematic work on poorly known Solomon birds (e.g., Cleere et al. 2007), it would not be surprising if rediscovery and study of this virtually unknown taxon revealed it to be distinct from populations on distant Vanuatu.

Other notable RR taxa include *Ducula brenchleyi*, found in the foothill forest and lower montane forests of Guadalcanal (in places apparently descending to near sea-level on the rugged weather coast; C. E. Filardi, unpub. data) as well as Malaita and Makira. *Collocalia orientalis*, recently recorded from

DRAFT

Kolombangara (Filardi 2004a), is historically known only from three specimens collected from hill or montane forest on New Ireland, Bougainville and Guadalcanal (BirdLife 2007). *Charmosyna meeki* and *C. margarethae* also inhabit the hill and montane forests of Guadalcanal.

Notably, some of the RR species with high elevation ranges on Guadalcanal as well as on other islands have unique subspecies on Guadalcanal (e.g. *Pachycephala implicata*, *Actenoides bougainvillei*, *Rhipidura drownei*). Due to the exceptionally disjunct nature of these distributions (species are functionally living on isolated islands of montane habitat separated from any similar habitats by intervening lowlands as well as extensive sea barriers), it would not be surprising if further ecological and genetic work disclosed differences between populations that warrant species-level status for each island population. This might also be true for more widespread (i.e. not RR) high elevation species such as *Micropsitta bruijini*, *Turdus poliocephalus*, *Phylloscopus poliocephala*, *Petroica multicolor*, and, possibly, *Eurythrura trichroa*, about all of which some subspecific differentiation has been described, but of which little is known.

The avifauna of the lowland forests of Guadalcanal is also noteworthy. There are five recent records of *Nesoclopeus woodfordi* on Guadalcanal, and an apparent increase in numbers on the northern coast (BirdLife 2007). Other notable RR residents of Guadalcanal's lowland forest include *Centropus milo* (endemic subspecies), *Columba pallidiceps* and *Lorius chlorocercus*.

Like other islands in the archipelago, forests on Guadalcanal are being destroyed at an ever-increasing rate (AUSAID 2006). Despite these startling recent trends in habitat degradation, much of the island is characterized by rugged landscapes unsuitable for human habitation and undesirable for logging, and thus interior landscapes remain largely intact (AUSAID 2006; although mineral prospecting presents an ongoing and uncalculated threat). Furthermore, the dramatic landscapes of the southern coast have not experienced the same pressures as the populated northern portion of the island, and some of these forested and rugged landscapes spanning from mountaintop to coast remain relatively pristine.

We propose two primary IBAs to safeguard integral elements of both the high and low elevation avifaunas of Guadalcanal. Two additional areas are

DRAFT

discussed as possible sites because of their unique habitats and understudied avifaunas -- both are poorly known and/or circumscribed and compel immediate field assessment and survey.

- I. Lauvi, southcentral Guadalcanal
- J. Mount Popomanaseu
- K. Others: Palm forest of eastern uplands, Northern grasslands

I. Lauvi

1) Site description: The geographic scope of this proposed IBA follows that proposed by Lees (1991), and is centered on the 200 hectare fresh-water Lauvi Lagoon, the second largest lake in the Solomons (after Lake Te Nggano on Rennell). On the southern (weather) coast of Guadalcanal, this IBA extends from the coastal Lagoon inland to include Mount Kaichui, Mount Vatupochau and Mount Vatutura. An extensive area of montane forest is included in this area, as well as the upper catchments of many streams and rivers. A recent study on Kolombangara (Filardi 2004a) documented daily movements of some birds from low elevation foraging grounds to high elevation roosting and nesting grounds. Although not yet documented, this is presumably the case for numerous montane birds on Guadalcanal. Significantly, this proposed IBA would support such movements by preserving a relatively intact coast to mountaintop tract of forest.

2) Bird species of conservation concern: Presumably, the montane areas of this IBA support the unique high-elevation avifauna of Guadalcanal (see above). Lees (1991) also recorded a diversity of wetland species in and around the lake, including a pair of *Tachybaptus novaehollandiae*, a first record for the Solomons. Threatened species likely present in this area (although not recorded by Lees 1991) include: *Aplonis bruneicappilla*, *Haliaeetus sanfordi*, *Columba pallidiceps* and *Ducula brenchleyi*.

DRAFT

3) Other endemic or threatened wildlife: The lagoon is an outstanding crocodile habitat and a rare wetland habitat for many birds and animals. Three rare (two likely extinct; Flannery 1995) species of *Uromys* rat could possibly reside in this poorly surveyed area. Other fauna of this region of Guadalcanal are poorly known.

4) Conservation issues: There is no available knowledge on current conservation issues in this sparsely populated remote coast of Guadalcanal.

J. Mount Popomanaseu of Guadalcanal

1) Site description: This proposed IBA in the Mount Popomanaseu region of Guadalcanal, includes forest catchments and lowland valleys of the Itina River and its tributaries, and a full forest community transition of lowland riverine forest to montane forest. Mount Popomanaseu (2330m) and Mount Makarakomburu (2249m) are the highest mountains in the Solomon Islands, and this area supports the largest contiguous montane forest in the country, including forests on ultrabasic soils and numerous high-elevation wetlands, bogs, and palm forests. Gardens and old village sites are widespread on the low hills and flood plains of the lower Itina, but most of the land is still densely forested and was never permanently inhabited. Boundaries of the proposed IBA area are generally consistent with reserves proposed both by Lees (1991) and by the Solomon Islands National Commission for UNESCO in their tentative list of World Heritage sites. The approximate boundaries also reflect the ongoing conservation work of the AMNH-CI Community-Based Conservation Partnership (namely within the Mataruka communities in the northern lowlands east of Honiara).

