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CONSERVATION BENEFITS OF PUBLIC VISITS TO PROTECTED ISLANDS

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PREFACE

This report provides research advice to the Department of Conservation, and does not represent Departmental policy with regard to management of offshore islands. Current management of these islands is based primarily upon the Reserves Act 1977, the Conservation Act 1987, and the Wildlife Act 1953. Specific Departmental policy for management of offshore islands is currently being developed.

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ABSTRACT

Managers are often concerned about the negative impact of humans on conservation islands. However, it is also important to consider the alternative - the positive impact of conservation islands on humans - as the conservation benefits that accrue may well outweigh the negative impacts of humans visiting these protected areas. This study examines just what conservation benefits may occur as a result of allowing public access to conservation areas. The assessment was carried out through the pre- and post-survey of visitors to two islands - the scientific reserve Tiritiri Matangi which has an extensive revegetation programme based on public involvement, and the nature reserve Little Barrier, which is a protected sanctuary for highly threatened species. The islands differed in the type of visitor they attracted and also in the impact they had on the visitors' experience. Little Barrier Island attracted more conservation committed individuals but Tiritiri Matangi stimulated more pro-conservation change in its visitors. Little Barrier visitors became more aware of the negative impacts of threats and the need for conservation management of threatened species while visitors to Tiritiri Matangi became more aware of the positive potential of conservation management based on public involvement. Overall, Tiritiri Matangi seems to have produced the greatest conservation benefit, but further research is required to (i) understand which factors contribute to each island's unique effect, (ii) monitor the long terms effects of island visits and (iii) identify how net conservation benefit gains are related to the existing conservation commitment of visitors.

1. INTRODUCTION

One of the major challenges for managers of areas managed specially for conservation purposes is in balancing the requirements for protection and security of biota (e.g., endangered species/unique habitats) with the public interest in visiting such places. An obvious and simple solution to this dilemma would involve prohibiting human access for any purposes other than essential management activities. However, this approach would assume that the presence of humans represents only negative outcomes for conservation. Apart from the public access requirements included in the legislation guiding management of specially protected areas, there are other reasons for managers to allow public visits. One of the main arguments supporting public access to these areas is that the conservation examples and learning opportunities which visitors are exposed to may stimulate increased interest and support for conservation objectives.

