



## Rakiura NPMP & Stewart Island CMS - Whitetail Deer herd – Request for Section 4 (2) (b) Determination

**NZ Deerstalkers' Association Wellington**

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**19 September 2009**



*Whitetail deer Stewart Island Photo John DeLury*

## Abstract

New Zealand Deerstalkers' Association makes this request for recognition of the Whitetail deer in Rakiura National Park because the Stewart Island herd is a nationally important deerstalking resource, attracting 3,000 recreational hunters annually to the Park and Stewart Island, and for other reasons.

Part 1 of this submission requests that the Whitetail deer herd in Rakiura National Park be protected from extermination by a Section 4 (2) (b) Determination under the National Parks Act. The herd generates high recreational value for deerstalkers as well as \$4-6 million in economic value annually from their visits. Recreational hunters make up the largest recreational group visiting the back country of Rakiura National Park.

Hunters, by harvesting 1500 deer annually are controlling the Stewart Island Whitetail deer herd, and have been doing this for the last 20 years. Whitetail, as a small deer are a low threat to the Park's native species. Their adverse impact is probably similar to that of trampers on the Park's muddy tracks, or of mining, hydro-electric or cattle grazing concessions allowed in other parks. National parks are for protecting intrinsic worth and providing benefit, use and enjoyment of the public, as well as protection of endangered species. They are significantly different from nature reserves, the highest form of native species protection for native ecosystems.

Rakiura Park was set up with no consideration of protecting the significant ecosystem services provided by the deer, who have co-existed sustainably with the land for one hundred years prior to the park being formed. A Determination would recognise and protect the value of the deer in the Park, and to hunters. The deer cannot be transferred off the Island.

Should a Determination be granted, Part 2 addresses how the deer could be managed in the Park and on the remainder of Stewart Island by a Whitetail Deer Management Plan and hunter-DOC Implementation Committee, to more fully ensure the sustainability of the herd and of vulnerable native plants, while maintaining the herd's continued attraction to recreational hunters. This provides facilities and management at low cost to the Department of Conservation (DOC).



Whitetail and kiwi footprints on a Stewart Island beach

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Revised version 19 September 2009

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### **NZDA Requested Submission: Rakiura NPMP & Stewart Island CMS - Whitetail Deer herd**

Thank you for the opportunity to talk with the Planning Committee on 27 July. This paper is the updated reply to your request for specific wordings for NZDA's request for a Section 4 (2) (b) Determination for the deer herd, and a Deer Management Plan, and DOC-Hunter Management and Implementation Committee for the Island, and your request for further comment [docdm-474628]. It is divided into two parts.

Part 1 deals with the Determination. Part 2 deals with the associated DOC - deerstalker Management Plan, and implementation committee, as a community initiative to better manage the benefits and adverse impacts of the Whitetail deer, should a Determination be agreed. NZDA sees both these parts as an iterative process and is pleased to discuss any matters we raise further with you.

### **Part 1: Determination under S 4 (2) (b) National Parks Act - Recognition of the recreational Whitetail deer herd**

The NZ Conservation Authority makes determination decisions. As discussed at the Hearing, Authority staff (Catherine Tudhope) see it as important that the merit of a S 4 (2) (b) determination be assessed at the regional DOC/Board stage of consultation, and that your decision be forwarded to them.

#### **1.1 Process for granting a determination (S 4 National Parks Act):**

Section 4 (2) (b) allows for exceptions to "*introduced - - animals being exterminated as far as possible*".

The Act is not intransigent, and may have been designed for situations such as the Whitetail deer in Rakiura National Park, where the large, established and traditional deerstalking activity was incorporated in the Park, with no discussion of protecting its future.

The provision is enlarged on in Section 4.2 Determinations of the General Policy on National Parks (GPNP) 2005. Section 4.2 (a) confirms that any application is preferably done as part of the process of national park management plans and CMSs.

Any Determination should consider benefits in terms of "*intrinsic worth and for the benefit, use and enjoyment of the public*" to more than outweigh any adverse impacts it may cause. If these adverse impacts can be sustainably managed with acceptable levels of harm to the scenery of distinctive

quality, or beautiful, unique or scientifically important ecological systems, that the Park has been set up to preserve, then the Determination should succeed.

As well “*the inspiration, enjoyment, recreation and other benefits*” that the public receives from the introduced animals should be considered. There is no additional guidance in either the Act or the GPNP on how a determination is to be made. The full wording of Section 4 National Parks Act is set out for reference in Appendix 2 of this paper.

## **1.2 The Determination NZDA seeks:**

NZDA seeks the following Determination through the Rakiura National Park Management Plan (RNPMP) and Stewart Island CMS joint process and the NZ Conservation Authority

*That the Whitetail deer herd in Rakiura National Park be recognised as a valued recreational hunting and wild meat resource for the local and national deerstalking communities through a Section 4 (2) (b) Determination to remove the threat of extermination of the deer in Rakiura National Park and to recognise and protect:*

- *The herd's one hundred and four year historic association with Stewart Island and*
- *The importance and recreational attraction of the Whitetail deer herd on Stewart Island nationally to recreational hunters and the local community for recreation and wild food provision, and for their economic contribution to the local, regional and national economy.*

*The Determination would be implemented in the Rakiura National Park Management Plan and Stewart Island CMS through a Whitetail Deer Management Plan. This Plan would be developed as a **DOC-deerstalker-community initiative**, through a Stewart Island Recreational Hunting Committee (which should work with the Stewart Island Pest Management Liaison Group).*

*The Plan would specify monitoring and mitigation of deer impacts on rare or endangered native plants on the lands administered by the Department on Stewart Island. The Committee would develop the Plan with DOC, and monitor and implement actions where necessary, preferably by managing recreational hunting, to reduce adverse impacts on native vegetation, and manage the herd sustainably as a valued recreational hunting resource. In the event recreational hunting was unable to satisfactorily manage the herd, or its impacts, then other management methods could be used eg fencing, etc*

## **1.3 The Determination Process and previous Determinations compared:**

To NZDA’s knowledge, only three previous Determination requests to the NZCA have been made. They were:

- a) Protection for salmonids (trout, salmon) and introduced game-birds (Fish & Game) – granted. See GPNP, S 4.2 (d). Requires a Sports Fish and Game Management Plan, etc
- b) Historic macrocarpa shelter belt, Totaranui homestead, Abel Tasman NP – granted
- c) Historic old pines, Onepoto, Lake Waikaremoana Outlet – declined.

NZDA agrees Whitetail deer do browse live native vegetation. There is usually a negative effect from introduced species, but in this case of the deer, also a positive effect for recreation and the economy etc. The Determination issue is whether the positive effect more than offsets the negative impact.

The historic macrocarpa shelter belt at Totaranui Homestead, Abel Tasman National Park, which was given a Dispensation, is an example of a very small negative effect. Their adverse impact on native biodiversity is to shadow some area, making it difficult for some native species to regenerate.

On the positive side the trees have historic significance, as a shelter belt round the former homestead that had subsequently become part of the national park. This historic significance was sufficient, in the Authority’s view, to more than compensate for its two demerits, shading the ground, and being an introduced species.