2) Bird species of conservation concern: The area roughly outlined here includes some of the type localities and areas associated with recent sightings of the taxa comprising the unique high elevation avifauna of Guadalcanal (see above). The area also includes extensive hill forest as well as some spectacular lowland tall forests that support the lowland RR species (see above). Notably, the high

DRAFT

elevation forest above 1000 m was not surveyed by Lees (1991), but subsequent ornithological exploration into parts of this area have provided the only recent sightings of *Guadalcanaria inexpectata*, and *Actenoides bougainvillea* (BirdLife 2007).

3) Other endemic or threatened wildlife: Mount Popomanaseu is home to the only known endemic montane snail species in the country though others are likely to be discovered with further exploration. A new species of monkey-faced bat (*Pteralopex pulchra*; Flannery 1995) was found at 1230 m on the slopes of Mount Makarakomburu, and is known only from one specimen. Recent work has not been done on reptiles and amphibians – both high and low elevation -- but high degrees of endemism are expected (R. Brown and P. Pikacha, pers. comm.)

4) Conservation issues: A 1990 Australian Museum mammal survey between 380 m and 1700 m on Mount Makarakomburu found signs of introduced black rats (*Rattus rattus*), feral cats (*Felis familiaris*) and pigs (*Sus scrofa*) in the mossy forests above 900 m. No terrestrial birds (except for a single megapode) or mammals were found in the area. Significantly, *Actenoides bougainvillea* is a hole-nester, and as a consequence is potentially threatened by these introduced predators. Though logging is less of a current threat to these areas than more accessible parts of the Solomons, mineral prospecting has increased dramatically in the last several years. The Australian prospecting operation Australia Resource Management and Survey (ARMS) has two Special Prospecting Licenses that cover parts of the core of the proposed IBA (SPL190 and SPL195). Although the community engagement initiatives of the AMNH-CI Solomon Islands Community Conservation Partnership have resulted in a rescinding of SPL190 (covering the Mount Popomanaseu and Mbarakomburu peak areas), ARMS work in the adjacent SPL195 has revealed mineral deposits that are likely of commercial interest. Thus, conservation efforts associated with this site will likely need to proceed in consultation or partnership with whatever mining operation ultimately invests in the area. Though this may be less than ideal with respect to IBA protection, there are significant precedents for positive conservation outcomes through partnership with mining companies in the

DRAFT

Melanesian region (e.g. the Ok Tedi mines in PNG and CI's work with mining companies in the West Papua Province of Indonesia).

K. Others

The northern grasslands on Guadalcanal are the only seasonally dry grasslands in the Solomon Islands. A growing footprint of human activity surrounds the nations capital, Honiara, and as the booming economy pushes development into the unique grassland habitats of northern Guadalcanal, impacts on the avifauna confined to these areas is unknown. Notably, these extensive and unique grasslands historically supported at least one poorly known species, an endemic subspecies of the button quail, *Turnix maculosa*. Sadly, several local biologists and numerous individuals in grassland landholding communities have repeatedly suggested that *T. maculosa* was relatively common through the early 1990s, but is now apparently absent from all areas familiar to these informants (P. Pikacha, N. Biliki, and numerous members the Mataruka communities, pers. comm.). Additionally, subspecies of the widespread *Acrocephalus stentoreus*, and *Gallirallus philippensis* presumably reside here, as may *Nesoclopeus woodfordi*, which favors wet grasslands (Dutson, pers. comm). Notably, recent captures and photographs of *Acrocephalus stentoreus* suggest this taxon may be unique to Guadalcanal (P. Pikacha and C. E. Filardi pers. comm.), and thus qualify as a RR taxa. The absence of ecological knowledge and recent surveywork of this small but regionally unique avifauna coupled with exponential increases in grassland conversion, make the northern plains and foothills of Guadalcanal (including grassland, gallery forest and swamp habitats) worthy of consideration in the context of regional IBA designation.

Recent helicopter flyovers of the high elevation palm forests of the eastern uplands in association with the Danish Galathea 3 Expedition revealed a remarkably, remote and intact set of landscapes that are virtually unexplored by biologists. The geography, topography and flora of these sites suggest that the abundance of some endemics and RR taxa could be higher here than anywhere

DRAFT

else on earth (C. E. Filardi pers. comm.). Clearly, surveywork is urgently needed to identify important elements of this unknown region of Guadalcanal.

Makira

Makira Ulawa Province consists of the main island of Makira and its small neighboring island groups (Ulawa, Ugi, Santa Ana, Santa Catalina, and the Three Sisters). Makira is mountainous, the central mountain range dividing the island into the northern coastal plain where most of the population lives, and the sparsely populated southern “weather” coast. An old faultline further divides Makira across its mountainous spine, forming the less rugged and lower western half and the higher peaks of the eastern half. Notably, on Makira, the montane cloud forest descends to 650 m, an altitude similar to that of far smaller islands (e.g. Vangunu). This suggests that the unique topography and geographic position of Makira may be particularly unusual in the Solomons.

Logging on Makira has been ongoing since the early 1980s and by the 1990s most of the accessible forest on Makira was either logged or committed to logging (Lees 1991). The 2006 Forests Report (AUSAID 2006) confirmed that most of the more accessible western half of Makira has been, or will soon be logged, as will a large tract on the easternmost end of the island. Much of the forest and highlands in between are less suitable for commercial logging and remain largely intact.

Makira has the highest number of endemic species in the Solomon archipelago, with 13 (*Gallinula sylvestris*, *Gallicolumba salamonis*, *Ptilinopus eugeniae*, *Cettia parens*, *Phylloscopus makirensis*, *Zoothera margarethae*, *Monarcha viduus*, *Myiagra cervinicauda*, *Rhipidura tenebrosa*, *Dicaeum tristami*, *Myzomela tristami*, *Melidectes sclateri*, *Aplonis dichroa*), in addition to 13 other RR species (including a new record on Makira for *Charmosyna meeki*, Fjeldsa et al 2007). This likely reflects its relative isolation, and its easternmost position in the archipelago (three RR species have presumably colonized Makira from the east, but are found no further west in the Solomons; *Ptilinopus richardsii*, *Lalage leucopyga*,

DRAFT

Myzomela cardinalis), but may also result from the unusual physical character of this mountainous island. As with other islands in the Solomon archipelago, as more detail becomes available about the ecology and taxonomy of this island's birds, Makira birds will likely be revealed as even more distinctive than previously thought [e.g. Mayr and Diamond (2001) elevate the subspecies of *Coracina tenuirostris* to species status, which may indeed be the case; and see Fjeldsa et al 2007], adding importance to the globally recognized birdlife on this island.