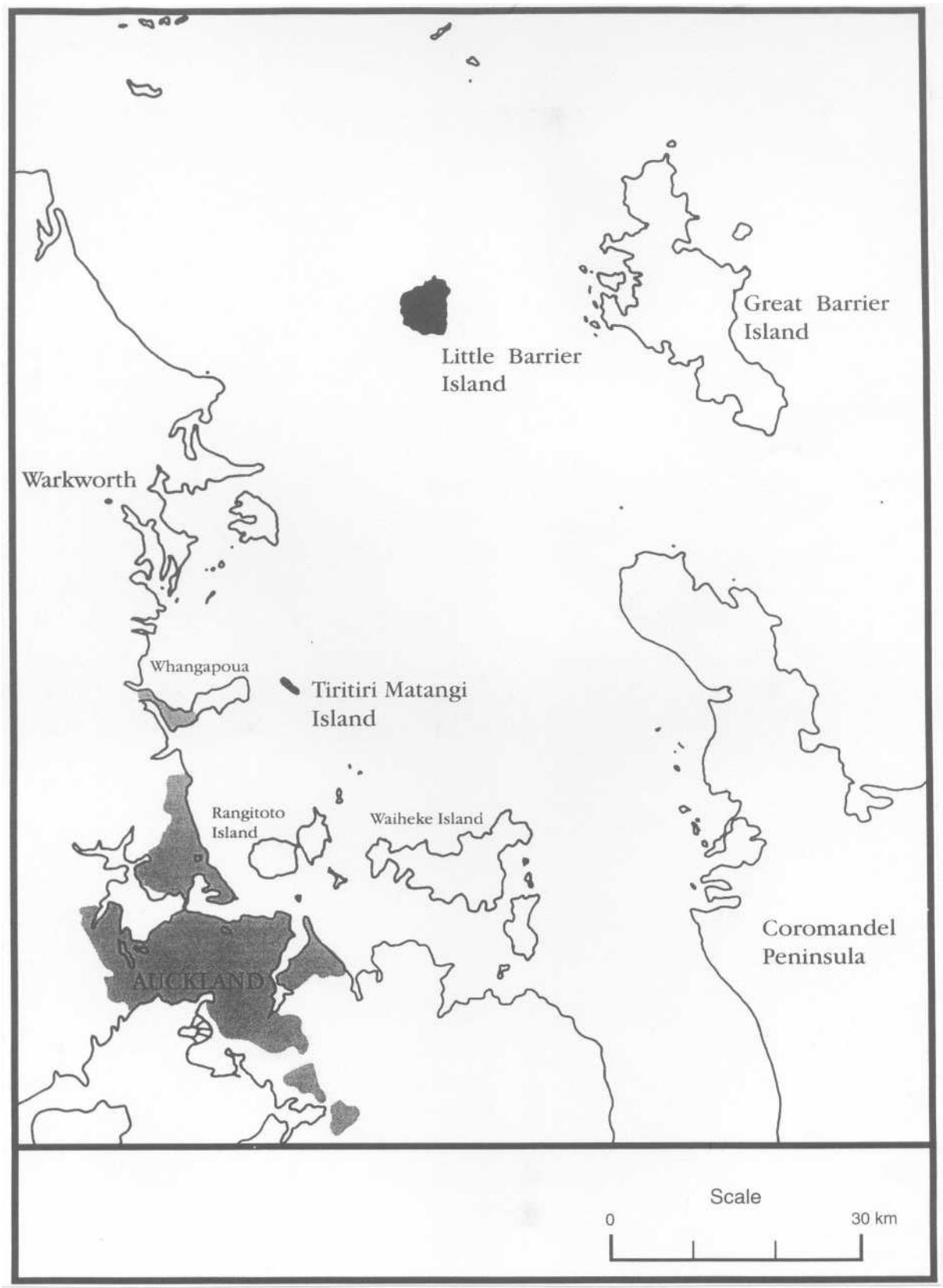

Figure 1. Locations of Tiritiri Matangi and Little Barrier Islands

To explore some of the conservation benefits arising from public access to protected islands surveys were carried out on visitors to two protected sites - Tiritiri-Matangi Island and Little Barrier Island (see Figure 1). This report presents results from these surveys.

1.1 Islands - their conservation roles

New Zealand offshore islands are both numerous[1] and diverse in character. There is a wide range in the accessibility of these islands, with some permanently settled, and others seldom if ever visited. There is also variety in the extent to which their natural or historic values have been conserved. Some islands have been extensively modified, having been cleared for farming and settlement. Others are relatively untouched. Overall, it has been this combination of environmental characteristics, varying degrees of isolation, and historical changes by humans which has determined the current management approaches for New Zealand's offshore islands.

The use made of islands in New Zealand conservation programmes is based largely upon their degree of isolation. In some cases, this isolation has minimised the degree of environmental alteration relative to mainland New Zealand, thus providing habitats and species assemblages more characteristic of pre-human conditions. In other cases, this isolation allows the degree of predator and weed control necessary to provide secure "refuges" for specially managed endangered species. Some islands also provide opportunities for restoration of flora and fauna conditions which would be unviable or extremely expensive on the mainland. However, demand for public access now provides an additional dimension influencing the management of conservation islands.

In establishing policy for the management of islands (in public ownership), this diversity of management responsibility has been recognised through the Reserves Act 1977 classifications (e.g., nature reserve, scientific reserve, historical reserve, scenic reserve, recreation reserve, government purpose reserve, local purpose reserve), and in other more specific management refinements of these (as used in management plans for example).

