



**FINAL REPORT FOR THE PROJECT ENTITLED
*LOCATING IMPORTANT SEABIRD COLONIES IN FIJI AND FRENCH POLYNESIA***

GRANT 2006-30662

May 2009

SUMMARY

The *Locating Important Seabird Colonies (Important Bird Areas) for Conservation Management in French Polynesia and Fiji* is a 28 month project initiated in November 2006 between the David & Lucile Packard Foundation (DLPF) and BirdLife International. The project is managed by BirdLife International through its Pacific Partnership Secretariat in Suva, Fiji, and implemented in French Polynesia by the NGO Partner, *Société d'Ornithologie de Polynésie (SOP-MANU)*, and in Fiji by the *BirdLife International Fiji Programme (BIFP)*.

The island archipelagos of Fiji and French Polynesia are characteristically large (French Polynesia covering an area the size of Europe) comprising several hundred islands and supporting a significant proportion of tropical seabirds known to breed in the region. However, many of these colonies have not been surveyed for several decades if at all. This project has addressed significant knowledge gaps associated with the location and status of these seabird breeding areas. A literature review and information obtained through ornithological accounts identified 64 seabird islands in Fiji: of these 21 were considered as potentially hosting globally important populations as were a further 23 in French Polynesia. In total, surveys confirmed 36 islands or island groups to have seabird populations that meet BirdLife International Important Bird Area (IBA) criteria. Surveys also provided the opportunity to collect baseline data on seabird colonies and the presence of introduced mammalian predators. Collectively this information provides the first comprehensive inventory of the location, status and threats to seabird islands and will inform management needs and priorities for seabird conservation in French Polynesia and Fiji.

Investigations of traditional and contemporary use of seabirds revealed a significant reduction in the importance and knowledge of seabirds to island communities. Highlighting a need for public information awareness materials disseminated through schools and the publicizing of seabird conservation work all served to raise the profile and understanding of seabird conservation nationally. The results of this have included requests for assistance from resort and landowners for seabird surveys and conservation management advice.

The use of remote-sensing technologies to monitor seabird colonies were found to be limited in both the species detectable and cost compared with field based techniques. Applications were found to be possible for islands of certain physical characteristics but these do not occur in Fiji and are considered to be generally uncommon throughout the tropical South Pacific.

The following report summarises activities previously reported on in December 2007 and 2008 and provides additional details for the period to March 31st 2009. Included is a full financial report for the Grant. The report has been compiled by Steve Cranwell and edited by Don Stewart with in-country contributions from Lucie Faulquier and Anne Gouni (SOP-MANU Project Officer and Programme director respectively) and Tuverea Tuamoto (BIFP Project Officer).

PROGRAMME DESCRIPTION

Of the 41 species of seabird that breed, or are suspected to breed (including terns and noddys), within the tropical Pacific region, the majority are known or thought to be present among the islands of the French Polynesian and Fijian archipelagos. Information on the distribution and status of breeding colonies for these species is patchy, out of date and or incomplete, which represents a significant constraint to the development of a long-term programme of seabird conservation and management in the region.

This lack of quantitative and qualitative data on seabird colonies is symptomatic of the capacity and resources in the region for assessing seabird distributions, compounded by the extreme remoteness of many potential sites. The costs of surveys and logistics represent significant constraints. There are hosts of islands which have not been visited for many years by biologists. Moreover, there is a lack of data on seabird population trends, and of analyses of the threats to seabird colonies posed by habitat modification, human exploitation and invasive alien predators. Fiji and French Polynesia are particularly data-deficient due to the large geographical extent (1,290,000 km², and 5,030,000 km² respectively) and number of remote islands within these territories.