Notably, two endemic ground-dwelling species have not been recorded from Makira in over fifty years, despite considerable search-effort. *Gallinula sylvestris* is only known from a 1929 type specimen and has not been recorded since 1953 (BirdLife 2007) and *Gallicolumba salamonis* had not been recorded since 1927. However, as Makira's swamps appear never to have been visited by ornithologists, and the primary forest on the south coast not since the 1950s, they have not yet been classified as extinct.

A recent expedition into interior Makira was the first systematic ornithological inventory in the high parts of central Makira since the 1920s. The resulting draft report (Fjeldsa et al 2007) re-emphasizes the importance of this region and advocates protection of its unique interior avifauna. Both Lees (1991) and Fjeldsa et al (2007) point to this area as one of exceptional ornithological importance, and this region of Makira has been recommended as part of a community-managed World Heritage area. We concur with these recent findings and propose an IBA, the Bauro Highlands, which coincides with their recommendations. Both reports also identify the west Makira swamps as an area of particular ornithological intrigue but about which little is known. Therefore we propose two IBAs, the second, West Makira swamps, pending further exploration:

- L. Bauro highlands
- M. West Makira swamps

L. Bauro Highlands

1) Site description: This proposed IBA will protect the last extensive accessible lowland forest that remains uncommitted to timber production along with a complete forested altitudinal transition across the island of Makira. The Bauro Highlands of central Makira contain some of the country's last extensive lowland forest tracts. A dramatic southern coastline of rocky cliffs reach inland to the montane forest on some of the island's highest peaks at 1200 m, encompassing full transitional gradients of forest zones. The Ravo and Warihito River catchments are bounded by steep-sided wide valleys, with numerous streams and waterfalls and small perched floodplains as high as 400 m in elevation. The proposed IBA is approximately 63,000 ha in size, and is in part managed as a community-managed conservation area. Although specific geographic limits need to be identified, the IBA roughly follows Lees (1991) and the Bauro Highlands site within the Tropical Rainforest Heritage of the Solomon Islands World Heritage proposal. More importantly, this site is the focus of significant WWF Solomons, AMNH-CI efforts to establish Community Conservation Agreements across much of this area.

2) Species of conservation concern: Fjeldsa et al (2007) documented 11 of the 13 endemic species during their 2006 surveywork (*Zoothera margaretae*, *Ptilinopus eugenia*, *Cettia parens*, *Phylloscopus makirensis*, *Monarcha viduus*, *Myiagra cervinicauda*, *Rhipidura tenebrosa*, *Dicaeum tristami*, *Myzomela tristrami*, *Melidectes sclateri*, *Aplonis dichroa*). The remaining two, *Gallinula sylvestris* and *Gallicolumba salamonis* are both globally threatened, and may be extinct. In total, 10 globally threatened or near-threatened species of birds were recorded, including five Makira endemics (*Haliaeetus sanfordi*, *Columba pallidiceps*, *Ptilinopus eugeniae*, *Ducula brenchleyi*, *Charmosyna margarethae*, *Zoothera margarethae*, *Cettia parens*, *Phylloscopus makirensis*, *Myiagra cervinicauda*, *Rhipidura tenebrosa*). While nine of these were found to have healthy populations, *Columba pallidiceps* was only recorded in very low numbers. This recent surveywork, in combination with Dutson's observations (pers comm.) suggest that the Bauro highlands of Makira

DRAFT

may be a genuine stronghold for these two species, although both could be widespread elsewhere in small numbers.

3) Other endemic or threatened wildlife: Fjeldsa et al (2007) found evidence of a new species of endemic giant rat (*Solomys spp.*) and documented five RR bats, including three Makira endemics. Additionally, there are high percentages of unique or endemic insects on Makira (Lees 1991, Tennent 2002), and two species of fig have been identified as being endemic, with recent botanical work (Fjeldsa et al 2007) suggesting numerous new additions to the flora.

4) Conservation issues: As with other islands in the archipelago, threats to this regions biodiversity include: population growth, logging, and introduced species. Logging in particular poses an ongoing threat, although to date local landowners have resisted pressure from logging companies. As suggested above, there are significant resources being put into this area by ongoing initiatives to set up Community Conservation Agreements. These efforts build on over 10 years of interest in protecting this area and its regionally significant avifauna, beginning with efforts by the Solomon Islands Development Trust (SIDT) and Conservation International. The Makira Community Conservation Foundation was formed as a result of SIDT / CI long-term interest in the area, and is now partnering with AMNH-CI (and potentially WWF Solomons) to protect the natural and cultural heritage of this area. Fjeldsa et al (2007) identify the following threats to the natural resources of the Bauro Highlands:

- Erosion of customary law and lack of security of tenure over land largely as a result of contradictions between customary law and government policy, and minimal follow-up on legal actions related to land tenure
- Population increase, poverty and lack of cash income.
- Limited political will among government decision-makers to make change.
- Unsustainable large-scale forestry throughout the lowlands of Makira.
- Large-scale expansion of agricultural schemes, including plantations of cocoa, coconut, teak, and mahogany; cattle ranches; and rice farming in the lowlands,

DRAFT

- Inadequate coordination and minimal capacity of provincial and national government agencies to monitor and enforce regulations.