Game birds are omnivores, while salmonids are primarily carnivores. They cause more damage than macrocarpas to native animals and plants. But, given a dispensation was granted for them, the benefits for fishermen, and gamebird hunters in terms of recreational and wild food value, and their historic and traditional value to the community, were considered greater than this harm, and provided the harm is managed by a Sports Fish and Game Plan

### **Deer compared to salmonids and game birds**

Deer being herbivores, the case is more similar to that of sports fish and game birds [GPNP 4.2 (d)] for which a Dispensation has been granted. So herbivore deer are less of a threat than sports fish and game omnivores or carnivores to native species.

In terms of danger to plants, they can usually be transplanted to herbariums etc, or fenced off. For example there are apparently only eight kakabeaks left in the wild. But some suburban gardens have more than that number in them. Tecomanthe, with at one stage only one left in the wild (on Three Kings Islands) is another. Native animals on the other hand can be more difficult to protect.

NZDA proposes a management plan for the Whitetail as is required with salmonids and game birds in national parks [GPNP 4.2 (d)] to manage both adverse and positive effects better than is done now.

As with Sports Fish and Game, the recreational hunting and wild meat value of the deer in the Park is very high, and arguably significantly exceeds the limited amount of damage their browsing does.

### **1.4 History of deer on Stewart Island**

Whitetail deer (also called White-tailed deer) were introduced to Stewart Island in late March 1905, by letting them swim ashore at Cook's Arm, Islet Cove, off the South Arm of Port Pegasus. Nine Whitetail Virginian deer from New Hampshire [*Odocoileus virginianus borealis*] were liberated.

They were bought by the Tourist Department to encourage overseas hunters to visit New Zealand, and liberated on the Department's behalf by the Southland Acclimatisation Society. [Source "**The Rusa, Sambar and Whitetail deer**" by D Bruce Banwell, Published by NZ Deerstalkers' Association, Wellington, 2006, pages 238-250].

The herd was reported as being "successfully acclimatised" by 1909. The herd was slow to spread. The animals like lower ground, and are only occasionally found above 250 metres. Red deer were introduced to Stewart Island at Freshwater River in 1901 and 1902. They spread around the Island from the outset, preferring the higher forested slopes.

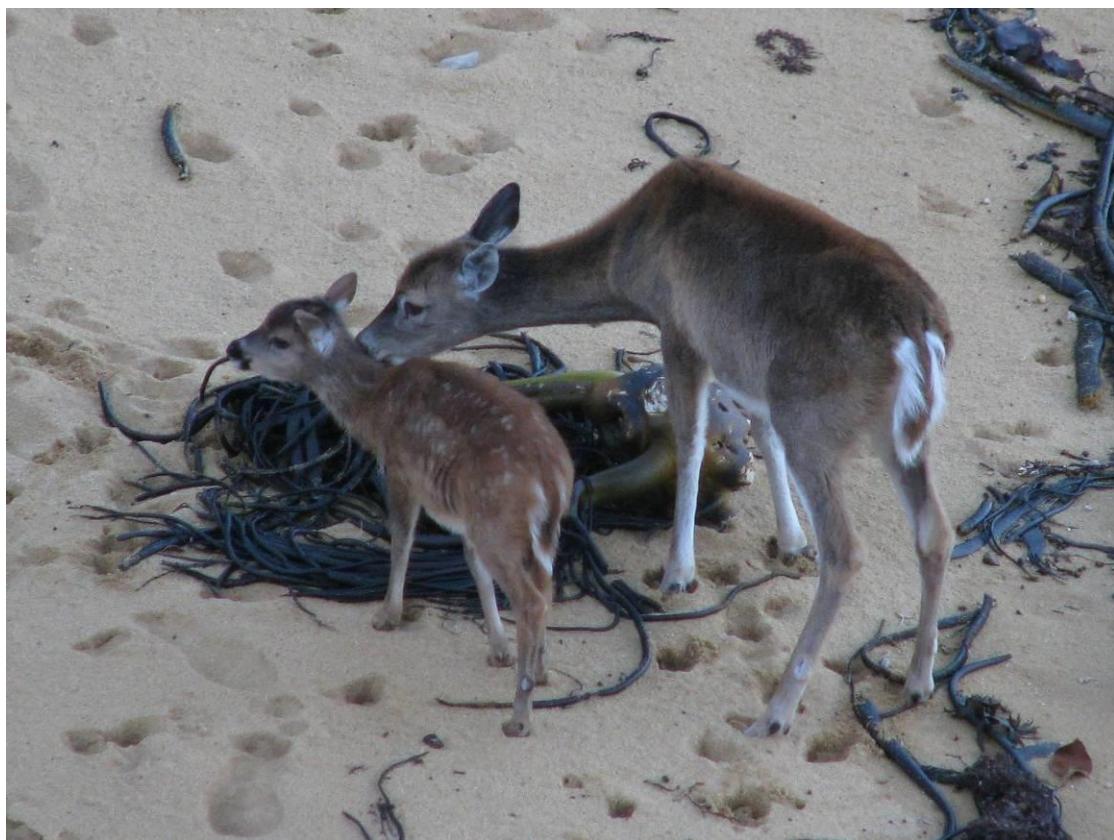
Between 1927 and the 1950s, control was primarily by the NZ Forest Service, with Reds being preferentially taken for venison because of their greater carcass weight. Recreational hunter take at that time was small. Helicopter recovery from the mid-1960s on greatly reduced deer numbers, and they have not recovered to these heights.

By 1975 the number of hunters visiting the Island began to increase, being 670 in that year. A 1982 hunter survey found some 1200 hunters visited the Island that year. In 1997 DOC estimated 2370 hunters killed 1,300 animals (See Appendix 4) on the public land.

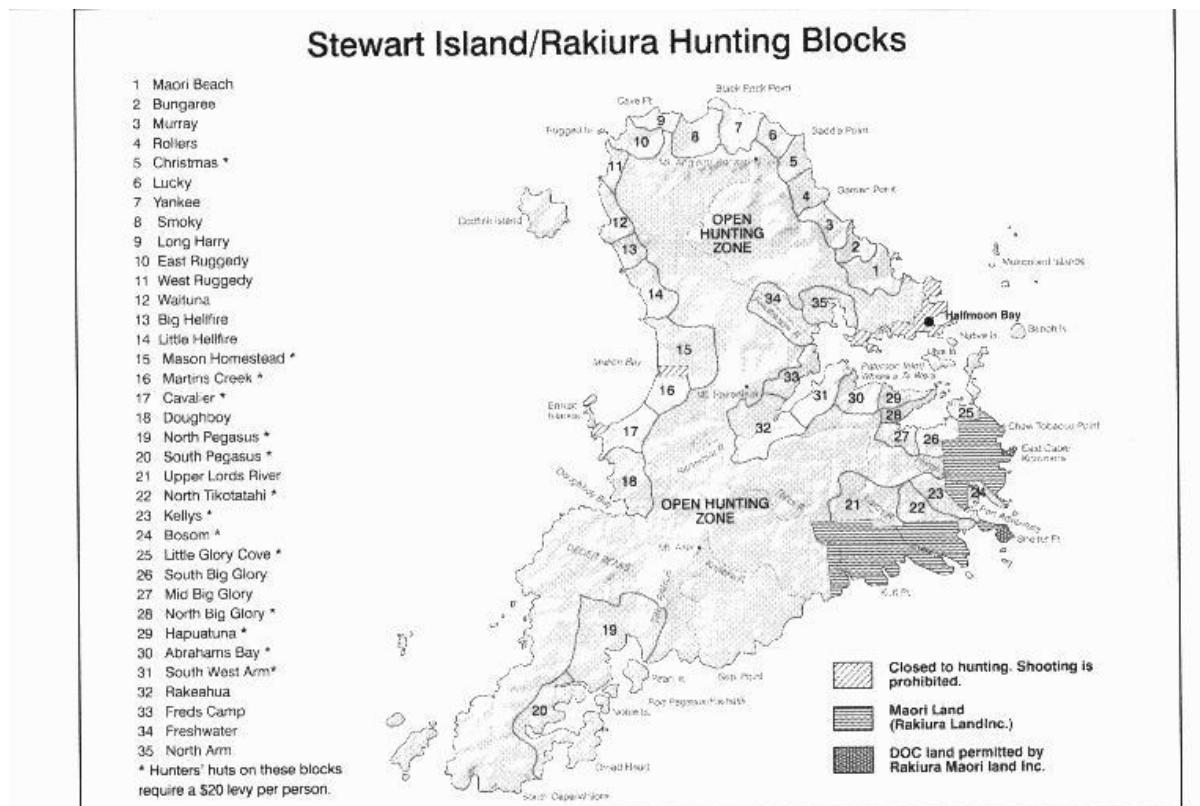
In 1982 a recreational hunting area was proposed for the state forests in the north and west of the Rakeahua River. But because of conflicting policies between NZFS and Lands & Survey it was eventually abandoned. In 1990 noted deer scientist Graham Nugent proposed a herd size of 7,000 as an appropriate herd size for the Whitetail that was within the carrying capacity of the Island, and would not cause excessive pressure on vegetation.

