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Investigating rare species tourism in the braided river systems of the Upper Waitaki Basin: The case of the kakī

A thesis
submitted in partial fulfilment
of the requirements for the Degree of
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by
Hayley Louise Dalton

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requirements for the Degree of Master of Applied Science.

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Waitaki Basin: The case of the kakī

by

Hayley Louise Dalton

Braided rivers in New Zealand's South Island are dynamic environments that support communities of unique flora and fauna, some of which are threatened. The Upper Waitaki Basin is home to rare and endangered wading birds such as kakī and wrybill, as well as many other endemic species. These braided river environments offer potential for visitors to see, experience and learn about the natural ecosystem, and to understand its importance.

This study identifies opportunities and risks of developing rare species tourism in the braided river systems of the Upper Waitaki Basin, with particular focus on the kakī. A cross section of key stakeholders including tour operators, accommodation providers, the Department of Conservation, as well as tourists, were interviewed and surveyed to help explore the existing opportunities, expectations and motivations associated with rare species tourism in the Upper Waitaki Basin.

The Upper Waitaki Basin, in particularly the Tasman Delta, has potential for tourism development based around its rare species, especially the kakī. The development of 'rare species tourism' has the potential to increase public awareness, appreciation and ownership of the rare species within the braided river system, which in turn should support the survival and conservation of endangered braided river species and the ecosystem. It is hoped that this research will contribute to an improved understanding of 'rare species' tourism in the region, enabling the development of appropriate education, interpretation and promotion strategies.

Keywords: kakī, tourism, rare species, Upper Waitaki Basin, interpretation, braided river, Tasman Delta

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Chapter 1

Introduction

1.1 Overview

There appears to be a growing interest among tourists to experience wildlife in natural resource environments, whether that wildlife be on land or water (Pirodda, Harwood, & Lusseau, 2014; Trave, Brunnschweiler, Sheaves, Diedrich, & Barnett, 2017). The increased use of natural resources for outdoor recreation has led to an intrusion of humans into previously undisturbed habitat (Buckley, 2004; Budowski, 2009; Bushell & Eagles, 2006), with tourists and recreationists known to cause disturbance and stress on some animals (Beale, 2007; Boren et al., 2002). In particular, tourism has at times been in conflict with wildlife and environmental conservation, as often tourists disturb what the conservationists are trying to protect (Ranaweerage et al., 2015; Shultis & Way, 2006). With this in mind, achieving a balance between visitors and their impacts is a priority for managers in natural areas.

With many nature-based tourism sites being located on or near protected environmental areas, sustainable development is key to ensuring resource protection (Newsome, Dowling & Moore, 2005). Sustainable tourism development takes into account the current and future environmental, economic and social factors, whilst striving to meet the needs of today (Budeanu, Miller, Moscardo, & Ooi (2016); Waligo, Clarke, & Hawkins, 2013).

Some natural areas may be more popular than others due to specific scenic values, such as mountain peaks or lakes, or if they are the site of special wildlife (Newsome, 2013).

Particular species or 'flagship species' can draw large numbers of people to an area (Bowen-Jones & Entwistle, 2002). However, that environment may not have been built or designed to carry large visitor numbers, who impact and change the environment (Bentz, Lopes, Calado, & Dearden, 2016). Maintaining the habitat of flagship species is good for the environment and also the economy, meaning species populations have to be maintained (Smith & Sutton, 2008).

In recent times the protection of biological diversity has become important to many governments around the world, with the highest levels of species diversity found in wilderness areas (Christ, Hillel, Matus, & Sweeting, 2003). Often the best way to protect biodiversity is to protect species habitats (Booth, Gaston, Evans, & Armsworth, 2011; Jiménez, Monroe, Zamora, & Benayas, 2017).

Braided rivers in New Zealand's South Island are dynamic environments that support communities of unique flora and fauna, some of which are threatened (Maloney, 1999). The Upper Waitaki Basin is home to rare and endangered wading birds such as the kakī (*Himantopus novaezelandiae*) and wrybill (*Anarhynchus frontalis*), as well as many other endemic species including the robust grasshopper (*Brachaspis robustus*) and the Southern Alps gecko (*Woodworthia* sp 'Southern Alps'). These braided river environments offer potential for visitors to see, experience and learn about the natural ecosystem, and to understand its importance (Caruso, 2006).

The development of wildlife or 'rare species tourism' has the potential to increase public awareness, appreciation and ownership of the species within the river system, which in turn could support the survival and conservation of endangered braided river species and the ecosystem (Higginbottom, 2004; Prideaux, 2009; Sorice, Shafer, & Ditton, 2006). Although there are many native species of possible interest within the braided rivers of the Upper Waitaki Basin, this research focuses on the endangered kakī as a potential flagship species for the area. The potential for promoting the kakī as a form of 'last chance tourism' was also investigated as part of this research. With the kakī's current population, the species could be seen as having 'last chance to see' status, with people having the opportunity to see the bird before it goes extinct. This investigation into the use of 'last chance tourism' is timely given the low population numbers of the kakī.

1.2 Case study setting

New Zealand is home to many rare species, such as the kiwi and kakapo, which are typically located in the most remote parts of the country, where there is little human activity and limited tourism infrastructure. Scientists and naturalists raise concerns over the threats of human development for these unique species, leading to the preservation and protection of

some areas, and the restriction of tourism development (MacLeod, Blackwell, Moller, Innes, & Powlesland, 2008). However, it is New Zealand's particular range of rare and unique wildlife, including some marine mammals and bird life that have no equivalent species elsewhere in the world, which often becomes the main focus for commercial tourism operations (Higham & Carr, 2003). Despite its growing popularity and increasing global appeal, there is limited literature on New Zealand bird tourism, with the majority of those that are bird related, focusing on seabirds or forest birds, and the potentially damaging visitor impacts (Higham, 1998; Higham & Carr, 2003; Lindsay, Craig, & Low, 2008; Schänzel & McIntosh, 2000). This research therefore has the potential to help add to the limited knowledge of bird tourism in New Zealand, and gain a better understanding of tourism within the Upper Waitaki Basin.

1.2.1 Upper Waitaki Basin

The Upper Waitaki Basin (Figure 1) is located in New Zealand's South Island, stretching from the Southern Alps and Aoraki/Mount Cook, down to Lake Benmore and Lake Waitaki (Gray & Harding, 2007).

Figure 1: Upper Waitaki Basin, (See Brumfield, 2010).

It is in this region that the continual process of geological uplift, glacial activity and erosion, creates the unique braided river systems that can be seen today (Caruso, 2006). Braided rivers are important features of the upper Waitaki Basin, and are characterised by their expansive gravel beds, and various channels and flows. They are unusual geological landscapes, which support unique plant and animal communities that are found nowhere else in the world (Woolmore, 2011).

With Aoraki/Mount Cook National Park, Lake Tekapo and Lake Pukaki, the region is popular for domestic and international tourists, who come to see the awe-inspiring scenery and make use of the natural environments (Thompson-Carr, 2012). The total number of visitors (including both domestic and international) staying overnight in the region increased by more than 20 per cent between 2015 and 2016, from 591,355 to 719,509 (Statistics New Zealand, 2017).

1.2.2 The kakī

The kakī, or black stilt (*Himantopus novaezelandiae*) (Figure. 2), is a wading bird native to New Zealand, and considered a taonga (treasure) by Maori. It was once common throughout the country but is now critically endangered, and restricted to the wetlands and braided rivers of the Mackenzie Basin (Sanders & Maloney, 2002; van Heezik, Maloney, & Seddon, 2009). With the spread of new predators and decline and modification of their habitat, by 1981 kakī numbers declined to just 23 birds (Caruso, 2006). Conservation efforts have since succeeded in preventing the extinction of the species, however it remains at high risk of extinction (Steeves, Maloney, Hale, Tylianakis, & Gemmell, 2010). By 2013, kakī numbers in the wild had increased to 61 adults, including 11 pairs (Caruso, 2006). A number of kakī pairs are kept at the captive breeding centre in Twizel. Eggs collected from the wild and from the captive birds are artificially incubated, with the young chicks raised in captivity. The birds are released into the wild before they are 10 months old, into accessible manageable areas where there is predator control (van Heezik et al., 2009). Adult survival rates are usually low mainly due to predation by introduced species such as cats and ferrets (Galbraith, Sancha, Maloney, & Hauber, 2007). Other threats to maintaining the kakī population include habitat loss through human development, and human disturbance through recreational activities (Keedwell & Brown, 2001; Sanders & Maloney, 2002).



Figure 2: Kakī/black stilt (Source: Department of Conservation)

According to the Department of Conservation, the next phase of the recovery programme will address the complex issues associated with managing kakī in the wild, and the human activities, such as tourism, around them.

1.2.3 **Current kakī tourism opportunities**

There are currently several formalised kakī viewing sites located around the Upper Waitaki Basin area, as documented on a map provided by the Department of Conservation (Figure. 3). This map is available from the Department of Conservation office in Twizel, and shows where people can visit and view the birds.

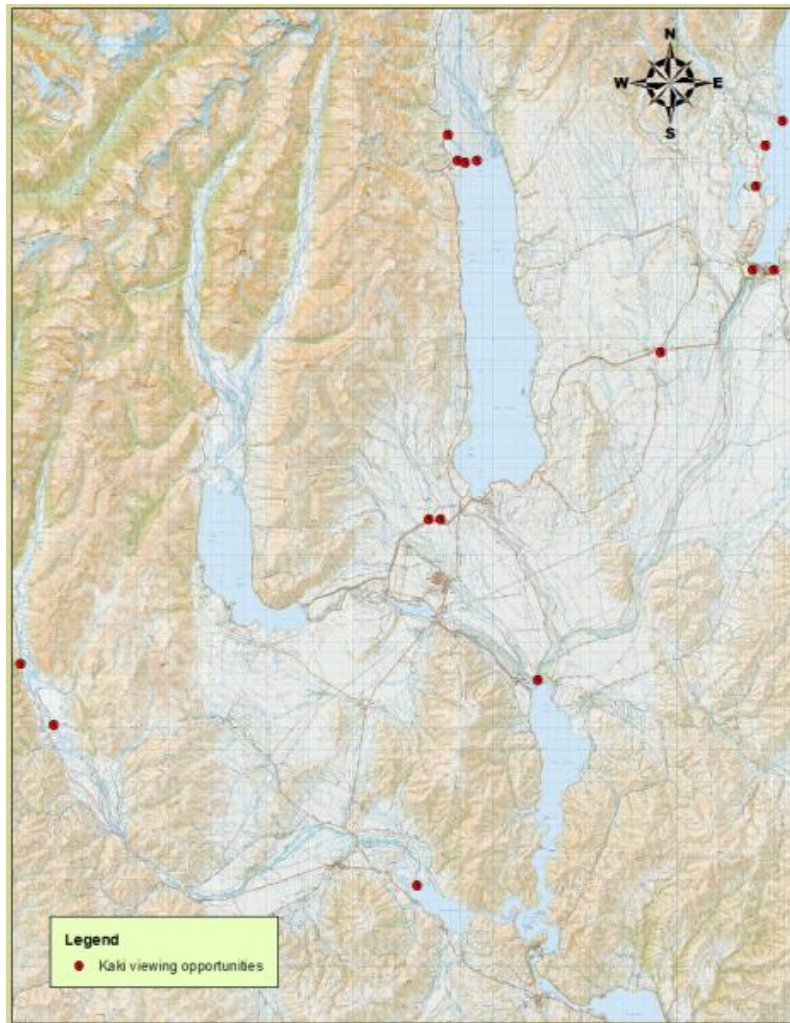


Figure 3: Kakī viewing sites in the Upper Waitaki Basin (Department of Conservation, 2016).

Kakī tourism activities in the Upper Waitaki Basin are currently limited. Organised bird watching tours pass through the region looking for kakī, with the bird mentioned on some tour group websites, (see, for instance, Wrybill-tours.com; sunrisebirding.com; eagle-eye.com). The visitor centre at Twizel has two large sculptures of the kakī near its entrance way, and the centre itself has information available to tourists about where to see kakī, should visitors ask for it. However, there is little mention of the kakī in mainstream tourism advertisement and promotion. The current Alps to Ocean cycle guide book mentions the kakī visitor hide as a place to go, however that building has been closed since winter 2015 following a severe snow storm.

Whilst both rare species and tourism are rich areas for study in both New Zealand and around the world, the kakī has thus far escaped attention. The kakī is an exceptionally rare

and unique species that makes it an ideal research topic for rare species tourism. By researching current risks and opportunities of rare species tourism in the Upper Waitaki Basin, prospects exist to help inform the development of appropriate education about, interpretation on, and promotional strategies for the kakī.

1.3 Research aims

This study aims to identify and critically examine the opportunities and risks of developing rare species tourism in the braided river systems of the Upper Waitaki Basin. More specifically, the research objectives are to:

- Establish the extent to which visitors are aware of the Upper Waitaki Basin's unique environment and species within it.
- Identify and critically assess how rare species are promoted and interpreted in the Upper Waitaki Basin.
- Assess the likely compatibility of rare species with the development of tourism experiences in the Upper Waitaki Basin.
- Assess the suitability of using the kakī as a flagship species for the Upper Waitaki Basin.

1.4 Research contribution

The research aims to contribute to an improved understanding of the characteristics of wildlife tourism within the Upper Waitaki Basin, an area of research that is currently lacking. The study also sets out to address the use of rare and iconic species as a form of 'last chance tourism' within the Upper Waitaki Basin and contemplates the appropriateness of reframing this concept as 'back from the brink' tourism. The intention of this research is to help inform the development of appropriate education, interpretation and promotion strategies.

1.5 Thesis structure

This thesis is organised into seven chapters. Chapter 2 presents relevant literature on nature-based tourism, focusing on wildlife and bird watching. The chapter also presents literature on the use of interpretation in relation to tourism and conservation, and the use

of flagship species in destination promotion. The literature review also identifies gaps within these research areas. Chapter 3 describes the mixed methods approach used in this study.

Chapters 4 and 5 present the results from the data collection. Specifically, Chapter 4 focuses on the quantitative data gathered from the visitor surveys, whilst Chapter 5 presents interviewee responses and perspectives on tourism and the kakī.

Chapter 6 discusses the key findings from the results and compares and combines with the existing literature. The final chapter, Chapter 7, concludes the research and provides recommendations for future study.

The following chapter will review the literature surrounding the relationship between conservation and tourism, with focus on the environmental and economic impacts, as well as interpretation and communication strategies.

Chapter 2

Literature Review

This chapter reviews the literature pertaining to the relationship between tourism and conservation, and the development of sustainable wildlife tourism, to provide a background to the study. First, the review explores the literature on the relationship between tourism, conservation, and sustainability. The review then explores the available nature-based and wildlife tourism literature, with a particular focus on birdwatching. This section also examines the literature around the risks and benefits wildlife tourism can bring to the region. The final section provides an overview of communication management strategies, including the use of interpretation and flagship species, and the potential benefits they bring to tourism. Additionally, the chapter examines the phenomenon of last chance tourism and its relationship to rare species and wildlife tourism. This review identifies gaps in the current literature, whilst providing insight and relevance to this research study.

2.1 The tourism and conservation relationship: Friend or foe?

Tourism is a significant contributor to the economic growth and development of regions throughout the world (UNWTO, 2017). The industry has continued to expand and has become one of the world's largest and fastest-growing economic sectors (Jucan & Jucan, 2013). Although tourism can help regions develop economically, it can put their natural resources at risk (Newsome, 2013).

Conservation aims to protect and conserve the environment and species within it, and involve practices and techniques to prevent the over use of the natural resource (Sandbrook, 2015). These conservation practices usually involve the use of public funds and resources as part of a campaign or policy implementation, with the intention of protecting the resource for its own intrinsic or economic value (Meinard, 2017). There are often conflicts between people who choose to protect nature for its own sake, and those who protect it for its usefulness and for economic purposes (Murray, 2017).

More than four decades ago, Budowski (1976) was among the first to acknowledge that the tourism – conservation relationship can take several forms. He proposed three scenarios, the first of which is ‘conflict’. This is where the presence of tourism directly and negatively impacts on nature and the resource. Conservationists are unhappy with the situation and often clash with those in tourism. Budowski’s second relationship type was ‘coexistence’. This is where tourism promotes the conservation cause. There is little interaction between both the tourism industry and the conservationists at this point with both operations usually underdeveloped. The relationship at this point can move into ‘conflict’ or, conversely, can progress to the third relationship type, ‘symbiosis’. This is a relationship about mutual dependence, where each survives because of the other, and where both the tourism industry and conservation benefit. The natural environment is conserved as much as possible and can even be improved on. Tourists visit the pristine area increasing economic benefits to the region. But for this to work, conservation and tourism development needs to be sustainable (Harding, 2006).

2.2 Sustainable tourism development

Harding (2006) claims that the term ‘sustainable’ is a complex and well-discussed topic, yet still has people unable to agree on its use and implementation. The tourism sector has been credited with its swift change of focus from economic gain to recognising its environmental implications (Budeanu et al., 2016). Waligo et al. (2013) state that sustainable tourism is tourism development that takes into account the current and future environmental, economic and social factors, whilst striving to meet the needs of the stakeholders involved. Others claim that with many tourism sites being located in environmentally sensitive areas, sustainable development is key to ensure resource protection (Poudel & Nyaupane, 2013; Powell & Ham, 2008). Sustainable tourism is claimed as a win-win situation for the environment and wildlife within it, as well as local residents, businesses, and tourists (Dinerstein et al., 2013; Powell & Ham, 2008). McCool (2009) states that effective sustainable tourism management requires the balancing of trade-offs between protecting the valuable assets within the area, and allowing visitors access. Pigram (2006) agrees with this, stating that the challenge for managers of environmental attractions and parks is to

balance protection and conservation, with recreational use. Long term sustainable tourism depends on the ability of tourism sites to anticipate the needs of the future traveller.

In order to develop tourism sustainably, tourism planning must be integrated into the wider planning process to allow social, economic and environmental goals to be reached (Hall, 2008). For efficient tourism development, all stakeholders, such as local community groups, businesses and conservation managers, should be clearly informed of the strategies and goals prior to development (Frey & George, 2010). These goals are particularly important to rural and regional areas that are looking at tourism development as a way of increasing the region's economy. Researchers claim that there are varying levels of stakeholder support depending on the benefits gained from tourism (Oviedo-Garcia, Castellanos-Verdugo, & Martin-Ruiz, 2008). The benefits acquired from tourism help to shape stakeholders' perceptions of tourism impacts, and so influence their support for tourism development. Planning allows managers to establish the type of visitors they attract, the experiences they want them to facilitate, and can determine the level of acceptable modification in natural areas. It helps deal with the complex, uncertain issues and changes, which affect natural area tourism (Cságoly, Sæþórsdóttir, & Ólafsdóttir, 2017; Newsome, 2013).

2.3 Nature-based tourism

The forms of nature-based tourism are diverse and include, but are not limited to, adventure tourism, ecotourism, geotourism, and wildlife tourism (Newsome et al., 2005; Tisdell, 2012). Globally, businesses organised around nature-based tourism activities are worth millions of dollars (Geffroy, Samia, Bessa, & Blumstein, 2015), and cover a range of activities including hiking, camping, hunting, water sports, and wildlife watching (Newsome, 2013).

Buckley (2000) claims that nature-based tourism tends to be focussed in areas where there are rare species, undisturbed environments and ecosystems with high biodiversity.

Huhta and Sulkava (2014) suggest that tourism and recreational activities in natural areas be restricted to certain parts to enable some habitats to remain undisturbed. In recent times media attention and public understanding of the protection of biological diversity has increased around the world, creating an understanding that the best way to protect species

is to protect their habitats as well Baillie, Hilton-Taylor, & Stuart, 2004; Eagles & McCool, 2002). Maintaining wildlife species and their habitats is good for the environment and whole ecosystem services (Dinerstein et al., 2013), with nature-based tourism being claimed as a constructive way people can protect habitats and the wildlife within them (Müllner et al., 2004). The income generated from tourism can be used to maintain wildlife populations but the returns can only be generated if there is sufficient wildlife there to start with (Walpole & Leader-Williams, 2002). Studies have shown wildlife populations which are well managed and funded through tourism, have increased in numbers, compared to those without tourism (Packer & Ballantyne, 2012; Shultis & Way, 2006).

In New Zealand, nature-based tourism is focused around the natural scenery and public conservation land, with hundreds of thousands of tourists coming annually to see the most well-publicised sites and have the '100% Pure' experience (Bell, 2008). Images of New Zealand's un-spoilt nature of mountains and rivers are shown around the world encouraging people to bungee jump, go white water rafting, or hike across the country's beautiful landscape (Clope & Perkins, 2002). Crucial to the success of these tourism activities is the natural environment (Newsome et al., 2012), with management being key to mitigate any environmental issues (Buckley, 2010). New Zealand's Department of Conservation (DOC), as the agency responsible for the administration and management of public lands and waters, is also a key facilitator of nature based tourism experiences, with tourism playing an important role in the country's economy (Albrecht, 2017).