M. West Makira Swamps

One of the largest representatives of peat swamp forest in the Solomon Islands is located across the western half of Makira. Such large inland swamps are unknown elsewhere in the Solomons, and very poorly studied. The swamps extend in interrupted segments across most of western Makira and are separated by incised valley sections. This entire area appears to be under immediate threat from unsustainable logging of well-drained adjacent land (AUSAID 2006). Rapid assessment is needed of the biological and local livelihood values of the swamps of western Makira. Given the size and scope of these poorly known swamp areas, and imminent threat to this unique environs, we suggest immediate surveywork to assess current logging, and document flora and fauna of this area. Surely, many of Makira's RR taxa reside in the forests surrounding these swamps, and it would not be surprising if surveywork here disclosed endemic species or races of a wide range of flora and fauna. Notably, if designated, an IBA here will need to include all upper catchment sectors of the swamp environs to ensure long-term habitat survival.

Malaita

Malaita province is comprised of the large island of Malaita, its immediate neighbor Maramasike, and two isolated atolls to the far north of the Solomon archipelago – Ontong Java and Sikaiana. Malaita is the third largest and fourth highest Solomon Island with a central mountainous region, high ridges in the north, and lower hills and alluvial flats toward the southern (Maramasike) end. Notably, Malaita province is home to approximately one third of the population of the Solomon Islands, making it the most densely populated province. North Malaita has the greatest concentration of people, while parts of the south are relatively empty. With most of the population still dependent on traditional

DRAFT

subsistence agriculture, Malaita's sizable population has impacted the natural vegetation of north Malaita, in particular. The timber industry has also impacted landscapes, but despite escalating logging activity as of 2006 there were still large tracts of intact tropical forest in north coast of southcentral Malaita, and the lowland areas of southern Malaita and Maramasike (AUSAID 2006).

Of Malaita's 74 species, 71 are shared with Guadalcanal. The remaining three are endemic to Malaita: *Zosterops stresemanni*, *Rhipidura malaitae*, and *Myzomela malaitae*. An additional 15 species have unique subspecies on Malaita (Mayr and Diamond 2001), but recent molecular analyses disclose high degrees of genetic differentiation in some subspecies, suggesting that further molecular and ecological study might result in species-level status for some island populations (e.g. *Dicaeum aeneum*, *Monarcha barbatus*; Filardi and Smith 2005, Smith and Filardi 2007).

Of Malaita's three endemics, one (*Rhipidura malaitae*) is endemic to the high mountains of this island. Records suggest this species was locally common in 1930 when the Whitney expedition visited Malaita, but it appears now to be localized and rare (BirdLife 2007), and the population is classified as vulnerable. However, few ornithologists have visited Malaita's mountains in recent years, and this species may be locally common on mountains not recently visited. *Myzomela malaitae*, while documented in lowland forest, appears more common in hills and mountains. It appears intolerant of disturbance, is absent from secondary forest in many areas, and is classified as near-threatened (BirdLife 2007). For both of these endemics, much of their documented ranges are above the altitudes most threatened by logging or clearance, however little is known about extant distributions or population size. Recent records of *Zosterops stresemanni*, suggest it is more catholic in its habits, fairly widespread across elevational gradients and more common than the other endemics.

To safeguard the unique elements of Malaita's avifauna, following Lees (1991), we propose two IBAs. It must be noted, however, that very little ornithological work has been recently done on Malaita and surveywork is recommended.

N. Central Malaitan Highlands

O. Maramasike- Are'Are.

N. Central Malaitan Highlands

1) Site description: Following Lees (1991), this proposed area encompasses the highest peak of Malaita (Mount Kolovrat, 1300 m) and the surrounding montane and lowland forest. Unlike other parts of Malaita's interior highlands, there are few villages situated inside the proposed area. The boundary extends downslope to include lowland forest adjacent to the Wairaha River, providing a complete transition from extreme highland to low altitude. We tentatively suggest that the boundary of this IBA extend as far south toward the coast as is possible, pending surveywork, assessment of logging activity, and landowner cooperation.

2) Bird species of conservation concern: Lees' (1991) team did not reach montane forest in the proposed area, but ornithologist Paul Scofield spent one month in the region in 1990 and documented *Rhipidura malaitae* as "occasionally seen above 650 m", and *Zosterops stresemanni* and *Myzomela malaitae* as abundant throughout the area (as reported in Lees 1991). Other notable species recorded and likely dependent on high elevation forests of Malaita include: *Ducula brenchleyi*, *Gymnophaps solomonensis*, *Columba vitiensis*, *Charmosyna meeki*, *C. margarethae*, and *Phylloscopus trivirgatus* (frequent above 650 m)

3) Other endemic or threatened wildlife: There has been little recent work on the plants and animals of highland Malaita. Given its long history of isolation, however, and significant levels of specific and subspecific endemism in its avifauna, further study will likely reveal Malaita to have endemics in many other taxonomic groups as well.

4) Conservation issues: We are aware of no conservation initiatives on the island of Malaita. As on other Solomon islands, habitat loss as a consequence of population growth and industrial scale logging are the major threats to

DRAFT

biodiversity. The central highlands of Makira are now somewhat immune to these effects, as the population in this part of Malaita is small, and the logging of high elevation areas is not economically viable at present. The impact of invasive species has not been assessed.

O. Maramasike – Are'Are

1) Site description: The boundaries of this proposed IBA roughly follow that of the protected area proposed by Lees (1991), and includes the very southeastern end of Malaita, the very narrow Maramasike passage, and the northwestern side of Maramasike island. Included in this site is the Are'Are Lagoon, the least disturbed of Malaita's distinctive lagoon communities. The forests of the Are'Are area have been impacted both by cyclones and agricultural clearance, and since Lees' report (1991), pressure from logging has increased. In the 2006 Forest Report (AUSAID 2006), two lowland forest tracts within this area are reported to have ongoing and/or planned industrial logging activities. Yet even with these portions of the forest removed, the mosaic of lowland forest types within this proposed area represents the best remaining forested lagoon and catchment area on Malaita. Furthermore, the northern hills and alluvial flats of the catchments of the Maramasike Passage are deeply forested, and support some of the most extensive remaining tracts of forest on low hill and alluvial surfaces in the Solomons.