In 1999 the **Rakiura Hunter Camps Trust** (RHCT) was formed by Southland deerstalking interests primarily to replace dilapidated hunter camps on the various hunting blocks mainly around the coast and on Patterson Inlet (Map 1) with modern usually six-bunk hunter huts. This allowed removal of the hunter camps, and reduced rat and cat numbers. A condition of using the huts is

that pest control is part of the stay. Usually huts are booked for hunting for 5-9 days, because of the cost of travel to and from the Island.



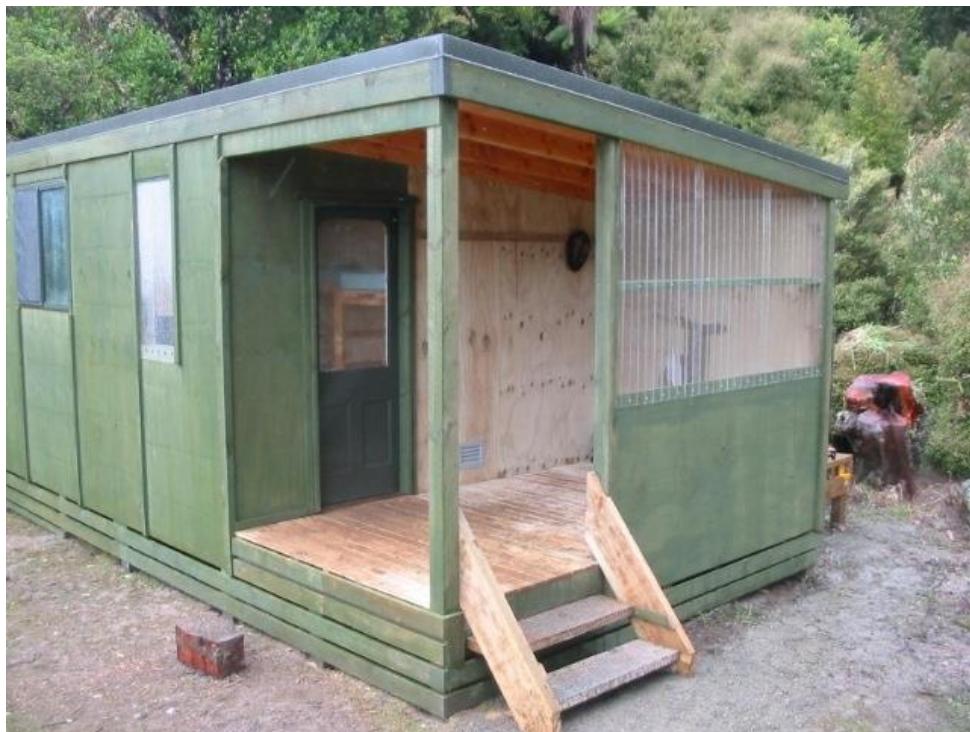
*Photo 1: Whitetail doe and fawn eating seaweed, Lords River. Photo Paul Peychers*



**Map 1:** Hunting blocks on lands administered by DOC on Stewart Island

The Trust has now built or renovated 20 huts on the Island, 15 of them within the National Park.

Five of the huts were built for the Rakiura Maori Land Trust where the issues of site degradation and rubbish are the same. This provides similarly modern huts for the Trust to manage for deerstalking. RHCT can supply additional huts for hunting blocks where



*Photo 2: New and tidy RHCT basic Tikotahi Hut John DeLury*

additional hunting pressure may be needed. RHCT has a 30-year concession to manage its huts on Stewart Island.

Between 2000 and 2004 a study by Southland Branch NZDA found that the home range of Whitetail was about one square km.

The Rakiura National Park, covering 157,000 Ha, 90% of the 168,000 Ha Island, but including a number of offshore islands, was declared in March 2002. No allowance was made to exclude or protect the Whitetail deer herd when the Park was formed. Given the herd's importance for deerstalkers and the local community some level of recognition or protection should have been proposed.

Deerstalker visitors to Stewart Island have continued to grow, and now number around 3,000/year. Numbers are accurate because hunting permits must be obtained and the hut fee and booking fee paid before hunters can use the huts.

Appendix 4 sets out data available since 1974 from NZ Forest Service, DOC and NZDA. It shows the number of permits issued, permits returned, number of hunters, number of days hunted, numbers of animals seen and taken, by Whitetail and Red deer on lands now administered by DOC. Hunters and hunter numbers have approximately doubled since 1974, and have been relatively stable since 1999. There are also an estimated 500 hunters per year who use the RMLT blocks to hunt.

## **1.5 Deer vegetation damage compared with other damage in Rakiura National Park:**

### **1.5.1 National park protection levels – less than nature reserve:**

The Parks exist “*for their intrinsic worth and for the benefit, use and enjoyment for the public*” (S 4 (1) National Parks Act. The three characteristics protected by national parks, listed in S 4 (1) are:

*“scenery of such distinctive quality, ecological systems, or natural features so beautiful, unique, or scientifically important that their preservation is in the national interest.” ie scenery, ecological systems, natural features. The Whitetail deer do not harm the scenery or natural features (Photos at their current densities, though they harm some plant ecosystems.*

Ecological systems are only one of three considerations. And then only ecological systems that are so beautiful, unique or scientifically important that their preservation is in the national interest. Not all ecosystems in the Park meet this criterion.

Five ecosystem types are listed in S 1.3.1 of the Plan (page 23):

- ***Indigenous forests and shrublands***
- ***Freshwater rivers and wetlands***
- ***Islands***
- ***Dune systems***
- ***Sub-alpine and alpine ecosystems***

The Whitetail primarily occupy ***Indigenous forests and shrublands*** This is the largest of the five ecosystems listed, covering probably 70% of the Park. They are normally below the 250 metre contour. They are commonly found in the Dune systems.