2.4 Wildlife tourism

Wildlife tourism is seen as a tourist activity which has wildlife as its main attraction (Catlin et al., 2013) and can consist of consumptive or non-consumptive activities (Bertella, 2016; Newsome et al., 2005). Consumptive activities include hunting and fishing, where wildlife is taken out from its habitat, and mostly likely consumed (Moscardo, 2007; Reynolds & Braithwaite, 2001). Burgin and Hardiman (2015) describe non-consumptive activities as those that typically involve people viewing animals, usually in their natural habitat, without any intentional effects on the wildlife themselves. Non-consumptive wildlife tourism can also include viewing animals passively in captivity, such as in zoos and wildlife parks (Christie, Zimmermann, Hatchwell, Dickie, & West, 2007; Newsome et al., 2005). The type of

wildlife activity chosen by tourists is dependent on their own personal interests, the time available to them, and the opportunity they have to take part in it (Newsome, 2013).

Higginbottom (2004), suggests that wildlife tourism provides urban dwellers a chance to get out into nature and enjoy wildlife. However, using wildlife as an attraction can prove difficult if the species' habitat is difficult to access or the wildlife can only be seen at night (Prideaux et al., 2016).

McIntosh and Wright (2017) state that the type of species determines whether or not people are willing to seek them out, with colour, shape, size and texture determining a person's interest. Particular species' features and traits that give impressions of them being 'cute or cuddly' are more likely to have positive responses from tourists than those that are viewed as ugly. Iconic wildlife or species that are particularly rare will draw the most attention (Prideaux et al., 2016; Simberloff, 1998; Skibins, Hallo, Sharp, & Manning, 2012; Skibins, Powell, & Halo, 2016). Wildlife tourists can have both positive and negative economic and environmental impacts on a destination.

2.4.1 Economic impacts of wildlife tourism

Globally, the estimated annual value of visits to protected areas is approximately US\$600 million (Balmford et al., 2015). The increase in conservation and environmental awareness of people throughout the world, added to the cheaper transport options available to them, has led to an increase in demand to see wildlife in their natural environments (Reynolds & Braithwaite, 2001; Rodger & Moore, 2004). According to Mason (2005) increasing wildlife tourism is a positive for destinations as it encourages spending on tourism businesses and attractions within the region, and provides revenue and donations which conservationists can use to help conserve wildlife. However, Buckley, Castley, Pegas Fde, Mossaz, & Steven, (2012), expressed concerns for wildlife conservation that becomes reliant on tourism for income as should the tourism reduce or even stop so would the financial support.

Increasing tourism in rural or underdeveloped areas can help with the improvement of infrastructure such as road networks and toilet facilities (Newsome, 2013). Employment opportunities are also created by the wildlife tourism businesses, with many tourism ventures employing people from the local community (Higginbottom, 2004).

2.4.2 Wildlife tourism's environmental impact

Concerns are often raised for the natural resources and their management as often alongside tourism, comes negative environmental impacts (Balmford et al., 2015; Eagles & McCool, 2002; Mason, 2005; Pigram, 2006; Schänzel & McIntosh, 2000; Tubb, 2003). The very thing people travel to see, such as the natural landscape or wildlife, can be damaged and degraded by visitors (Buckley, 2009; Cole, 2000; Newsome, 2013). Tourism can have a destructive effect on the environment and its biodiversity if left unmanaged (Bushell & Eagles, 2006). Pigram (2006) highlighted the negative environmental impacts on natural areas caused by recreation and tourism use. First, there are the direct effects such as soil compaction, loss of vegetation, and destruction of wildlife habitat that are caused by people walking or driving over it. Then there are the indirect or secondary and inter-related effects such as erosion, moisture loss, or displacement of entire species, which often takes place after the vegetation has been destroyed or removed from the environment. Different activities can have varying impacts on natural areas, and can be short term, or can cause more long-term damage (Buckley, 2009; Törn, Tolvanen, Norokorpi, Tervo, & Siikamäki, 2009). Off-road vehicles allow people to access more sensitive, remote areas, and also bring seeds and weeds from outside the area.

Higham and Shelton (2011) claimed increased visitation by people into natural wildlife habitats can impact negatively on wildlife species, causing behavioural changes and habitat destruction. Newsome et al. (2005), proposed that wildlife reacts in certain ways to tourism (Figure 4), with the potential to harm themselves or the visiting tourist. Responses can vary from stress and avoidance, to habituation and even death, none of which are ideal reactions and circumstances for endangered species, such as the kakī.

Figure 4: Potential wildlife responses to tourist interaction and intrusion (See Newsome, Dowling, & Moore, 2005).

Marine and river environments are particularly susceptible to recreation users, due to the high number of water based activities available to tourists, and to their close proximity to wildlife (Prideaux, 2009; Rangel et al., 2015). Tourists can be oblivious to the stress and damage they cause to marine life, and will focus primarily on ensuring they are having a good time (Davenport & Davenport, 2006). Even innocuous activities can have severe impacts on species. The introduction of minerals, toxins and waste can reduce the water quality and create potential health hazards to animals, and can even cause some species to be lost completely (Gray & Harding, 2007).

Previous studies have shown that the key to successful wildlife conservation through tourism is the management of tourists, rather than just wildlife, by influencing their behaviour and preventing them from stressing the wildlife or causing habituation (Cong et

al., 2014). Through effective management and communication techniques, wildlife tourism can make tourists more aware and sensitive of the importance and issues of conservation and change their attitudes. This is particularly useful if the wildlife is unique and rare, and in need of protection.

2.4.3 New Zealand wildlife tourism

Until human inhabitation circa 1200AD, New Zealand was free of large, land-based mammalian predators (Elliott & Kemp, 2016). During the early 19th century, many non-native species, such as deer and rabbit, were brought into the country for the purpose of recreational sport (Perkins & Cushman, 1998). Rabbits become established as a pest, forcing the government to introduce other species to control them, including ferrets and stoats. These species have changed the natural ecosystem and are still causing serious negative impacts today. Altering the environment can cause wildlife to suffer as their habitats become fragmented or even destroyed, and in some areas cause species to become extinct (Newsome et al., 2012; Nyaupane & Chhetri, 2009). A unique and diverse range of wildlife has survived, including reptiles, invertebrates, and many native birds. It is these unique and charismatic animals that are the focus of many tourism ventures around New Zealand today (Cowling, Kirkwood, Boren, & Scarpaci, (2014).

Many tourism ventures in New Zealand are non-consumptive activities and involve marine wildlife such as seals, dolphins or whale watching in places like Kaikoura or Milford Sound (Higham & Carr, 2003). Wealthy tourists from Europe and the United States frequently visit New Zealand spending significant amounts of time and money on wildlife encounters (Collier, 2003). As well as the kiwi houses where people can see nocturnal birds during the day, other birds such as penguins and albatrosses have seen increases in demand throughout the country (Ellenberg, Setiawan, Cree, Houston, & Seddon, 2007; Higham & Carr, 2003).

Although there have been studies on tourism impacts on New Zealand wildlife and nature in coastal and forest environments (Cloke & Perkins, 2002; Collier, 2003; Cowling et al., 2014; Ellenberg, Mattern, & Seddon, 2013; Ellenberg et al., 2007; Guerra & Dawson, 2016;

Higham, 1998; Lundquist, Gemmell, & Würsig, 2012), there are currently few studies relating to impacts of wildlife tourism on inland New Zealand bird species.

2.5 Birdwatching

Birdwatching has long been a recreational pastime in many Western nations, but has grown from a local hobby into a popular niche within wildlife tourism (Kronenberg, 2016). Connell (2009) explained the increase as a response to growing urbanisation and environmental concerns, as the popular pastime can provide some escape and freedom from urban life. The greater wealth, mobility and accessibility to previously remote areas that many western people have, has contributed to the growth in birdwatching as a form of wildlife tourism. Eubanks, Stoll, & Ditton, (2004), describe birdwatchers as usually affluent tourists who have limited time, and so are more likely to spend money over a shorter period of time. However, Hvenegaard (2002)'s study found that the majority of his respondents were of retirement age, and suggested that they may have more time to spend birdwatching than those in full time employment.

The available literature on birdwatchers typically refers to three separate groups: 'casual bird watchers'; 'birders'; and 'twitchers' (Connell, 2009; Hvenegaard, 2011). Casual birdwatchers will take pleasure in observing birds, at home or whilst they are away somewhere, and will notice birds around them. Birders and twitchers are a subset of regular birdwatchers, with the main purpose of their travel being bird-related (Steven, Morrison, & Castley, 2015). Birders are generally concerned with the scientific classification and environmental issues surrounding birds, and will study them in detail. Twitchers are similar to birders, but will respond with added enthusiasm to the news of sightings of rare species within, or near to, their region. Twitchers who are 'twitching', spend a lot of time and money travelling to see rare birds, or species which are new to them. Twitchers are known to have extensive lists of birds they have seen, and are focused on increasing the number of birds on these lists. Any birds that the twitcher has seen is added to the list. The twitcher then compares their list with other twitchers, paying particular focus to any rare or endangered species. This type of birdwatcher is typically focused more on observing the rare bird species than that of the surrounding flora and fauna (Moore, Scott, & Moore, 2008), and can even get quite competitive with other birdwatchers (Sheard, 1999).

Observing birds can be a rewarding experience, both physically and emotionally, as people can enjoy the outdoors whilst witnessing the amazing wildlife within it (Schänzel & McIntosh, 2000; Shelton & Lübcke, 2005). However, the majority of rare birds around the world are difficult to see or hear, and are usually found in difficult places and certain times of day (Connell, 2009). Many of New Zealand's endemic birdlife is so rare and/or nocturnal that to experience it first-hand usually involves visiting sanctuaries or zoos, or taking part in captive recovery programs (Higham & Carr, 2003).

The search for rare species takes birdwatchers to increasingly distant and vulnerable sites, leading to the rise and development of tourist destinations in fragile areas. Yet, with the increase in tourism, birdwatchers can contribute to economic growth of areas, and can help financially support conservation projects (Steven, Morrison, Arthur, & Castley, 2015; Steven, Morrison, & Castley, 2015). However, with the rise of tourism comes the need to keep the fragile environments as pristine as possible (Kronenberg, 2016). Birdwatching helps to promote the value of remote regions and the wildlife within it, and so helps to focus on sustainable tourism (Garrod, Wornell, & Youell, 2006). This has led to development of tourism sites around the world, where people are encouraged to watch wildlife without harming them or their habitat, and can in fact improve the environment around them (Newsome et al., 2005).

Steven and Castley (2013) claim that human activities, including those that are tourism related, have contributed to the decline in some bird species, with now more than 12 per cent of all bird species threatened with extinction. For some particularly rare or endangered species, it may in fact be the birdwatchers last chance to see the species (Hvenegaard, 2011).

2.6 Rare species

Rare species are those species of either animal or plant, which have fewer than 1000 individuals, and are only found in select areas (Booth et al., 2011).

The IUCN lists thousands of species found throughout the world which are endangered or even critically endangered (Table 1) to point of extinction (IUCN, 2012). There is some

evidence that tourists are motivated to interact with these endangered and rare wildlife species, before the species becomes extinct (Cong, Wu, Morrison, Shu, & Wang, 2014).

Table 1: IUCN classifications (IUCN, 2012).

| Classification | Population level |
|-----------------------|---|
| Extinct | Zero – the last individual has died |
| Extinct in the wild | Only few individuals in captivity |
| Critically endangered | Fewer than 250 mature individuals |
| Endangered | Between 250 - 2500 mature individuals |
| Vulnerable | 2500 – 10000 mature individuals |
| Near threatened | Likely to become a threatened species in future |
| Least concern | Widespread |

However, conserving rare species is expensive in both time and money. To help meet the costs of conserving species, tourism sites have been developed around the world, where people are encouraged to watch wildlife without harming them or their habitat, and can in fact improve the environment around them (Novelli, 2005). From a destination perspective, rare, iconic and charismatic species can be used in marketing and promotions, to help encourage visitors and aid in the destinations economic growth (Curtin & Kragh, 2014). It is claimed that turning rare species into an icon of a destination puts it on tourists' 'must see' lists. These iconic species can become 'flagship species' which are used by regions to draw attention to conservation issues (Shelton, 2011; Skibins et al., 2012).

2.7 Maximising the benefits of tourism and conservation: Communication strategies for conservation messages

Given the importance of tourism and conservation working together, it is important to consider the literature around management and communication. Conservation managers must weigh up the benefits of tourism against any negative impacts to the resource (Skibins et al., 2012). This section looks at ways of communicating the conservation message to

tourists through the use of flagship species and interpretation techniques, as well as the use of the 'last chance tourism' concept.

2.7.1 Flagship species

Flagship species are animals specifically selected to raise funds and awareness for conservation issues (Skibins et al., 2016). Smith and Sutton (2008) described flagship species as charismatic and cute animals that are ideally endemic to an area but known further afield, and which have a declining population. Flagships lead to an awareness and concern for the plight of the wildlife which motivates people to help conserve the species and its environment. By protecting one species and its environment it helps all associated biodiversity within that environment (Leader-Williams & Dublin, 2000; Simberloff, 1998). However, whilst flagship species can be used to raise awareness, the increase activity around the species habitat can cause disturbance and put strains on their population (Goodwin & Leader-Williams, 2000).

Unique wildlife can be a strong pull factor for tourists. Examples of this can be seen with the panda in China, elephant and rhino in Africa, and the koala in Australia (Leader-Williams & Dublin, 2000; Prideaux et al., 2016). A recent study in Queensland examined using the cassowary as a flagship species for the region (Prideaux et al., 2016). They determined that the cassowary is currently under-utilised as a flagship species as some tourists were prepared to pay to see the bird in the wild, if the opportunities were available to them. Similar studies have also shown the financial value in flagship species, where tourists have explicitly visited an area to see a specific species such as the panda, or chimpanzee (Cohen, 2010; Nakamura & Nishida, 2009). These studies show that it is not one type of animal, such as only mammals, that can be used as flagship species. It is particularly encouraging to see the potential use of birds as flagship species, as birdwatching is one of the fastest growing segments of the wildlife tourism market, with the potential to generate significant conservation income (Connell, 2009). Endangered flagship species can be promoted as a last chance tourism product, with the success of tourism usually dependent on the wildlife type and how charismatic they are (Prideaux et al., 2016).

2.7.2 Last chance tourism

Tourism associated with doom and death, has led to an increase in both 'dark tourism' and 'last chance tourism'. Dark tourism covers a variety of sites where death and doom have occurred, whereas last chance tourism, involves places in current peril and at risk of change (Fisher & Stewart, 2017). Last chance tourism is a niche market within tourism where tourists explicitly seek out vanishing species and/or places (Hvenegaard, 2011). At risk, or 'doomed' sites are attractions for last chance tourists (Eijgelaar, Thaper, & Peeters, 2010; Groulx, Lemieux, Dawson, Stewart, & Yudina, 2016), who seek out destinations that are threatened, to experience it before it completely vanishes (Lemelin, Dawson, Stewart, Maher, & Lueck, 2010). Originally identified and described by researchers in relation to climate change in polar studies, last chance tourism can also include a variety of other environmental, social and historical elements (Groulx et al., 2016). Travelling to see unique animals, such as polar bears, can be classed as last chance tourism. Many tours have been established for last chance tourists in the Arctic, where visitors travel to view diminishing wildlife and receding sea ice (Dawson et al., 2011; Lemelin et al., 2010). Endangered wildlife can be promoted as a last chance tourism product, though the success of tourism usually relies on the wildlife type and how charismatic they are (Prideaux et al., 2016).

Last chance tourism literature has focused primarily on iconic destinations and mega species which are effected by climate change, and the motivations and ethical considerations of visiting these places (Dawson et al., 2011; Groulx et al., 2016; Lemelin et al., 2010). Although climate change has had some impacts on bird populations with regard to temperature changes (Miller-Rushing, Lloyd-Evans, Primack, & Satzinger, 2008), it is usually direct human influences, such as habitat loss, that have effected bird populations most significantly (Hvenegaard, 2011). Shelton (2011) discusses how human influences effected the kakapo population, causing them to drop to around 40 individual birds. The threat of losing the kakapo led scientists to believe it was a 'last chance to see' species. However, Shelton (2011) explains that when discussing wildlife, 'last chance to see' is a morbid expression that has no place in conservation efforts. Instead describing the kakapo as a triumph over despair, or rescued from the brink of extinction is a more positive interpretation.

Dawson et al. (2011) question the ethics of last chance tourism and whether it is morally right to promote vulnerable attractions that could be on the brink of extinction. Last chance tourism is promoted as 'last chance to see' with little emphasis placed on ethics and value of what people are actually going to see, with some last chance tourists contributing to the negative environmental impacts (Lemelin et al., 2010). Tourists visiting the Arctic to see the diminishing ice are using transport powered by fossil fuels. The emissions given off by transport is contributing to global warming which is effecting the sensitive environmental site (Dawson et al., 2011). Tourists are therefore contributing to the environmental degradation and destruction they have come to witness. With this in mind, people's motives need to be considered when they visit 'last chance' destinations (Dawson et al., 2011; Groulx et al., 2016). Consideration also has to be given to the appropriateness of using the term 'last chance tourism' for some wildlife attractions as this would indicate doom and gloom, and possible extinction of the species (Dawson et al., 2011). However, as Fisher and Stewart (2017) explained, sometimes it can take coming to the brink of loss to make people recognise what is valuable to them.

Although there is significant literature on last chance tourism as a phenomenon, few studies have been carried out on last chance tourism in relation to bird tourism, and whether last chance tourism plays a role as motivation for bird watching. There is opportunity for future development and scope in this area of literature.

2.7.3 Interpretation and communication

Effective communication with visitors to nature-based destinations is an essential component of successful conservation and protection of vulnerable species. One tool often used to help serve this purpose is interpretation. To aid in visitor awareness of conservation, messages need to be communicated to them. Interpretation is a communication process that allows messages to be conveyed from one source to its audience (Brochu, 2002). It allows information to be transferred, and with the case of tourists, allows them to be educated and informed (Ham, 2009). For wildlife tourism, interpretation plays a critical role in highlighting species which may be completely unknown to visitors, and draws attention to their conservation issues (Newsome, 2013).

Interpretation can transform visitors' thinking and can help manage visitor movements and behaviour (Moscardo, 1996). Visitors' interaction with interpretation is recorded in the tourist's mind as an experience (Ham & Weiler, 2002). Visitors who are engaged and willing to learn about the environment around them are considered mindful tourists (Moscardo, 1996). Mindful visitors spend time in the outdoors and interact with the interpretation provided (Falk, Ballantyne, Packer, & Benckendorff, 2012). They are more likely to interact and engage with people and places. In comparison, mindless visitors rely on the information being directly fed to them, do not question the interpretation provided and usually show little interest in learning anything (Falk et al., 2012; Moscardo, 2014). Mindless visitors are not stimulated by their environment, and so are quick to forget messages they are told (Moscardo, 1996).

There are many types of interpretation used to promote conservation messages, such as on-site interpretive panels, guided tours, and online content. They can be static displays, such as printed materials and exhibits, which visitors choose to interact with (Ham & Weiler, 2002). Signs can help alleviate crowding by directing people to other areas, and can emphasise environmental messages at points along a track (Newsome et al., 2012). Pamphlets are particularly popular as they can be taken away and read at any time (Wolf, Stricker, & Hagenloh, 2013). However, with the freedom of choice of whether to engage with the interpretation or not, it can lead to visitors not interacting with any interpretation at all (Newsome, 2013).

If interpretation is successful, tourists become aware of environmental and scientific information whilst visiting a destination which in turn would help encourage environmental protection and reduce the damage caused by them (Plummer, 2009). Tourism operators who provide uninteresting or unimaginative interpretation miss out on the opportunity to convey important messages (Curtin, 2013; Curtin & Kragh, 2014). However, there are also difficulties associated with interpreting a natural heritage site, particularly when interpreting to different cultures and languages, as important information may be lost in translation (Ling, Noor, & Mustafa, 2015). Similarly, there is also the risk of tour operators exploiting species of cultural significance in their marketing campaigns which can cause offence to local and indigenous people (Bowen-Jones & Entwistle, 2002; Curtin & Kragh, 2014).

Freeman Tilden is described by many as the father of heritage interpretation (Plummer, 2009). Tilden (1977) emphasized the importance of the link between understanding, appreciation and the protection of natural areas. He described interpretation as not just the communication of facts, but a revelation of a larger truth and the enrichment of the human mind. Tilden (1977) developed six principles for successful interpretation (Table 2).

