

Birdwatching as a Potential Tourism Market on Kiritimati Island

Nicholas Towner, Krisztian Vas and Simon Milne

ABSTRACT

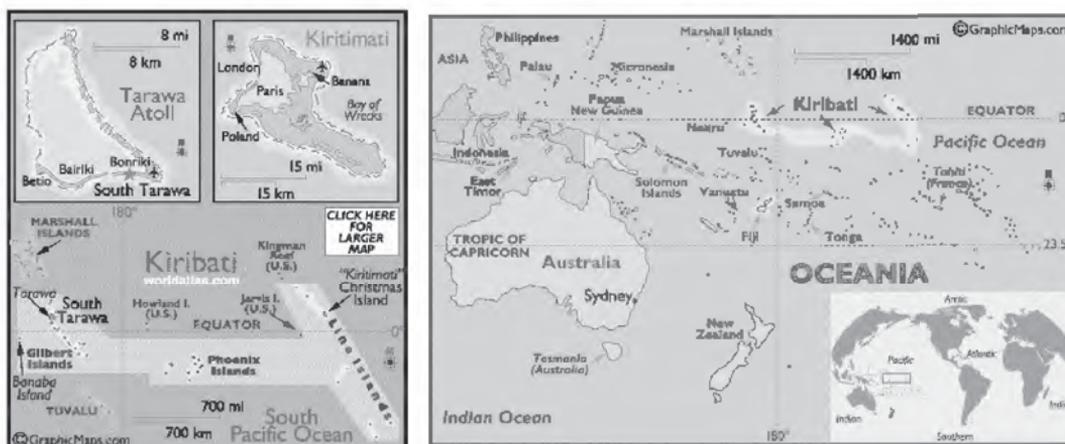
Kiritimati is an isolated low lying atoll located in the Pacific Ocean and is part of the Republic of Kiribati. Kiritimati faces many challenges to its economy. An absence of economies of scale, long distance from major markets, scarce fresh water supplies and limited land area contribute to its economic vulnerability. Unlike other Pacific islands, Kiritimati receives very few international visitors, and these are generally restricted to bone fisherman, consultants and government officials. This article reviews the current tourism activities occurring on Kiritimati and evaluates whether the island's enormous colonies of breeding seabirds could be an opportunity for environmentally based ecotourism. The island is home to numerous rare seabird species, which have a high economic value due to their ability to attract the committed birdwatchers, who tend to have long stays, high-expenditures levels, and a high return rate. The potential for developing birdwatching tourism in Kiritimati relies on developing sustainable niche products on an appropriate scale that does not exceed current carrying capacities. Further research [is needed into any] heavy promotion in international tourist markets and protection of birds from exploitation due to local poaching.

Keywords: *Kiritimati; birdwatching; ecotourism; twitchers; avitourism*

INTRODUCTION

Kiritimati (the Eastern most Island in the Republic of Kiribati) is not well known amongst most tourists as a holiday destination. It is easily overshadowed by other more popular and developed Pacific island nations such as Fiji, Samoa or the Cook Islands. However, Kiritimati is very unique and has the potential to offer tourists resources and attractions that very few other Pacific island destinations can provide. Kiritimati is one of 33 low-lying coral islands that are dispersed over approximately 3,550,000 square kilometres throughout the central Pacific Ocean that form the Republic of Kiribati (Teeb'aki, 1993). Kiribati is made up of three main island groups which stretches over 4,000km from east to west (Figure 1) and extends over a greater expanse of sea than any other Pacific nation (Milne, 2010). Kiritimati is the largest island within the Republic of Kiribati, comprising 70% of the landmass of the country (Teeb'aki, 1993). Kiritimati is the largest coral atoll island in the world, with a total land area of 321 square kilometres. It also has a lagoon of approximately the same size that extends over 48km of the shoreline (Teeb'aki, 1993). This large lagoon structure provides suitable habitat for one of the greatest concentrations of tropical seabirds found anywhere on the globe (Garnett, 1983).

Figure 1: Map of Kiritimati.



Source: (World Atlas, 2013).

Kiribati has a fragile economy struggling to find its position in a progressively more interconnected global economy. Similar to many other developing small island states, Kiribati has many challenges to economic growth, which include an absence of economies of scale and long distance from key markets. Other inhibitors to economic growth existing in Kiribati include high birth rate, small population, working adult population who might immigrate to Australia and New Zealand, small domestic markets and threats of climate change. Fresh water supply and useable land are also in limited supply. Such developmental challenges have been compounded by the global economic slowdown in recent years, reductions in the Revenue Equalization Reserve Fund [formed in 1956 to store the capital for the country's retributions from phosphate excavation], a decrease in seafarer employment and a reduction in exports. International development support continues to provide the greatest portion of government revenues and is a significant source of foreign exchange (Milne, 2010).

Kiribati government has recognized tourism as an important sector for producing opportunities for revenue and employment. Pratt (2013) notes that developing niche tourism is important for little-known south Pacific destinations. Unfortunately, Kiribati's tourism track record has not shown continued growth and development. In 2012 visitor numbers by air were 4,907, marking a slight decrease from the 5,264 visitors in 2011. Both figures are significantly higher than the low of 3,871 arrivals in 2008 (Table 1) (Harrison & Pratt, 2013). The Australian and American markets have traditionally dominated tourism, with Australians generally travelling for business and Americans coming for bone-fishing. New Zealand has been the third largest market, with Japan fourth and other Pacific nations also making up a sizeable portion of visitors (Milne, 2010).