Deer have been eliminated from most Islands, and are usually at low numbers in freshwater rivers and wetlands and the sub-alpine and alpine ecosystems. Which of these five ecosystems is “so so beautiful, unique, or scientifically important that their preservation is in the national interest” has not been determined to NZDA’s knowledge.

**National parks are not solely botanic zoos**, but have significant other purposes, including recreation and inspiration. If the sole reason for reservation is protecting botanic values, the area of the Park should have been declared a nature reserve, as this is the highest level of botanic protection. Much of the Park area was nature reserve before it became a national park. It was made a national park, rather than remain a nature reserve. The **legal strictness of botanic protection has reduced**.

Even when the land was nature reserve, DOC saw no reason to try to exterminate the Whitetail deer. Neither does DOC have a specific policy to exterminate Whitetail in this draft Plan. But neither does it have plans to manage the deer by anything but recreational hunter pressure. This shows DOC does not see Whitetail deer as a priority threat to ecosystems.

The national park designation introduced a different statutory regime where “***intrinsic worth and - the benefit, use, and enjoyment of the public***” are major considerations. As well, [S 4 (2) (c)] states that “- ***objects of - - historical interest shall as far as possible be preserved***”. Whitetail deer have significant historical interest, having been there since 1905.

National parks exist so that the public “- ***may receive in full measure the inspiration, enjoyment, recreation, and other benefits that may be derived from mountains, forests, sounds, seacoasts, lakes, rivers, and other natural features.***” [S 4 (2) (e)]. The Whitetail deer herd, adds to the inspiration, enjoyment, recreation and other benefits of these values in the Rakiura National Park.

### **1.5.2 Managed deer herd a low threat to native species:**

a) **Deer are herbivores** so they do not threaten rare native animals, as cats, rats and possums do. There is US video evidence [Pietz and Granfors, 200, Ellis-Folenge et al 2008] US Whitetail opportunistically eating the songbird chicks in prairie grasslands. This has not been observed on Stewart Island, Endangered birds such as kiwi, penguins, and shearwaters, titi. nest in burrows, tree nesting endangered birds eg parakeets, owls nest in trees, so are not at risk.

As well deer eat dead leaves, and Whitetail eat seaweed on beaches to supplement vegetation – see Photo 1 which also shows their small size. The predominant deer, the Whitetail, are a small deer, of a weight similar to a sheep. Their food intake is much less than cattle or larger deer, or of the now extinct moa. This shows there is some mitigation of native vegetation browse.

Moa browse was extensive, and is discussed in “**Ghosts of Gondwana – The history of life in New Zealand**” by George Gibbs, Craig Potton Publishing, 2007 in Chapter 17 *Ghosts in the bush: Shrubs versus the Moa*. Many plants, especially divaricating shrubs, developed as defence mechanisms against moa browse. New Zealand forests have had significant bird browse in the past from moas, which is now absent.

In terms of the **public’s perceived threat ranking** (W Fraser, 2001, Appendix 1) surveyed a sample of the outdoor public, and asked them to rank whether they thought various introduced animals were a “pest” or a “resource” or both.

The results from his paper are shown in Figure 8 in Appendix 1. Deer were considered the least pest (4%) with 51% seeing them as a pest and a resource, and 44% seeing them as a resource. Deer ranked far more positively than rats, feral cats, wasps or possums, which greater than 80% considered to be pests.

In the **Game Animal Panel survey in September 2007**, [Managing the numbers of deer, chamois, tahr and wild pigs, Game Animal Panel Report to the Minister, March 2008] 82% of respondents saw deer as a resource, or primarily as a resource, while only 18% saw them as a pest, or primarily as a pest.

The Stewart Island Pest Liaison Group responds similarly, wanting extermination of rats, feral cats, possums, but not wanting deer exterminated. Many people recognise deer as a much lower level of threat than rats, feral cats and possums. The threat evidence points to the same conclusion.

Botanists argue that the effect of deer browse is to change the forest ecology towards browse-resistant species. Some of these forests exist naturally eg deer browse favours regeneration to podocarp forests. Protecting endangered or vulnerable species is the most important goal. Photo 9 of an exclosure plot, to exclude deer shows, stopping deer browse of localised endangered plants can be achieved by exclosure plots. There is no evidence that Whitetail cause canopy collapse at present densities.

#### **b) Deer managed by recreational hunting:**

Deer populations were sometimes difficult to control in remote areas in the past. But since the late 1960s, use of helicopters with their very high manoeuvrability, lifting ability and speed in open country, rapidly reduced deer numbers to a fraction of their previous populations in many areas.

However recreational hunters still take the majority of deer [G Nugent, 1989 – see Appendix 3] primarily because in forested areas helicopters are much less efficient. There are estimated to be 55,000 active deerstalkers in New Zealand, and numbers are growing. This combination of helicopter recovery and recreational hunting has capped the national deer herd at about 250,000 since the early 1970s. See eg [G Nugent 1989, Appendix 3] This research highlights the large number of recreational hunters in New Zealand, and make control by recreational hunting feasible in areas such as Stewart Island.

Damage in Rakiura National Park has been decreasing because deer numbers have dropped since the 1960s – see excerpts from Southland Branch NZDA’s verbal submission copied below:

“ During the early sixties Red deer were common about Halfmoon Bay township and on the north coast. Barry Hamilton has told us that while fishing from the bay he saw 217 one morning from the Bay to Smokey and back in the evening and it was common to see 100 deer from the boat. On

one trip from the Bay to Waituna he shot 27 from the boat. At the time there was a chiller on the Island. Today it is almost rare occurrence to see one deer from boats on any coast. When Tim TeAika of Island Hill run began shooting commercially it would take him 2 - 3 hours to fill the plane. Within three years he was pushing to get a plane load in three weeks and it became uneconomical for him to run the chiller.

About this time the venison industry began in earnest and helicopters soon eliminated red deer from large parts of the island. Red deer were once common on ToiToi flats and Port Adventure but are now non-existent.

When Tim stopped shooting for meat Whitetail numbers built up and he began safari hunting mainly with Australian clients. When DoC bought the lease of Island Hill in 1988 Whitetail numbers had built up significantly under Tim's protection. When Island Hill was opened up to recreational hunters the first parties were commonly shooting 20 deer and I personally shot 7 Whitetail for 13 hours hunting effort in 1990. Currently it is estimated that about 30 Red deer are shot each year and from hunters returns about 60 are seen.

For many years Forest Service and then DOC denigrated the effort by hunters on the Island by two statements.

1. That Whitetail deer are difficult to hunt as it takes on average 10 days for a hunter to shoot one.
2. Hunters shoot about 15% of the deer which is the natural increment.

In 1997 NZDA began a system of prepaid hunting permit returns. At the same time we began asking hunters for a little more information. What we found was this. Yes, on average it does take on average 10 days for a hunter to shoot one whitetail deer. However, in those 10 days that same hunter only saw 4 Whitetail. 1 Whitetail deer seen every 2 ½ days, and people tell you the Island is overrun with them. We don't think so.

To shoot one deer in four seen is also a very good hunter effort.

And the 15% that hunters shoot annually. Well in the 1974 213 deer were recorded as being shot by 600 hunters. Today about 1500 deer were shot by 3000 hunters. An average of 17,500 days are spent hunting annually (approximately 49 man years). Since NZDA has been collating permit returns 15% has never been mentioned again."

The increase in recreational hunter numbers since 1990 has reduced Whitetail numbers further. Hunters say the animals are now in good condition, and at present population levels are significantly below maximum carrying capacity. Hunters prefer them remain at these lower levels. Population levels that are too high degrade both the ecosystem and the health of the deer.