The essential principles involved in applying these classifications have been to identify islands where all access is to be avoided because natural or historic values may be compromised, and to varying degrees allow access and development at other islands (in relation to the increasing robustness or uniqueness of that island setting). Reflecting this, the islands in this report are of different reserve status, as described briefly below:

(i) Tiritiri Matangi

This is formally classified as a scientific reserve (Reserves Act 1977), which provides protection and preservation of natural flora and fauna, but with an additional focus upon scientific study, education, and preserving matters of special interest. This allows some manipulation of the area for scientific purposes, which in this case has mainly taken the

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[1] Mortimer *et al.* (1995) stated there were over 500.

Possible Island Class	Minimum-Impact Islands	Refuge Islands	Restoration Islands	Open-Sanctuary Islands	Multiple-use Islands
Primary Management Aims	Conserve the relatively unmodified status of endemic communities, to protect threatened species and communities. Must minimise human interferences and influence of introduced biota, removing it where feasible.	Ensure the survival of biota already on the island, and that of other threatened biota which was compatible with island communities. This would involve some species transfers to sites where they were not originally present.	Restore whole biotic communities as fully functioning systems, emphasising biota originally present rather than providing refuge for threatened species not native to the island.	Provide an opportunity for public access to islands undergoing active conservation development. Promote conservation objectives through the examples provided and the participation options allowed.	To carry out some conservation function, but secondary to other uses such as farming, farm parks, forestry, and recreation. This may include privately owned lands.
Public Access Aims	Minimal direct use, possibly only communicating the natural values of the island indirectly through film, television, radio, books etc.	Low impact activities which cannot be done on restoration or open-sanctuary islands, with some permitted visitors under close staff and/or guide supervision and guidance.	Low impact activities not possible on open-sanctuary islands, with some permitted visitors under close staff and/or guide supervision and guidance. Also volunteer work on restoration projects.	Education and interpretation a main function of island, using public involvement to achieve conservation gains, and to promote conservation perceptions by the public.	Visitor activity dependent upon island management requirements of private owners etc.
Suggested Examples[2] (Atkinson 1990)	Poor Knights, Three Kings, Pupuha, Chicken group, Sail Rock, Snares, Disappointment, Adams, Auckland.	***Little Barrier***, Kapiti, Hen, Rangitoto, Maud, Codfish, South-East, Chatham Group.	Cuvier, Mana, Mangere, Chatham Group, Motuora, Mahurangi.	***Tiritiri Matangi***, Somes.	Great Barrier, Kawau, Great Mercury, Mayor, Arapawa, Chatham, Pitt, Chatham Group.

Figure 2. Possible Functional Classification of Conservation Islands (adapted from Atkinson 1990, and Towns *et al.* 1990)[3]

[2] Note that these examples only included islands currently managed for conservation (Atkinson 1990).

[3] Note that this informal classification was made to demonstrate the variety of conservation and recreation roles played by these islands. Formal classification of most of the islands listed is based upon the Reserves Act 1977.

form of an extensive revegetation programme based on public involvement. This management orientation has contributed to the informal classification of this island among the "open-sanctuary" islands (See Figure 2). The progression of the revegetation programme has produced results which are readily visible to visitors when comparing replanted and unplanted areas, giving examples of conservation outcomes which are easily understood. While provision is made for limiting access by requiring permits, this has not been applied to date as the emphasis has been upon providing an "open sanctuary" for day visits (no overnight stays are allowed). Possible limits on visitor numbers have only recently been considered.

(ii) Little Barrier

This is classified as a nature reserve (Reserves Act 1977), which has the primary purpose of preserving in perpetuity the indigenous flora and fauna or other natural features. The relatively high isolation of this island has also given it an important role as a protected sanctuary for highly threatened species. This has contributed to the informal classification of this island among the "refuge" islands (see Figure 2). In accordance with its nature reserve status, access is consequently restricted to entry by permit only and has a limit of no more than 30 visitors per day. At present, some of these visitors are permitted to stay overnight due to the island's isolation, although problems associated with sharing accommodation with research staff are apparent, and this option is being reconsidered.