2) Bird species of conservation concern: The extensive lowland forest in this proposed IBA provide an ideal habitat for all elements of Malaita's lowland bird community, including many of its RR species. Although this area has not recently been surveyed, it is reasonable to expect all elements of Malaita's lowland avifauna to persist here. This site thus provides an ideal complement to the Central Malaitan Highland IBA proposed above.

3) Other endemic or threatened wildlife: The rich alluvial forests of the Maramasike region are some of the most extensive forests of this type in the Solomons. Little biological work has been done here, but given levels of specific

DRAFT

and subspecific endemism in Malaita's avifauna, further study will likely reveal endemics in many other taxonomic groups as well. Notably, the coastal and alluvial habitats of this part of Malaita may be significant crocodile habitat (Lees 1991).

4) Conservation issues: Since Lees' report (1991) logging has impacted this region of Malaita. The Forest Report (2006) identifies three large tracts of forest in the Are'Are-Maramasike region as having current or planned logging activity, and it can be assumed that pressure to expand these operations is ongoing. This is despite Lees' (1991) assessment that there was a strong interest in forest protection amongst local landowners. Clearly, there is a pressing need for alternatives to large scale resource extraction, but with no known conservation projects active in this region of Malaita, irreparable damage to this prospective IBA may be imminent. Significantly, in December 2007, the AMNH/CI Community Conservation initiative was approached by several communities in the east Are'Are region interested in protecting their intact forest.

Rennell and Bellona

The outlying islands of Rennell and Bellona lie approximately 200 km southwest of Guadalcanal and Makira. The greater part of Rennell is covered in forest, but the more populated (and much smaller) Bellona has virtually no remaining forest cover. Rennell is the largest and highest uplifted coralline limestone island in the world, and is further distinguished as having the largest inland lake in the tropical Pacific. It also has the most distinctive avifauna in relation to its size, and with Bellona has been designated as its own Endemic Bird Area Stattersfield et al. (1998). Its exceptionally unique physical and biological attributes have resulted in UNESCO designation of the East Rennell World Heritage Site in 1998. This site covers the eastern third of the island, including Lake TeNggano and marine areas adjacent to the rugged coastline.

DRAFT

We propose one IBA for this remote region. Because there is negligible forest left on Bellona, and because of Rennell's small size we advocate designating the entire island of Rennell as an IBA.

P. Rennell

1) Site description: A large area of Rennell's forests will need to be protected to ensure survival of its birds. Therefore we propose that all of Rennell, including forests surrounding Lake TeNggano, as well as the Lake itself, be included in this IBA. Rennell's forests are unusually distinct, dominated by species absent from most of Melanesia, and lacking many of the common trees found elsewhere in the Solomons.

2) Bird species of conservation concern: Of 37 breeding land and freshwater bird species, five species are endemic to this single island (*Clytorhynchus hamlini*, *Rhipidura rennelliana*, *Zosterops rennellianus*, *Woodfordia superciliosa*, and *Aplonis insularis*). Nine subspecies are endemic to Rennell and six additional subspecies are endemic to Rennell and nearby Bellona. Significantly, very little recent taxonomic work has included birds from Rennell, and given its isolation, it would not be surprising if, with further study, some subspecies were deemed to merit species-level status. Other RR species present on Rennell are: *Ptilinopus richardsii*, *Lorius chlorocercus*, *Micropsitta finschii*, *Geoffroyus heteroclitus*, *Gerygone flavolateralis*, *Myiagra caledonica*, and *Myzomela cardinalis*.

3) Other endemic or threatened wildlife: Lake TeNggano is clearly a unique habitat home to flora and fauna not found elsewhere in the Pacific. Lees (1991) reports that of 56 identified animal species on Lake TeNggano, 12 are endemic, including an endemic sea snake. The islets of the lake are also home to an endemic orchid, and at least 10 bat species have been recorded from Rennell (including two endemic subspecies). Although World Heritage designation has instigated more careful documentation of Rennell's wildlife, much has yet to be learned.

DRAFT

4) Conservation issues: Most of the forest on Rennell remains undisturbed (90%; Lees 1991), including the area within the proposed IBA. Although there have been past proposals to mine bauxite as well as develop a major logging operation, none have materialized. Significantly, although all RR species are forest birds, most also occur in secondary habitats.

Human-induced disturbances over the past half-century have resulted in changes to the abundance and distribution of two once-vagrant species (*Aplonis cantoroides* and *Phalacrocorax carbo*; Filardi et al. 1999 and refs therein) that now appear to have established breeding populations. *Phalacrocorax carbo*'s transition from vagrant to resident breeder over the last decade follows the 1957 introduction of the African fish *Tilapia* into Lake TeNggano, which may be its only food source (Filardi et al. 1999). Significantly, the increased population of *P. carbo* and the introduction of *Tilapia* coincides with the demise (and putative local extinction due to disruption of food supply) of two duck species on Rennell (*Anas superciliosa* and *Anas gibberifrons*). Given the exceptional endemism and unusual composition of Rennell's avifauna, the impact of newly colonizing species are worthy of long-term monitoring. Particularly devastating would be the introduction of non-native terrestrial mammals (e.g. rats), as there are no natural mammalian predators on Rennell.

Obviously, community cooperation is a prerequisite to carefully planning for and defining parameters for gardening, hunting and sustainable removal of timber within this proposed IBA. Because of its World Heritage status, the population of Rennell (in particular east Rennell) is aware of the regional biological significance of their natural assets. Interest has also been expressed by communities in west Rennell for considering conservation incentives (C. E. Filardi pers. com) to sustainably steward their forests.