### **c) Rare or endangered native plants at risk from deer browse in Rakiura National Park:**

It is unclear which of the threatened native plants in Table1 of the Stewart Island CMS are threatened by deer. Some of these seem so localised that fenced enclosures may be appropriate protection. Possum browse affects a broadleaf species. There are no known native plant species that have been made extinct by deer browse [Landcare Research Ref].

This is not surprising as prior to human arrival large numbers of moas browsed the forests, tussock and shrub-lands. Most New Zealand plants developed juvenile forms that were difficult to browse eg lancewoods, divaricating shrubs etc [**Ghosts of Gondwana**, Ch 17 *Ghosts in the bush: Shrubs versus the Moa*, p 161-6, by George Gibbs, Craig Potton Publishing, 2006]. These juvenile forms also provide some defence against deer.

#### **1.5.3 Comparable damage in Rakiura National Park – tramping tracks:**

Rakiura National Park has excessively muddy tramping tracks, partly because of the peaty terrain, and the high rainfall. Both the NW Circuit track, and the SW Circuit track are examples. NZDA strongly supports the tracks, as the ecological damage done by trampers on them is far



**Photo 3: Muddy track SW Circuit – Sth of Mason Bay, Dec 2006**



**Photos 4, 5: Muddy NW Circuit track, nth of Mason Bay, Jan 2007**

outweighed by the inspiration, benefit use and enjoyment the trampers get from tramping the tracks. 600-700 tramp the NW Circuit annually (DOC estimates). Fewer tramp the SW circuit. DOC estimates 350 annually. Both tracks are similarly muddy – see photos. ( Photos of the tracks). DOC says trampers need “attitude”. Certainly upending into a hole is something one remembers about the trip.

This shows the threshold for present damage by deer on the Island, that provide inspiration, benefit, use and enjoyment for 3,000 deerstalkers is much less than the damage on tracks per user by a much smaller number of trampers on the tracks. Both are important outdoor experiences though, and both should continue.

#### **1.5.4 Comparable damage in national parks - grazing:**

Grazing by cattle and sheep is allowed under S 51 National Parks Act, prior to 1996. From 1996 on it was more difficult. But grazing concessions exist in other Parks that do significant damage. DOC makes a small income from them. For example in Mt Aspiring National Park the following grazing leases exist:

**Waiatoto Valley:** 430 Ha (157 Ha stewardship, and 273 Ha national park) for 95 breeding cows, calves and associated bulls annually.

**Okuru Valley:** 327 Ha (277 Ha on stewardship and 50 Ha on national park), for 135 breeding cows, calves and associated bulls.

**Turnbull Valley:** 185 Ha (120 ha stewardship, and 65 Ha national park) for 40 breeding cows, calves and associated bulls.

This is a total of 270 Ha in the Park and 943 Ha in total for 270 cows and their calves and bulls. This can be compared with the far less intensive browsing of say a 3,000 strong Whitetail deer herd in Rakiura National Park.

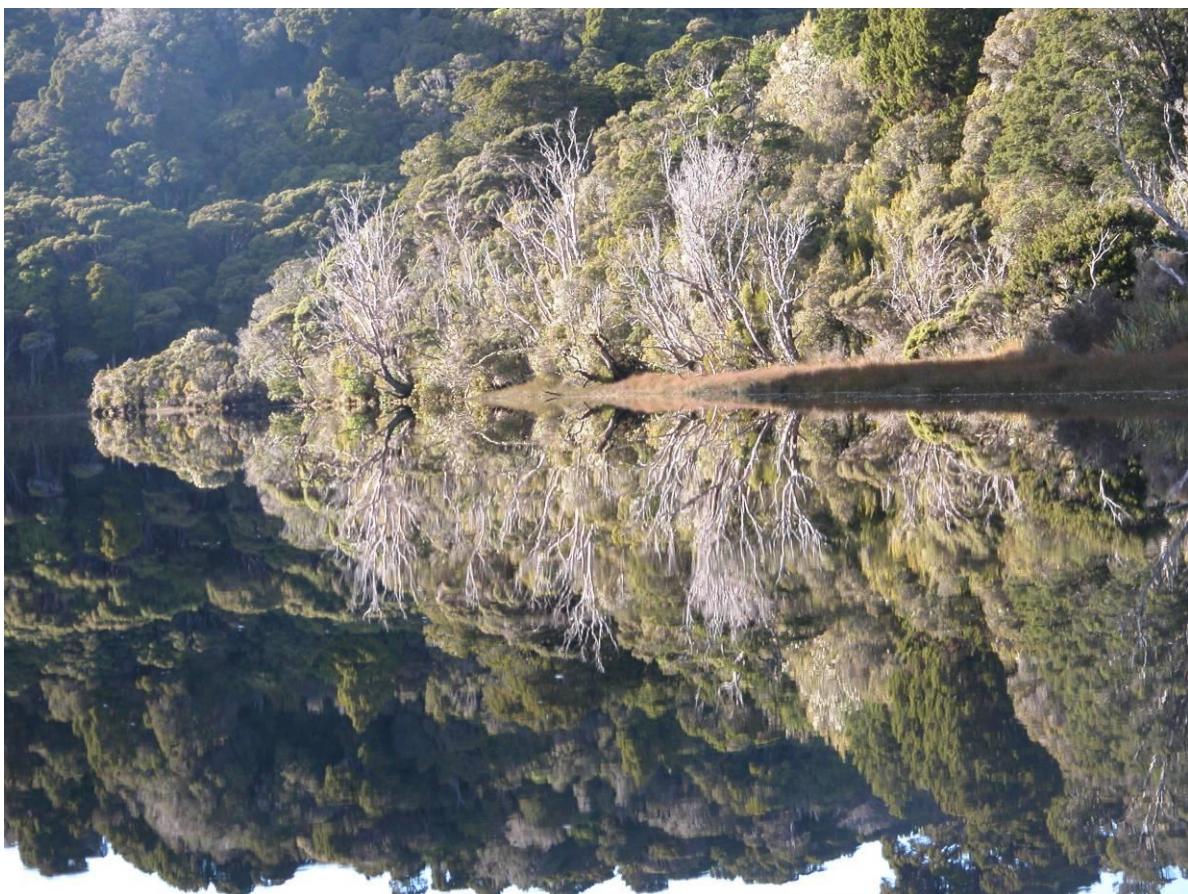
These Aspiring leases are not for management purposes. The stewardship land was left out of the Park because of the historic grazing leases. DOC does not mind browsing in national parks provided DOC gets paid the going rate per animal for grazing it. Charges for the Mt Aspiring grazing range between \$4-5 per breeding cow stock unit per year – very low considering the damage from grazing and pugging by such large heavy animals.

There have also been major cattle-grazing leases in Mt Aspiring’s Dart Valley (Cattle Flat), the Wilkin-Siberia valleys, and the Young Valley in the past at similar low rates.

On this evidence the slight grazing of the Whitetail deer herd on Rakiura National Park is acceptable, given the cattle grazing taking place in other national parks, as a commercial activity, the adverse impact of trampers on tracks in the Park to gain their inspiration, and mining and hydro-electric damming etc that is also allowed, albeit with conditions.