Table 2: Tilden's six principles of interpretation (Tilden, 1977).

| | |
|----|---|
| 1. | Any interpretation that does not somehow relate what is being displayed or being described to something within the personality or experience of the visitor will be sterile. |
| 2. | Information, as such, is not interpretation. Interpretation is revelation based upon information. But information and interpretation are entirely different things. However, all interpretation includes information. |
| 3. | Interpretation is an art which combines many other arts, whether the materials presented are scientific, historical or architectural. Any art is in some degree teachable. |
| 4. | The chief aim of interpretation is not instruction, but provocation. |
| 5. | Interpretation should aim to present a whole rather than a part and must address itself to the whole man rather than any phase. |
| 6. | Interpretation addressed to children should not be a dilution of the presentation to adults, but should follow a fundamentally different approach. To be at its best it will require a separate program. |

Powell and Ham (2008) further developed Tilden's principles, by stating that interpretation needs to be organised and have a theme running through it. Having a story that readers can follow and understand enables people to establish a connection and remain interested in the theme. The concept of theme in interpretation is key in establishing the specific message the interpreter wants to get across to their audience (Ham, 2009; Plummer, 2009;

Powell et al., 2008). Ballantyne, Packer, & Sutherland, 2011, & Jiménez et al., 2017, claim that through interpretation, wildlife tourism can educate visitors about the threats facing wildlife and can be used as a tool to help with conservation efforts. Curtin (2010b) claims that guides combining interpretation with an involved tourist experiences can encourage engagement with new environmental awareness and interests. However, Nyberg (1977) suggested that presenting facts through interpretation removes the sense of awe and discovery gained from spending time within the environment.

In their study, Powell and Ham (2008) determined that interpretation during Galapagos Island tours, had measurable influence on tourists' knowledge and attitudes towards protected areas and their future behavioural intentions. The study showed that the interpretation at Galapagos did positively impact on visitor's enjoyment and satisfaction as well leading to a small increase in tourist's knowledge on the environmental issues relating to the Galapagos Islands. Nature and wildlife tourism relies on positive promotion of natural resource protection, and should the interpretation fail to do this, could lead to people causing further damage to the environment (Curtin, 2010a; Newsome, 2013).

2.8 Chapter summary

This review has discussed the extensive literature on nature-based and wildlife tourism, last chance tourism framework, and looked at the complexities of conservation communication and interpretation techniques. Based on this review, this study will help fill the research gaps in New Zealand based rare species tourism, and the conservation communication techniques used within the Upper Waitaki Basin. The next chapter will outline the methods used in this study.

Chapter 3

Methods

3.1 Introduction

The purpose of this chapter is to introduce the methodology and tools used during the research and the processes involved in the data collection for this study. The sampling methods used for both surveys (quantitative) and interviews (qualitative) are described and justified, concluding with the limitations of the research.

3.2 Mixed-methods approach

A mixed-methods approach was used to collect both quantitative and qualitative data. The benefit of a mixed-methods approach is that it allows for a more robust analysis (Creswell, 2014). The fieldwork strategy for this research involved three types of data collection: a) a site analysis; b) a visitor survey; and c) key informant interviews. The site analysis helped to gather data on the suitability for rare species tourism at each location. Visitor surveys gathered information about knowledge and awareness among tourists in the area, alongside their motivations and expectations. The stakeholder interviews (categorised in Table 5) provided in-depth data and understanding about wildlife management issues, the potential for developing wildlife tourism opportunities, and any risks associated with such developments.

3.2.1 Site analysis

The kakī (Figure 2) are located at several sites around the lakes and rivers of the Upper Waitaki Basin (Figure 3). These sites were identified after discussion with Department of Conservation staff, who provided information on key sites for viewing kakī, and their accessibility for this research. The most appropriate and likely kakī viewing sites were used for this analysis, whilst those sites on private land were excluded from the research (Figure 15). Details of these sites can be found in the site analysis chapter (section 5.1.1). In order to effect a consistent analysis, each of these key sites was graded by the researcher on a scale of 1 to 7 rating ease of access, visitor facilities, and type of setting. A photographic record of

each site was also documented. The easier and safer the access was to the site, the more facilities available to visitors, and the more appealing the environment and surroundings were, the higher the site scored. From these ratings, the sites were ranked to show which sites are currently most suited for tourism

Table 3: Site analysis template

| | |
|---------------------------|---|
| Access | Quality of road access to the site |
| | Ease of access to the river |
| | Hazard safety of visitors |
| | Cell phone coverage |
| | Distance from nearest 'hub' |
| Visitor facilities | Car parking availability |
| | Interpretation at the site |
| | Visitor facilities available (e.g. toilets) |
| Setting | Seclusion from neighbouring land use (farming, buildings) |
| | Aesthetic appeal |
| | Evidence of wildlife |

3.2.2 Visitor survey

Quantitative methods typically focus on gathering large numerical data sets that can be quantified and compared, allowing the opportunity for statistical analyses and interpretation (Babbie, 2016). Quantitative data for this study was collected via a survey of visitors, which involved gathering data on their activities, their awareness and level of importance of seeing wildlife species, and their expectations whilst they were visiting the region (Appendix A).

The surveys were administered at the following locations and dates:

Table 4: Survey sample participants

| | Recruitment location | Sample size | Date of collection |
|----------------------------|-----------------------------|--------------------|--|
| Twizel | Town centre | 19 | 3 rd – 10 th April 2017 |
| Lake Pukaki viewing points | Car parks | 95 | 3 rd – 10 th April, 24 th -26 th April, 20 th - 21 st June 2017 |
| Lake Tekapo | Lake side carpark | 28 | 19 th & 23 rd June, 10 th August 2017 |
| SH1 Bridge/ Salmon Farm | Roadside on bridge | 3 | 9 th April 2017 |
| Omarama | Town | 5 | 9 th April 2017 |
| | | 150 | |

The survey period was from the 3rd of April through to the 10th August 2017 (including school and public holidays), when both international and domestic visitor numbers are usually high.

3.2.3 Sampling strategy

Potential participants were approached in person on-site by the researcher or student assistants if they appeared to be over the age of 18 years. These sites chosen were known to be popular stop-off points for a variety of people travelling within the region. The towns and viewing points make ideal rest stops, where people spend considerable amounts of time outside of their vehicles, making them suitable for surveying. The locations were close to the sites of the wildlife species mentioned in the surveys, making it ideal for putting the wildlife into context.

A full explanation of the study and what they would need to do should they agree to participate was given to each individual, as well as an explanation of their rights in this study (Appendix C). Emphasis was placed on the confidentiality and anonymity of the study, and that it remained anonymous throughout the data collection and analysis. The researcher asked the questions and recorded the participants' responses. Participants were shown

images and various seven point scales during the survey, allowing people to be more accurate and precise with their responses.

The majority of the survey was simple questions and selections, asking the participants to answer questions relating to awareness, expectations and motivations (Appendix A). The survey took a maximum of 10 minutes to complete.

3.2.4 Research interviews

Qualitative research methods are based on interpreting people's thoughts, ideas and feelings about issues (Ritchie et al., 2014). A key technique for gathering qualitative data is by interviewing people. Semi-structured interviews allow the participants to answer open-ended questions whilst still being directed. The interviewer can collect richer and more detailed answers than those from survey questions (Babbie, 2016).

The second stage of the study involved semi-structured interviews with key operators and managers who were closely affiliated with the regions environmental and wildlife management schemes, as well as those involved in the tourism industry. The interviews were conducted in May, June and July 2017.

The key informants were organised into the following groups

Table 5: Key informant interviews

| <u>Type of informant</u> | <u>Method</u> | <u>Number</u> | <u>Date of interview</u> |
|--|-------------------------------|----------------------|---|
| Regional councils/ Government agencies/ Wildlife agencies | Premises/Telephone / Skype | 11 | 16 th , 19 th - 22 nd , & 30 th June 2017. 7 th & 31 st July 2017. |
| Tour operators / Managers | Premises | 5 | 19 th , 21 st - 23 rd , & 27 th June 2017 |
| Wildlife/environmental researchers | Premises/Skype | 4 | 19 th , 25 th & 26 th May 2017. |
| Total | | 20 | |

3.2.5 Interview participant recruitment strategy

Potential participants were initially contacted either in person or via email/telephone. The potential participants were given a general overview of the research, and were informed of their rights before being asked if they would consider taking part in the study (Appendix D). Once agreed, a suitable time and place was arranged to conduct the interview. The majority of the interviews took place in the participants' workplaces, based around the Upper Waitaki Basin. The same questions were asked in all interviews, however there was some flexibility in the order in which they are asked, and more emphasis on particular questions was applied (Appendix E). The semi-structured nature of the interview allowed more freedom for both interviewer and interviewee to expand on certain points. The questions focused on the participant's knowledge and opinions of rare species in the Upper Waitaki Basin and the potential for developing tourism around them. At the end of the interview, participants were given the chance to ask their own questions which the interviewer answered. The interviews lasted between 25 and 70 minutes. The interviewer made digital audio recordings of 19 of the 20 interviews, as well as making notes on all important and interesting points. The interviews that were recorded were transcribed and coded into themes for analysis to uncover commonalities among the responses (Lofland, 2006).

3.3 Limitations

The following limitations emerged during this research:

1. Weather

Due to unavoidable delays, the research took place between April and August 2017, during the onset of autumn and winter, with the first week of surveying taking place during a severe cyclonic weather event. This led to many tourists staying indoors or in their vehicles instead of walking around the lakes, where they might have been more readily surveyed.

During the site analysis, some kakī viewing locations were inaccessible due to being on private land or in locations not suitable for the researcher's vehicle. The Mackenzie Basin is also prone to heavy snowfall in winter which impacted on the researcher's ability to travel to the region.

2. Seasonality

Surveying during autumn and winter meant that there were fewer tourists in the region than there would have been during the peak season of January and February. This could also have influenced the types of tourists who were visiting the region during that time. Completing surveys during summer would ensure there is a bigger pool of tourists passing through the region.

Organising the interviews during the region's shoulder season meant that some of the potential participants from within the tourism sector had gone on holiday. This resulted in some interview requests being rejected or going unanswered, leading to a lower than anticipated number of tourism stakeholders being interviewed. Arranging interviews towards the end of the summer season when tourism operators are at full staffing may help with this issue.

3. Language

The visitor surveys used in this study were available in the English language, making it difficult for the researcher to capture a range of responses from those who did not speak English. Although this was not a key issue with many tourists able to speak English, it is possible that non-English speakers would have responded in different ways.

3.4 Chapter summary

A mixed methods approach involving semi-structured interviews, visitor surveys and an on-site analysis was considered as the most appropriate approach for the research due to the exploratory nature of the study. This combined method allowed data collection on participant's awareness, expectations and opinions on wildlife and tourism in the region, and enabled an assessment of the general suitability of rare species tourism within the region. This data is presented in the following two results chapters.

Chapter 4

Results – Visitors in the Upper Waitaki Basin (UWB): Activities, attitudes and awareness

4.1 Introduction

This chapter outlines the profile and characteristics of the survey participants ($n=150$), including their place of origin, age group, and other demographic data. It also highlights their main activities, how they were travelling and the length of time they spent in the region. The survey responses show awareness levels, expectations and attitudes of the survey respondents. The purpose of the survey was meet the research objective of establishing visitor awareness of wildlife species and their willingness to see them whilst visiting the region.

4.2 Participant profile

Between April and June 2017, 150 visitors to the UWB were recruited to participate in a survey to gather information about their knowledge and awareness of select wildlife species within the area, alongside visitor motivations and expectations. First time visitors to the Upper Waitaki Basin region made up just over half (54%) of the total sample. Of the respondents who had visited before, 58 per cent had visited between one and five times previously. The high proportion of repeat visitors (46%) suggests a degree of familiarity with the region among visitors. Participants were predominantly travelling with friends (33%) or with a partner (28%) with the most common group size being made up of two people (52%). A significant proportion were travelling independently (92%) usually by motor vehicle (86%), with only a few individuals (8%) being driven by bus or as part of a coach tour. Of all the participants, most (65%) spent at least one night there, whilst a little under a third (29%) were spending just a few hours in the region before moving on.

Christchurch, Lake Tekapo, Queenstown and Twizel were the most popular localities for visitors to have stayed during the nights before and after the intercept survey (Figure 5). Nearly all respondents had stayed in the South Island apart from one travelling from

Wellington, and one person who had just arrived in the country off a long haul flight into Christchurch.

The most common age group in the sample was 18 to 25 years (32%), with female participants (53%) outnumbering males (47%) by a small margin. The education level of the participants was high with 70 per cent being university educated and only 1 per cent having primary education as their highest. Less than a fifth (17%) of the participants claimed to be a member or a supporter of an environmental or wildlife group.

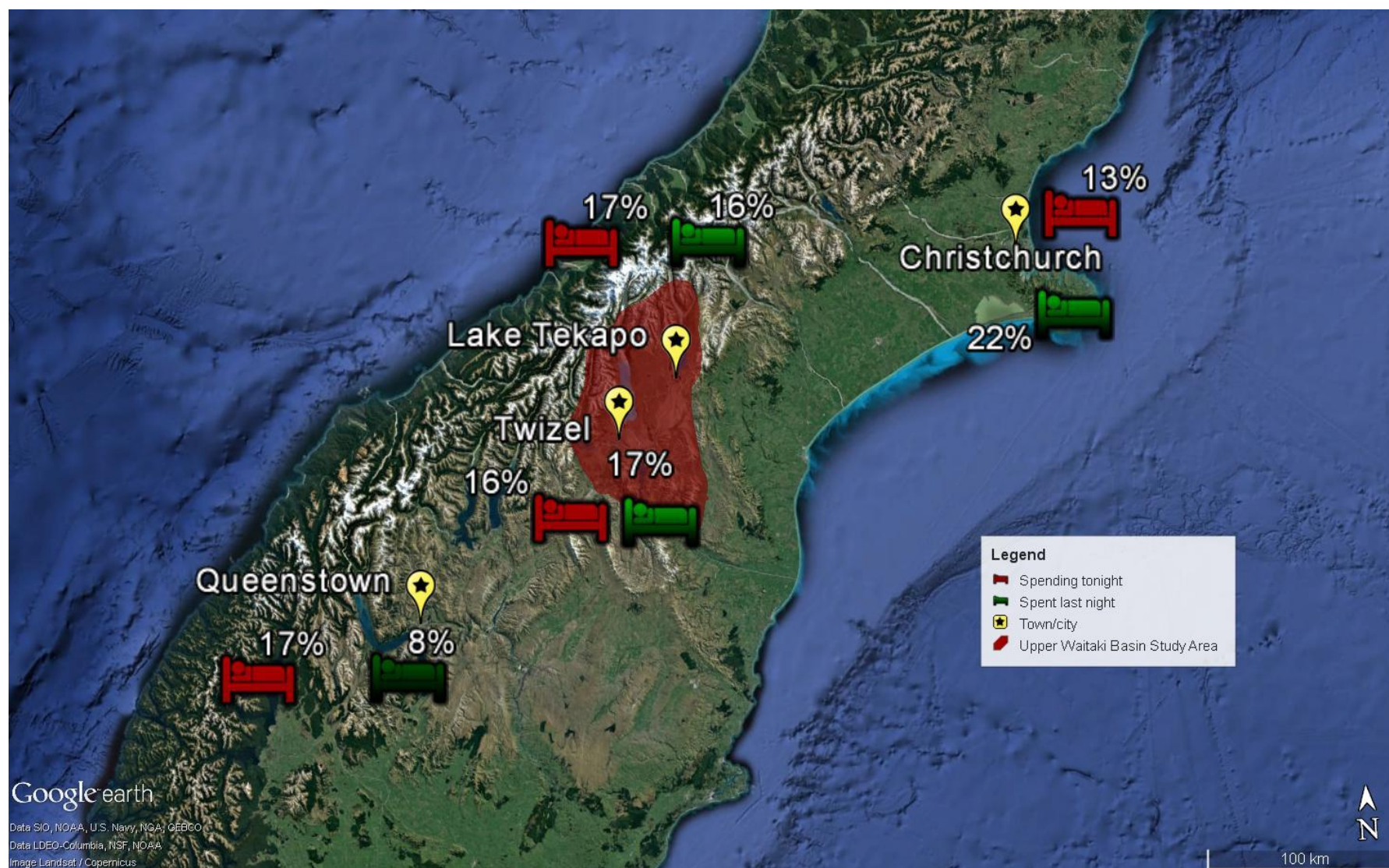


Figure 5: Map showing Upper Waitaki Basin study area and most popular towns and cities for surveyed visitors to spend the night.

When participants were asked where they lived, 'New Zealand' was the most common response (30%). Of the New Zealand respondents, almost two thirds (64%) were from Canterbury. The Otago region (14%) had the next highest representation within New Zealand. A small portion of the New Zealand participants (14%) were visiting from the North Island. After the domestic visitors, people visiting from Germany (13%), Australia (11%) and the United Kingdom (11%) were the next most numerous.

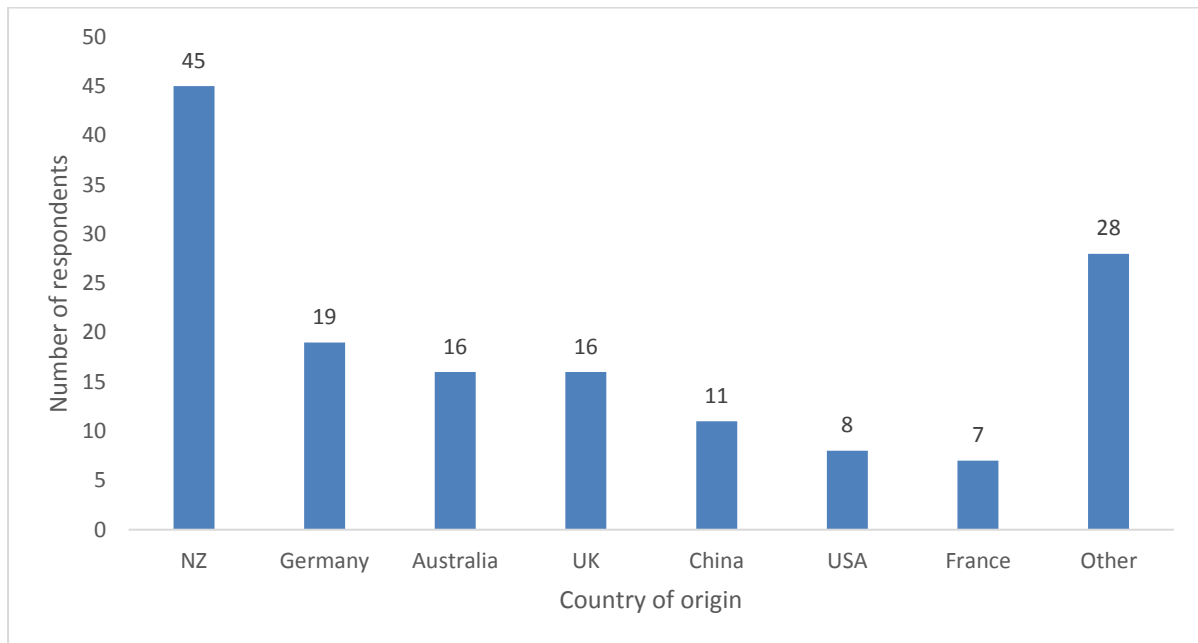


Figure 6: Origin of survey respondents

Because of the large number of countries tallying fewer than 4 responses, these were combined to form 'other.' Due to the many individual countries of origin, responses were combined into regions to get an overall picture of where in the world the 'other' visitors were from (see Figure 7).

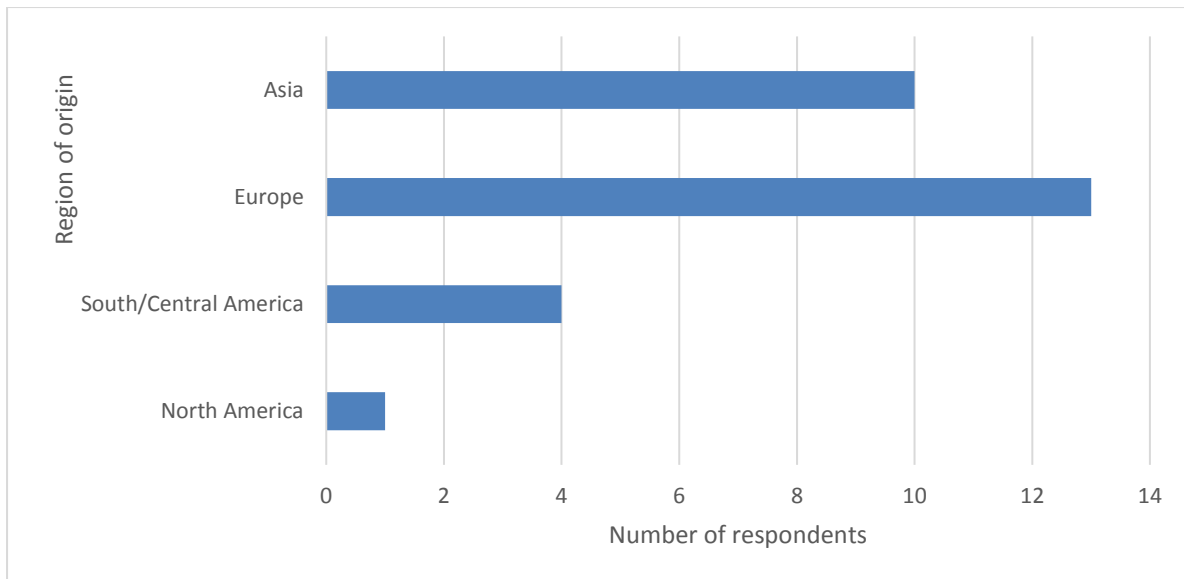


Figure 7: Region of origin of 'other' visitors

4.2.1 Motives

Using a 7 point scale (with 1 being 'not important' and 7 being 'very important'), survey participants were asked how important a list of specific factors were in their decision-making process when choosing to visit the region (see Figure 8). Being 'close to nature' ($\bar{x} = 6.1$) scored consistently high with survey respondents, showing a priority for visitors. Experiencing an 'uncrowded setting' ($\bar{x} = 5.6$) was second highest with 'experiencing a sense of discovery' ($\bar{x} = 5.4$) third. Having a mean of 5 or above indicates a high level of importance placed on these factors. Viewing rare or endangered species was lowest ($\bar{x} = 3.7$), suggesting that this was not a priority factor for visitors when deciding to come to the region.