Q. Temotu Province

The Santa Cruz islands of Temotu Province lie at the extreme eastern limits of the Solomons group, 400 km east of Makira and 270 km north of the Torres and Banks islands on the northern extreme of Vanuatu. Nendo and

DRAFT

Vanikoro are the main islands of Temotu Province, with dozens of smaller islet and atolls. Stattersfield et al (1998) group the Santa Cruz islands with Vanuatu into a EBA, but Dutson (2006) asserts that given two pending new species (see below), the Santa Cruz islands could be reclassified as an Endemic Bird Area independent of Vanuatu. Clearly, this province of the Solomons contains unique regional elements of biodiversity, and warrants careful stewardship and protection.

Because the status of some RR species is not well known, it is difficult to propose specific IBAs, especially without considering IBAs in other parts of this EBA. Instead we describe RR species of conservation concern and summarize the most recent distributional data, tentatively suggesting areas that may warrant inclusion in an IBA strategy pending further surveywork and consideration of IBA initiatives in Vanuatu.

The islands of Temotu province are home to 13 RR species, four of which are endemic: *Mayrornis schistaceus*, confined to Vanikoro, *Woodfordia lacertosa* and *Zosterops sanctaerucis* confined to Nendo, and the newly reclassified *Clytorhynchus sanctaerucis* (Dutson 2006; classified as endangered based on estimated population size) recorded only from Nendo as well. Dutson (2006) also reports a new (undescribed) species of *Zosterops*. Another three species occur only on the Santa Cruz islands and Vanuatu (*Gallicolumba sanctaerucis*, *Aplonis zelandica*, *Charmosyna palmarum*), and *Myiagra vanikorensis* is restricted to Vanikoro and Fiji. One RR species, *Accipiter albogularis*, is shared with New Britain and the Solomons, and *Aplonis tabuensis* is shared with much of Polynesia. The remaining three, *Lalage maculosa*, *Ptilinopus greyi* and *Myzomela cardinalis* are also found on Vanuatu, in addition to other EBAs.

In his recent work in the region, Dutson (2006) has not recorded *Gallicolumba sanctaerucis* from Temotu province, and its current status on the smaller islands of Utupua and Tinakula is not known. *Charmosyna palmarum* is also documented from Tinakula, although this island has not been visited recently (BirdLife 2007). Both of these regional endemics are classified as vulnerable on the IUCN Red List. Clearly, protection of these species requires both data on current distributions and synergistic efforts with Vanuatu, where these birds are also found. Notably, the distribution of *Charmosyna palmarum*

DRAFT

may be adversely affected in some areas by the recent arrival of *Trichoglossus haematodus* (e.g. on Vanikoro, Dutson 2001), as well as by intermittent cyclone damage (Bregulla 1992).

While there is currently no conservation action in this province (but note that AMNH-CI efforts are engaged with several community groups in Lata), the forest is subject to few current threats (Dutson 2006). However, the unique kauri forest of the Santa Cruz islands has been subject almost throughout to selective logging (Stattersfield et al 1998). Furthermore, powerful cyclones hit the area on average every 30 years, and can dramatically damage forested areas, possibly influencing the distribution of some taxa (e.g. *Chamosyna palmarum*; Bregulla 1992). Given this unpredictable forest disturbance regime, and also that all RR taxa are found in forest (and some on secondary habitats; Stattersfield et al 1998), protecting as much intact forest as possible is likely the best strategy for safeguarding this unique avifauna. However, up-to-date status of this regions endemic species needs to be gathered prior to specifically identifying IBAs. The reclassification of a shrikebill endemic to Nendo, and the suggestion that an additional species of *Zosterops* (Dutson 2006) inhabits Temotu province exposes the preliminary nature of our understanding of this regions fauna. Therefore, following Lees' (1991), we advocate further surveywork to determine whether any areas fit formal IBA criteria, but conservatively recommend consideration of IBAs encompassing forest reserves on both Nendo and Vanikoro. Additionally, the islands of Tinakula and Utupua need to be surveyed to establish current status of *Gallinolumba sanctacrucis*.

6. SIMPLE MAPS – SEE ATTACHED

7. REFERENCES

AUSAID. 2006. Solomon Islands National Forest Resource Assessment Update. Solomon Islands Forestry Management Project II (SIFMP II). URS Sustainable Development, Canberra, ACT 2601.

Bayliss-Smith, T., E. Hviding, and T. Whitmore. 2003. Rainforest Composition and Histories of Human Disturbance in Solomon Islands. *Ambio* 32:5, 346-352.

DRAFT

BirdLife International. 2003. BirdLife's online World Bird Database: the site for bird conservation. Version 2.0. Cambridge, UK: Bird Life International. <www.birdlife.org>. Accessed November, 2007.

BirdLife International 2004. *Caloenas nicobarica*. In: IUCN 2007. 2007 IUCN Red List of Threatened Species. <www.iucnredlist.org>. Downloaded on 26 December 2007.

BirdLife International. 2007. Species factsheets: Downloaded from <http://www.birdlife.org> in December 2007.

Bowen-Jones, E., Abrutat, D., Markham, B & Bowe, S. 1997. Flying foxes on Choiseul (Solomon Islands): The need for conservation action. *Oryx* 31:209-217.

Brown, R. In prep. Notes on recent herpetological collections from the Solomon Islands.

Bregulla, H. L. 1992. Birds of Vanuatu. Oswestry, UK: Anthony Nelson.

Buckingham, D. L., G. C. L. Dutson, and J. L. Newman. 1995. Birds of Manus, Kolombangara and Makira (San Cristobal) with notes on mammals and records from other Solomon Islands. Report of the Cambridge Solomons Rainforest Project 1990.

Central Bank of the Solomon Islands, 2005 Annual Report.

Cleere, N., A. W. Kratter, D. W. Steadman, M. J. Braun, C. J. Huddleston, C. E. Filardi, and G. Dutson. 2007. A new genus of frogmouth (Podargidae) from the Solomon Islands – results from a taxonomic review of *Podargus ocellatus inexpectatus* Hartert 1901. *Ibis* 149(2):271-286.

Coleman, P. J. 1966. The Solomon Islands as an island arc. *Nature* 211:1249-1251.