#### **1.5.5 National Parks and tourist development:**

Increasingly national parks are considered as key attractors of local and overseas tourists and users. Consequently they are becoming tourism development parks in key high use areas such as Tongariro National Park (500,000 visitors annually), Fox and Franz Josef Glaciers (Westland National Park), Milford Sound and Te Anau (Fiordland). The degradation of national park values that these visitor numbers create is considered an acceptable cost for the economic benefits that tourists bring, showing a trade-off between pure park values and what is considered acceptable. Aircraft noise in the busiest air corridors over the Parks eg Milford Track is another example.



**Photo 6: Rakiura estuary full tide reflections – hunters come for the scenery too**

## 1.6 Benefits - Inspiration, benefit, use and enjoyment, economic, social and traditional benefits from the deer in the Park:

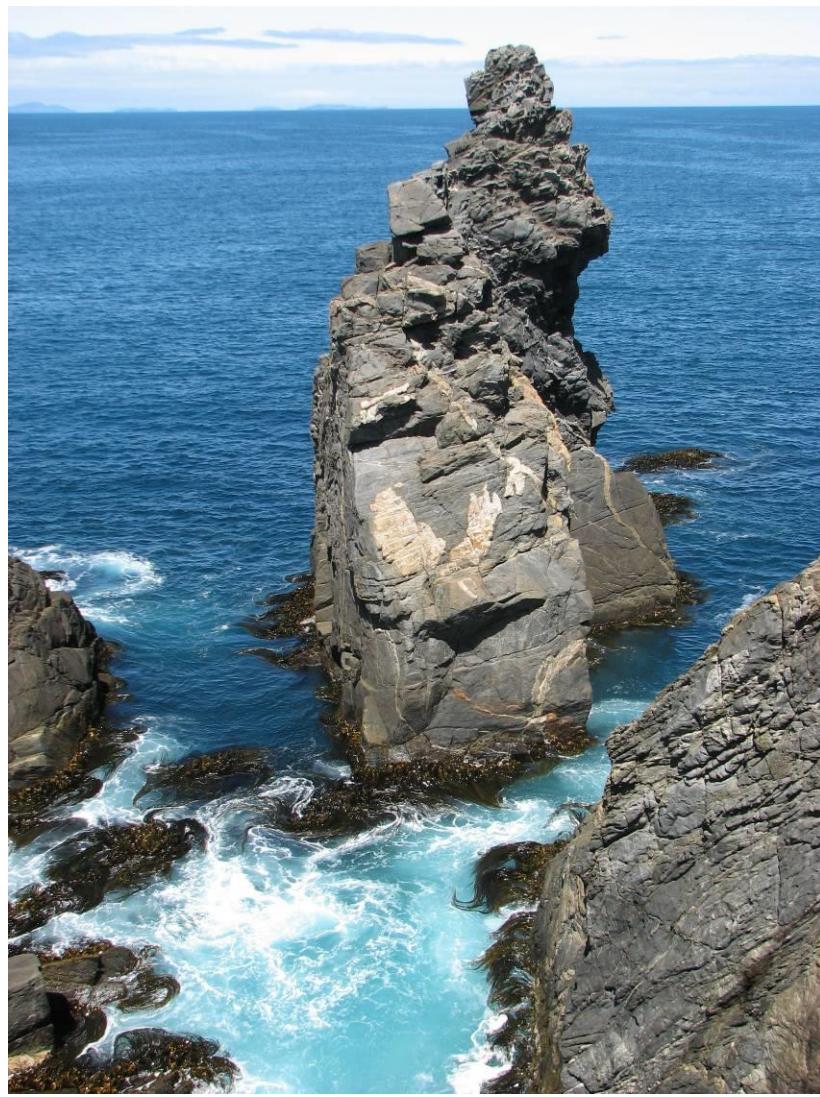
### 1.6.1 Recreational inspiration, benefit, use and enjoyment benefits from the deer:

The major benefit from the Whitetail deer in Rakiura National Park is their popularity with recreational deerstalkers nationwide. Or rather the combination of the Park's coastal scenery and the Whitetail herd. For this reason, translocation of the herd to another Mainland location, even if feasible, would not satisfy hunters.

Some 2,500 hunters annually visit the Park, usually for 6-9 days at a time to stalk Whitetail. Another 500 visit the conservation areas and reserves outside the Park, ant the RMLT land. This compares with 600-700 trampers who walk the NW Circuit annually (7-8 days), and the 350 who do the SW circuit (5-7 days) and 1,000-1100 who visit only Mason Bay. **This makes deerstalkers the major user of the back-country land in the Park and the largest recreational group visiting the Island's back country.**

It is the attractiveness of the Park to deerstalkers that makes it possible for recreational deerstalkers to manage the deer herd in the Park, and on the Island. Photos 6 and 7 show some of this scenic attractiveness. This situation is a major reason for NZDA's Application.

Hunters harvest approximately one deer for every two hunters that visit. The present harvest in the Park is approximately 1,200 deer annually. Though the number of deer in the Park is difficult to estimate, that number is likely to be less than 5,000. More visiting hunters usually mean more deer harvested.



**Photo 7: Scenic coastline near South Mason Bay**

Recreational deerstalking is a legitimate recreational activity in national parks, and one that has been practiced for as long as the parks have existed. Consequently the herd provides major “inspiration, benefit use and enjoyment” for deerstalkers. As well it provides wild meat for sustenance, another ecosystem service.

### **1.6.2 Social, historic and economic benefits, ecosystem services:**

The deer provide wild meat for some of Stewart Island’s residents, so providing an important source of protein for the community. They are an historic existing use, in having lived on the Island for over 100 years before the Park was set up. The deer provide significant ecosystem services to both the local community and recreational hunters.

There are significant financial benefits to the local, regional and national transport sector, in terms of travel to and from the Park, and including aircraft, boat and helicopter travel to the Island. There is also provisioning and recreational equipment and firearms purchased for or used on the Island. There is also the benefits of building, maintaining and extending the hunter huts on the Island.

For example, an average cost for a single person travelling from say Wellington would typically be:

Air travel and taxis	= \$550
Accommodation etc before/after the trip	= \$150
Share travel to/from the Island	= \$250-550
Food, ammunition, equipment etc (7 days)	= \$250-300
Total	= \$1,200 - 1600

This is a significant financial contribution when multiplied by the 3000 hunters per year, **namely \$3.64.8 million/year, spread between the Stewart Island, Southland and national economies.**

The cost to DOC is very low because recreational deerstalkers provide the huts at about 30% of what it would cost DOC to build similar huts, primarily because of the volunteer labour, and the standard hut design that results. DOC assists with the permit and booking system for the hunter huts, and is reimbursed for the cost of providing this service by charging a \$30 booking fee per party. DOC also benefits from the rat, cat and possum control carried out at the hunter huts.

None of these benefits would result should the herd be exterminated, or significantly reduced in size, and no or few hunters visit.

### **1.7 Existing historic use rights and discussion:**

Though the deer had been on Stewart Island for over 100 years when the Park was formed, there appears to have been no discussion about accommodating them in the Park, rather than exterminating them. If this is the case it is surprising, given the significant benefit use and enjoyment eg ecosystem services, they created even in 2002.

This Park management plan is the first formal opportunity NZDA has had to push the case for recognition of the Whitetail deer. NZDA believes the information presented in this submission provides a strong case for recognising and protecting the deer, and setting up the process discussed below in Part 2 of this submission, to jointly develop a Stewart Island Deer Management Plan and a DOC-Hunter-Community management committee to monitor, implement and collect data to manage the herd sustainably.