Table 1: Kiribati Visitor (Air) Arrivals by Country of Residence

YEAR	Australia	NZ	UK	Ger	USA	Japan	Other Pacific	Other Countries	Total
2000	745	244	158	47	1,454	439	1,167	575	4,829
2001	759	266	187	270	908	338	1,173	673	4,574
2002	802	312	213	291	1,112	494	1,114	597	4,935
2003	745	339	146	242	826	179	1,023	856	4,356
2004	672	282	73	31	430	137	1,056	723	3,404
2005	841	260	127	55	1,032	314	984	524	4,137
2006	821	225	125	60	733	167	1,435	840	4,406
2007	908	312	157	33	1,072	247	1,106	874	4,709
2008	868	284	129	40	887	190	769	704	3,871
2009	934	352	135	50	652	234	742	845	3,944
2010	913	470	N/A	N/A	776	244	N/A	N/A	4,701
2011	809	620	N/A	N/A	996	236	N/A	N/A	5264
2012	857	486	N/A	N/A	881	200	N/A	N/A	4907

Source: (Milne, 2010, p. 123; Harrison & Pratt, 2013)

Tourists visiting Kiribati can be categorised into the following main groups:

- Fishermen from New Zealand, Australia, USA and Japan travelling for sport fishing (Milne, 2010), targeting bonefish (*Albula vulpes*) and milkfish (*Chanos chanos*), mainly on Kiritimati Island (Di Piazza & Pearthree, 2011).
- Consultants, government officials and long-term contractors, mainly to Tarawa.
- A small number of yacht groups sailing through the Pacific, will usually stopover at Tarawa, Abiang and Butaritari, and infrequently will visit Kiritimati and Fanning Island.
- A limited number of vacationers visit by air.
- Another significant group are those visiting friends and relatives.

TOURISM ON KIRITIMATI

Tourism on Kiritimati is principally made up of bone fishermen, infrequent cruising yacht stopovers and a limited number of vacationers in search of a unique experience. In addition, there are a small number of business travellers, donor agency employees and those visiting friends and relatives (VFR). Kiritimati is reputed to be one of the best destinations in the world for sport fishing, especially for bonefish (or *te ikari* in Kiribati) (Kiribati Tourism, 2013a). Bonefish are often targeted by fly fishermen along shallow shoals and mudflats where bonefish feed on various crustaceans and small fishes (Morey, 2010). There is also increasing demand for deep sea game fishing for such species as trevally, wahoo, marlin, sailfish and barracuda (Milne, 2010), with numerous game fish world records being recorded by visiting anglers to Kiritimati (Kiribati Tourism, 2013a).

Surf tourism has been another recent development in Kiritimati, with surfers being attracted to the isolated atoll in search of uncrowded perfect waves. The island has a 5km stretch of beach that offers 24 surfable waves for beginner and intermediate as well as advanced surfers. Swells that are usually 8 to 12 feet at Sunset Beach in Hawaii will usually arrive in Kiritimati one or two days later with a high of 6 to 10 feet. The surfing season is usually from October through to March (Kiribati Tourism, 2013b). Surf tourism in Kiritimati is seasonal, with much smaller and less challenging waves than cheaper and more accessible destinations such as Hawaii, but it remains an attractive destination for adventurous surfers of intermediate ability.

Air visitor numbers to Kiritimati (Table 2) have been adversely impacted by a series of damaging events over the past 15 years. The significant decline in visitor numbers was due to two main events: in 2004, the Ministry of Line Islands and Phoenix Islands Development Office burnt down; and in 2008, Air Pacific discontinued scheduled services to the island. In 2010, visitor numbers were starting to increase once more with the reinstatement of Air Pacific flights departing Fiji for Hawaii via Kiritimati (Milne, 2010).

Table 2: Visitor Air Arrivals Kiritimati

YEAR	Australia	NZ	UK	Ger	USA	Japan	Oth. Pacific	Other country	Total
2000	68	19	36	0	1,182	169	21	163	1,658
2001	88	22	40	0	872	146	41	268	1,477
2002	117	23	25	0	1,025	295	131	60	1,676
2003	75	17	34	0	710	65	12	125	1,038
2004	69	17	2	2	314	23	44	50	521
2005	84	14	48	2	733	85	51	107	1,124
2006	205	29	50	2	541	69	521	367	1,784
2007	320	69	83	3	849	45	103	287	1,759
2008	237	53	45	7	655	30	79	281	1,387
2009	195	52	25	0	347	40	8	163	830

Source: (Milne, 2010, p. 124)

UNDERUTILIZED TOURISM RESOURCE

With the cruise liner tourism industry proving unreliable due to siltation issues at the Port of London (New Zealand Ministry of Foreign Affairs and Trade, 2011), the bone fishing industry reaching a stagnation point and the surf tourism industry not fulfilling its potential and generating unreliable revenues, there is a need to search for other prospective tourism markets. The environmental and ecological importance of Kiritimati Island as a seabird habitat offers abundant potential for ecotourism development (Milne, 2010). Di Piazza and Pearthree (2001) noted that with such characteristics Kiritimati has the potential to become a world-renowned birdwatching tourism destination.

Kiritimati has the preconditions necessary for developing such ecotourism, as the entire island is a wildlife sanctuary with 15% closed for local residents. An 88km long boundary that is monitored by the Wildlife Conservation Unit (WCU), restricts non permitted visitors from entering the wildlife sanctuary. The WCU is the national organization that holds the conservation mandate for the country, much like the U.S. Fish and Wildlife Service does in the U.S.A. The organization was established in 1975 when the first protected areas were created, and currently has eight staff involved in monitoring and managing these protected areas (Environmental Consultants Fiji, 1999).

Although Kiribati and the island of Kiritimati have a well-established system of protected areas, they often have a very difficult task of managing these areas as they are underfunded and lack appropriate human resources. Most of the equipment and funding that the WCU has received has come from foreign aid; however a lot of this funding dried up in the early 2000s. In 2009, a report by the Government of Kiribati indicated that much of the equipment the WCU had

received was in poor condition (Table 3), due to a lack of maintenance and spare parts. Keeping this equipment in working order is vital to efforts to track and stop poaching. The financial shortage has also left the WCU with a lack of training and scientific knowledge in managing and monitoring wildlife. Clearly, if successful conservation is to take place, adequate funding is required. Traditional sources of aid are non-existent and new sources are needed. The presence of vast seabird numbers that the WCU is intending to protect could also “fund themselves,” if birdwatching tourism is developed into a viable market on Kiritimati.