The diversity of conservation roles fulfilled by the different islands is reflected in the differences apparent in their classification. Clearly these roles will overlap, but it is ¡mportant to recognise that particular conservation requirements may predominate in different island circumstances. Public access will have to be restricted to varying degrees as a consequence of the potential threats to the island's conservation roles.

1.2 Threats to islands

There are valid reasons for limiting public access to conservation islands. Visiting public are a potential threat to islands mainly due to the possible introduction of undesirable flora and fauna, and in particular any predator species. These types of threats can include introduction of rats, mice or mustelids from visitor luggage or from the boats carrying the visitors (Moors *et al.* 1989), and weed introductions from seed carried on the boots, luggage and equipment of visitors. As noted by Wright and Cameron (1990: 223) *"Most weeds on conservation islands are present around the areas of greatest human activity "*.

In addition, accidental fire can cause massive habitat destruction, while disturbance to particular species may result in loss of condition or reduced breeding success. Other more general impacts from the presence of people in a natural setting can include problems with waste disposal, litter, vegetation trampling, and social conflict. Overall, the more endangered the key species are, or the more fragile the ecosystem, the greater the management desire to remove as many threats as possible.

However, even if public visits are strictly controlled or prohibited, recreational and commercial vessels will still occupy nearby waters, and people may land in ignorance or defiance of the restrictions. And even those staff, vessels and cargo arriving for management purposes will remain a possible source of pest or weed introductions.

There are significant "unknowns" when considering human threats to conservation islands. How do the levels of use relate to the possible threat? If more visits means more threat, where and when should management concern lead to action? In general, there has been a steady increase in the number of pleasure boats in New Zealand, almost doubling the number of boats per household in the period 1971 to 1981 (O'Connor and Simmons, 1990) and there is continued and growing demand for visits to the islands discussed in this report. Tiritiri-Matangi has a growing level of use with 16,000 visitors in 1993, and a predicted increase to around 30,000 visitors by 2000. Little Barrier receives a limit of up to 1200 visitors per year (by permit), although this total can reduce considerably due to bad weather preventing landings.

1.3 Why allow public access?

There are a variety of reasons for continuing to allow public access to island reserves.

Not all visitors pose the same threats. Non-smokers are likely to be less of a hazard than smokers, while organised tours may be conducted under more control than casual visits. In addition, people who have greater understanding of the values being conserved could be expected to respond more positively towards any restrictive conditions applied to island visits. This suggests there is functional utility for managers in enhancing conservation learning and understanding, as one of its outcomes can be easier operation of their onsite management of visitors. As noted by O'Connor and Simmons (1990: 187) *"Public education for conservation responsibility in maritime recreation is essential for nature conservation on islands"*. The wider implications of this educational requirement represents one of the main reasons for considering public access to many protected areas.

Public sentiment also appears strongly in favour of maintaining access to public land because it is public land. Concern about a perceived erosion of existing access rights to many public lands has prompted considerable public debate and activism. However, this is not necessarily a blind demand for more general access to all sites. Mortimer (1993) found that 99% of an Auckland sample of the public felt that island wilderness areas should remain with their current status. Reasons given for this response included preservation of endangered species (54%), conservation for future generations (31 %), simply because they exist (9%), and for recreation purposes (6%). Cessford and Dingwall (1994) also found that almost all visitors to protected subantarctic islands considered that the significant restrictions to their visits were acceptable.

The unique habitats and biota sustained and protected by island management have themselves developed into unique attractions. While this adds pressure for public access, and can result in associated developmental pressure (Duffus and Deardon 1990), it also provides some opportunity to demonstrate the objectives of conservation

management, and the positive outcomes which can be achieved. This may serve to educate and motivate sectors of the public less familiar with conservation issues and needs. For those sectors of the population already active in conservation issues, visiting one of these conservation islands can provide both a reward and reinforcement of their conservation commitment and support.