The arguments provided show the intrinsic worth of the deer, and the benefit, use and enjoyment of the public they create, is much greater than the cost of the “acceptable” level of browse damage they cause.

Therefore NZDA urges the DOC-Conservation Board Committee to support this case, and write it into the Rakiura National Park Management Plan and Stewart Island CMS.

A Section 4 (2) (b) Determination seems designed for situations such as this, where the formation of this Park now threatens the nationally important Whitetail herd, and its associated important recreational resource, with major visitor levels, and significant recreational and tourism ecosystem benefits. The resource is being managed sustainably by recreational hunters now, because of the hunters’ foresight. This can be done better with the community plan and committee proposed in Part 2.

## **Part 2 Associated Deer Management Plan and DOC-Hunter-Community management Committee:**

### **2.1 Introduction:**

Recreational deerstalker management of the deer herd on Stewart Island is an important matter that needs to be adequately addressed in the CMS and RNPMP, to give better management than the present ad hoc implied management. In terms of obtaining a determination in favour of the Whitetail deer herd, NZDA sees it as essential to ensure the deer herd is managed sustainably.

Formalising the present informal deer management by recreational hunters is likely to have benefits for recreational hunters, DOC, the Stewart Island community and for native biodiversity, as well as the local and regional economy. Part of the compact for DOC to encourage recreational hunters to continue their interest in the deer is recognising them under S 4 (2) (b).

Recreational hunting has been the de facto means of deer management on Stewart Island for probably the last 20 years. It has made recreational hunters the largest group (3,000/year) visiting the remoter areas of Stewart Island. Hunter numbers are growing, due to a greater awareness nationally of the Whitetail deerstalking opportunities, and because of the basic hunters' huts provided by the Rakiura Hunter Camps Trust (RHCT).

The Whitetail herd is a major national asset for deerstalkers and the Stewart Island and Southland communities. This provides an opportunity for DOC, recreational deerstalkers and the Stewart Island community to work together positively on better management both for deerstalking, and for native biodiversity. The Objectives and policies of the Plan and CMS support hunter management as shown below.

#### **2.1.1 Objectives and Policies supporting DOC-Hunter-community deer management:**

**a) CMS Objective 1 of 1.2 (P 22):** “*To enhance public participation in the conservation of the natural, cultural, and historic resources –*”. Management Policies 1-3 (p 22) support this objective, and include DOC-hunter relationships. A DOC-hunter management plan and Hunter Implementation Committee will help achieve this objective.

**b) RNPMP: 3.2.2 Introduced animals** (p 150-54): **Objective 5:** *Consider joint working programmes with those that have an interest in the eradication, control and management of introduced animals*”

**Objective 6:** *“Recognise the value recreational hunters place on Whitetail deer within the Park”.*

**Policy 4:** *“Work with the hunting community and other interested parties to undertake appropriate introduced animal control operations - - -”*

**Policy 11:** *“Where eradication is not possible aim to control the impact of introduced animals within RNP to a level where they are not having an unsustainable effect on native vegetation –”*

**Note:** 1 Eradication of Whitetail deer is not possible. They do not meet the 3 criteria of Policy 7.  
2 The priorities for eradication from the Stewart Island Pest Liaison Group are rats, cats and possums. Deer are not on their eradication list.

**Policy 15:** Priorities for deer control are:

- a) *Maintaining current deer-free areas eg existing deer-free islands*
- b) *Eradication of deer on further islands*
- c) *Preventing establishment of new deer species*

**Policy 18:** *Continue to encourage recreational hunting within RNP as a key method of controlling the impacts of the deer population to a level where the effects of this population on native species and vegetation is minimised”*

**Conclusion:** All the above objectives and policies support a Deer Management Plan and a DOC-Hunter-community Management Committee being part of the CMS/RNPMP. This Committee should be related to the Stewart Island Pest Liaison Group, given the important work it has done – see the Southern Islands Biodiversity Action Plan (SIBAP) [2004-09]. Any Plan and Committee should be **formalised under the Wild Animal Control Act** eg Section 5 (1) (d) and (f) to give it statutory recognition.

This is an important step that requires recognition in the RNPMP and the CMS. The S 4 (2) (b) determination is an important part of DOC keeping faith with the deerstalking community, and all that it has done to move to sustainable management of the herd, in the last ten years.

The Plan and Management Committee would build on the solid foundations established by the Stewart Island Pest Liaison Group, and, if not part of it, would liaise closely with it. The Southern Islands Biodiversity Action Plan expires in 2009, and that part of its replacement relating to deer management should be this Plan and Committee (or sub-committee).

## 2.2 Present DOC approach to deer management

The present DOC approach to deer management is to leave it to recreational hunters (Draft CMS page 33, Table 2) with monitoring and exclosure plots. Photo 8 shows two DOC photos looking across an exclosure plot (left), and outside it, on the Stewart Island North Coast in 2008.



**Photo 8: Adjacent DOC photos of deer exclosure plot (left) and outside it (right),**

Any Plan and associated actions would include monitoring the hunting blocks, and encouraging greater hunting pressure on blocks with high deer numbers. This is not done at present. Nor are endangered vulnerable species, including many that can be fenced off from deer, have been so treated.

One of the difficulties with the National Parks Act is that it encourages extermination as far as possible, of all introduced species, rather than concentrating on protecting the endangered or important native species and ecosystems that the Park was set up to preserve.

The Act has chosen the wrong goals for preservation, and consequently encourages wasting public money on extermination as far as possible, when money could be better spent on protecting native species. See eg "**Options to manage wild animals in New Zealand**", John Parkes, pages 67-71 in **The Future of New Zealand's Wild Animals?**, Seminar 2000 Proceedings, 1988, NZ Deerstalkers' Association, Wellington.

Noted wild animal ecologist Dr Graeme Caughley was also of the view that control of wild animals instead of being a tool, became the goal itself. He says "*Such abstract goals must be seen as personal or departmental preferences, not as ecological imperatives.*" [**"Control of Wild Animals"**] Dr Gaeme Caughley, CSIRO, pages 101-103 **The Future of New Zealand's Wild Animals?**, Seminar 2000 Proceedings, 1988 NZ Deerstalkers' Association, Wellington.

Another issue is the attitude of botanists and departments. Deer have routinely been demonised by Forest and Bird and botanists. The Department of Internal Affairs, after them the NZ Forest Service and now DOC have demonised deer, and built sizeable budget allocations from so doing.

In the 1960s helicopters with their high manoeuvrability and work rate significantly reduced the national wild herd, and established deer farming. But even in 2007, former DOC Director-General Hugh Logan claimed deer populations doubled every two years, even though such fertility (41% growthrate/year) cannot be achieved even on deer farms, let alone in the wild. In the wild, 20% growth of deer populations rarely happens. This prejudice and propaganda against deer is still alive today in DOC and conservation boards.