Table 3: *Equipment of the Wildlife Conservation Unit (WCU)*

Wildlife Conservation Unit		
Item	No.	Comment including key actions
Motorbikes	2-3	Ideally secondhand 125s e.g. older model SL125 or XL125 for ease of replacing parts
Trailer	1	Needed for transporting motorbikes and gear
Toyota tyres	2	Tarawa budget?
Radios`	3	Hand-held radios - existing Motorolas have inadequate range - G Wragg to advise brand/models/costs
Shotgun	1	One in NZ + ammunition could be brought to CXI after Orona work – Ray/Keith
Rat traps	20	20 annually - each project leader should aim to bring this no. of traps annually; more to Tarawa t help with eliminating rats from freighters
Cat cage traps	3	On the RV Bounty Bay - GW to coordinate
Poison bait	10	10 x 10 kg bags annually - project leaders to CXI import this amount annually; NZHC at Tarawa to investigate past support
Tapedeck	1	Aim for replacement of existing tape deck for April 2010 BKO - Ray
Binoculars	1	OK at present but check with Ratita on current situation in 2010
Digital camera	1	With video capacity - SPREP project?
GPS	1	Garmin 60 provided - download cord to follow – Ray
Headlamps	?	Two provided June 2009 - check with Ratita on situation in 2010 and beyond
Spotlight charger	2	Should be available in Honolulu
AA/AAA charger	2	From Hon - airfreight – Ray

Flagging tape	2	2 different colours e.g. pink and orange – Ray next trip
Laptop	1	For project management - SPREP project?
Photocopier	1	SPREP?
Filing cabinet	1	
Posters	X	In hand Henry Genthe?
Fact sheets	X	In hand Henry Genthe?
Old CXI maps	2-3	Check availability at Tarawa - Ray
Anti-virus	X	Check situation at Lands – Ratita
Whiteboard	1	SPREP?
Uniforms, badges	30	Mainly L and XL – ex DOC shirts – Richard Anderson
GIS support	X	Need mapping support – in hand via Tarawa training?
Agriculture (very provisional list)		
Work plans	X	Biosecurity plans and protocols
Bait stations	10	5 freighted from Honolulu and 6 more due to arrive 18 August 2009 – Ray
Bait	X	Ongoing annual bait supply needed for ships and loading areas
Rat traps	20	20 annually - each project leader should aim to bring this no. of traps annually

Source: (Kiribati Government, 2009, p. 18-19)

Kiritimati is home to approximately 40 species of birds which either breed or migrate to the island (Environmental Consultants Fiji, 1999), many of which exhibit a range of fascinating and unique behaviours (Milne, 2010; Teeb’aki, 1993). Land bird species are scarce on the island due to the introduction of rats and feral cats; however, one species of particular interest and importance is the Bokikokiko, or Christmas Island Warbler (*Acrocephalus aequinoctialis*). This is an endemic species to the Republic of Kiribati and is only found on Kiritimati and Teraina (Washington) Island. By the most liberal estimation, the combined population of the species in both locations is between 2,500 and 10,000 mature individuals (BirdLife International, 2012).

However, most other estimates identify approximately 1,000 individuals on Kiritimati, which live in peripheral areas of the island away from human encroachment (Milne, 2010; Teeb'aki, 1993). This is a significant bird, which is on the IUCN red list of threatened species and may face imminent extinction if it is not protected (BirdLife International, 2012).

Seabirds are Kiritimati's biggest and most important attractions, as there are a number of species that are both endemic and have the largest colonies on the island of anywhere in the world (Milne, 2010, Teeb'aki, 1993). There are 18 species of seabirds on the island, many with important breeding colonies (Environmental Consultants Fiji, 1999; Teeb'aki, 1993). Populations of seabirds before the 1982-1983 El Nino-Southern Oscillation were as follows:

- 12,000 pairs of phoenix petrels (*Pterodroma alba*);
- 500,000 pairs of wedge-tailed shearwaters (*Puffinus pacificus*);
- 6,000 pairs of Christmas Island shearwaters (*P. nativitatis*);
- 500 pairs of white-throated storm petrel (*Nesofregatta (fuliginosa) albigularis*);
- 4,000 pairs of red-tailed tropicbird (*Phaethon nthricauda*);
- 1,500 pairs of masked booby (*Sula dactylatra*);
- 6,000 pairs of red-footed booby (*S. sula*);
- 6,000 pairs of great frigatebird (*Fregata minor*);
- 4,500 pairs of lesser frigatebird (*F ariel*);
- 3 to 4 million pairs of sooty terns (*Sterna fuscata*);
- 3,000 pairs of grey-backed tern (*S. lunata*);
- 2,000 pairs of blue-grey noddy (*Procelsterna cerulea*);
- 10,000 pairs of black noddy (*Anous minutus*); and
- 4,000 pairs of white tern (*Gygis alba*) (Teeb'aki, 1993 as in Schreiber & Schreiber, 1984).

Sooty tern numbers have declined dramatically since the 1960s when there were estimated to be 15 million individuals; however, they still makeup the largest bird population on Kirtimati Island (Teeb'aki, 1993). This is also the case with phoenix petrels and wedge-tailed shearwaters. Despite the lack of scientific monitoring conducted by the WCU, these populations are still believed to be the largest of their kind in the world today.

BIRDWATCHING

Birdwatching, or "birding," is a popular recreational past time, which has evolved to become an increasingly significant segment of the tourism market (Carver, 2009) and is currently one of the fastest growing niche ecotourism markets (Czajkowski et al., 2014). Birdwatching is an important pull factor in travel decision-making of nature based tourism (Steven, Morrison, Castley, 2014) and has vast global potential because of the diverse range of habitats that birds are found in.