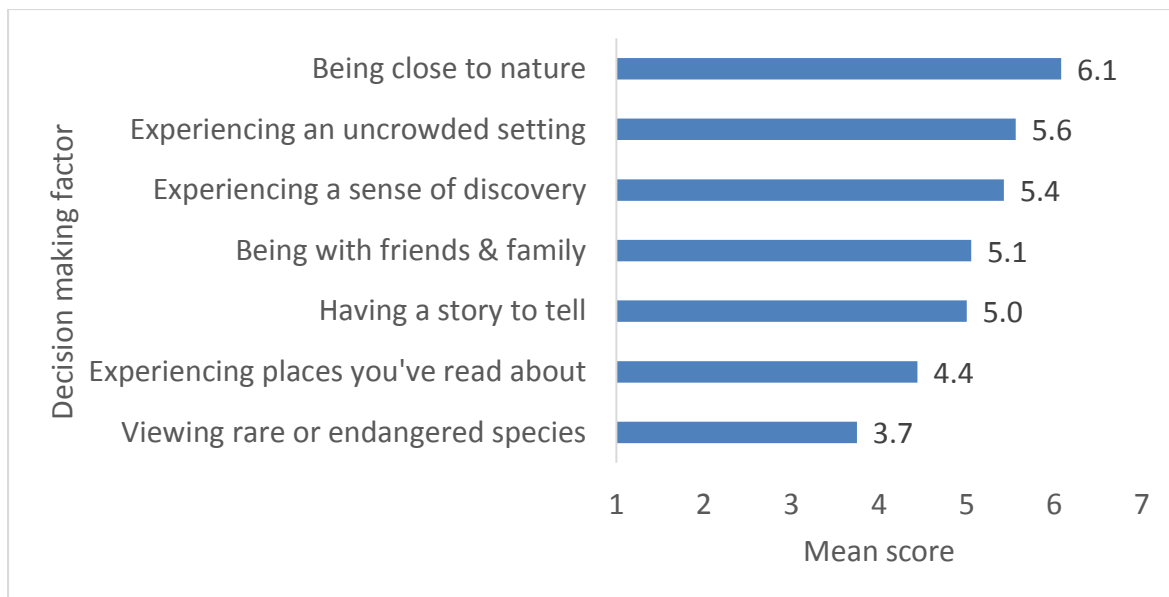


Figure 8: Mean score of respondents ranking of decision making factors when choosing to visit the region (n=150)

When asked about activities they had undertaken or intended to undertake in the region (Figure 9), the majority (72%) of respondents stated they were taking (or intended to take) photos. In addition, 68 per cent indicated that they were viewing/walking around the lakes. The visitor centres proved a popular choice for over a quarter of respondents (27%) and the viewing of the night sky (30%) was a common activity. Outdoor activities such as hiking (27%) scored highly whilst other pursuits related to the braided rivers such as wildlife watching, bird watching or simply visiting the braided rivers, all scored less than 10 per cent of the survey responses. 'Other' activities included swimming, weddings, a Lord of the Rings tour and walking the dogs, which combined to make up 4 per cent of total responses.

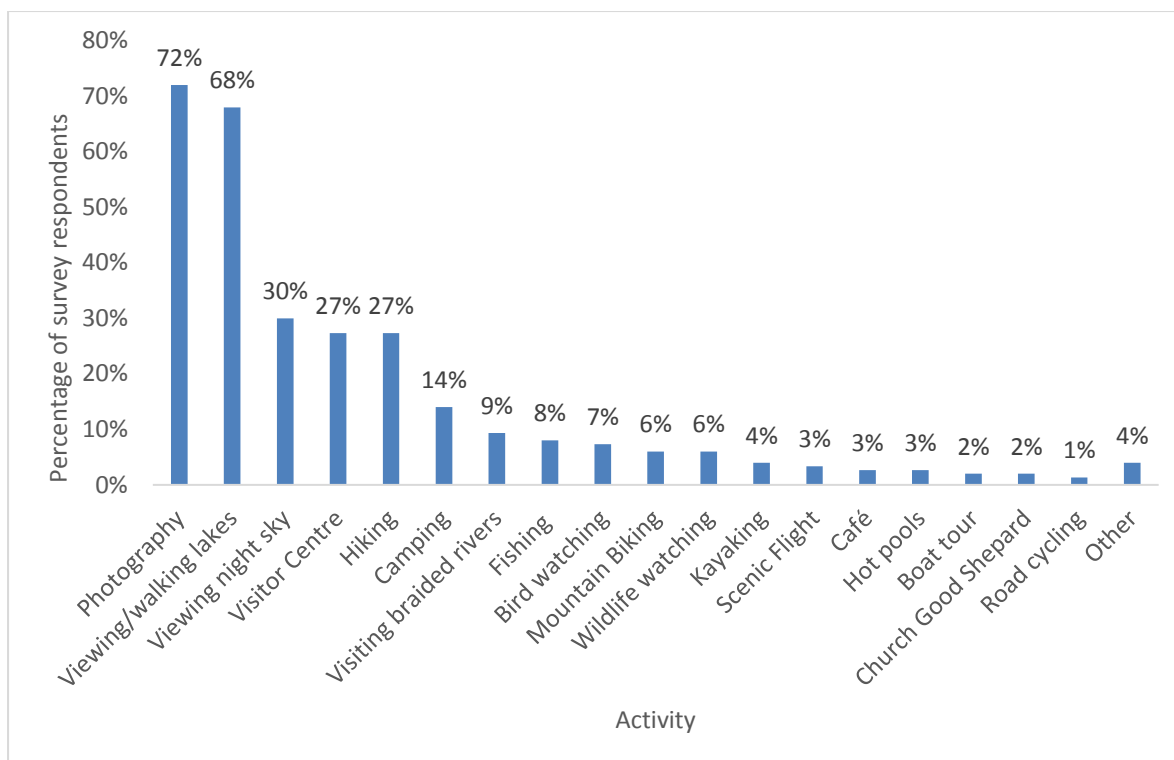


Figure 9: Main activities undertaken by visitors to the Upper Waitaki Basin

4.3 Wildlife

Survey participants were asked to recall if they had seen any wildlife on their visit to the region. Nearly three quarters of the visitors surveyed (73%) said they had seen wildlife on their trip. Participants were then asked how important it was for them to see wildlife during their visit to the region. Just under one-half of participants (47%) said viewing wildlife was important for them whilst they were in the region. Finally, respondents were asked about the importance of specifically seeing *rare* wildlife in the region. Interestingly, only 31 per cent of respondents indicated that seeing rare wildlife was important to them.

Participants were asked questions relating to whether they were aware of, or had seen, the kakī, wrybill, robust grasshopper, Southern Alps gecko or the longjaw galaxias (Figure 10). Awareness was highest for the bird species of kakī and wrybill, followed by the Southern Alps gecko, longjaw galaxias and finally robust grasshopper. Just over one-quarter of respondents (27%) were aware of the kakī, although only 3 per cent had actually sighted it. It is noted that 13 per cent were unsure if they had spotted this bird on their visit, a finding which is consistent across the other species. For the wrybill 18% of participants were aware

of its existence with only 4 per cent stating they had seen one. Similarly for the kakī, 12 per cent of those surveyed were unsure if they had seen one. When asked if they were aware of the robust grasshopper, most (92%) participants were unaware of it. Only 3 per cent of surveyed participants had actually seen a robust grasshopper. Most (88%) were also unfamiliar with the Southern Alps gecko, and only 1 per cent of respondents were able to say they had seen one. A very small number of people were aware of the longjaw galaxias (9%), with only 3 per cent having actually seen one. Between all five species, there were similar levels of uncertainty of whether people had actually seen the species or not.

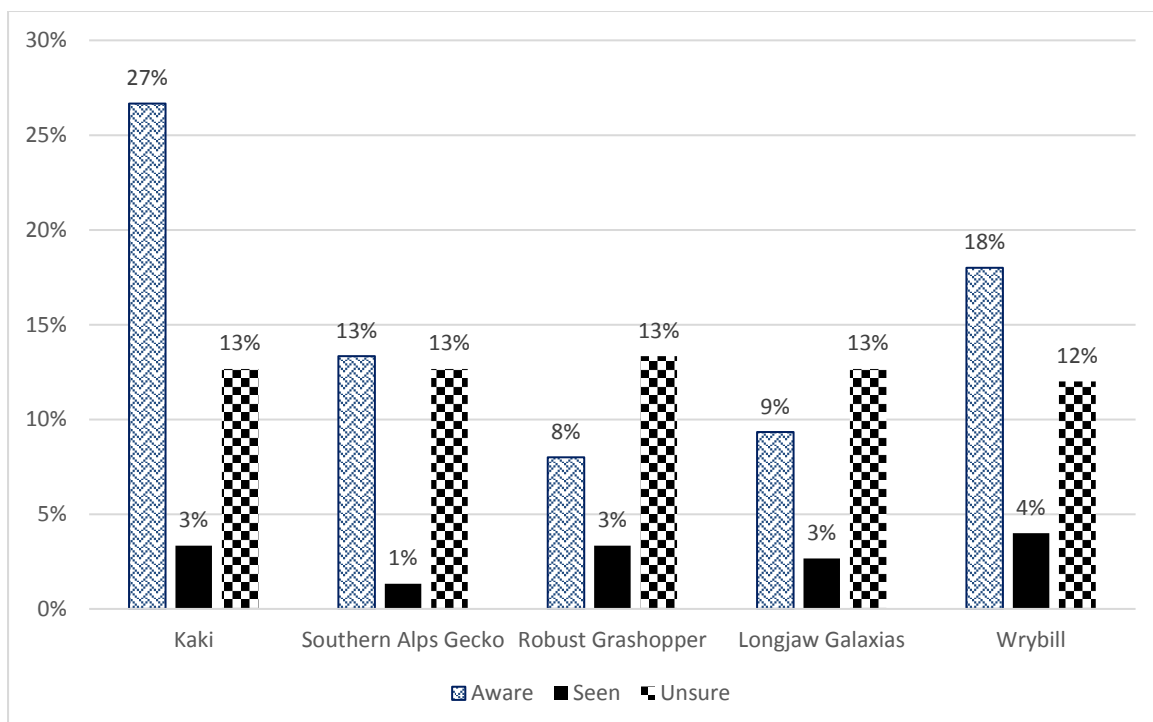


Figure 10: Participants awareness and sightings of five different Upper Waitaki wildlife species

Consistent with limited visitor awareness, most respondents (69%) stated they did not know the conservation status of the kakī. Just 7 per cent were able to correctly identify its ‘critically endangered’ status, whilst 17 per cent incorrectly classed it as ‘endangered’, 6 per cent said it was ‘vulnerable’, and 1 per cent saying it was near threatened. Additional analysis found no statistically significant differences between participant awareness of the kakī conservation status and variables such as age and where they were visiting from.

Participants were also asked about their willingness to see three different species: the robust grasshopper, the kakī and the possum (Figure 11). Of the three species, participants showed a greater willingness to see the kakī (49%) than either the possum (32%) or the robust grasshopper (23%).

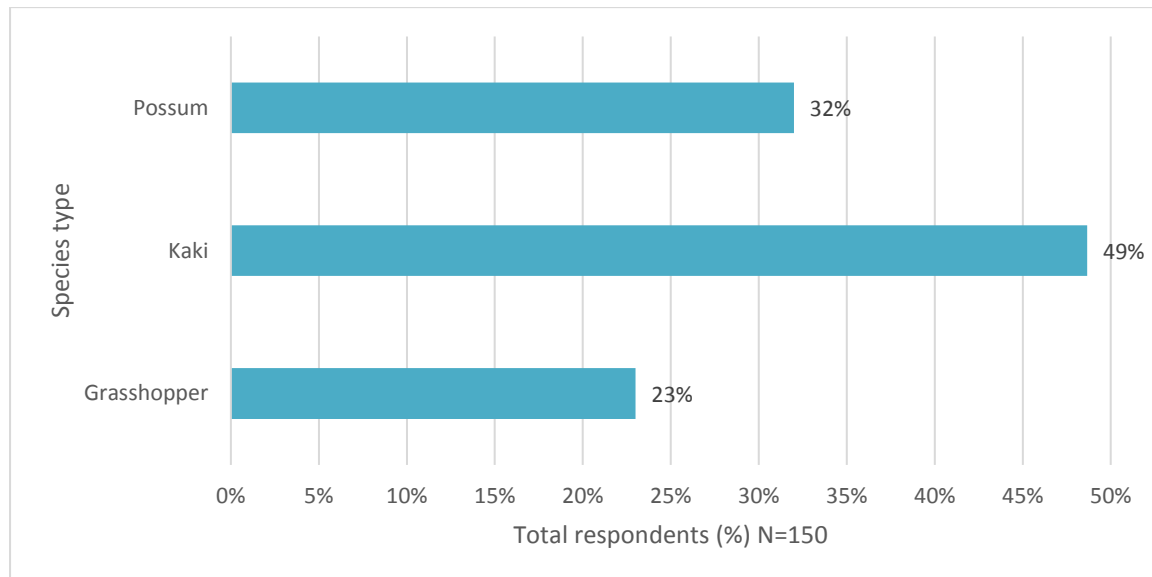


Figure 11: Participants' willingness to see a possum, black stilt and robust grasshopper

A chi square analysis demonstrated that visitors who felt it was important to see 'rare' wildlife on their visits to the UWB were most likely to report willingness to see the kakī. Two variables, the importance for participants to see wildlife and participants' willingness to see the kakī, were analysed using a chi square which did not produce a statistically significant result ($p=0.07$). Visitors who viewed it as important to see wildlife in the region were more willing to see the kakī than those who did not think viewing wildlife was important.

Survey participants were then shown photographic images of a robust grasshopper, a kakī, and a possum and asked to describe each species using three words, in order to illustrate approximate opinion of the species. Word clouds were generated to illustrate those words used by respondents three or more times. Interestingly, the words 'cute' and 'scary' appear in all three word clouds showing the diversity of what people consider cute and what species people think are scary. Emotive and negative describing words were most commonly used for the robust grasshopper (Figure 12) with the word 'ugly' being suggested the most.



Figure 12: Robust grasshopper word cloud

For the kakī (Figure 13) more obvious descriptive words relating to the appearance of the bird were used, such as 'black', 'bird' and 'long legs'. It is noteworthy that the word 'endangered' was only suggested three times.



Figure 13: Kakī word cloud

In contrast to the grasshopper, the possum's most common word was 'cute', with many other words used to describe the positives about the species appearance, such as 'furry' and 'fluffy' (Figure 14). Visitors from Germany and China were more likely to use the term cute to describe the possum. Contrasting this are several negative words used to describe the possum, such as 'ugly', 'roadkill', 'pest' and 'kill', highlighting some visitor's awareness of the species and how visible it is to them on New Zealand's roads.



Figure 14: Possum word cloud

4.4 Chapter summary

This chapter has presented the survey responses to help answer the research objectives of establishing visitor awareness of rare species in the UWB, and their willingness to see them. The current lack of awareness revealed in this chapter suggests there is potential for interpretation development, particularly to capture those visitors who expressed a willingness to see the rare species. To answer the remaining research questions, the qualitative stage of the research explored key informant viewpoints, which the next chapter will present.

Chapter 5

Risks and opportunities for kakī tourism in the Upper Waitaki Basin

This chapter explores the opportunities and risks of tourism in the UWB, by presenting site analysis data and interviewees' views and perceptions in two separate sections. First, section 5.1 outlines the current kakī viewing sites and their suitability for kakī tourism. Then, in section 5.2, interviewee perspectives on the current situation of tourism and the kakī in the UWB are presented. This second section also examines interviewee perspectives on the potential risks and opportunities for developing rare species tourism in the region, and what, if anything, they would like to see developed.

5.1 Site analysis

The kakī are located at several sites around the lakes and rivers of the Upper Waitaki Basin. Although the Department of Conservation 'Kakī/black stilt viewing opportunities' map (see Figure 3) showed all potential viewing sites, after further research it was decided that some sites should be excluded from the analysis. The two sites furthest west in the Ahuriri river delta were not suitable for analysis as, at the time of the study, the braided river had swollen into a lake. This meant there was no delta to speak of, making it unsuitable for kakī. These sites were replaced with one further downstream by the Ahuriri bridge campground, just north of Omarama, where the braided river could still be seen. It was also decided that due to the difficulties of the Tekapo-Twizel State Highway site being on private property, and that it can only be seen by looking down on it from the road, this site should not be included in the analysis. Also, to simplify this analysis, sites located on the Tasman Delta were classed as one site due to their close proximity. Finally, due to access issues at Lake Tekapo, sites located at the southern end of the lake nearest the town and main roads were chosen as a representation of the whole of the Lake Tekapo sites. The locations removed from this site analysis are circled in red (Figure 15).

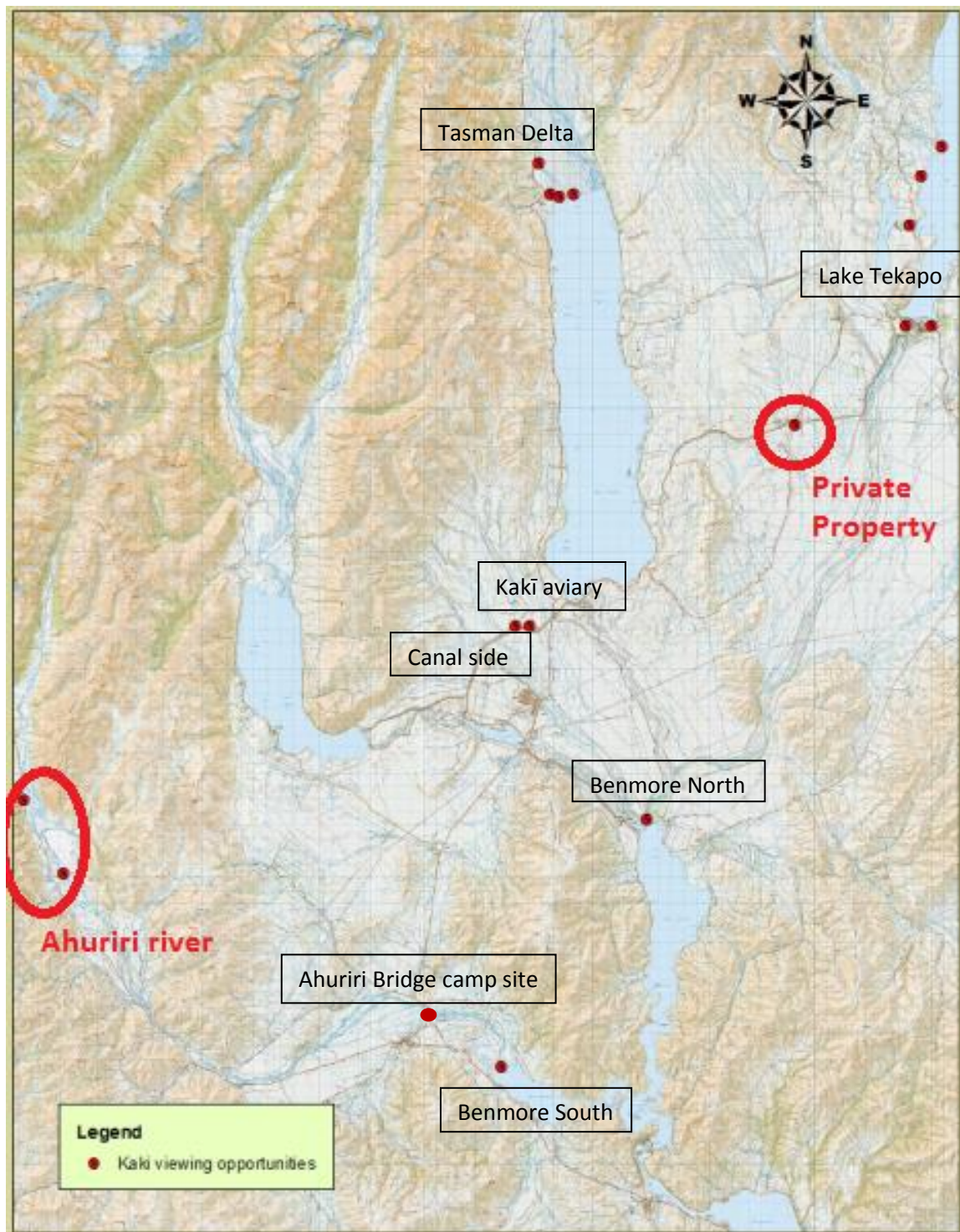


Figure 15: Department of Conservation map showing potential kakī viewing sites. Sites circled in red were excluded from this study.