Conservation International, 2007. Biodiversity Hotspots: Eastern Melanesian Islands. <http://web.biodiversityhotspots.org/xp/Hotspots/east_melanesia/biodiversity.xml>. Accessed November, 2007.

Convention on Biological Diversity. Solomon Islands Country Profile. <www.cbd.int>. Accessed July 28, 2007.

Diamond, J. 1976. A Proposed Forests Reserve System and Conservation Strategy for Solomon Islands. Unpublished Report.

Diamond, J. M. 1991. A new species of rail from the Solomon Islands and convergent evolution of insular flightlessness. *Auk* 108:461-470.

DRAFT

Diamond, J. M. 2002. Dispersal, mimicry, and geographic variation in northern Melanesian birds. *Pacific Science* 56(1):1-22.

Doughty, C., N. Day and A. Plant. 1999. *Birds of the Solomons, Vanuatu, and New Caledonia*. Helms field guides. A&C Black, London.

Dutson, G. 2001. New distributional ranges for Melanesian birds. *Emu* 101:237-248.

Dutson, G. 2006. The Pacific shrikebills (*Clytorhynchus*) and the case for species status for the form *sanctaerucis*. *Bulletin of the British Ornithologists Club* 126(4):299-308.

Filardi, C. E. 2003. Speciation and the biogeographic history of tropical Pacific flycatchers (genus *Monarcha*). Ph.D. Dissertation, University of Washington, Seattle, WA.

Filardi, C. E. 2004a. *Summary Results of a Biological Survey of the Proposed Kolombangara Nature Reserve*. Report to the Kolombangara Island Council of Chiefs and Solomon Island Ministry of Forests, Environment and Conservation.

Filardi, C. E. 2004b. A Molecular Re-evaluation of Bird Diversity and Speciation in the Solomon Islands. National Geographic Research Report, CRE 7464-03.

Filardi, C. E., C. E. Smith, A. W. Kratter, D. W. Steadman, and H. P. Webb. 1999. New behavioral, ecological, and biogeographic data on the avifauna of Rennell, Solomon Islands. *Pacific Science* 53: 319-340.

Filardi, C. E. and R. G. Moyle. 2005. Single origin of a pan-Pacific bird group and upstream colonization of Australasia. *Nature* 438(10):216-219.

Filardi, C. E. and C. E. Smith. 2005. Molecular phylogenetics of monarch flycatchers (genus *Monarcha*) with emphasis on Solomon Island endemics. *Molecular Phylogenetics and Evolution* 37:776-788.

Filardi, C. E., C. E. Smith, P. Pikacha, P. S. Sweet, and G. W. Scoville. *In prep*. Notes on the birds and frogs of the Kolombangara cloud forests: new findings from a remarkably intact island endemic fauna.

Fjeldsa, J. F. Danielsen, C. Filardi, K. A. Jonsson, n. Drabbe, J. B. Kristensen, R. G. Moyle, P. Pikacha, A. D. Poulsen, M. K. Poulsen. 2007. An assessment of the biodiversity of the Bauro Highlands of Makira, Solomon Islands, with suggestions for integration of conservation and local development. Draft report submitted to MCCF.

Flannery, T. F. 1995. *Mammals of the South-West Pacific and Moluccan Islands*. Chatswood, Australia: Reed and Australian Museum.

DRAFT

- Gibbs, D. 1996. Notes on Solomon Island birds. *Bulletin of the British Ornithologists Club* 116:18-25.
- Hadden, D. 1981. *Birds of the North Solomons*. Wau Ecology Institute, Wau, Papua New Guinea.
- Henderson, C.P., I.R. Hancock, 1988. *A Guide to the Useful Plants of Solomon Islands*. Ministry of Agriculture and Lands, Honiara.
- IUCN/Dahl, A. L. 1986. Review of Protected Areas in Oceania. IUCN, Gland, Switzerland and Cambridge, UK.
- IUCN 2007. 2007 IUCN Red List of Threatened Species. www.iucnredlist.org. Downloaded 5 December 2007.
- Keast, A, and S. E. Miller (eds). 1996. *The Origin and Evolution of Pacific Island Biotas, New Guinea to Eastern Polynesia: Patterns and Processes*. Amsterdam: SPB Academic Publishing.
- Kratter, A. W., D. W. Steadman, C. E. Smith, C. E. Filardi, and H. P. Webb. 2001. The avifauna of a lowland forest site on Isabel, Solomon Islands. *The Auk* 118(2):472-483.
- Kratter, A. W., D. W. Steadman, C. E. Smith and C. E. Filardi. 2001. Reproductive condition, moult, and body mass of birds from Isabel, Solomon Islands. *Bulletin of the British Ornithologists Club* 121(2):128-144.
- Larmour, P. 1979. Forest utilization and land tenure in the Solomon Islands, in K. R. Shepherd and H. Richter (eds.), *Forestry in National Development: Production Systems, Conservation, Foreign Trade and Aid*. Australian National University, Canberra.
- Lees, A. 1991. *A Protected Forests System for the Solomon Islands*. Maruia Society, New Zealand.
- Lewis, B.A., P.J. Cribb, 1991. *Orchids of the Solomon Islands and Bougainville*. Royal Botanic Gardens, Kew.
- MacArthur, R. H. and E. O. Wilson. 1967. *The Theory of Island Biogeography*. Princeton University Press, Princeton, New Jersey.
- Mayr, E. 1942. *Systematics and the Origin of Species from the Viewpoint of a Zoologist*. Columbia University Press, New York, New York.
- Mayr, E. & Diamond, J.M. 2001. *The Birds of Northern Melanesia*. Cambridge, Massachusetts: Harvard University Press.
- McCoy, M. 1980. *Reptiles of the Solomon Islands*. Wau Ecology Institute, Handbook No. 7. Wau, Papua New Guinea.