Birdwatching is progressively being considered by governments and aid agencies as a viable option for ecotourism development option, due to its ability to create economic opportunities through employment and considerable tourist spending (Biggs et al., 2011). The search for new species is taking birdwatchers to increasingly remote and sometimes unexplored destinations many of which are located in less developed countries where the local populations have little experience in tourism development (Hottola, 2009; Li et al, 2013).

Connell (2009, p. 210-214) explains that birdwatching or avitourism tourism has contributed to the economic revival of several isolated offshore islands and has been responsible for stimulating food, accommodation and transport services where there have been few other alternatives. Significant transformations have taken place on Fair Isle, Scotland commonly termed the 'Hilton of the bird world' due to over 370 recorded species of birds. In the early 1900s, the island was almost ready to be abandoned due to population decline. But in 1948 an observatory was constructed, and since then the population has steadily increased with birdwatching tourism providing both socio-cultural and economic stability. Birdwatching also has the potential to generate positive conservation outcomes and has long been used as a justification for the avitourism industry's development (Steven, Morrison, Castley, 2014). It has been suggested that avitourists aid in the conservation effort through promoting the protection of important bird areas (Şekercioğlu, 2003; Biggs et al., 2011; Puhakka, Salo & Sääksjärvi, 2011) (Steven, Castley, & Buckley, 2013; Pegas & Castley, 2014).

Birdwatching has been increasing in popularity in North America and other countries since the late 1970s (Connell, 2009; Hvenegaard, 2002; McFarlane, 1994; National Survey on Recreation and the Environment, 2002; Steven, Morrison & Castley, 2014). It is now considered one of the dominant nature-based tourism activities in the U.S. In fact, the U.S. Fish and Wildlife Service previously projected that there were 46 million birders in the U.S., representing roughly 1 in 5 Americans (2001). In the United Kingdom, birding is also popular, with the Royal Society for the Protection of Birds having upwards of one million members (RSPB, 2013). These are significant participant numbers that have prompted some scholars, such as Blondel (2004), to identify birding as the dominant activity in ecotourism.

ECONOMIC IMPACT OF BIRDING

The economic value of birds has been highlighted by different researchers, the birdwatching industry in general and more specifically by the presence of endangered species (Gurluk & Rehber, 2008; Jin, Wang, & Liu, 2008; Richardson & Loomis, 2009). Lee et al. (2009) discuss the many diverse attributes related with birdwatching, the economic worth of these resources and services, and the significance of such studies to the progression of birdwatching resources and planning outcomes. While on vacation, birders require tourism services, such as transportation, accommodations, food, facilities, equipment and entertainment. Providing birders any or all of these things can generate a local community, region or even a country viable economic income. However, measuring such income is not always easy, as it is often hard to capture every tourist or all expenditures. Several reports note that there is limited research on the importance of research regarding the economic significance of birdwatching (Jones & Buckley, 2001; Valentine & Birtles, 2004).

The U.S. Fish and Wildlife (2001) seems to have developed a viable formula to illustrate the economic impact of birding. It has estimated that the total expenditure from the identified 46 million birders in the United States was US\$85 billion, contributing \$13 billion in federal and state income taxes and resulting in the creation of 863,406 jobs (USFWS, 2001). In 2005, the average bird watcher in America spent an estimated US\$2,484 for bird-related travel (domestic and international), with approximately 2.8 million people observing birds in conservation areas (Sali & Kuehn, 2008). These studies illustrate the significance of birding in the United States, and they demonstrate that the activity can have serious contributions to a nation's tourism economy.

Birding tourism has also proven to have viable economic impacts even within a regional or enclosed area such as a national park. A significant study that illustrated the economic potential of birdwatching was conducted at Point Pelee National Park in Canada (Butler & Hvenegaard, 1988). It concluded that birders contributed nearly \$8 million CAD to the park, surrounding businesses and regional economy. The study also noted the poor and uncoordinated planning between the park and local businesses and estimated that if such issues were corrected the economic expenditure could be tripled.

An evaluation of outdoor leisure values on public lands in the U. S. that explored birdwatching found the average value per person per day from birdwatching was US\$29.60 in 2004 (Loomis, 2005). The value of recreational birders in Delaware Bay fluctuated between US\$94 to US\$190 per day trip per household (Appleman et al., 2009). A follow up study of the Delaware Bay during the yearly shorebird migration estimated US\$200 to US\$425 for an overnight trip per household (Myers, Parsons, Edwards, 2010). These might not be significant expenditures per person, but given the number of birders in the U.S., when such spending is compounded, it provides an added economic boost for the Delaware Bay. These studies illustrate that the economic impact of birding can be significant, even if the activity is restricted to the boundaries of a protected area.

The regional economic impact of birding is also evident outside of North America. Costa Rica is one of the world's premier ecotourism destinations and a popular birding destination, especially for American tourists. Costa Rica has the 6th highest bird species density per hectare in the world (Higginbottom, 2004). The estimated annual value of birdwatching tourism in Costa Rica is US\$410 million annually (Şekercioğlu, 2002). Birding is so popular in Costa Rica that Solis (2012) argues that in 2011 nearly a third of all tourists came to Costa Rica for birdwatching. Şekercioğlu (2002) concludes that such economic figures "should be enough to convince any country of the financial significance of birdwatching" (p. 287).

Other studies from various locations around the world have illustrated the economic significance of birdwatching tourism. The annual benefits from birdwatching in the Zywkowo, the best known white stork village in Poland, was estimated to be between US\$170,000 and \$345,000 (Czajkowski et al., 2014). The economic value of recreational birdwatching on Lake Manyas in the Kucenneti National Park in Turkey is estimated at US\$103,320,074 annually (Gurluk & Rehber, 2008). The economic impact of the Gamla Nature Reserve in Israel was estimated at \$1.1 to \$1.2 million [US\$], with 85% of the visitors intent on observing the griffon vultures. The figure is roughly five times greater than current incomes produced by the nature reserve's entry and other additional fees (Becker et al., 2005 and Becker et al., 2010).