5.1.1 Assessment criteria

As described above (see section 3.2.1), each of these sites were assessed using 11 themes, on a scale of 1 to 7, with 7 representing the highest score. The quality of road access to the sites was rated, as visitors are more likely to visit somewhere that they can get to easily. The ease of access to the river or lake at the sites were graded as better access to the water would likely mean more visitors would use and explore it, and so spend time there. The risks to visitor safety at the sites were assessed by looking at hazards on site. These hazards included uneven or boggy terrain, cliff edges, traffic, and exposure to the elements. Sites which had great hazards scored lower on the scale.

Cell phone reception was measured as many tourists visiting remote or unfamiliar areas rely on technology to help them work out where they are, or to stay in contact with others. It adds a sense of security to people as if they have phone reception, they can get help should they need it. The distance these sites were from the nearest hub (usually a town or village) can also relate to the sense of safety visitors have when visiting an area. Those sites that were close to or in a hub already, were given the highest scores.

Car parking availability was looked at as many tourists travelling throughout New Zealand are using cars as their mode of transport. Having somewhere to park is therefore essential if a site wants to be attractive to tourists. Other visitor facilities, such as toilets, cafes, and shops, were rated and scored. The more facilities available, the higher the site scored. The level of existing interpretation available to visitors was assessed. Sites which had no interpretation, or some unrelated signage, were given lower scores than those that had interpretation related to the wildlife in the area.

The site's seclusion from neighbouring land use, such as farming, factories, or other buildings, was also assessed to see if the site blended in to the surrounding scenery. A quiet site away from distractions is more likely to appeal to wildlife watchers and to the wildlife itself, and so score higher in the analysis. Similarly, the aesthetic appeal of the site would encourage visitors. To look at the site and see a well-maintained or preserved area of land meant that a higher score was given to those that were not. Finally, evidence of wildlife was assessed to see what if any wildlife could be seen at these sites. Those places that had

wildlife scored higher than those that did not have any. The number of individuals viewed was used as a guide for scoring not the variety of species at a location. It should be noted that even though these sites were suggested as potential kakī viewing sites, no kakī were seen at any sites during the analysis.

Table 6: Site analysis table showing each site's scores out of 7 for current access, facilities, and setting

| | | <u>Lake Tekapo</u>  | <u>Tasman Delta</u>  | <u>Ahuriri Bridge</u>  | <u>Benmore Nth</u>  | <u>Kakī aviary</u>  | <u>Canal side</u>  | <u>Benmore Sth</u>  |
|-------------------|--------------------------------------|---|--|---|---|---|--|---|
| Access | Quality of road to location | 7 | 7 | 7 | 6 | 5 | 7 | 6 |
| | Access to water | 7 | 7 | 5 | 6 | 5 | 7 | 5 |
| | Safety | 6 | 5 | 3 | 6 | 3 | 5 | 3 |
| Facilities | Cell phone coverage | 7 | 2 | 7 | 6 | 2 | 7 | 1 |
| | Distance from hub | 7 | 6 | 7 | 4 | 7 | 6 | 7 |
| | Car parking | 7 | 6 | 7 | 7 | 6 | 1 | 4 |
| | Interpretation | 3 | 5 | 4 | 1 | 4 | 1 | 1 |
| | Visitor facilities | 7 | 6 | 3 | 1 | 4 | 1 | 2 |
| Setting | Seclusion from neighbouring land use | 5 | 4 | 7 | 4 | 3 | 5 | 4 |
| | Aesthetic appeal | 6 | 7 | 6 | 6 | 5 | 7 | 5 |
| | Wildlife | 6 | 7 | 4 | 4 | 7 | 3 | 6 |
| | TOTAL | 68 | 62 | 60 | 51 | 51 | 50 | 44 |

5.1.2 Access

All sites were allocated high scores for road access, with over half scoring maximum points. All the sites on the map were easily found and accessed from the main highway, making them ideal for tourists passing in vehicles. Those sites that scored slightly lower had either lower speed limits meaning it just took a little longer to get to the site, or sections of the road were unsealed making it more difficult to travel drive on. Each of these assessed sites were accessible by a 2-wheel drive vehicle.

There were similar scores for access to the body of water at each site. Lake Tekapo (Figure 16), the Tasman Delta, and the canal side sites all scored top marks as visitors could park their car up next to the water, or just park a short walk away. This would appeal to tourists who are on tight time schedules and those who just want to park up and experience the place in the shortest amount of time.



Figure 16: View of Lake Tekapo from car park

None of the sites scored full marks for safety. This was due to some of the sites being hazardous in their nature, such as having uneven or boggy terrain, rocky outcrops or deep water that is difficult to traverse. The safest site was Lake Tekapo due to its designated walkways and footpaths. Ahuriri Bridge site was deemed the least safe because of the large number of vehicles driving through the site, and the dense thistle and bush surrounding the river itself making it extremely difficult to walk through.

5.1.3 Facilities

Benmore South had no cell phone reception so was given the lowest score for this attribute. Cell phone coverage at the kakī aviary was very weak and intermittent, whilst at the Tasman Delta there was a strong signal at the roadside but once out onto the delta the signal disappeared. Full cell phone reception was found at Lake Tekapo, Ahuriri Bridge and the canal site. This is possibly due to those sites situated where there are large numbers of people or businesses, or their physical distance from a hub. However, the Tasman Delta is located next to Glentanner and is a short drive to Mount Cook so scored highly on its distance from a hub, yet it had poor cell phone reception. All the sites scored highly on their distance from a hub, yet being close to a hub did not guarantee having good cell phone reception.

The canal side site had no car parking, instead vehicles had to park at the side of the road. The best sites for car parking were Lake Tekapo, Ahuriri Bridge and Benmore North, as these places had designated car parking areas, designed and built for visitors, although some were sealed whilst others were just gravelled areas.



Figure 17: Car parking at Ahuriri Bridge

Interpretation was lacking at most of the sites, with the two Benmore sites and the canal side site having no wildlife interpretation at all. Lake Tekapo had many signs about its history and future development, as well as the planets and night sky, but did not mention anything about kakī or other wildlife in the region. Both the Tasman Delta and the Ahuriri Bridge sites had signs showing the kakī but neither provided specific information about the birds, only that they are threatened species (Figure 18). These signs were outdated and starting to fade,

an opinion backed up by several of the interviewees. Although they were connected to the Braided River Recovery program, the message focused on what the visitor must not do rather than what they can do. Two of the three key messages presented on these signs ('vehicles in the riverbed' and 'distressed birds') are issues interviewees who work on the delta continue to come across.



Figure 18: Tasman Delta and Ahuriri Bridge interpretation

When the kakī visitor hide was operating, visitor centres were provided with leaflets giving details of how to view kakī at the hide, and gave a background to the species and its threats (Figure 19). Since the hide is now closed these leaflets are redundant, however it does mean people are missing out on kakī information.



Figure 19: Department of Conservation's previous kakī visitor hide leaflets

Lake Tekapo was well equipped with visitor facilities. There were many options for accommodation, food, tourist information and other tourist attractions, as well as a petrol station and toilet facilities, making it an ideal stop for tourists. The Tasman Delta site did not have any facilities but was located next to Glentanner which has a café, accommodation, tourist attractions and information, as well as toilet facilities. None of these facilities were found at Benmore North or at the canal site.

5.1.4 Setting

Although the kakī aviary was away from the main road, it was very close to power lines and a hydro power station, so did not score highly on the seclusion score. The only site that did score well was Ahuriri Bridge as this was an isolated campsite away from other buildings and infrastructure. The only indication of farming nearby was the presence of cows on the far side of the river. The Tasman Delta was quite secluded once away from the road, however Glentanner and the helicopters flying in and out of it could be seen and heard frequently. Although each site scored well for their aesthetic appeal, the Tasman Delta scored maximum points. There were spectacular views across the delta looking south towards Lake Pukaki, as well as north towards Aoraki/Mount Cook (Figure 20). This score was matched by the canal site which also had great views of the Waitaki Basin and Aoraki/Mount Cook. The kakī aviary site scored the lowest as the energy buildings were in sight as was the salmon farm.

One of the most important factors of the site analysis when looking at wildlife tourism is the evidence of wildlife at each of the sites. Although wildlife was spotted at many of the locations it was the Tasman Delta where it was most obvious. A range of birds such as poaka (pied stilt), black swans, ducks and terns were seen as well as dragonflies and other insects. There was also evidence of wildlife at Lake Tekapo although not as abundant as in the Tasman Delta. There was little evidence of wildlife at the canal site, with one harrier being seen and a couple of butterflies. However, it should be noted that this 'one moment in time' assessment does not constitute a full ornithological inventory.



Figure 20: View of Aoraki/Mount Cook from the Tasman Delta

Overall, Lake Tekapo scored the highest in this the site analysis, eclipsing the Tasman Delta site by only 6 points. Lake Tekapo scored consistently high on access, facilities and setting, only really failing at providing wildlife interpretation. The Tasman Delta site lost points for its poor cell phone coverage, although this may not be a major influencing factor for people wanting to experience wildlife tourism in the region. Despite the site analysis revealing Lake Tekapo as the most appropriate site for wildlife tourism, it should be noted that the Tasman Delta is known for being the best place to see kakī in the wild, and is where the captive bred kakī are released each year.

5.2 Current perspectives in the Upper Waitaki Basin

Twenty semi-structured interviews were conducted with a variety of stakeholders and informants connected to the Upper Waitaki Basin. Interviews were conducted with key operators and managers closely affiliated with the region's environmental and wildlife management schemes as well as those involved in the tourism industry (Table 7). Individuals from both private and government groups were interviewed but it is important to emphasise that the views expressed by individuals do not necessarily represent the New Zealand government's official stance. Of the 20 interviewees, nine were from governmental organisations (GO1, GO2, GO3, GO4, GO5, GO6, GO7, GO8, and GO9) five were related to tourism (TI1, TI2, TI3, TI4 and TI5), four were university researchers (UR1, UR2, UR3, and UR4), and two were from wildlife and conservation groups (WC1 and WC2).

Table 7: Interviewees affiliations

| Code | Affiliation |
|------|-----------------------------|
| UR1 | University researcher |
| UR2 | University researcher |
| UR3 | University researcher |
| UR4 | University researcher |
| GO1 | Government organisation |
| GO2 | Government organisation |
| GO3 | Government organisation |
| GO4 | Government organisation |
| GO5 | Government organisation |
| GO6 | Government organisation |
| GO7 | Government organisation |
| GO8 | Government organisation |
| GO9 | Government organisation |
| TI1 | Tourism Industry |
| TI2 | Tourism industry |
| TI3 | Tourism industry |
| TI4 | Tourism industry |
| TI5 | Tourism industry |
| WC1 | Wildlife/conservation group |
| WC2 | Wildlife/conservation group |

During the interviews, questions were focused on key themes to help answer the research objectives. These themes included the risks and opportunities of current and future wildlife tourism in the region, the views on kakī and other wildlife in the UWB, the types of interpretation available, and the suitability of using kakī as a flagship species.

5.2.1 The kakī

Early in each interview, participants were asked questions about the kakī, its current profile status, and its suitability as a tourist attraction. Many interviewees were happy to talk about the kakī in a positive way highlighting its ‘unique quirky features’ such as its ‘all black look’, its courtship displays (UR1, UR4, GO2, and GO3) and its ‘spindly legs’ (GO2). In particular, the kakī’s hardiness to the extreme elements of the UWB garnered much praise from interviewees (UR1, GO3, GO5 and GO6), with one interviewee saying:

“It’s critically endangered, and the rarest wading bird in world. It stands around in winter time with ice on its wings, waiting for the sun to warm it up. It’s got no fat reserves; it’s really hardy!” (GO5).

Other interviewees described the bird as elegant or graceful (GO3 and GO6), whilst other interviewees complimented the photogenic qualities of the kakī (GO5 and GO8). One interviewee described the kakī's special appearance:

"You see the posters and pictures of them around. They take a good photo, they do look good. When they've got the sun on them they have that iridescence. So, they are a little bit more interesting to look at" (GO5).

Although there were many positive comments about the kakī, not all interviewees felt the same way. Some described the birds as being 'simple' (GO2) 'a bit dumb' (TI5) and 'not something you can cuddle' (GO2). One interviewee had no interest in kakī at all:

"Personally, I couldn't care about a black stilt. They are just a bird. You don't see them anyway. And they are useless." (TI3).

Many interviewees described how the current conservation status of the kakī helped to make it an attraction (UR4, GO1, GO3, GO5, and GO8). Its critically endangered status and the fact that 'you can't find it anywhere else on the planet' helps to draw visitors from all over the world (GO8). However, an interviewee described how visitors, particularly bird watchers may get excited to see the endangered kakī, the wading bird is a beautiful species in its own right, whether it be endangered or not (GO3).

The kakī's current profile was discussed with all interviewees, with each interviewee being familiar with the bird. Many interviewees mentioned the lack of profile the kakī has both within New Zealand and overseas (UR1, UR4, WC1, GO5, GO7, and TI5). One interviewee described how some species get highly profiled whilst others do not:

"Some species get the high profile and others are always under the line. Everyone knows about pandas and polar bears, and tigers. In New Zealand everyone knows about kakapo, kokako and kiwi. But if you say to them 'have you ever seen a black stilt?' They are like 'what?' It's probably rarer than most kiwi!" (TI5).

Interviewees also discussed the lack of marketing and promotion around the 'red and black' of the kakī and how its colours make it an ideal Canterbury icon (UR4, GO5 and GO7). Interviewees saw this as a potential way to increase the public profile of the kakī.

Once interviewees had described what they thought of the kakī, the questions then moved on to the risks kakī faced in their environment.

5.2.2 Risks to kakī and their environment

Over half the interviewees mentioned some form of risk relating to wildlife and the environment with the current recreation and tourism activities within the Upper Waitaki Basin (GO1, GO2, GO3, GO4, GO5, GO7, GO8, GO9, TI2, TI5, UR3, and WC1). The impacts of people on the braided river species during breeding season was a concern for interviewees (UR3, WC1, GO1, GO2, GO3, GO4, GO8, and GO9) with the specific impacts of fisherman on birds nesting being mentioned (UR3, GO1, GO3, GO4, GO7, and GO8).

“One of the biggest problems are anglers. When they fish, they think they are above God. When a fisherman arrives the bird will fly off the nest. Then if that fisherman hangs around all the day, the eggs will get too hot or cold and will die... the bird will come back to a dead egg. By the time the egg has collapsed, it’s too late, the bird has wasted that time and energy”. (GO8)

Recreational 4WDs, motorbikes and jet boats were also described as risks to kakī survival and that of other wildlife species in the braided river environment (TI5, UR3, GO1, GO3, GO4, GO5, GO7 and GO8).

“4WDs are a problem so we make some pretty stringent rules about how you can and can’t go in a river. Jet boating is another...you can do whatever you like...bunch of birds nesting on the riverbed, jet boat goes by, the next thing the nests are flooded.” (GO5)

However, two interviewees who suggested 4WDs as a risk to kakī also stated that people and 4WD vehicles on the riverbed do not have a major impact on the kakī or other bird species (GO7 and GO8).

The negative impact tourism has on the environment as a whole was highlighted by some interviewees (TI1, TI2 and GO9) with one conflicted participant stating:

“You know tourism is great and it pays my wages. But it can be crazy the environmental impact” (TI2).

The issue of weeds being brought into the region either accidentally or intentionally, on vehicles or by foot, was considered a threat to kakī and the environment in which they live (GO9 & WC2). Specifically, interviewees worried that weeds are choking the rivers and causing changes in habitat for the wildlife in the region (GO7, GO9 and WC2).

Interviewees highlighted the fact that it was not just uninterested recreationalists disturbing the birds but sometimes birdwatchers visiting from overseas “*who should know better*” (WC1 & GO8).

*“Unfortunately, and it’s something that I frequently encountered, was that w*inkers from overseas, just walking down the river with their flash camera to find black stilts. The birds were jumping around doing displays and freaking out, just so they could take photos. They really suffer from frequent visitation by keen birders rather than general public... that small population of black stilt can’t sustain that kind of dogmatic birder activity” (GO8).*

New Zealand visitors were mentioned by some interviewees as the more likely source of wildlife disturbance than any international visitors (GO3 & GO8), with one stating:

“I think it’s more the Kiwis that come here, who always come here and make noise, bring the jet boat. Those are the ones that are impacting. Those areas aren’t really accessible if you just have a rental car, and you’re not really going to drive it on a river bed anyway” (GO3).

A lack of understanding between visitors and current trapping techniques used to protect native wildlife such as kakī has led to many traps being intentionally interfered with, rendering the traps useless (GO2). One interviewee expressed their understanding:

“We have problems with trap interference, with people putting sticks in to set them off. Its human nature, they don’t like to see things, especially furry animals no matter what they are, killed” (GO2).

With the lack of awareness from visitors being a key concern, the discussion turned to how the information is currently communicated and displayed.

5.2.3 Interpretation

Interviewees were asked about the current wildlife and braided river signage around the UWB. A number of interviewees were critical of the types of interpretation available to visitors with some specifically mentioning that the signage and information about the kakī was poor and did not give a clear enough message (WC1, WC2, GO3, GO4, and GO7). One interviewee talked about the old and outdated signage installed in the 1990s by Project River Recovery which can still be seen, which vaguely outlines the types of birds in the riverbeds but ‘does not give any value or meaning to them’ (GO4). An interviewee also highlighted that

those signs could only been seen when you have already arrived at the Tasman Delta and are no help in directing you to the site, and informing people about what is so special there (GO3). Similarly, an interviewee explained how the current signage is targeting the wrong audience and is not encouraging people to want to go see the birds but instead make people stay away (WC2).

Two interviewees described seeing tourists standing next to, and taking photos of, the two black kakī statues in Twizel centre, but doubted whether people knew what the statues represent (WC1 and WC2).

“If you are wandering around Twizel there are a couple of sculptures of birds that you may think that’s interesting. But you have no idea what they are. People are absolutely clueless about what’s there” (WC2).

One interviewee described how they were unhappy at being called upon to provide information to tourists as if they were a visitor information centre, and would prefer they went elsewhere:

“We are not an information centre. I don’t want to be asked questions all day long to the public. As long as the information that is being reiterated is the same as what we would say then there’s no problem” (GO5).

The current incorrectly printed maps given out by the visitor centre were criticised by two interviewees (GO1 and GO7). The maps show the visitor hide location which has been closed for some years. One interviewee mentioned the disappointment and sadness displayed by some visitors when they get to the kakī visitor hide to find it’s closed (GO1).

As with any tourism and interpretive concept, the financial cost needs to be considered. With this in mind, interviewees were asked what they thought of the current funding available and the costs involved in wildlife tourism.

5.2.4 Financial cost

Currently the Department of Conservation (DOC) is tasked with the captive breeding and releasing of the kakī. Many participants expressed concern about the ongoing cost of maintaining the kakī population and how limited DOC is with its funding (UR4, GO4, GO5, GO6, and TI5). One interviewee emphasised their frustration at their current work load and

the difficulties and frustrations they deal with when needing to do more, such as talking with visitors and tourists:

"We just don't have the time. The visitor hide used to be run by a community ranger, who was responsible for it. That position doesn't exist anymore. So, anyone who does come down now is shown directly by us, amongst all the other work we have to do" (GO6).

The current free access to the delta and ability to see wildlife unrestricted was identified as a positive by many participants (UR1, UR4, GO1, GO5, GO6, GO7, TI4, GO8, and WC2). A researcher explained:

"It is a great place to see rare or endangered species that you can only see in these places, I think it's great and it's free! It's quite accessible, it's not like the kiwi or some of our other birds where you have to go to offshore islands or hike three hours to the back and beyond. And it's not like a wildlife sanctuary where it's fenced off and there's charges to get in" (UR4).

Following on from discussions on cost and current free access to the delta, questions were asked about the Tasman Delta and whether it really is suitable for tourists.

5.2.5 Access to the Tasman Delta

The Tasman Delta was often recommended as the most accessible and likely place to see kakī (GO1, GO2, GO3, GO4, GO5, GO6, GO7, and GO8). However, some interviewees were concerned about the current challenges visitors face getting onto the delta itself and the walk to find wildlife (UR4, WC1, GO3, GO5, and GO6). One particular interviewee doubting many visitors ability to even walk on the river bed:

"Most people aren't capable of walking around in a river bed. I've seen people walking on rivers, they are useless. Most people who visit are used to walking on flat concrete. They don't want to go on a mission out there. They're not capable, have a heart attack, fall over hurt themselves. That's the reality" (GO5).

Staff who had experienced the extreme, changeable weather in the region highlighted the difficulties in guaranteeing pleasant weather when visiting (GO2, WC2).