In improving understanding of seabird breeding colonies, this project will review the literature, including survey records of 19th century 'pioneer explorers and ornithologists', alongside their more recent counterparts. Among Polynesian and Melanesian cultures, seabirds have traditionally been known as a resource either for food, their feathers, or as a means of locating fish stocks. Ethno-biological surveys of village elders, fisher folk, and academics as well as a review of the literature will be undertaken in amassing this information. In analysing this historical information, priority sites will be identified for survey and assessment under Important Bird Area criteria.

The IBA process has been developed by the BirdLife Partnership to identify all sites critical for bird conservation worldwide and uses scientifically robust criteria to select the priority sites based on good quality data. A site qualifies as an IBA based on the presence of a range of endangered or endemic species, but concentrations in numbers of birds are also considered important. For a site to qualify as a seabird IBA, it must support a population of over 10,000 pairs of breeding seabirds (of one or more species), or more than 1% of a regional or global population of a bird species. IBA identification is proving to be a critical tool for site-based conservation, as an internationally recognised prioritisation standard as well as to catalyse site-based action, governmental support and enhanced funding potentials.

Time costs and constraints associated with previous IBA surveys for both countries resulted in only a small number of more accessible islands suspected of, or historically documented as, supporting significant seabird colonies being visited. However, many seabird colonies remain un-assessed among the widely flung islands of these two archipelagos and thus this project will provide a more complete assessment of seabird IBAs.

Inevitably some sites of historical significance to seabirds will have become degraded and no longer qualify as IBAs. However, the collation of all sites in a catalogue of seabird areas will enable future management options including the potential for restoration.

The use of remote-sensing techniques will also be investigated as a means of detecting seabird colonies. With improved access and advancements in this technology the identification of seabird colonies, guano deposits and vegetation types associated with seabirds may now be possible. The application of such technology potentially enabling the status and conservation management needs of seabird islands to be determined through alternative and cost effective technology.

The up-to-date information will be documented and mapped showing distributions and numbers of breeding seabirds. Survey data will be entered into the BirdLife World Birds Database and an action plan will be produced identifying management actions for the islands assessed including their restoration potential. Collectively these activities alongside ongoing advocacy, education and provision of information to national and local governments will add to the development of a long-term programme for seabird conservation and management in the region.

PROGRAMME OUTCOMES

The principal outcome of the project was to address the extreme knowledge gap on the location and status of seabird colonies in French Polynesia and Fiji. With several hundred islands potentially hosting colonies in these two expansive island territories, a review of all literature, alongside information sourced from ornithologists, and peoples familiar with these islands particularly local communities, sought to identify the location of seabird colonies of which prioritised surveys would confirm the status (including threats) and global significance. Site and species information would enable the respective Important Bird Area inventories to be updated including the World Bird Database, and possible restoration priorities identified.

To facilitate management decisions, information on the status of these colonies over time was also sought. The application of a monitoring framework enabling the assessment of key indicators among a subset of priority sites was also identified as a Project outcome.

Accessing local knowledge on the traditional (and contemporary) use of seabird islands was considered to be a potentially useful source for identifying historical (and existing) seabird islands and an insight into the importance and possible pressure on these resources. A report quantifying traditional and contemporary use of seabirds and seabird islands alongside recommendations for sustainable use and management will be sought from the Project. Information gained on possible seabird sites will inform the inventory of seabird islands.

Typically seabird islands in Fiji and French Polynesia are characterised as being remote and difficult to access making monitoring and the ability to assess change expensive and generally problematic. As an alternative means to identifying seabird islands and assessing changes in colony size, an investigation of the application of remote sensing will be made. A report will evaluate the suitability of a range of technologies for such an application.

With little public knowledge of seabirds and seabird islands, an awareness campaign seeks to raise the level of understanding of issues facing both species and sites and, critically, the threats to these and how they can be mitigated. An outcome for the project will be the production of a range of awareness materials, media communications, and the engagement of landowners, communities and other stakeholders to develop an understanding of the value of seabirds and seabird habitats and threats to these

Collectively the project aims to enhance the technical capacity of implementing teams in seabird management and survey methods. As necessary, assistance will be sought from technical experts to facilitate the delivery of tasks and develop Partner skills strengthening their ability to manage, advocate and implement seabird conservation programmes.