BIRDER SPECIALIZATION AND MOTIVATION

Birder specialization stems from the greater concept of recreational specialization, which refers to the level of commitment, knowledge and involvements a birder has with their activity (Bryan, 1977). Scott and Thigpen (2003, p. 213) identified four main groups for birders: casual birders; interested birders; active birders; and skilled birders. Skilled and active birders stated that they had travelled significantly further and spending more on their trips than interested and casual birders. This categorical breakdown illustrates that depending on the specialization, birders have different needs, motivations and levels of involvement. The study also pointed out that most birders were highly educated, with 57% holding a university degree, and that they were from the middle to upper bracket of household incomes (Scott & Thigpen, 2003). The U.S. Fish and Wildlife Service (2001) also backs up these findings with its estimate that the average U.S. birder's income was US\$75,000 annually. Thus, birders, especially at the higher end of the commitment continuum, are often professionals with adequate disposable income to pursue their passion of observing rare birds in the wild.

In a subsequent study, Maple, Eagles and Wolfe (2010) note that expert birdwatchers were more probable to travel the farthest distance, vacation the longest, and spend more time at the birdwatching areas. They have the greatest expert knowledge and many years of birdwatching experience, and they also bring value through the activities they choose to participate in during their trip. Staying the greatest number of nights also translated into higher mean expenditures than the other two groups of beginners and intermediates.

Expert birders are often referred to as "twitchers" and are focused on travelling to remote regions to see rare and exotic species and ticking off as many birds on their long lists as possible (Connell, 2009). Twitchers are competitive with many keeping a lifetime list of birds (Valentine & Birtles, 2004) and attend birdwatching competitions such as the "Great Texas Birding Classic" and the "World Series of Birding" (Weidensaul, 2007). Sekercioğlu (2003) found that twitchers were high spenders, some paying as much as US\$300 per day for an experienced bird guide and an average trip cost of US\$4,000 (excluding flights). Twitchers are the most committed birdwatchers and would be very important to the potential birdwatching tourism industry in Kiritimati due to their long-stay, high expenditures, and greater return rate.

CHALLENGES TO DEVELOPING BIRDING TOURISM IN KIRITIMATI

Kiritimati has some of the largest colonies of migratory birds anywhere in the world and as well as the rare and endemic Christmas Island warbler (*Acrocephalus aequinoctialis*), making it an attractive birdwatching tourism destination. Recent research has shown that there is growing demand by birders who are willing to travel long distances and spend considerable funds to see such unique bird colonies. Despite the attractiveness of its unique avian features to birders, Kiritimati is still subject to underlying problems associated with tourism development on remote islands. These challenges include an isolated geographic location and difficulties with access, a lack of infrastructure and limited accommodation, services and activities. Other barriers to developing a sustainable tourism industry on Kiritimati exist including attracting sufficient international birdwatching tourists and protection of the local environment.

There is no question that Kiritimati is at a disadvantage due to its remote geographic position when compared to more accessible birdwatching tourism destinations such as Costa Rica or New Zealand. Currently the cost of a Fiji Airways return economy flight from Auckland to Kiritimati is approximately NZ\$3,600 to NZ\$5,000 depending on the season and takes 12-16 hours including a stopover in Nadi, Fiji. However, expert birders or twitchers as described earlier in this article are extremely committed to travelling long distances (Sekercioğlu, 2003). It appears the quest for rare and exotic species is increasingly leading these birdwatchers to distant remote regions. Birders have been documented visiting a number of remote offshore Islands in search of the unusual birds including Antarctica, Faroe Islands, Denmark, Cocos-Keeling Islands, Australia, Falkland Islands, U.K. and Chatham Islands, New Zealand (Connel, 2009). All of which destinations excluding Antarctica require similar travel times from the U.S to Kiritimati, highlighting that it is not too isolated for committed birders to consider visiting.

With such a large number of expert birders and twitchers in the U.S.A and the growing trend in birdwatching being committed to travel longer distances to more remote destinations, the proximity of major birder markets in the United States is very significant, with Hawaii being 2,150km from Kiritimati (Teeb'aki, 1993). The reinstatement of Fiji Airways (Air Pacific) flights to Honolulu represents a gateway to potentially motivated birders, as these tourists travelling to Hawaii could potentially include Kiritimati on their itineraries. Kiritimati has two international air linkages, with weekly services to both Hawaii and Fiji. In 2008, the fragility of the Kiritimati's tourism industry was clearly illustrated when Aloha Airlines and Air Pacific (Fiji Airways) cancelled all flights for 18 months due to the runway at Cassidy International Airport being in a state of disrepair. These vital links could only be re-established once necessary repairs to the runway were made with the assistance from New Zealand Aid. A further \$17.5 million of funding by the New Zealand government in 2012 has ensured the long term rehabilitation of the Cassidy runway and should not need further resurfacing or major maintenance for at least 20 years (New Zealand Ministry of Foreign Affairs and Trade, 2011).

Many challenges to tourism development in Kiritimati are associated with basic tourism infrastructure such as sewage treatment facilities, waste management, fresh water and supply of fresh fruit and vegetables. Inadequate sewage treatment systems have the potential to threaten the underlying shallow fresh water lenses of the atoll through leaching from septic tanks (Kiribati Government, 2012). Fresh water supply is currently at crisis point with limited access posing a significant threat to the health and wellbeing of the local population. "With no enforcement and little to no strategic approach to water planning (increasing water catchment, safeguarding current water reserves, controlling extraction and animals) things are rapidly spiralling out of control." (New Zealand Ministry of Foreign Affairs and Trade, 2011, p. 13). Kiritimati has very poor quality, infertile soil which is unsuitable for growing most varieties of fruit and vegetables; therefore a high foreign leakage exists due to the importation of food consumed by tourists (University of Hawaii, N.D.).