"Wind is a problem in the Tasman. Sometimes it's hard to stand up...that's not a nice time to be in the Tasman. Gets so windy. That's where the campervans get blown over" (GO2).

Ice was also identified as a risk factor for people accessing the Tasman Delta, with wintery conditions making it dangerous for visitors in vehicles and on foot (GO2 & WC2), and highlighting the seasonal limitations on tourism (WC2).

With the current hazards and risks of visiting the Tasman Delta made clear, interviewees were then asked about tourist's awareness and understanding of what the UWB was like and their awareness of the wildlife that live in it.

5.2.6 Awareness

The lack of awareness from overseas visitors of braided rivers and its wildlife was mentioned by interviewees (GO3, TI1, GO5, TI3 and TI4) with some feeling that visitors came to New Zealand to see landscapes of fields and sheep, having a lack of real understanding of what New Zealand's environment should really look like (TI1 & GO3). An interviewee in the tourism industry explained:

"They are not generally interested. The general tourist, Asian or whatever, wouldn't know much about them. They would probably know something about the kiwi, but not about a black stilt. They have got their itinerary and it's very much scenic. Stick to it". (TI3).

Interviewees also described how even within New Zealand, few people were aware of the braided rivers and the kakī, and how even fewer visited them as an attraction on their travels (TI1, GO3, GO5, TI2, and TI3). This supports what was highlighted in the survey responses. One participant highlighted the lack of interest:

"I don't think it's an attraction at all. I don't think it's a well understood ecosystem and the species aren't even known locally like down in Twizel. For a select audience who have an understanding of the species there is a tourist attraction, but generally for the 95% or more of the tourists I don't think it's an attraction at all". (GO3).

Many of the interviewees spoke of how the kakī is a popular attraction with bird watchers from around the world, with birders wanting to 'tick the bird off their list' (UR1, UR3, UR4, WC1, GO1, TI1, GO2, GO3, GO5, GO6, GO7, TI5, GO8, GO9, and WC2). One interviewee described how some of these tourists have a 'disaster mentality' and want to see it before it disappears, alluding to the notion of last chance tourism (WC2). Interestingly, interviewees

mentioned the high number of bird watchers visiting the region were from the United Kingdom (GO3, TI2, and TI5).

Whilst the current views of kakī and tourism in the UWB were discussed, it was important to establish the potential the UWB has in developing wildlife tourism and what interviewees could see as the future risks and opportunities.

5.3 Future risks and opportunities in the UWB

Together with looking at the current situation within the Upper Waitaki Basin, interviewees also discussed the potential risks and opportunities for future wildlife tourism in the region.

5.3.1 Tourism potential

During the interviews, the types of tourism that could be introduced were discussed with a range of ideas being suggested. Discussion on the hide that was previously in use at the kakī breeding facility and whether there should be any tourism development at that site led to polarising opinions. On the one hand, interviewees stated that keen bird watchers don't want to see birds in cages, and instead will seek out wild birds, and will do anything to 'tick birds off their lists' (UR3, GO3, GO4, GO6 and TI5). Other interviewees stated that an aviary with some birds kept caged is ideal for tourists, particularly international tourists, as they are guaranteed viewings of the birds and won't have to walk too far or for too long to see them (WC1, GO2, GO3, GO4, GO5, GO6, GO7 and GO8). However, suggestions that the hide and aviary at the breeding facility be adapted and modified to cater for tourists was rejected by some interviewees (GO6 and GO4) as there were bio-security concerns with the risk of disease being brought into the site by tourists and impacting on the birds. One interviewee explained:

"I don't know where you have been or what you have been touching. I don't really want you coming in here where there are precious chicks that are susceptible to infections and all sorts of things" (GO6).

Instead of bringing people to the aviary and hide at the breeding facility, interviewees suggested that encouraging people to visit the Tasman Delta and see birds in the wild was more appropriate (UR1, UR3, UR4, WC1, GO1, TI1, GO4, TI2, GO6, TI5, and GO9). There was consensus that something needed to be built as a hub where tourists can visit or be sent to, to learn about wildlife and the braided river environments, with the Tasman Delta being the most popular suggestion (UR1, UR3, UR4, WC1, GO1, TI1, GO4, TI2, GO6, TI5, and GO9).

Installing hides at the Tasman delta was discussed as a safe form of tourism for both visitor and kakī (GO1, GO5, GO6, GO7, and TI2). It was suggested that hides would be able to provide different sorts of interpretation for visitors and enable the birds to act naturally and undisturbed (GO4, GO6 and GO7). The construction of a boardwalk was also suggested as a way to link hides with the existing tourism operations going on in the Tasman such as those in Glentanner (GO5 and GO7).

Questions were then asked about whether the kakī release could be a possible tourist attraction in itself. The Department of Conservation releases kakī every year with the event being an 'open invite' for anyone who wishes to attend. Interviewees described the release at the Tasman Delta as the most appropriate place to view kakī as there are knowledgeable people providing interpretation in a great location (UR1, GO2, GO3 and GO5). However, an issue one interviewee raised was that due to the kakī release being weather dependent, it makes it difficult for tourists to guarantee in advance whether they will be able to watch birds being released (GO3). Also, the difficulty of staff trying to do their jobs and ensure the safety of the birds whilst providing interpretation and entertainment to tourists, was raised by one interviewee:

"People want to go up to them and take photos, and we.... have just released them we don't want them to scare. It's really hard to manage, and a little bit stressful. It's a hard one though as you are trying to make sure the release goes as well as it can and the birds don't leave. And also, having something that people can see. So, juggling the two can be a little bit difficult" (GO5).

There was some division about whether there should be free access (UR1, UR4, GO1, GO4, GO5, TI2, GO6 and GO7) or have some form of fees or donations paid by visitors to access the Tasman site and view the release (WC1, GO1, TI1, GO4, GO5, TI2, GO6, GO7, GO9 and WC2). One interviewee was particularly keen to see it remain free access:

"Why do you need to block everyone's free access? Why can't people just go there? Park up on the bank, walk a few hundred metres. And everyone just sort of see it. Why do you have to close it all off? Why do you have to make money out of it?" (GO8).

Interviewees explained the need to keep it free because there are currently very few things in the area that are free to experience (TI1 and GO6), families may not be able to afford it

(UR1 and GO5), and the ease of access to the delta is what appeals to many people (UR4, GO1, GO6 and GO7). An interviewee suggested an idea to target families:

“If you want families, and want them to stay another night, tell them about this place. They can go out and see a kakī for free. Get them to play in the mud in the delta. That’s a day’s entertainment for the kids. Go see something cool, something rare” (GO5).

Those that were happy to see a fee introduced explained how it gave the impression the attraction was something of value and could help raise funds that could be put into braided river conservation projects (UR4 and WC2).

A compromise was suggested which encouraged having paid experiences alongside free access. This involved the use of guides for those who would want to pay, but still allow free access to those who chose to make their own way around the delta (GO1 and GO7). One interviewee suggested that tourists be encouraged to park up in Twizel and be taken out to the delta by bus (TI2). This would help minimise traffic and be a more ‘environmentally conscious’ method (TI2). Guides could then take visitors across the delta, sticking to certain routes causing minimal disturbance (TI1, TI2 & GO6). An interviewee described this type of tour as “providing a special experience aiming for a really good product at higher cost rather than higher volume” (GO4).

Once ideas for the type of tourist attraction had been suggested, questions moved onto how to improve the interpretation on offer to tourists.

5.3.2 Improving interpretation

Several interviewees wanted to see the story of the braided rivers told to visitors (UR4, WC1, GO3, GO4, GO4, GO6, GO7, and WC2). Interviewees stated that there was potential for improving interpretation to raise awareness about the whole river system and the wildlife in it (GO3 and GO4). One interviewee suggested that braided rivers will become a rare and threatened ecosystem (GO4), whilst another described braided rivers as being ‘a little bit sexy right now’ with a lot of media attention on them (UR4). Interviewees saw this as an opportunity to promote the braided rivers and encourage tourists to ‘appreciate the beauty in braided rivers’ (WC1), as it is currently an undervalued attraction (GO7) seen as ‘pits of gravel where nothing happens’ (GO6).

Increased signage around the UWB was a common recommendation with suggestions for the signs to show what the kakī is and where you can see it safely (UR1, UR3, GO2, GO8, and WC2). Interviewees suggested that more signage leads to better awareness, better understanding and so better protection and stewardship (UR3, GO2 and WC2). One interviewee explained:

“Once you know something is there it makes good sense to conserve it. So, knowledge comes understanding, and understanding comes protection. I feel like there’s a dogma there to follow where it would lead to positive outcome for the species” (UR3).

However, other interviewees expressed concerns that signs are not always the answer. The costs involved in producing them was an issue for some interviewees (UR4), as well as maintaining them should they be damaged or vandalised (GO7). One interviewee explained the complexities involved in signage and its placement:

“You can’t just put a million signs everywhere and expect everyone to read them all. You have got to be strategic about what your key messages are, where you put your signage... you just have to be thoughtful about what you are going to say and how you are going to say it for it to have any effect.” (GO1).

The option of using guides as a form of interpretation was a popular suggestion by interviewees. Having informative guides who are passionate about the wildlife and the area can help sell the experience and get key messages across (GO1, TI1, and GO5).

Interpretation can help tourists and visitors have a great experience, assuming there are tourists there in the first place. Interviewees were asked whether tourists would stop in the region for wildlife tourism and if the UWB should encourage it.

5.3.3 Making it worth their while

Concerns were raised about how to get tourists to stop on their journey when their main purpose was to visit Aoraki/Mount Cook “to get an expensive latte” (TI5). Interviewees noted that it would take a significant effort and cost to make the birds and other wildlife of the Tasman Delta into an attraction that people would be willing to stop and view (UR2, GO3, TI2 and TI5). However, with the large number of visitors in vehicles driving to

Aoraki/Mount Cook past the delta, there is an opportunity to tap into that source of potential tourists (UR2, TI5).

Although an interviewee in the tourism industry claimed it is an interesting time for tourism in the Upper Waitaki Basin with the development of tourist attractions and increasing tourist numbers (TI1), concerns among other interviewees about the lack of facilities able to handle the increase in tourist numbers was a common theme. Interviewees highlighted the recent 'minimal expansion' of car parking and toilet facilities, alongside the busy roads (UR2, TI1, TI2, GO6, GO7, TI3, and TI4). Doubts were raised about whether the council has any long-term plans for the growth of tourism in the region and around Lake Pukaki when some interviewees consider themselves to be in 'the next Wanaka' (UR2, GO1, TI1, and TI2).

With interviewees stating their concerns about the regions inability to handle the increase in tourists, interviewees were asked to elaborate on the future impacts tourists may have on the region.

5.3.4 Environmental impacts

Interviewees raised concerns about the potential negative environmental impacts an increase in tourism and tourists would have on the braided river environment (WC1, GO1 and GO5). Interviewees discussed the importance of having people visit the river beds and enjoy their time there without changing the landscape and "putting pressure on the fragile environment" (WC1). There were also concerns and how any increase in publicity will just add to that pressure (GO2). Another interviewee stated, "tourists can have a significant impact on threatened species, just by being unaware and walking into areas and disturbing things" (GO1). However, some interviewees highlighted bird's ability to adapt to changes and disturbance in their environment and believed birds, over time, would adapt to the tourists and increased visitation (GO6, GO7 and GO9).

When asked about specific risks to the kakī, especially with their low population, and if now is a suitable time to be encouraging tourism, one participant explained:

"There is no risk for kakī. We manage them so intensely. We steal two or three clutches of eggs off them each year. We catch and band their chicks if they have been born in the wild. Every single wild bird has been released from captivity except maybe one or two. So, they have all been through that facility, all been in boxes and all been put out there. Why would we be

precious about any of those components? As long as tourists weren't disturbing them at nest sites. Then yeah. Never been a better time." (GO4).

5.3.5 Financial security

With the Department of Conservation (DOC) being involved in the breeding of kakī, interviewees were asked if DOC should remain involved with developing tourism around the species. Some interviewees expressed an understanding of the limited funds and resources DOC has, and how it may struggle to manage and staff a tourism enterprise (UR2, UR4, TI1, GO6 and GO8). One interviewee from a conservation group expressed concern that an increase in tourism in the river environment will only add to DOCs pressure to protect species, including those that “may not have needed protection if there hadn't had so many people passing through” (UR2).

A joint partnership between DOC and a private organisation was suggested by some interviewees as a potential option for tourism development (UR1, WC1, GO1, TI1 and TI2). Funds raised by tourism could go back into the kakī conservation (UR1 and GO1). The sharing of knowledge and management of the resource was seen as a benefit for the kakī and for tourism in the region (GO1). However, one interviewee expressed concerns that potential tourism enterprises may only be looking to ‘serve themselves and their bottom dollar’ (WC1).

With interviewees stating that DOC should remain involved in kakī tourism, interviewees were asked about the use of the kakī as an icon for tourism and a focal point for wildlife tourism in the UWB.

5.3.6 Flagship species

Interviewees expressed a range of opinions on the kakī's potential as a flagship species and on the concept of flagship species at all. Interviewees expressed the importance of having the kakī as a flagship species due to its uniqueness, charisma, and its rarity (UR1, UR3, UR4 and GO5). People are drawn to charismatic animals and will want to protect those species that they can appreciate and warm to (UR1, UR3 and UR4), and form an emotional connection with (WC2). Using a bird species as a flagship was more likely to have an impact and raise awareness than species like grasshoppers and fish (GO7). But, interviewees explained that by conserving more ‘cute and cuddly’ species like the kakī and its

environment, it helps to conserve other species, such as the grasshoppers, within that environment (WC1, GO1 and TI5).

However, some interviewees thought the kakī was unsuitable as a flagship as there were so few of them (GO4). Instead, the interviewee suggested the wrybill or black fronted tern as they were more commonly found around the braided river environments. Another interviewee rejected the idea of using a wrybill as a flagship as they were commonly confused with dotterels, whereas the black stilt is quite 'strikingly different' (GO5). Other interviewees suggested using flagship fleets, where a range of species within the environment are promoted, instead of a single flagship species (UR3, UR4, GO3 and GO4). Interviewees described the 'other really cool species' in the braided river environments that should be included as part of a package that can be promoted to visitors (UR3 and GO3). That way "the black stilt won't be rammed down people's necks all the time" (GO3). They explained that flagship fleets ensure the diversity of the braided river environments gets attention not just one species (UR3, UR4 and GO3). One interviewee stated:

"Depending on who you are you may be more interested in rocks or waterways. So, having a fleet of critters to look at and their habitat to live is really awesome" (UR3).

5.4 Chapter summary

This chapter has reported data gathered from the site analysis alongside the various views and opinions of interviewees connected to the Upper Waitaki Basin. It has shown there is range of current risks and opportunities for tourism and the kakī in the region, with nearly all interviewees believing there is potential for kakī tourism to develop in the future. Only one interviewee was not interested in the development of tourism around the kakī or the braided rivers. The site analysis has shown there is potential for tourism development at the Tasman Delta site, with interviewees suggesting various ideas of what to do there. The next chapter will discuss these options and make suggestions regarding appropriate types of tourism development in the Upper Waitaki Basin.

Chapter 6

Discussion

6.1 Introduction

This chapter discusses the results and responses from visitor surveys and key informant interviews in relation to the objectives and research aims of this study. First, visitor awareness of the Upper Waitaki Basin's unique wildlife is discussed, with particular focus on the kakī. Second, the promotion and interpretation of the wildlife within the region is evaluated against the assessment criteria presented in Chapter 5. The key informant interview data then informs a discussion about the current risks and opportunities for rare species tourism in the Upper Waitaki Basin. Finally, using the informant interview data alongside the survey responses, the discussion reflects on the suitability of using kakī as a flagship species for the Upper Waitaki Basin.

6.2 Awareness of wildlife in the Upper Waitaki Basin

To gain a better understanding of visitors' awareness of wildlife in the UWB, visitors were asked if they had seen any wildlife during their visit, and whether they planned on watching wildlife during their stay. Although nearly three quarters of survey participants said they had seen wildlife during their trip through the region, viewing wildlife was not a priority activity for them. With the region being known for its scenic views of iconic South Island landscapes such as Aoraki/Mount Cook and Lake Pukaki, it is unsurprising the majority of visitors surveyed were in the region to take photographs and view the lakes (Figure 9) especially given that most (approximately two thirds) of the respondents were visitors to New Zealand. It is interesting to note that many respondents stated that being 'close to nature' was a deciding factor when choosing to visit the region, yet most did not identify 'wildlife watching' as a planned activity. This could indicate differing ideas on what nature is to them. The survey revealed that most visitors were travelling independently and could choose what activities they wanted to do and when. Bird watching was suggested by some respondents as an activity they would be participating in, though usually as a secondary activity, whilst they walked around or viewed the scenery. Of the visitors who said they were birdwatching, less than half of them were aware of the kakī or the wrybill, suggesting that they were not

dedicated birders or twitchers, as described by Connell (2009), but instead casual birders not seeking rare birds, but still getting pleasure from birdwatching.

The Upper Waitaki Basin is home to many rare and endemic species (Woolmore, 2011). Visitor awareness of these species was assessed by asking visitors if they had heard or seen any one of five rare species (kakī, wrybill, robust grasshopper, Southern Alps gecko, and longjaw galaxias). The results show that the majority of the visitors surveyed were unaware of most of these species in the region, with less than half saying viewing wildlife was important to them. This could highlight the low value placed on wildlife by visitors to the region, and shows their lack of awareness of the rare and endangered species within the region. Because participants were not asked about other species around New Zealand, this research could not determine if visitors had a lack of awareness of all wildlife in New Zealand, or whether it was just those species in the UWB. Country of origin did not influence whether visitors were aware of the kakī or not, suggesting the kakī is no more known to domestic visitors than it is to those from overseas. The lack of awareness shown in the survey results corresponds with the views of a tourism operator in the region who stated that international tourists are in the region to see scenery and just to stick to their itinerary. There is some doubt as to whether the kakī is or could be a pull factor for tourists to the region, as some visitors who were aware of the kakī and its conservation status still had little interest in seeing them.

Whilst visitor awareness of specific species was limited, there was broad awareness among key informants of the impacts of recreation and tourism on wildlife habitat. Globally, tourism and recreation has been shown to negatively impact wildlife species (Higham, 1998; Higham & Shelton, 2011; Huhta & Sulkava, 2014; Ranaweerage, Ranjeewa, & Sugimoto, 2015). Many interviewees discussed how fishing and 4WDs are particularly problematic on the braided rivers and the wildlife in the Upper Waitaki Basin. Interviewees claimed that fishers were usually aware of rare birds but lacked appropriate knowledge on how to behave around them. This leads to disturbance of many nesting birds, and on occasion, the accidental death of birds. Vehicles have been known to drive over nests destroying eggs, or scare birds away, leaving them to return to a nest of dead or collapsed eggs. Users of 4WDs in the region can be fisherman but also farmers, hunters, or other outdoor backcountry recreationalists (Federated Mountain Clubs of New Zealand, 2017). Given the noticeable increase in 4WD

activity it seems likely that these problems will continue unless there is increased awareness of the species, to influence and improve visitor behaviour.

Overall, results of the visitor survey show that there is a lack of visitor awareness of the kakī and other wildlife species in the Upper Waitaki Basin, emphasizing the need for improvement of interpretation and promotion of the species. As highlighted by Ballantyne et al. (2008), good conservation messages can help modify visitor behaviour and minimise future impacts on the wildlife.

6.3 An analysis of interpretation in the Upper Waitaki Basin

Assessing and critiquing the publicly accessible interpretation currently in use in the Upper Waitaki Basin, was a key focus of this study. Good interpretation can convey important conservation messages and inform visitors of key facts (Stewart et al., 1998). During the site analysis (Chapter 5.1.1), signage and interpretation was assessed to see what information was provided, and how it was presented. At all key kakī viewing sites visited as part of this research, wildlife interpretation was very limited.

In Twizel itself, there were two large kakī sculptures standing next to the information centre. These were installed in 2007 with backing by local council, businesses and community groups, presumably suggesting some existing affiliation between the region and the kakī. There is a plaque next to the sculptures which describes the birds and what is important about them. However, the associated plaque had become worn and rusty making it difficult to read, suggesting any affiliation between the kakī and the region has not been maintained. Many survey respondents in Twizel were unaware of what the kakī was, even though the sculptures were in close proximity to the survey location. This highlights how the interpretation is failing at getting the message across to visitors and so is a potential area for improvement.



Figure 21: Kākī sculptures outside Twizel visitor centre

In addition to the panels located at publicly identified kākī viewing sites, there are new Department of Conservation-installed interpretative panels at a salmon farm near Twizel, informing visitors of the types of birds in the nearby braided rivers. One of these signs has photos giving a visualisation of what people should be looking out for. The sign also clearly states that even though the kākī is a rare bird, people are still encouraged to seek them out. The panel also provides information on how people can get further help on finding them, and how visitors should act when in the braided river environments.