1.4 Environmental experiences and conservation benefits

While recognising the primary mandate held by the Department of Conservation for conservation and protection, the main reason generally given for public access is that such environmental experiences as island visits, wilderness perceptions and nature interpretation can aid the promotion of conservation messages and objectives. This is a common reason stated by managers, with Holz (1976) noting that 99% of the nature centre managers surveyed stated that they hoped to change the environmental attitudes of their visitors. Similarly, Falk (1983) noted a high degree of consensus amongst a large sample of American educators for there being positive benefits from science field trips. However, the early lack of research evidence on these types of experiential outcomes from nature experiences initially led Hendee (1972) to refer to many of the benefits attributed to nature interpretation as "folklore" (Cable *et al.* 1987).

Certainly, while many anecdotal accounts suggest that some benefits do occur, to date the research evidence is less clear on the role of conservation experiences in promoting conservation objectives. Driver *et al.* (1987) carried out a substantial review of wilderness-related benefits, and stated that enough research existed to enable a firm conclusion that personal benefits to the individual did occur. These were very broad in scope. Kaplan and Kaplan (1989) found similar results where positive psychological changes occurred through interaction with the environment and Duda *et al.* (1989: 465) have found that:

"Collectively, research indicates that positive attitudes towards wildlife and knowledge of wildlife can be enhanced by promoting wildlife-related recreational activities."

It was also apparent from these and other reviews that the cumulative gains in personal benefits amongst individuals did result in benefits to management. As summarised amongst the key findings of an extensive review of recreation benefits:

"The natural environment contributes to the realisation of individual benefits, but in turn, interest in the environment which is developed in the leisure domain leads to increased awareness of and action to protect the environment" (Hamilton-Smith and Driscoll, 1990: 64)

With reference to management, and nature interpretation in particular, Cable *et al.* (1986: 23) noted that:

"More specifically, interpretation is seen as a management tool by most public and private land agencies, based on the premise of affecting the visiting publics behaviour

and attitudes toward the agency/property. Support of agency policy and work, reducing depreciative behaviour, and increasing safety are often the goals of interpretation."

These points recognise that the conservation benefits for management agencies are based upon fostering positive changes amongst the public. In this context, a "benefit" can be considered a desirable change of condition or state (Driver *et al.* 1987), with a "conservation benefit" representing such change which contributes to improved conservation outcomes. It is important to recognise that there is a progression of changes a person may go through before their awareness or knowledge of conservation and environment may be converted into some conservation action. Duda *et al*. (1989:456) noted:

"One widely accepted model of conservation education developed by Henderson (1985) presents the learning process necessary to achieve desired conservation actions in six developmental steps: (1) little or no awareness or concern, (2) awareness of a program/problem, (3) appreciation, (4) understanding, (5) concern and (6) action."

Recognition of there being a progressive development of knowledge and support for conservation flowing from environmental experiences is important when assessing the conservation benefits from a single visit experience. It may be unrealistic to expect conservation action to occur as a result of one visit. Identification of any change in visitor knowledge, learning, attitudes and behaviours could demonstrate the occurrence of conservation benefits. These benefits need to be considered in the context of "small wins" (Weick 1986). The "small wins" approach refers to the process by which large potentially overwhelming problems (such as achieving a country committed to conservation!) can be re-defined into small and more manageable components. Small wins producing small changes over time can accumulate and promote more general achievement of desirable visitor attitudes, behaviours and actions.

In this way, conservation islands may be seen as "open classrooms", places where protection and rehabilitation of natural and historic resources can be shown to, and assimilated by the public. Research is now required not only to understand the full impact of humans on conservation islands, but also the impact of conservation islands on humans. The present study investigates the latter attempting to identify some of the "small wins" arising from visits to two protected islands.

1.5 The report structure

This report presents the research results from investigating some of the benefits to conservation which arise from allowing public access to two different protected islands.

The objectives of the report are to:

(1) Provide a descriptive profile of these visitors and to identify their reasons for visiting the islands as well as their expectations of their visits.

(2) Describe some of the benefits to conservation resulting from public visits to these special islands, and how these may differ on each.

(3) Indicate how conservation management of these islands can be modified to enhance the conservation benefits of public visits.

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