There are very few tourist activities and attractions on Kiritimati Island. Bonefishing, scuba diving, surfing, wildlife viewing and performance of traditional dances and singing for visitors make up the tourism offerings. Tourism facilities and services available for travellers in

Kiritimati are limited. There are currently nine accommodation providers listed on the official Kiritimati tourism website, which range from the popular Captain Cook Hotel to basic fishing lodges and homestays (Kiribati Government, 2014). There are no upmarket options for higher spending travellers who demand greater levels of quality and comfort on their holidays. Bird watching tourists staying for longer periods would undoubtedly require much better quality accommodation than is currently available on Kiritimati. Eating and drinking options are limited and telecommunications are very basic, with phone calls being difficult to make and internet access restricted to a single public internet café (Kiribati Government, 2012).

Another challenge in developing the birdwatching sector is to grow the information available to prospective tourists, and to reach out to major birdwatching travel agents. Pivatto et.al (2007) identified a need to advertise the Bodoquena Plateau, a premier birdwatching region in Brazil - 76% of the foreign participants in their study had never heard of the Bodoquena Plateau prior to the study. They added that the region and its bird species should be promoted through media normally accessed by birdwatchers, with suitable itineraries supplied. Kuehn et.al (2010) noted that understanding the motivations of birdwatchers can help park managers, birding event organizers and promoters produce programmes that cater to the different skill levels, intellectual needs and social interests of birders. An example of the extent of the birdwatching tourism market and the need for an active birding advertising campaign is Parks Canada. The Agency reported a decline in 2007 in birding visitation, which put the use of Point Pelee National Park below the lower threshold limits outlined in the park management plan (Maple et. al, 2010). The park authority determined that “serious competition from other birding destinations has reduced the park’s market share,” and “increasing site visitation in a sustainable manner will require a continued cycle of research, product development and marketing” (Parks Canada, 2007, p. 32).

Another important issue is to protect the birds from exploitation. Pivatto et al (2007) note that investment in developing birdwatching areas where conservation efforts are being undertaken has a positive effect on birdwatching numbers; 52% of bird-watchers and 73% of the specialized tour guides stated that they preferred visiting areas where conservation actions were being undertaken. The responsibility of protecting the birds on Kiritimati falls upon the Kiritimati WCU. The unit has seven employees charged with guarding the bird species and overseeing the management of the restricted zones that occur in the wider conservation area on Kiritimati. The associated workload is too great for the limited number of staff, and it is unlikely that the seven employees can adequately manage the areas satisfactorily. To add to their increasing number of tasks, the unit has recently been tasked with administering the bonefish subdivision which is crucial to the survival of Kiritimati’s economy (Milne, 2010).

CONCLUSIONS AND FUTURE RESEARCH AGENDAS

Birdwatching tourism has significantly contributed to economic sustainability in remote islands, and other small states that have limited alternative development strategy options (Connell, 2009). Kiritimati's sewage treatment system, fresh water supply, waste management carrying capacities are at precarious levels for its current population (New Zealand Ministry of Foreign Affairs and Trade, 2011; Kiribati Government, 2012). The critical issue for tourism development is appropriateness of scale, and small scale niche tourism in the form of birdwatching tourism would not overwhelm the current infrastructure. Large increases in tourist numbers would exceed thresholds and adverse environmental impacts would occur; therefore, small numbers of high yielding expert birders (twitchers) appear to be a sustainable direction for tourism development in Kiritimati. One positive community dimension of developing the birdwatching industry on Kiritimati is that it would generate employment for local people as birdwatching guides alongside other tourism related service positions (Che, 2004; Biggs et al., 2011; Li et al., 2013). Local community members possess specific traditional knowledge and skills ideally matched to guiding that would enhance the birdwatchers experience on Kiritimati.

It is recommended that Kiritimati's local tourism board includes birdwatching dimensions in its destination marketing campaign and investigate advertising techniques that appeal to the specialised birdwatching niche market. One effective method of attracting twitchers and other committed birders are specialised events or competitions. Connell (2009) notes that Christmas Island (located in the Indian Ocean, not to be mistaken for Kiritimati) hosts an annual bird week in an attempt to attract the most committed twitchers. The Christmas Island Tourism Association has a dedicated webpage which features downloadable Christmas Island bird species list, Christmas Island birding application, Youtube video, bird experts contact information, birdwatching guides and birding tour packages (Christmas Island Tourism Association, 2015). Another successful example of local tourism boards attracting birders was the 2003 Seosan Cheonsuman International Birdwatching Fair organised by the local Cheonsuman government in response to the growing popularity of birdwatching. This was the first birding event of its kind, with its success leading to the creation of two subsequent birdwatching festivals being launched, the Junam Birdwatching Fair and the Gunsan International Birdwatching Festival (Cheonsuman International Birdwatching Fair Committee, 2008 and Lee, et.al, 2009).

Another area that would benefit from further investigation is the protection of the bird populations themselves, and specifically the rare and endangered Christmas Island warbler. Poaching of birds by local community members is a major threat to the birdwatching tourism on Kiritimati; Sooty tern eggs and frigate birds are the most threatened. There has been disapproval from business operators that penalties and fines for poaching are often not imposed by the local authorities (Milne, 2010). Gurluk and Rehber (2008) note that in Kuşçenneti National Park at Lake Manyas, Turkey, the locals were compensated for the protection of the significant species nearby the site. They add that local conservation area policy should influence the local community to conserve the wildlife species if they were being compensated by the visitors to the national park. One form of compensation may be funding generated from increased entrance fees to the conservation area, therefore solving one of the conflicts related to birdwatching tourism in Kiritimati.

A major limitation of this study was that it relied heavily on secondary sources of information and it should be noted that there was no primary research undertaken. This area offers the greatest potential for future research. Multiple stakeholder interviews with Kiribati National Tourism Office, Non-Government Organisations and tourism operators would provide an appropriate research vehicle to investigate the ability of Kiritimati stakeholders to facilitate birdwatching tourism. A visitor survey or in-depth interviews with tourists visiting Kiritimati could explore interest levels in birdwatching as an activity while on holiday. A web-based questionnaire with members of the Royal Society for the Protection of Birds would be a suitable research tool to indicate the potential global market of “birders” who are interested in visiting Kiritimati for birdwatching.