Figure 22: Recent signage installed at salmon farm

Alongside this informative sign was a humorous panel that people could interact with. Pabel and Pearce (2015) described how humour helps tourists have a good time and engage with the topic. The board had a drawing of a ranger and a kākī but their faces have been cut out. This allowed visitors to put their heads through and pose for a photo. Allowing people of all

ages to interact with the interpretation encourages engagement and can help raise awareness of the cause (Powell & Ham, 2008).

Placing this sign in an area that is visited frequently by tourists can encourage large numbers of visitors to learn about the kakī, and even seek them out. However, it was noted that the salmon farm was on a main road where people have not had to travel far from their car to enter. Whether these tourists were likely to venture out onto the braided rivers to see wildlife is something that was not determined in this study. Visitors who interacted with the signs were also not surveyed as to whether they were more or less likely to go see the kakī after interacting with the sign.

Alongside the signs at the salmon farm was a donation box. This allowed people who had read about the kakī and felt a connection to them, to be able to donate to help out, as shown similarly in Lück (2015)'s study. As discussed in Powell and Ham (2008)'s research, people can feel very strongly about protecting the environment after learning about environmental issues, so having the donation box in close proximity to the information boards is crucial in capturing that audience who want to help financially.

With the majority of surveyed participants travelling independently and less than a third using visitor centres (Figure 9), it can be assumed that they are researching attractions and getting directions themselves. The issue of road signs was discussed by some interviewees with suggestions ranging from more signage in towns such as Twizel directing people to kakī, to having large visible bill boards along state highways promoting the species.

Digital media makes it convenient for people to access information instantly on their mobile phones, and can access guide books, reviews and other information needed for their trip (No & Kim, 2015). With this in mind, it is no surprise that there has been a reluctance to design and produce up to date kakī leaflets. Information about kakī and other rare birds in the region are available online, but you have to know about the birds first, before you can search for them. Using terms such as 'wildlife in Twizel' in search engines returns scenic flights, hunting trips or cycling adventures. However, Lu and Chen (2014)'s study found that there are still certain types of people, such as Japanese and Chinese visitors, who prefer to read printed information leaflets and guidebooks. This is useful to know when trying to encourage to these visitors to go bird watching. Currently, there is only one leaflet available at visitor centres which discusses the conservation of braided river birds, explaining why they should

be protected, and how people should act around the river. Although this leaflet is full of useful information, interviewees suggested that it could do with updating.

Having guides at kakī viewing sites was also suggested by interviewees. As identified elsewhere Bertella (2016), guides can influence how visitors experience nature and what they understand from it. Interviewees in this study suggested using guided personal tours to lead people across the delta, highlighting wildlife and providing information as they go. Other research has shown that guides are most effective at presenting environmental messages (Ham, 2009; Ham & Weiler, 2002; Newsome, 2013; Poudel & Nyaupane, 2013; Powell & Ham, 2008). Interpretive programmes can be effective at changing people's perceptions and attitudes towards the environment and so would be useful in this context. Similarly, Tilden (1977), claims that having a personal link from a guide to listener can help clarify and strengthen the environmental protection messages. This would be useful in explaining the rare species of the Upper Waitaki Basin's plight, with guiding being part of a tourism product.

However, the cost of guided tourism experiences was a particular divisive subject between interviewees, with some debating the role of tourism and public recreation provision in the region. Interviewees described how they believed experiencing the kakī and other wildlife in the region should be a free activity, and that restricting access would only prevent people, particularly families from seeing the wildlife. As explained by Newsome (2013), fees can discourage visitation from people that place low value on an area, but can also discourage those on low incomes to visit. However, this research did not examine income levels of visitors so could not determine if income would influence kakī visitation. Having a fee can give the impression that the attraction is something of value, and the revenue raised can be used to maintain the attraction and provide some of the best income for species conservation (Buckley, 2004). Interviewees also indicated that having a paid experience would make tourists feel like they were getting something special that was not available to everyone, unlike the publicly available interpretation and viewing information.

6.4 Opportunities for rare species tourism in the Upper Waitaki Basin

Although current visitor awareness of the species is low, and existing public interpretation infrastructure is limited, this study's findings suggest considerable potential for appropriate development. With the Upper Waitaki Basin being home to unique wildlife, dramatic

scenery, and a key hub for tourists, there are many opportunities available for the development of wildlife and rare species tourism in the region.

Visitors' willingness to see three species that are found in the Upper Waitaki Basin, was assessed during this study (Figure 11). Nearly half of surveyed participants were willing to see the kakī, a third were willing to see a possum, and less than a quarter were willing to see a robust grasshopper. This would suggest that the grasshopper does not appeal to the majority of visitors to the region. What is important to note is the large number of people willing to see a kakī. This suggests that there is potential demand that could be tapped.

6.4.1 Kakī promotion

With the high number of visitors willing to view the kakī, it may be tempting to market the kakī as a 'last chance tourism' species. As outlined in Chapter 2, Last chance tourism is the phenomenon of people visiting and experiencing places that are disappearing (Lemelin et al., 2010). This type of tourism is particularly popular with polar bear viewing in the Arctic, where people want to view the species before they disappear forever (Dawson et al., 2011). Tourists' evident fascination with 'seeing things before they're gone', might also apply to the kakī, which could be promoted as a 'last chance to see' species. Kakī population numbers are extremely low with far fewer kakī individuals than polar bears, so tourism promoters could encourage people to see the kakī before they become extinct. For as long as the kakī remain at their perilous population level, they will technically be a form of last chance tourism. However, whether the term 'last chance to see' and 'last chance tourism' are appropriate for kakī tourism is questionable. For wildlife species, last chance tourism suggests that it is inevitable that the species will eventually disappear. Should the kakī become extinct, then this could then become part of a different form of tourism called 'dark tourism', where people go to see sights associated with death (Sharpley, 2009). Furthermore, promoting the kakī as 'last chance tourism' would not align with the Department of Conservation's goal of ensuring the survival of the kakī.

Instead of focussing on 'last chance to see', an alternative approach could be to promote the species recovery aspect. A more positive perspective could be to frame the species within a 'back from the brink' context, emphasising how the species was once on the brink of extinction, but is now fighting back (Figure 23). 'Back from the brink tourism' is defined here as a tourist experience where people can view and experience threatened wildlife

populations that are in the process of recovery. Previously the species population would have been in decline and on the brink of extinction, so would therefore be classed as a form of 'last chance tourism'. 'Back from the brink tourism' gives tourists the opportunity to see the recovery first hand and to be part of its continuing conservation. Alternatively, should the kakī population decline and eventually become extinct, the region would become a site of 'dark tourism' due to its association with death. Using the term 'back from the brink' would help promote the positive work DOC is doing to help prevent extinction and present the message that people can help contribute to kakī recovery.

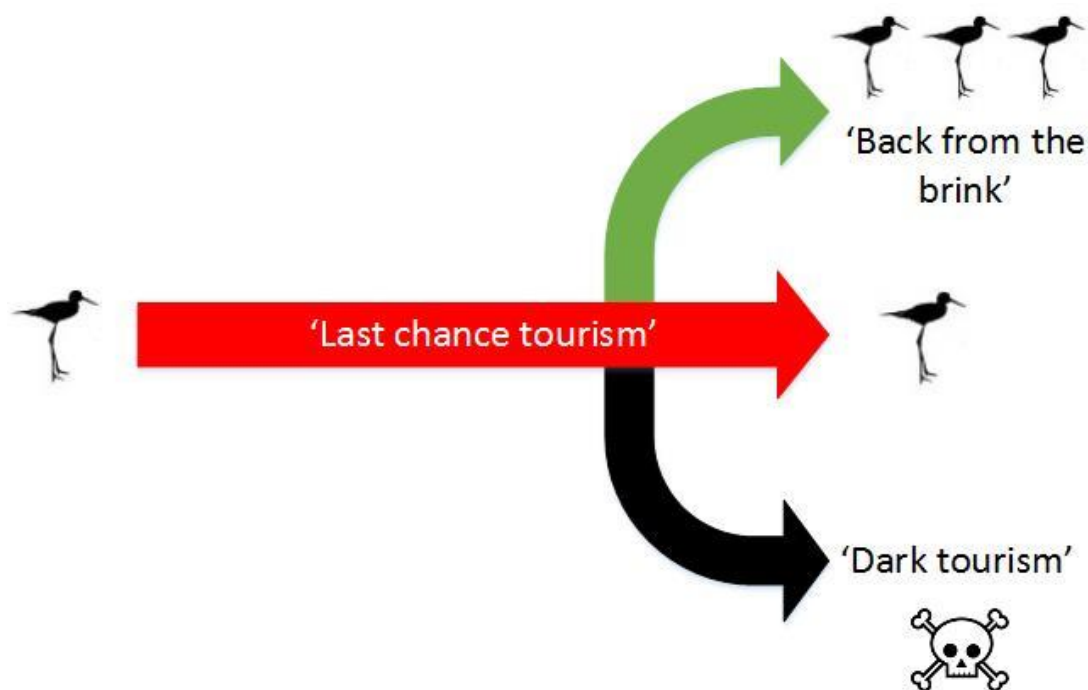


Figure 23: Potential forms of kakī tourism

6.5 Location

The site analysis, as outlined in Chapter 5, looked at access, current facilities available for tourists, and the setting of kakī viewing sites (Table 1). The Lake Tekapo viewing site achieved the highest total score, followed by the Tasman Delta site. Lake Tekapo is already an established tourist destination, with many facilities in place to meet the needs of tourists. The only things preventing the site from scoring full marks was the lack of relevant interpretation about wildlife in the region. The majority of Lake Tekapo's interpretation was based around the night sky, which is unsurprising seeing as it is located in the Aoraki

Mackenzie international dark sky reserve. Also, seclusion is an important part of birdwatching, so Lake Tekapo site lost marks due to its proximity to buildings and other activities. Lake Tekapo is a convenient site to get to, and wildlife are visible from the lake side, however, kakī usually stay further north and away from where the people are. This could make it difficult to guarantee a kakī sighting.

Alternatively, to witness the kakī recovery programme first hand, opportunities exist for tourism development at the kakī aviary and captive breeding centre. It is here that kakī eggs that have been collected from the wild are incubated and hatched. The birds then spend a few months in the aviary before they are released back into the wild (Galbraith et al., 2007). Tourists visiting this site would be guaranteed bird viewings without having to do much walking, making it suitable for passing bus tours who are short on time. These tourists would also not be damaging sensitive habitat in their search for kakī. However, Carr (2016) states that the changing public perception on caged animals has led to discussions on the appropriateness of displaying animals for entertainment. To promote a more socially acceptable wildlife attraction, DOC staff or other guides could present interpretation to visitors when they arrived, highlighting the conservation efforts taking place. However, with the visitor hide on site currently closed due to snowfall damage, money would need to be spent on repairs and redeveloping the site. The site analysis in Chapter 5 also revealed that there were also some issues with interpretation, lack of facilities for visitors such as toilets, and minimal cell phone coverage. These would need to be addressed should this site want to become a main attraction for tourists to stop off.

The Tasman Delta is a suitable site for wildlife tourism as its braided channels are home to many wild species of birds, invertebrates and lizards. The site analysis revealed that the Tasman Delta is suitable for kakī tourism as it is easily accessible with a state highway running parallel to the delta. The site also has nearby conveniences, such as toilets, a café and accommodation, at a nearby holiday park at Glentanner. A key positive aspect of the site is that visitors are more likely to see kakī at the Tasman Delta than at any other site, and many interviewees stressed that it was the perfect place to bring tourists. The construction of hides and boardwalks was suggested by some interviewees, to allow people to cross the uneven terrain of the delta to a safe viewing spot to view kakī.



Figure 24: Birdwatcher viewing the kakī release on the Tasman Delta

Every year, kakī that have been hatched and raised at the captive breeding centre near Twizel, are taken by vehicle in boxes and released at the Tasman Delta. People are free to walk down onto the delta and watch the birds being released. The release is currently promoted on a Facebook page and local schools and groups are invited along to help out. With the opportunity for people to release endangered species into the wild, the release could be promoted on tourism information sites, encouraging people passing through the region to stop and get involved. There is currently no charge in place so is open to anyone who wants to be involved.

6.6 Suitability of kakī as a flagship species

As noted in Chapter 2, flagship species can be used as destination icons, which help publicise wildlife and environmental plight and generate positive environmental outcomes (Prideaux et al., 2016). For the species to attract attention it needs to be charismatic, preferably endangered and ideally 'cute' (Leader-Williams & Dublin, 2000; Prideaux et al., 2016; Smith & Sutton, 2008; Tremblay, 2002). As part of this research, visitors were asked what three words they would use to describe the kakī. In Chapter 3 a word cloud was presented as an illustration of how visitors perceive the kakī (Figure 13). It is clear that visitors see the kakī as 'cute' 'elegant', 'beautiful' and 'pretty', with each of these words showing the positive impression the kakī has on visitors. Many interviewees described the kakī as a special bird with charismatic traits, and it is with these traits that the species has the capacity to act as a destination icon, with the large iron kakī sculptures in Twizel already in place. With the kakī being endangered, charismatic and described by many as 'cute', it would seem to have the ideal pulling power of a flagship species. However, it is important to acknowledge that not

everyone described the kakī as cute, with some survey participants going as far to describe it as 'scary'. The word cloud would suggest that the kakī would not appeal to everyone. When comparing describing words used for the kakī against those used for the possum, the word 'cute' was used more frequently to describe the possum, mainly by overseas visitors. This could be because of a lack of awareness of possums being pests, so their responses and descriptions are based purely on the photograph in the survey (Appendix A).

Xiang et al. (2011), describe how flagship species can help generate revenue through tourism. Promoting the kakī as a 'must see' species would encourage people to pay to view it. The revenue raised by visitors coming to see the kakī can be invested into conservation efforts of the braided rivers within the Upper Waitaki Basin. This will help other bird species, such as the wrybill and black fronted terns, as well as non-bird species like the robust grasshopper. Being situated in a beautiful setting popular with tourists, the braided rivers of the Upper Waitaki Basin may also play a key role in encouraging visitors, and can be promoted as part of a package. Some interviewees suggested using flagship fleets, where more than one species is promoted. Other species from the Upper Waitaki Basin could be included in a flagship fleet, such as grasshoppers, fish and geckos. This would appeal to a larger number of visitors with different wildlife interests, not just bird watchers.

Understanding risks to wildlife and the environment is important for conservation managers (Ballantyne, Packer, & Hughes, 2009). According to interviewees, the types of visitors venturing out onto the Tasman Delta are fishermen, 4WD enthusiasts, and keen birdwatchers and twitchers. Interviewees expressed concern that many of these people were out on the Delta during bird's breeding season, a delicate time for the birds. Nesting birds are easily scared off their nests by people and should the bird not return soon enough, eggs will fail and chicks can die. This risk highlights another positive aspect of the captive kakī viewings. Alternatively, separating different recreational activities and users would be a way to minimise the risk. Interviewees suggested installing better signage and more stringent enforcement, but with DOCs limited funds it is difficult to achieve. Vehicles can also bring in weeds, plants and toxins into the pristine environment. Even exotic plants such as lupins, which are very popular with tourists, are not good for the river system.

A common concern from interviewees about tourists visiting the aviary was the biosecurity risk. Employees at the site expressed concern that visitors would come onto the site and be

encouraged to get close to view the birds and then end up accidentally transferring disease, putting the kakī at risk. Newsome et al. (2012) highlighted the need for guided interpretation for visitors before they arrive at a wildlife tourism attraction, making tourists aware of the risks before they set foot at the site. This would help minimise the risk, however some interviewees stated that it was just not worth the risk when the birds are young and vulnerable. Instead, visitors should be encouraged to go out onto the Tasman Delta to view the birds at a safe distance in the wild.

It is not just the wildlife and environment at risk from tourism. An interviewee explained the risks some tourists take when walking out onto braided rivers and deltas. Braided rivers can be hazardous environments with uneven ground, flowing water and hidden holes. Not all tourists are capable of walking out comfortably on the terrain, and so at risk of hurting themselves. The installation of walkways and boardwalks that lead out to hides may help reduce this risk, but may also impact the aesthetic look of the area. The current challenging environment may put off tourists who are looking for an easy to view species, but could encourage twitchers who want to view species undisturbed by tourists, and are willing to walk through difficult terrain to see them.

6.7 Chapter summary

This chapter discussed the key findings of visitor surveys and key informant interviews, relating to rare species tourism within the Upper Waitaki Basin. Additionally, the chapter reviewed the current communication, marketing and interpretation methods used in the region to promote the rare species and their conservation messages. The chapter also discussed the use and appropriateness of using the kakī as a flagship species in their marketing and conservation techniques. The following chapter will conclude the research with a summary of the findings and provide recommendations for the development of rare species tourism in the Upper Waitaki Basin.

Chapter 7

Conclusions and recommendations

7.1 Introduction

This final chapter integrates the previous discussion and results chapters of the study to provide conclusions and recommendations. This study examined the risks and opportunities of rare species tourism in the Upper Waitaki Basin. This was achieved by identifying visitors' level of awareness of rare species and their willingness to see them. Current promotion and interpretation techniques were critiqued, and the use of flagship species was discussed, with the aim to provide recommendations and suggestions for the development of rare species tourism in the region. Rare species tourism in the region and its potential for development has not been previously researched, ensuring this study will contribute and fill such knowledge gaps.

7.2 Research questions

The study looked to answer four research questions based around visitor awareness of wildlife in the region, the interpretation of the wildlife in the region, the compatibility of tourism with the wildlife and the suitability of using the kakī as a flagship species.

- ***To what extent are visitors aware of the Upper Waitaki Basin's rare species?***

Insights into visitor awareness of the rare species were provided (Chapter 4). By understanding the levels of visitor awareness, the effectiveness of current interpretation can be assumed. It is apparent that awareness across the range of species is low and that the current conservation status of the kakī is unfamiliar to many visitors. Most visitors to the region showed a lack of awareness of any of the species in the region, and there was no significant difference between those who were visiting from within New Zealand and those from overseas. It is this lack of awareness of rare species that has led to the disturbance of many birds out on the riverbeds. Four-wheel-drive vehicles, fishers, and other outdoor recreationists are causing disturbance, leading to destroyed or abandoned nests, which is devastating for endangered species. Given the noticeable increase in 4WD activity it seems likely that these problems will continue unless there is increased awareness of the species.

Therefore, it is recommended that steps be taken to improve awareness of the species of the Upper Waitaki Basin to help influence and improve visitor behaviour, which in turn will minimise negative impacts on those rare species.

- ***Identify and critically assess how rare species are interpreted around the Upper Waitaki Basin.***

The literature has suggested that interpretation is important for tourism and conservation messages. Rare species are mentioned on very few signage boards around the UWB region. With the minimal signage and interpretation it can be very difficult for visitors to learn, understand, and gain awareness of the important conservation efforts of the species around them. The new signage that is installed in one popular salmon farm is an important step in the right direction, to help increase visitor awareness. The more people that are exposed to the information the better the levels of awareness will be.

There are also few leaflets and informative handouts available to tourists. To appeal and reach the widest audience possible there should be leaflets about kakī and the rare species in the Upper Waitaki Basin, available in the visitor centres in the region, as well as online. This information needs to be kept up to date and accurate.

Overall, there is considerable scope for interpretation in the Upper Waitaki Basin to be improved. More effective interpretation will help mitigate negative impacts and/or help raise awareness for the endangered species in the region.

- ***How compatible are the rare species in the region with the development of tourism experiences?***

The braided rivers are home to many endangered species of the Upper Waitaki Basin. The river deltas, and particularly the Tasman Delta, has the potential for tourism development. It is easily accessible, close to the main highway and is the primary locality of the kakī population. There are opportunities to develop a range of products based around the species in the Tasman Delta including visitor hides, guided walkways, and interpretive signs. Preference should be given to the kakī to be used as part of a tourist experience, mainly due to ease of viewing.

Tourism and conservation can hold a symbiotic relationship with both supporting and relying on each other. Although tourism and recreation are known to negatively impact on wildlife

and habitats in the region, the income generated from becoming a tourist attraction gives justification for tourism development. The funds raised can contribute to the conservation of endangered wildlife species.

The kakī is a suitable candidate for promotion within a ‘back from the brink’ narrative, encouraging people to view a species that has been on the verge of extinction, but now that is in the process of recovery. This would be a positive tourism experience for tourists in the region and could encourage the development of similar tourism products around other endangered species. Whether the kakī be promoted as a ‘back from the brink’ species or a species with its ‘last chance to see’, the kakī will be able to draw visitors to its plight and their recovery needs.

- ***How suitable is the kakī as a flagship species for the Upper Waitaki Basin?***

The value of flagship species to both tourist destinations and regions conservation goals is widely reported in the literature (See Chapter 2). Establishing if the kakī could be used as a flagship species, would determine its suitability to be used as an icon to draw tourists and focus attention on conservation goals in the region. It is apparent from the research that the kakī can be used as a flagship species. The kakī’s uniqueness and charismatic charm aids its potential to be used as an icon species, drawing visitors to the region and enhancing the levels of conservation funding and resources. Flagships can help raise awareness of other species in the region, who all live in the flagship’s environment. By protecting the environment of the flagship species, it in turn benefits all endangered species within that environment.