PROGRAMME ALTERATIONS

There have been no significant changes to the outcomes sought for the programme.

There have been delays to the projects progress as a result of initial recruitment and changes in personnel which precipitated the need for a project extension. Logistical constraints associated with survey preparations and implementation also contributed to this extension

PROGRAMME ACCOMPLISHMENTS

Fiji

The accessing of a range of information sources including published and grey literature, oral accounts and posted surveys (associated with the ethno-biological survey) was a major component and foundation of the Fiji seabird IBA project. This review identified 64 of the 312 islands in Fiji as likely to be still supporting seabird populations. These seabird islands are distributed throughout the archipelago with greater concentrations among remote island groups. This is particularly so for the 21 islands considered as potentially hosting globally significant populations, a large proportion of which occurred within the remote island group of Lau. Due to logistical and resource constraints, it was not possible to survey all 21 islands; however seabird and alien species surveys were conducted for 12 of these. 9 of the 12 were identified as having internationally important seabird populations (Naqelelevu islets of Tauraria & Tainibeka, Vetaua, Vanua Masi, Kibobobo Levu, Mabualau, Nukutolo Islets, Nukubasaga and the islet of Nukupureti). With the exception of Nukutolo islets, all were confirmed to have at least one species of rat while a cat or cats were thought to be present on Vanua-masi. Additionally, islands in proximity to these and for which there was no recent seabird information were also surveyed. This amounted to a further 17 islands or island groups some of which were found to have nationally important seabird populations and, in the case of Vatu-vara, the presence of threatened ground birds identified this to be a candidate IBA. Prior to the project, 14 IBAs had been identified for Fiji (6 included seabirds). Provisionally there are now twenty-three IBAs in Fiji 14 of which have seabirds as a trigger species.

Surveys were a collaborative effort with time and resources contributed by BirdLife from the David & Lucile Packard Foundation (DLPF), the University of the South Pacific Institute of Applied Sciences, the Fiji Government (Ministry of Fisheries), and Dr Dick Watling.

Information on seabird colonies and threats to species and habitats (including alien species) has been drawn together as the first collective record of its type for the Fiji Islands. The site and species detail provides an analysis of seabird breeding colony size distribution and management needs. This forms the basis for determining management priorities (including restoration and further survey) for the archipelago and will continue to be developed as additional sites are assessed and baseline monitoring data is added to. To enable a ready update and analysis of the information, a database is being developed that will enable several agencies (notably government) ready access. With the majority of the seabird IBAs also recognised as Sites of National Significance (in Fiji's Biodiversity Strategy and Action Plan), such information gives an enhanced ability to advocate for the protection of these sites. Pressure to develop islands remains high (particularly by the tourism industry), and current information on the status and significance of these seabird islands is critical to governments development of appropriate land management strategies.

An analysis of traditional and contemporary knowledge of seabirds was conducted and informed primarily by a questionnaire sent to over 200 schools (and targeted remote island groups) added to by face to face interviews with island communities, and schools, fishermen and review of literature sources. Among the main findings were traditional seabird associations have diminished substantially. Survey and interview responses noted previous harvesting practices had almost entirely ceased and were now mostly associated with opportunistic collection by fishermen. This is in clear contrast to what was once a seasonal food source, material for celebration and costume, and 'guide' for fishermen although the latter is still practiced to some extent. Reasons for this are varied but key contributors are considered to be changes in diet through commercially available foods, and the reduced availability of seabird species sought. The compilation of information on traditional and contemporary seabird use and knowledge has provided a valuable source for developing awareness materials and also highlighted future possibilities in supporting villages interested in restoring historical seabird areas and sustainably resurrecting traditional customs.