REFERENCES

- Appleman, K.H., Parsons, G.R., & Edwards, P.E.T. (2009). *Measuring the recreational use value of migratory shorebirds: A stated preference study of birdwatching on the Delaware Bay*. University of Delaware Manuscript. Retrieved from http://works.bepress.com/george_parsons/13
- Becker, N., Inbar, M., Bahat, O., Choresh, Y., Ben-Noon, G., & Yaffe, O. (2005). Estimating the economic value of viewing griffon vultures *Gyps fulvus*: A travel cost model study at Gamla Nature Preserve, Israel. *Oryx*, 39(4), 429–434.
- Becker, N., Inbar, M., Bahat, O., & Choresh Y. (2010). Cost benefit analysis of conservation efforts to preserve an endangered species: the Griffon Vulture (*Gyps fulvus*) in Israel. *Journal of Bioeconomics*, 12(1), 55–70.
- BirdLife International. (2012). *Acrocephalus aequinoctialis*. *IUCN Red List of Threatened Species*. Cambridge, UK: IUCN.
- Blondel, J. (2004). *Birding in the sky: Only fun, a chance for eco-development or both?* Paris, France: Centre national de la recherche scientifique.
- Bryan, H. (1977). Leisure value systems and recreation specialization: The case of trout fishermen. *Journal of Leisure Research*, 9, 174–187.
- Butler, J., & Hvenegaard, G. T. (1988). *The economic values of birdwatching associated with Point Pelee National Park, Canada and their contribution to adjacent communities*. The Second Symposium on Social Science in Resource Management, University of Illinois, Urbana, Illinois.
- Biggs, D., Turpie, J., Fabricius C., & Spenceley, A. (2011). The value of avitourism for conservation and job creation: an analysis from South Africa. *Conservation and Society*, 9(1), 80–90.
- Carver, E. (2009). *Birding in the United States: A demographic and economic analysis*. Arlington, Virginia: U.S. Fish & Wildlife Service.
- Cheonsuman International Birdwatching Fair Committee. (2008). *Cheonsuman International Birdwatching Fair*. Retrieved from http://www.seosanbird.com/e_main.html
- Christmas Island Tourism Association. (2015). Birdwatching. Retrieved from <http://www.christmas.net.au/experiences/bird-watching.html>
- Che, D. (2004). Guided birding tours: an examination of the market, important tours parameters, and participant demographics. In J. Murdy (Ed.), *Proceedings of the 2003 northeastern recreation research symposium* (pp. 194–202). USDA Forest Service, Northern Research Station, Newtown Square, PA
- Connell, J. (2009). Birdwatching, Twitching and Tourism: towards an Australian perspective. *Australian Geographer*, 40(2), 203–217

- Czajkowski, M., Giergiczny, M., Kronenberg, J., & Tryjanowski, P. (2014). The economic recreational value of a white stork nesting colony: A case of 'stork village' in Poland. *Tourism Management*, 40, 352-360.
- De Farias, G.B. (2007). Birdwatching as an eco-touristic possibility. *Revista Brasileira de Ornitologia*, 15(3), 474-477
- Di Piazza, A., & Pearthree, E. (2001). An island for gardens, an island for birds and voyaging: A settlement pattern for Kiritimati and Tabuaeran, two "mystery islands" in the northern lines, Republic of Kiribati. *The Journal of the Polynesian Society*, 110(2), 149-170.
- Environmental Consultants Fiji. (1999). *Review of the status of avifauna conservation – Kiritimati Atoll, Kiribati*. Suva, Fiji: Environmental Consultants Fiji.
- Garnett, M. (1983). *A management plan for nature conservation in the Line and Phoenix Island: Part 2 Policy*. Unpublished Report. Kiritimati Island, Kiribati: Ministry of Line and Phoenix Islands.
- Gurluk, S., & Rehber, E. (2008). A travel cost study to estimate the recreational value for a bird refuge at Lake Manyas, Turkey. *Journal of Environmental Management*, 88(4), 1350-1360.
- Harrison, D., & Pratt, S. (2013). Tourism in Pacific Island Countries. In C. Cooper (Ed.), *Contemporary Tourism Reviews* (pp. 1-24). Oxford, UK: Goodfellows Publishers.
- Higginbottom, K. (2004). *Wildlife tourism: Impacts, management and planning*. Altona Victoria, Australia: Cooperative Research Centre for Sustainable Tourism.
- Hottola, P. (2009). Coastal bird tourism in Namibia: postcolonial resources and restraints
- In. P. Hottola (Ed.), *Tourism strategies and local responses in Southern Africa* (pp. 105-126). Wallingford, UK & Cambridge, MA: CABI.
- Hvenegaard, G.T. (2002). Birder specialization differences in conservation involvement, demographics, and motivations. *Human Dimensions of Wildlife*, 7, 21-36.
- Jin, J.J., Wang, Z.S., & Liu, X.M. (2008). Valuing black-faced spoonbill conservation in Macao: A policy and contingent valuation study. *Ecological Economics*, 68(1-2), 328-335
- Kiribati Government. (2009). Technical support and capacity building for the wildlife conservation unit and quarantine at Kiritimati. Tarawa, Kiribati: Kiribati Government.
- Kiribati Government. (2012). *Republic of Kiribati Island Report Series: 20*. Kiritimati. Tarawa, Kiribati: Kiribati Government.
- Kiribati Government. (2014). Kiritimati Accommodation Overview. Tarawa, Kiribati: Republic of Kiribati. Retrieved from <http://www.kiribatitourism.gov.ki/index.php/accommodation-55/accommodationonkiritimatiisland>
- Kiribati Tourism (2013a). Fishing in Kiribati – Bone and sports fishing. Tarawa, Republic of Kiribati: Author. Retrieved from <http://www.kiribatitourism.gov.ki/index.php/thingstodo/fishing>
- Kiribati Tourism (2013b). Surfing Kiritimati (Christmas) Island. Tarawa, Republic of Kiribati: Author. Retrieved from <http://www.kiribatitourism.gov.ki/index.php/thingstodo/surfing/surfing-in-kiritimati-christmas>
- Kuehn, D. M., Sali, M. J. & Schuster, R. (2010) Motivations of male and female shoreline birdwatchers in New York. *Tourism in Marine Environments*, 6(1), 25-37.
- Jones, D.N., & Buckley, R. (2001). *Birdwatching tourism in Australia. Wildlife Tourism Research Report Series: No. 10. Status Assessment of Wildlife Tourism in Australia Series*. Gold Coast, Queensland, Australia. CRS for Sustainable Tourism.
- Lee, C.K., Lee, J.H., Mjelde, J.W., Scott, D., & Kim, T.K. (2009). Assessing the economic value of public birdwatching interpretive service using a contingent valuation method. *International Journal of Tourism Research*, 11(6), 583-593.