DRAFT

- McCoy, M. 2006. *Reptiles of the Solomon Islands*. Pensoft Series Faunistica 57, Sofia-Moscow.
- Moyle, R. G., C. E. Filardi, C. E. Smith and J. Diamond. In prep. Explosive Pleistocene diversification and hemispheric expansion of a great speciator.
- Mueller-Dombois, D. and F. R. Fosberg, 1998. *Vegetation of the Tropical Pacific Islands*. Springer-Verlag, New York, Berlin, Heidelberg.
- Paine, J. R. 1989. *Solomon Islands: An Overview of its Protected Areas System Draft Report*. World Conservation Monitoring Centre, Cambridge.
- Parnaby, 2002. *Pteralopex taki*.
- Phillips A (2002) *The World Heritage Convention and its Application to Marine and Coastal Sites*. Workshop on World Heritage and Biodiversity Conservation in Tropical Coastal, Marine and Small Island Ecosystems, February 25 – March 1, 2002 in Hanoi, Vietnam
<http://international.nos.noaa.gov/heritage/welcome.html>
- Pacific Island Ecosystem at Risk Project (PIER). US Forest Service
- Read, J. and K. Moseby. 2006. Vertebrates of Tetepare Island, Solomon Islands. *Pacific Science* vol. 60, no. 1:69-79.
- Solomon Islands National Statistics Office, 2007. Postal Contact: The Government Statistician, Department of Finance, National Statistics Office, P.O. Box G6, Honiara, Solomon Islands. Website: <http://www.spc.int/prism/contry/sb>
- Solomon Islands National Forest Resource Assessment Update 2006. Solomon Islands National Government Department of Forests, Environment and Conservation.
- Smith, C. E. 2003. Phylogeography of multiple avian lineages from the Solomon Islands. Ph.D. Dissertation, University of Washington, Seattle, WA.
- Smith, C. E. and C. E. Filardi. 2007. Patterns of molecular and morphological variation in some Solomon Island land birds. *Auk* 124(2):479-493.
- Stattersfield, A. J., M. J. Crosby, A. J. Long, and D. C. Wege. 1998. *Endemic Bird Areas of the World: Priorities for Biodiversity Conservation*. Birdlife International, Cambridge, United Kingdom.
- Steadman, D. W. 1993. Biogeography of Tongan birds before and after human impact. *Proc. Natl. Acad. Sci. USA* 90:818-822.
- Steadman, D. W. 1995. Prehistoric extinctions of Pacific Island birds: Biodiversity meet zooarchaeology. *Science* 267:1123-131.

DRAFT

Steadman, D. W. 2006. *Extinction and biogeography of tropical Pacific birds*. University of Chicago Press, Chicago, USA.

Tennent, W. J. 2002. *Butterflies of the Solomon Islands: Systematics and biogeography*. Storm Entomological Publications, Norfolk, England.

TNC 2004. *Solomon Islands Marine Assessment: Key Findings*. The Nature Conservancy
[http://www.nature.org/wherewework/asiapacific/solomonislands/files/solomon_key_findings.pdf]

US Forest Service, Pacific Island Ecosystems at Risk (PIER). Online resource at <http://www.hear.org/pier/>, accessed December 2007.

Whitmore, T.C. 1966. *Guide to the Forests of the British Solomon Islands*. Oxford University Press, Oxford.

Whitmore, T. C. 1969. Geography of the flowering plants. *Philosophical Transactions of the Royal Society of London* B225:549-566.

Whitmore, T. C. 1969a. The vegetation of the Solomon Islands. *Philosophical Transactions of the Royal Society of London* B225:259-270.

Whitmore, T. C. 1974. Change with time and the role of cyclones in tropical rain forest on Kolombangara, Solomon Islands. Commonwealth Forestry Institute Paper 46.

Whitmore, T. C. 1989. Changes over twenty-one years in the Kolombangara rain forests. *Journal of Ecology* 77:469-483.

World Wildlife Fund. 2006. *A forests strategy for Solomon Islands 2006-2011*. Final Report from WWF SI Forests Strategy Planning Workshop, Honiara, Solomon Islands.

World Wildlife Fund 2001;
www.worldwildlife.org/wildworld/profiles/terrestrial/aa/aa0119_full.html;

Wikramanayake, E.D., Dinerstein, E., Loucks, C., Olson, D., Morrison, J., Lamoreux, J., McKnight, M., & Hedao, P. (Eds.). 2002. *Terrestrial Ecoregions of the Indo-Pacific: A Conservation Assessment*. Washington, D.C.: Island Press.

DRAFT

8. KEY STAKEHOLDERS AND ADVOCATED DISSEMINATION LIST

1. Solomon Islands Government

- a. Department of Forest, Environment and Conservation
- b. Department of Forestry,
- c. Ministry of Fisheries and Marine Resources
- d. Ministry of Home Affairs
- e. Ministry of Education and Human Resources Development

2. Non – Government Organizations (NGO)

a. International NGOs

- i. Conservation International (CI)
- ii. World Wildlife Fund (WWF), Solomon Islands
- iii. World Fish Centre
- iv. The Nature Conservancy (TNC)
- v. Foundation of the People of the South Pacific (FSPI)
- vi. United Nations Development Programme (UNDP)
- vii. Greenpeace, Solomon Islands
- viii. Community Conservation Agreement Field Implementation Unit (CCA- FIU)
- ix. Kolombangara Forest Product Ltd.

b. Local NGOs

- i. Solomon Islands Development Trust (SIDT)
- ii. Makira Community Conservation Foundation (MCCF)
- iii. Tetepare Descendant Association (TDA)
- iv. Kolombangara Island Council of Chiefs (KICC)
- v. Environment Concerns Action Network of Solomon Islands (ECANSI)
- vi. Solomon Islands Locally Management Marine Areas (SILMMA)
- vii. East Rennell World Heritage Trust board

9. ADVOCATED CHANGES IN SPECIES THREAT STATUS

At this time we do not have any recommended changes.

Solomon Islands