An investigation was made of the application of remote sensing techniques to identify and potentially monitor seabird islands and colonies. Methods examined included satellite imagery, the use of GIS models for detecting seabird indicators, and aerial photography. The analysis of this is reported in detail but in summary satellite imagery was found to be constrained by the level of image detail (pixel resolution) available and at best limited to surface or canopy nesting species of at least several hundred birds on islands

not smaller than several hectares (small islands result in poor image quality). Aerial photography has been successfully used to monitor seabird colonies in other parts of the world, however this has been restricted to sites with little to no tree or shrubby vegetation cover. Almost all of Fiji's islands are fully vegetated (and similarly for much of the tropical Pacific), again restricting such a technique to large canopy-nesting species (or the few seabird islands without vegetation). The third technique examined the possibility of using indicators of seabird presence such as geological features (guano), and particular plant species (Pisonia) for developing GIS models enabling the detection of seabird islands. Although, possible this was offset by the considerable investment needed to obtain data (from satellite, aerial maps, and potentially surveys) on the presence of indicators. Furthermore sites identified through GIS models would still require ground survey and although alternative information sources have their limitations (local accounts, literature, biologists etc) generally these provide sufficient indication and as such there would appear no advantage in developing such models for this purpose.

Overall the cost of these techniques was substantial, at best equivalent to conducting surveys among the most remote islands but generally far greater. Combined with this is the limited information presently obtainable from remote-sensing techniques. In contrast field surveys provide not only quantifiable and comparable data but also valuable information on other variables that inform the status of a seabird island including confirmation of the presence and effects of alien predators, seabird ecology (which is not known for most species), and accounts from local people on species, trends, and human interactions and advocacy opportunities.

In combination with Grant 30661, these two programmes have raised the profile and knowledge of seabird conservation issues regionally and nationally. The production of a leaflet on the location and protection of seabird islands, a seabird poster and the distribution of materials to schools (through the ethno-biological survey) and communities alongside profiling project results through several media articles (radio, web based and print) and presentations, information sharing and engagements with conservation NGOs, tertiary institutions, government agencies (Department of Environment, Agriculture and NLTB) communities, and the tourism sector (resorts), have all facilitated recognition and support for BirdLife's work.

Evidence of increased interest and awareness of seabird conservation has been expressed by local landowning communities and resort owners requesting seabird surveys (and alien species assessments and eradication advice) for their islands. The Department of Environment has also sought technical advice and support for awareness campaigns (eg World Environment Day). The Secretariat is frequently contacted for a variety of seabird conservation advice including support for seabird surveys and other management actions throughout the region. The success of these programmes has required the Secretariat to increase its management capacity to address national and regional expansion of its seabird conservation programmes.

A variety of on-the-job training, national and regional workshops and the involvement of technical specialists have developed the capacity of Project staff. One staff member from the Fiji Programme has been employed on the project throughout supported by others at appropriate phases. At its inception, the Project Officer was Amit Sukal who in 2008 took up a new appointment and was replaced by Tuverea Tuamoto. Elenoa Seniloli also assisted at various Project phases (particularly surveys) as did two other staff of the Fiji Programme. For most staff there was little prior experience in seabird conservation. The result of this project (and associated Grant 30661), has been the development of knowledge and experience across a range of seabird (and general) conservation disciplines, including seabird species and breeding areas for Fiji (and the Pacific), survey and monitoring techniques, government and civil society understanding and attitudes to seabird conservation, management needs and local conservation priorities. Additionally, the Project delivery has resulted in the development of supporting skills such as the use of GIS programmes (also applicable to the SOP-MANU project officer), use of the World Bird Database, and the ability to plan and manage work programmes. Research has provided an extensive knowledge of seabird references and contacts nationally and internationally in seabird conservation

Images of survey activities are attached as Annex 1.