- Li, F., Qi, Z., & Yang, Z. (2013). Birding tourism development in Sichuan, China. *Tourism Economics*, 19(2), 257–273.
- Lovibond, D. (2005). “Hobby” that just took wing. *Financial Times*, 14 May, p. 17.
- Maple, L. C., Eagles, P. F. J. & Rolfe, H. (2010) ‘Birdwatchers’ specialisation characteristics and national park tourism planning’, *Journal of Ecotourism*, 9(3), 219-238.
- McFarlane, B.L. (1994). Specialization and motivations of birdwatchers. *Wildlife Society Bulletin*, 22, 361–370.
- Milne, S. (2010). *Kiribati Diagnostic Trade Integration Study: Tourism*. Auckland, New Zealand: Tourism Worx.
- Morey, S. (2010). Bonefish. Gainesville, Florida: Florida Museum of Natural History.
- Myers, K.H., Parsons, G.R., & Edwards, P.E.T. (2010). Measuring the recreational use value of migratory shorebirds on the Delaware Bay. *Marine Resource Economics*, 25(3), 247-264.
- National Survey on Recreation and the Environment. (2002). *The Interagency National Survey Consortium: Coordinated by the USDA Forest Service, Recreation, Wilderness, and Demographics*. Athens, Georgia: Trends Research Group, and Knoxville, Tennessee: Human Dimensions Research Laboratory, University of Tennessee.
- New Zealand Ministry of Foreign Affairs and Trade. (2011). *Converting potential into Prosperity: New Zealand’s commitment to the Pacific*. Wellington, New Zealand: New Zealand Ministry of Foreign Affairs and Trade.
- Parks Canada. (2007). State of the parks report, 2006. Retrieved from http://www.pc.gc.ca/pn-np/on/pelee/plan/rpts/sop-edp/images/PtPeeleNP_SOP2006_e.pdf
- Pegas, F. & Castley, J.G. (2014). Ecotourism as a conservation tool and its adoption by private protected areas in Brazil. *Journal of Sustainable Tourism*, 22(4), 604–625
- Pivatto, M.A.C. Sabino, J.Favero, S., & Michels, I.L. (2007). Profile and viability of bird watching tourism in the South Pantanal and Bodoquena Plateau (Mato Grosso do Sul) according to visitors’ interests. *Revista Brasileira de Ornitologia*. 15, (4), 520–529
- Pratt, S. (2013). Same, same but different: Perceptions of South Pacific Destinations among Australian Travellers. *Journal of Travel & Tourism Marketing*, 30(6), 595-609.
- Puhakka, L., Salo, M., & Sääksjärvi, I.E. (2011). Bird diversity, birdwatching tourism and conservation in Peru: A geographic analysis. *PLOS ONE*, 6, e26786.
- Richardson, L., & Loomis, J. (2009). The total economic value of threatened, endangered and rare species: An updated meta-analysis. *Ecological Economics*, 68(5), 1535–1548.
- Royal Society for the Protection of Birds. (2013). *Facts and figures*. Bedfordshire, England: Author.
- Sali, M. J., & Kuehn, D. M. (2008). *Birdwatching in New York State: A study of motivations and gender*. Oswego, New York: New York Sea Grant.
- Scott, D., & Thigpen, J. (2003). Understanding the birder as tourist: Segmenting visitors to the Texas hummer/bird celebration. *Human Dimensions of Wildlife*, 8(3), 199-218.
- Şekercioğlu, C.H. (2002). Impacts of birdwatching on human and avian communities. *Environmental Conservation*, 29(3), 282–289.
- Şekercioğlu, C. H. (2003). Conserving through commodification. *Birding*, 8(3), 356-403.
- Steven, R., Morrison, C., & J., Castley, G. (2014). Birdwatching and avitourism: a global review of research into its participant markets, distribution and impacts, highlighting future research priorities to inform sustainable avitourism management. *Journal of Sustainable Tourism*, Article in Press.

- Teeb'aki, K. (1993). Republic of Kiribati. In D. A. Scott (Ed.), *A Directory of Wetlands in Oceania* (pp. 199–228). Slimbridge, U.K.: International Waterfowl and Wetlands Research Bureau.
- Valentine, P., & Birtles, A. (2004). Wildlife watching. In K. Higginbottom (Eds.), *Wildlife tourism impacts, management and planning*. Altona Victoria, Australia: Common Ground.
- University of Hawaii. (N.D.). Tourism Development in the Republic of Kiribati. Moana, Hawaii: University of Hawaii.
- United States Fish and Wildlife Service. (2001). *Birding in the United States: A demographic and economic analysis*. Arlington, VA: Author. Retrieved from <http://www.fs.fed.us/outdoors/naturewatch/start/economics/Economic-Analysis-for-Birding.pdf>
- Weidensaul, S. (2007). *Of a feather: a brief history of American birding*. Orlando, USA: Harcourt.
- World Atlas. (2013). *Kiribati: Facts and figures*. Galveston, TX: Author. Retrieved from <http://www.worldatlas.com/webimage/countrys/oceania/ki.htm>.