7.3 Recommendations

This research has determined that there is potential for the development of tourism around the kakī, and the braided river environments. Suggestions for tourism products are as follows:

- **A visitor ‘hub’ at the Tasman Delta site**

Having somewhere tourists could easily be dropped off by bus, or stop off in their own vehicle would be an ideal tourist location. The Tasman Delta can be accessed by a main highway and has nearby facilities at the Glentanner Holiday Park, making it an ideal stop off

hub for wildlife tourism. At this site there would also be interpretation available for people to read and learn about the rare species in the region. From the hub, tourists would be able to walk down on to the delta themselves, or be guided by staff members. A range of tourism guiding products could be offered, and having a mixture of paid or free tourism options would mean there was something for all income levels.

- **Improve interpretation**

Interpretation relating to the rare species around the Upper Waitaki Basin is lacking. There are very few sources of information providing people with the necessary information on the risks faced by species in the region. There needs to be better signage at kakī sites and at nearby locations, to raise awareness of those visiting the region and to minimise risks visitors cause to wildlife when they are taking part in nature –based tourism. The kakī’s online promotion could also be improved by ensuring it appeared on more tourism websites and marketing campaigns.

- **Use the kakī as a regional flagship**

The kakī is a unique charismatic bird which should be used as a regional icon for tourism and conservation. Using the kakī as a way to engage visitors with conservation will help generate positive outcomes for conservation in the region. People who are aware of the species will want to see it in the wild. The kakī could become the Upper Waitaki Basin’s regional icon, and so with the increase in demand to see it, more resources would be spent to help ensure the species survival.

- **Opportunities to donate to the cause**

With the increase in visitors who want to see the kakī flagship at the Tasman site, there should be opportunities for people to donate money to help with the kakī conservation efforts. Promoting the kakī as a species that is trying to come ‘back from the brink’ would encourage visitors to help out financially and would allow people to be part of a species recovery.

7.4 Future research

Although this study can be used as a foundation for future rare species tourism research, there are ways this research can be improved on. A key limitation to this survey was the sample size of survey participants. Surveying a larger number of visitors would help gain a broader understanding of visitor awareness, from a wider range of people. Future surveys should ask if people are aware of rare and endangered species outside of the Upper Waitaki Basin as well as those within. This would provide information on whether visitors aren't aware of species specific to the Upper Waitaki Basin, or whether they aren't aware about New Zealand species in general. This would show if lack of awareness was a regional, national or international issue.

Although studies have shown the effectiveness of guided tours and interpretation at natural sites (Jacobs & Harms, 2014; Powell & Ham, 2008), there is currently a lack of research measuring and evaluating the long term effectiveness of them. This could be an area for future research.

The type of tourism experience tourists are willing to encounter should also be investigated in future studies. Ascertaining whether people want to experience wildlife for free or would be willing to pay can help management and planning. Future research would highlight any tourist preference to the type of experience and could help guide specific tourism development.

Finally, as a spectacular natural region of New Zealand, the Upper Waitaki Basin is ideal for the establishment and promotion of rare species tourism. It is home to many endangered species and to not have some form of tourism based around this would be a missed opportunity. There is a strong case for using the regions rare species as tourism icons, with any actions that promote one species also promoting the others, leading to the conservation and protection of those special iconic species.

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Appendix A

Visitor Survey



Investigating wildlife tourism in Upper Waitaki Basin

Visitor Survey

Hello, I am from Lincoln University and I am doing a survey of visitors to the Upper Waitaki Basin as part of my Master's thesis.

This survey has questions about your visit to the region, including:

- The activities you are undertaking whilst in the region
- Your motivations for visiting the region
- Your expectations and opinions on the wildlife within the region

Your participation in this survey is voluntary and will take about 10 minutes to complete.

The survey is anonymous and you can choose not to answer any, some, or all questions. You can withdraw from the study at any time during the survey without explanation. If you complete the survey, however, it will be understood that you have consented to participation in the study and agree to publication of the results with the understanding that anonymity will be maintained.

To make it easier for you I will ask you the survey questions and record your answers.

Part A: Your Visit

1) Is this your first time visiting the Upper Waitaki Basin region?

1. ☐ Yes (Go to Q. 3) 2. ☐ No

2) Can you estimate the number of times you have previously visited?

1. ☐ 1-5 times
2. ☐ 6-10 times
3. ☐ 11-15 times
4. ☐ 16-20 times
5. ☐ 20+ times (approximately _____ times)

3) Who are you visiting the region with?

1. ☐ Alone
2. ☐ Family
3. ☐ Friend(s)
4. ☐ Partner
5. ☐ Organised tour group
6. ☐ Other _____

4) How many people are in your group? _____ people (include individual in total)

5) How much time will you spend in the region?

1. ☐ 1-2 hours
2. ☐ 2-4 hours
3. ☐ More than 4 (not overnight)
4. ☐ Overnight
5. ☐ More than 1 night (_____ nights)
6. ☐ Not sure

6) Where did you stay last night?

7) Where will you be staying tonight?

8) How are you travelling through the region?

1. ☐ Private car
2. ☐ Rental car
3. ☐ Bicycle
4. ☐ Campervan
5. ☐ Hitch hiking
6. ☐ Motorbike
7. ☐ Coach/bus tour package
8. ☐ Scheduled bus/coach (e.g. Intercity, Atomic shuttle, Naked Bus)
9. ☐ Other (please specify) _____

9) How important were the following factors in your decision to visit the region?

| | Not important | | | | | | Very important |
|--|------------------|---|---|---|---|---|-------------------|
| Being with friends and/or family | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Being close to nature | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Experiencing an uncrowded setting | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Having a story to tell | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Experiencing places I have read about | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Experiencing a sense of discovery | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Viewing rare or endangered species | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

10) What are the main activities that you have already undertaken or will definitely undertake while in the Upper Waitaki Basin?

| | Where did you do this? | For how long? |
|--------------------------------------|------------------------|---------------|
| 1. Visitor centres | | |
| 2. Photography | | |
| 3. Camping | | |
| 4. Mountain biking | | |
| 5. Road cycling | | |
| 6. Hiking | | |
| 7. Kayaking | | |
| 8. Boat tour | | |
| 9. Scenic flight | | |
| 10. Viewing/walking around the lakes | | |
| 11. Visiting the braided rivers | | |
| 12. Wildlife watching/tours | | |
| 13. Bird watching | | |
| 14. Fishing | | |
| 15. Hunting | | |
| 16. Viewing the night sky | | |
| 17. Other (please state) | | |

Part B: Wildlife of Upper Waitaki Basin

11) Do you recall seeing any wildlife during your visit to the region?

1. ☐ Yes

2. ☐ No

12) If yes, what have you seen?

13) What (if any) wildlife did/do you expect to see?

14) How important is it for you to see wildlife during your visit to the region?

Not important

1. ☐

2. ☐

3. ☐

4. ☐

5. ☐

6. ☐

Very important

7. ☐

15) How important to you is the viewing of *rare* wildlife species during your visit to the region?

Not important

1. ☐

2. ☐

3. ☐

4. ☐

5. ☐

6. ☐

Very important

7. ☐

16) The Upper Waitaki Basin is home to several rare species. Are you aware of, or have you seen any, of the following species? *Refer to handout if needed.*

| | Aware of | Seen | Unsure | How did you become aware of the species (E.g. Signage, saw it on a tour) |
|------------------------|----------|------|--------|--|
| 1. Black stilt/kakī | 1 | 2 | 3 | |
| 2. Wrybill | 1 | 2 | 3 | |
| 3. Robust grasshopper | 1 | 2 | 3 | |
| 4. Southern Alps gecko | 1 | 2 | 3 | |
| 5. Longjaw galaxias | 1 | 2 | 3 | |

17) The black stilt is a native wading bird found around the lakes and braided rivers of the Upper Waitaki Basin. What conservation status do you think best describes the species? (Please tick)

| | |
|---|--|
| Critically endangered (Fewer than 250 mature individuals) | |
| Endangered (Between 250 - 2500 mature individuals) | |
| Vulnerable (2500 – 10000 mature individuals) | |
| Near threatened (Likely to become a threatened species in future) | |
| Least concern (Abundant and widespread population) | |
| Don't know | |

18) a) What three words would you use to describe the species shown?



1.

2.

3.

2cm

b) How willing are you to view this species in the wild?

| | Not willing | | | | | | Very willing |
|--------------------|-------------|---|---|---|---|---|--------------|
| Robust grasshopper | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

c) What three words would you use to describe the species shown?



1. 2. 3.

40cm

d) How willing are you to view this species in the wild?

| | Not willing | | | | | | Very willing |
|------------------|-------------|---|---|---|---|---|--------------|
| Black stilt/kaki | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

e) What three words would you use to describe the species shown?



1. 2. 3.

75cm

f) How willing are you to view this species in the wild?

| | Not willing | | | | | | Very willing |
|--------|-------------|---|---|---|---|---|--------------|
| Possum | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Part C: About you

19) What is your age?

- 1. ☐ 18-25 years
- 2. ☐ 26-30 years
- 3. ☐ 31-40 years
- 4. ☐ 41-50 years
- 5. ☐ 51-60 years
- 6. ☐ 61-70 years
- 7. ☐ 71-80 years
- 8. ☐ 80+ years

20) To which gender identity do you most identify?

- 1. ☐ Male
- 2. ☐ Female
- 3. ☐ Other
- 4. ☐ Prefer not to answer

21) What is your highest education level?

- 1. ☐ Primary/elementary school
- 2. ☐ Secondary/high school
- 3. ☐ Training/trade
- 4. ☐ University
- 5. ☐ Other

22) Where do you normally live?

- 1. ☐ New Zealand (go to Q. 23)
- 2. ☐ Australia
- 3. ☐ China
- 4. ☐ United States of America
- 5. ☐ United Kingdom
- 6. ☐ Japan
- 7. ☐ Germany
- 8. ☐ Canada
- 9. ☐ Other (_____)

23) If you live in New Zealand – which region?

1. ☐ Southland
2. ☐ Otago
3. ☐ Canterbury
4. ☐ West Coast
5. ☐ Marlborough
6. ☐ Nelson
7. ☐ Tasman
8. ☐ Wellington
9. ☐ Manawatu-Wanganui
10. ☐ Taranaki
11. ☐ Hawkes Bay
12. ☐ Gisborne
13. ☐ Bay of Plenty
14. ☐ Waikato
15. ☐ Auckland
16. ☐ Northland

24) Are you a member or supporter of any environmental/wildlife group? (E.g. RSPB, WWF, American Birding Assoc. etc)

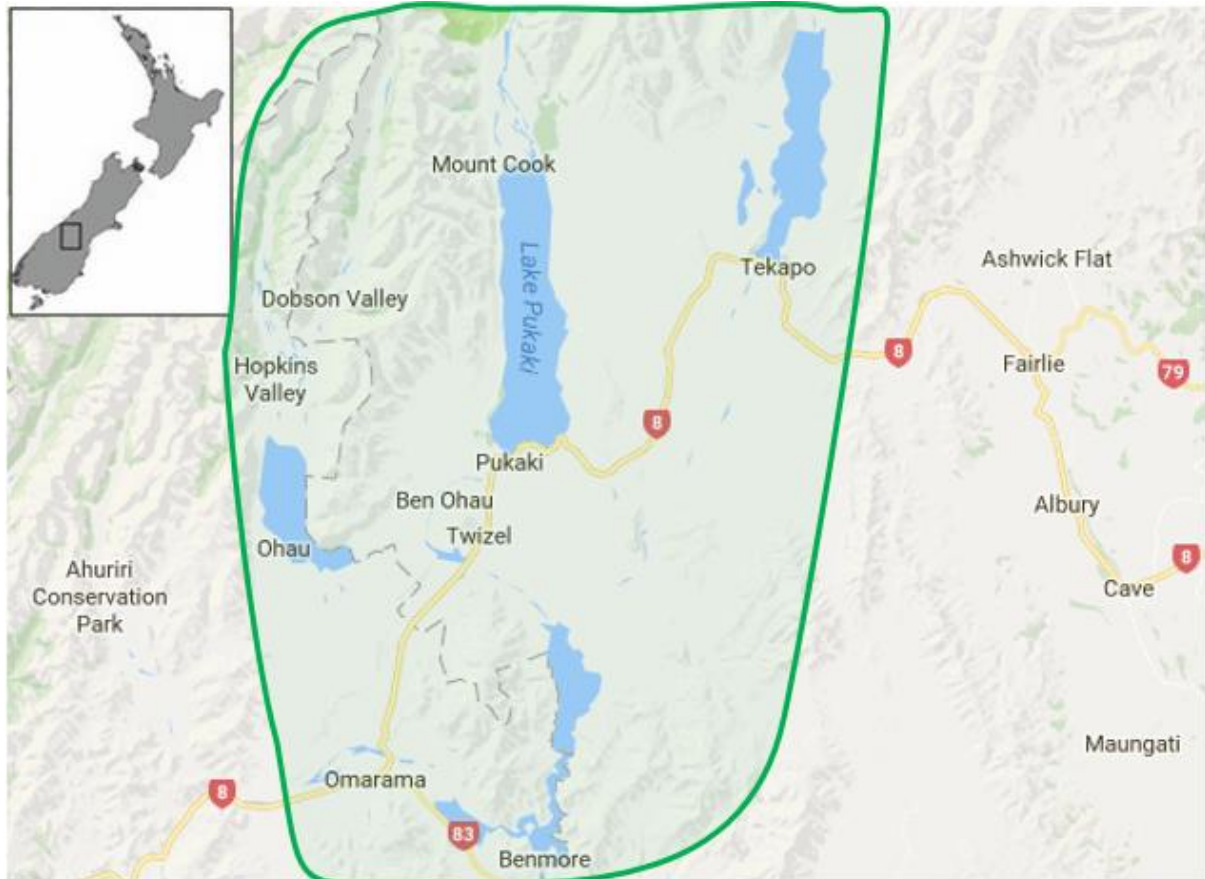
1. ☐ Yes (please specify) _____ 2. ☐ No

Thank you very much for completing this survey

Appendix B

Visitor Survey Guide Book

Upper Waitaki Basin Visitor Survey



Kakī



40cm



Wrybill



20cm



Robust grasshopper



2cm



Southern Alps gecko



7cm

5. Longjaw Galaxias



7cm

Appendix C

Survey research information sheet

Investigating wildlife tourism in the Upper Waitaki Basin

Information for prospective survey participants

What are the aims of the study?

As part of a Master's thesis, the aim of this study is to investigate wildlife tourism in the Upper Waitaki Basin.

What will you need to do?

As you are aged 18 years old or older, your participation will involve completing a brief survey which will be administered by the lead researcher or student assistant. The survey is not expected to take more than 10 minutes to complete and will ask you various questions about your experiences within the Upper Waitaki Basin and the wildlife within it.

What rights do you have as a participant?

You have a number of rights as a participant in this study, and we take these very seriously. These are described below:

- All information you give us will be anonymous and confidential. You will be provided with your own identification number, which will be used in place of your name on any information you give us. Any numeric information we use will be grouped so that individuals cannot be identified in oral or written presentations.
- The Human Ethics Committee would have access to data in the event of an audit, only the lead researcher (Hayley Dalton) and the research supervisors (Stephen Espiner & Emma Stewart) will have access to your information.
- Participation is completely voluntary. You can choose not to answer any, some, or all questions. You can withdraw from the study at any time during the survey without explanation.
- If you complete the survey, it will be understood that you have consented to participate in the study and agree to the publication of the results with the understanding that anonymity will be maintained.

What if you have any questions?

If you have any queries or concerns about your participation in the study, please contact me (Hayley Dalton) or my supervisors. We would be happy to discuss any concerns that you have about your contribution to this study.

Thank you for your help!

Researcher: Hayley Dalton, Master of Applied Science, Lincoln University

hayley.Dalton@lincolnuni.ac.nz

Supervisor: Stephen Espiner PhD, Senior Lecturer in Parks, Recreation & Tourism, Lincoln University

Stephen.Espiner@lincoln.ac.nz

Ph. +64 3 4230485

Supervisor: Emma Stewart PhD, Senior Lecturer in Parks & Tourism, Lincoln University

Emma.Stewart@lincoln.ac.nz

Ph. +64 3 423 0500

This study has been reviewed and approved by the Lincoln University Human Ethics Committee.

Appendix D

Interview research information sheet

Investigating wildlife tourism in the Upper Waitaki Basin

Information for prospective interview participants

What are the aims of the study?

As part of a Master's thesis, the aim of this study is to investigate wildlife tourism in the Upper Waitaki Basin.

What will you need to do?

You have been identified as a potential participant because of your knowledge and involvement in tourism in the Upper Waitaki Basin, and are over the age of 18. Your participation will involve a face-to-face interview which will be administered by the lead researcher. The interview is expected to take approximately 60 minutes to complete and will ask you various questions about your affiliation with tourism and the Upper Waitaki Basin; your perspectives on the wildlife within the region, and your views on the future of wildlife tourism in the Upper Waitaki Basin.

What rights do you have as a participant?

You have a number of rights as a volunteer in this study, and we take these very seriously. These are described below:

- All information you give us will be anonymous and confidential. You will be provided with your own identification number, which will be used in place of your name throughout any written or oral presentations of this project.
- The Human Ethics Committee would have access to data in the event of an audit, however, only the lead researcher (Hayley Dalton) and the research supervisors (Stephen Espiner and Emma Stewart) will have access to your information.
- Participation is completely voluntary. You can choose not to answer any, some, or all questions. You can withdraw from the study at any time before November 1, 2017 by contacting one of us (contact details are listed below).
- Interviews will be conducted at a time and place to suit you and with permission will be digitally recorded. The interviews will be transcribed in full and you will have the opportunity to review your own interview transcript if you wish. If you prefer not to be recorded we will take notes throughout the interview – these notes will also be available for review once they are written up.

What if you have any questions?

If you have any queries or concerns about your participation in the study, please contact me (Hayley Dalton) or my supervisors. We would be happy to discuss any concerns that you have about your contribution to this study.

Thank you for your help!

Researcher: Hayley Dalton, Master of Applied Science, Lincoln University

Hayley.Dalton@lincolnuni.ac.nz

Supervisor: Stephen Espiner PhD, Senior Lecturer in Parks, Recreation & Tourism, Lincoln University

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Supervisor: Emma Stewart PhD, Senior Lecturer in Parks & Tourism, Lincoln University

Emma.Stewart@lincoln.ac.nz

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This study has been reviewed and approved by the Lincoln University Human Ethics Committee.

Appendix E

Interview outline questions

Upper Waitaki Basin Stakeholder Interview Schedule

Operation / managerial background

- Role (what service is your operation providing / what position do you hold?)
- History (for how long has your operation been running / how long have you been in your role?)
- Would you say the majority of your visitors are domestic or international?

Upper Waitaki Basin

- How important is the region to your operation? (Could you be doing this elsewhere?)
- How important is tourism and/or recreation in the region? (Personally / economically)
- Why do you think the region attracts so many visitors?

Rare wildlife species

- In your opinion, how much of a tourist attraction are the braided rivers and their rare species?
- How much do you rely on wildlife/braided rivers for the success of your business?
- What role (if any) do rare species play in the running of your operation? (Do you promote them?)
- What do you think will happen to the wildlife/rivers over the next 10 years?
- Would your operation suffer if the rare species disappeared entirely?

Visitor experience

- What do you think are the main motives of visitors to the region? Do you think these have changed over time?
- Do you think visitors are aware of the braided rivers and the wildlife within them?
- Do you think there is enough interpretation about rare species for visitors around the region?

Wildlife tourism

- Do you think there are opportunities for increasing wildlife tourism in the region?
- In your opinion, will increased wildlife tourism benefit the region?
- Have you witnessed any impacts (positive/negative) to the region as a result of tourism?
- Do you have any concerns over the future of wildlife tourism in the region?
- Do you think the development of wildlife tourism should be left to private enterprise, or in the hands of DOC?

Appendix F

HEC approval

Research Management Office

T 64 3 423 0817
PO Box 85084, Lincoln University
Lincoln 7647, Christchurch
New Zealand
www.lincoln.ac.nz

28 March 2017

Application No: 2017- 17

Title: Investigating rare species tourism in the Upper Waitaki Basin

Applicant: H Dalton

The Lincoln University Human Ethics Committee has reviewed the above noted application.

Thank you for your response to the questions which were forwarded to you on the Committee's behalf.

I am satisfied on the Committee's behalf that the issues of concern have been satisfactorily addressed. I am pleased to give final approval to your project.

Please note that this approval is valid for three years from today's date at which time you will need to reapply for renewal.

Once your field work has finished can you please advise the Human Ethics Secretary, Alison Hind, and confirm that you have complied with the terms of the ethical approval.

May I, on behalf of the Committee, wish you success in your research.

Yours sincerely



Grant Tavinor
Chair, Human Ethics Committee

PLEASE NOTE: The Human Ethics Committee has an audit process in place for applications. Please see 7.3 of the Human Ethics Committee Operating Procedures (ACHE) in the Lincoln University Policies and Procedures Manual for more information.