French Polynesia

French Polynesia is characterised by a large number and diversity of seabirds and seabird islands dispersed over an area the size of Europe. Determining survey priorities among the 125 islands and island groups required an extensive review of the literature and other ornithological accounts. Despite numerous atolls, motu, and islands having been identified as important for survey, 23 were considered to potentially host globally important seabird populations and were prioritised accordingly. Because of the remote location, cost and human resources needed to survey some of these sites, the proportion visited was recognised from the outset to be dependent on the support of other agencies. Similarly, where researchers and conservation agencies (particularly government) were mounting expeditions to sites not among the '23 priorities' (but lacking seabird data), SOP-MANU also sought to join these expeditions. Ultimately 15 islands and island groups were surveyed: of these 11 were confirmed to support seabird populations of global significance (IBAs). In addition, information from the literature review was sufficiently recent and able to be corroborated by seabird ornithologists to confirm a further 16 islands or island groups as seabird IBAs. Collectively, the total number of candidate seabird IBAs has been identified at 27. Although, this analysis accounts for the majority of seabird IBAs, future surveys are expected to confirm new sites particularly for sub-surface nesting seabirds which are inherently difficult to detect.

Surveys confirmed a variety of threats to these seabird islands. Rats were almost universally present (considered absent only from 2 islands) while goats and cats were common. Pigs, inappropriate development, and uncontrolled harvesting were also noted to be impacting on breeding colonies. In addition to the inclusion of such information in the IBA inventory (and World Bird Database), SOP-MANU also developed a database of seabird predators for all of the IBAs and other sites surveyed. Complimentary to this is a geographic database for all seabird islands depicting species and colony size. Collectively these resources enable SOP-MANU to assess management needs and address priority actions. The databases will be made available to other conservation organisations, notably government, and will provide a mechanism to advocate the coordination and funding of seabird conservation priorities. SOP-MANU will continue to maintain both databases, adding new survey and monitoring information further enhancing national seabird conservation and knowledge of management needs.

Awareness of seabird conservation issues and advocating the protection of seabird species and habitats has been an integral part of the SOP-MANU programme. Initiatives have had a local and national focus. Examples include a campaign addressing the issue of young Tahiti petrel and Audubon shearwaters which are brought down by bright lights (particularly in the city of Papeete) as they leave their breeding grounds. Unable to launch themselves from the built-up environment, invariably they perish from cats, dogs, being hit by vehicles and dehydration. Media provided considerable coverage of the issue and public support resulted in an unprecedented number of birds (in excess of 100) being recovered for release. The recovery of the birds also provided valuable information on the birds ecology so the campaign will be held annually. At a community level, SOP-MANU worked with the people of Ua Huka to raise their understanding of the effects of unsustainable egg harvest on the resident sooty tern colony. This resulted in an agreed harvesting protocol and the establishment of a monitoring framework linked to the evaluation of harvesting effects and the option of adjustments. School children were also targeted among all islands surveyed, with presentations on seabird identification and conservation issues supported by the provision of associated leaflets and posters produced by SOP-MANU. In island communities, children are often particularly enthusiastic championing conservation messages and the need to moderate past behaviours negatively affecting seabird islands among their peers and elders. MANU has also maintained a profile of its seabird IBA programme nationally and regionally through its newsletter (*Te Manu*), press articles, radio interviews, and communications with government, ornithologists, researchers and the Manu Board of Directors.

Images of survey activities are attached as Annex 2.

Annex 1: Seabird Survey Images Fiji



Elenoa Seniloli surveying Vatu-Vara Island



Vatu-vara Island



Where survey plans go awry



Survey Nagelelevu



Seabird guide, Nukubasaga survey



Survey Tauraria

Annex 2: Survey Images French Polynesia



Tahiti mountain range survey

Raiatea Island survey



Lucie Faulquier measuring Sooty Tern chick, Kauehi Is



Tahiti petrel, Raiatea Island



School seabird awareness programme (Kauehi and Raivavae Islands)