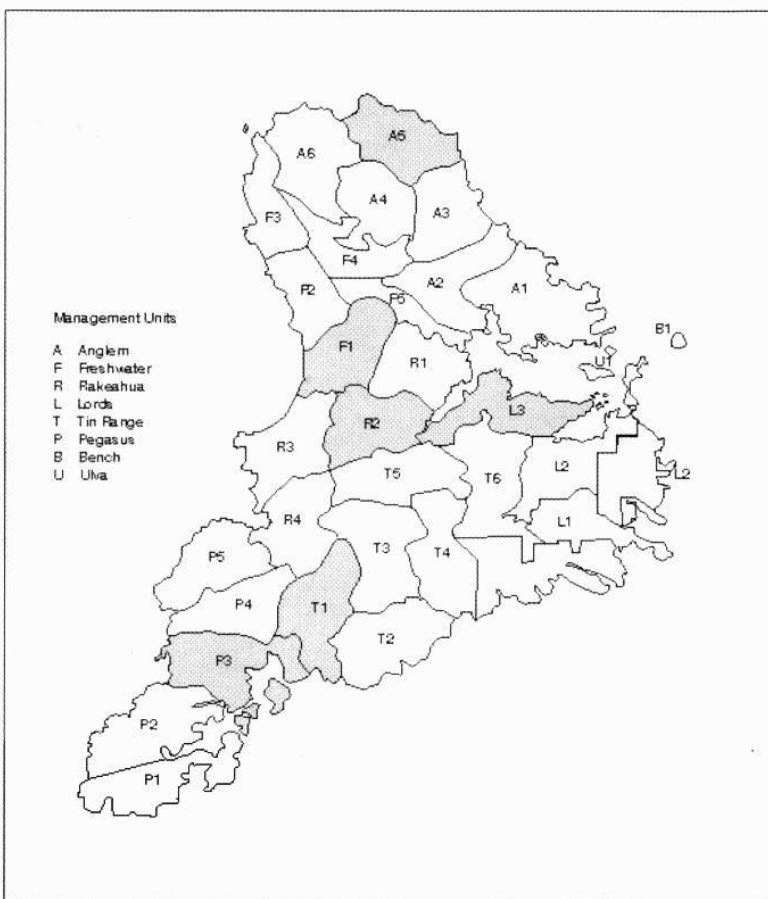
## **2.3 Reason and purpose for the Plan/Committee:**

### **2.3.1 Recreational hunters are controlling deer numbers:**

Deerstalkers have been controlling the deer population on the Island probably since 2000 because 2,500 to 3,000 deerstalkers visit the Island annually from that time. Hunters have taken between 1,000 and 1,500 deer annually from that time also. The 20 hunter huts built by the RHCT have added to the attractiveness of hunting blocks. It has also helped control of cats, rats and possums in the hut areas. With a Plan and Management Committee this de facto control can be improved, as can hunting opportunities.

Jaws analysis (Appendix 6) shows too that the predominant age of Whitetail deer shot (bucks and does) is from one to six years. This indicates that recreational hunting is keeping the average age of animals down.

Figure 3: Stewart Island/ Rakiura public conservation lands, management unit boundary map with the blocks chosen for management in each district shaded -- A=Anglem; F=Freshwater; P=Pegasus; T=Tin Range and L=Lords.



**Map 2: Stewart Island native biodiversity Management Unit**

### **2.3.2 Deer an historic and community resource and a major attractor of hunters to the Island:**

If hunters are to continue to be attracted to the Island, a positive hunting experience and promotion, through a Plan and implementation committee is a significant help. The deer were there 100 years before the Park. With effective data collection and management, **the deer herd, the park and the local community should be able to co-exist sustainably**, and the benefits provided recreationally to hunters and economically to the region be able to continue.

### **2.3.3 Co-operative Southern Islands Biodiversity Action Plan (SIBAP):**

This DOC Plan developed with the Stewart Island Pest Liaison Committee, including deerstalkers, has made significant progress in identifying the six biodiversity districts on the Island (Anglem – A 6 units; Freshwater – F, 5 units; Rakeahua - R, 4 units; Pegasus - P, 5; Tin Range - T, 6; and Lords – L, 3).

There are 29 management units including the top biodiversity blocks (A5, F1, R2, P3, T1, L3). See Figure 3 reproduced as Map 2 above. Monitoring management of them has been in place since 2004. T1 is outside the hunting blocks, but the other 5 biologically important units include hunting blocks to a greater or less extent.

This SIBAP approach provides a framework, together with the recreational hunting community, for managing Red and Whitetail deer with less adverse biodiversity impact, and probably sustainably. For instance hunting data from each of the 35 bookable hunting blocks (CMS Map 5 shown as Map 1) can be collected to monitor deer in each block.

### **2.3.4 Opportunity provided by the hunter huts and the high level of hunter interest:**

Probably nowhere else in New Zealand has the recreational deerstalking community made such a significant contribution to managing a recreational deer herd. Rather than continuing with ad hoc, management and little data, there is ability to manage the herd, the hunters, the huts/camps and native vegetation more effectively by effective data collection, possibly the placement of new hunter huts, or by promoting hunting in over-browsed areas.

Map 1 of the hunter blocks shows these are generally round the coast. This indicates historically that Whitetail have been found round the coast, and areas that are accessible. **Only about 30% of the Park is covered by the specific hunting blocks.** The rest is in the “Open hunting Zone”, which does not contain many deer.

Six of the 35 blocks, 21-26 are outside the Park, and 27 is half in and half out. So 15% of the Blocks are outside the Park. Map 5 of the CMS shows the location of the hunter camps and hunter huts on the Island. There are also hunting blocks on the Rakiura Maori Land Trust land, including at least two huts. The Trust receives income from hunter use of their land.

Also identification of endangered plants at risk, and managing them or browse on them appropriately, may be needed. Greater involvement of hunting representatives in planning and management should also improve liaison and interest with the deerstalking community.

### **2.4 What the Plan could contain (for discussion and refinement with stakeholders):**

Much of this framework has already been set out in the SIBAP, and implemented over the last 5 year. In many ways a Deer Plan would be part of Stage 2 of the SIBAP.

However, because of the recreational, tourist and food value of deer, management would be different to rats, cats and possums, where the goal is eradication. Consequently, and also because of the specific data and rat, cat and possum control around huts and elsewhere that hunters may provide, there is need for a specific sub-committee and Deer Plan.

#### **2.4.1 Suggested Goals: eg**

**a) Identifying and monitoring endangered native plants at risk** from deer, and what the risk factors are eg browse on juvenile plants etc. This is already partly done by the SIBAP.

**b) Attractiveness and promotion to hunters:** Identifying hunter levels of encounter with deer, and the appropriate health of the deer, that will continue to attract significant hunters. Too many deer reduces the attractiveness to hunters, as does too few deer. Continued promotion of the Island to deerstalkers.

**c) Better deer data collection – by deerstalkers and DOC:** Both on deer densities eg by hunter encounter and kill returns per day hunting, and **browse in the various zones**, to adequately assist with management of the deer and any endangered plants. Jawbone analysis on the age, condition and sex of deer taken can also assist understanding herd make-up, and assist management. **Appendix 6** shows data on jawbones collected by NZDA. Most were under ten years old.

The Crown has not kept adequate records of hunter permits and returns. **Appendix 5, 1974-2008 Hunter permits, days hunting, animals taken** is data that NZ Forest Service and Roger McNaughton, Southland NZDA have collected over the years to show the level of hunter interest. These figures show that hunters have grown from 673 in 1974 top over 1100 by 1978. Estimated hunters have remained stable from 1997 to 2008. Estimated total days hunting roughly doubled from the 1970s (5,700) to 2007 (11,300).

Better data on hunting effort and via hunters supplying jaws is likely if hunters feel their data is being actively used to assist understand and manage the deer.

**d) Better hunter management to achieve Plan Goals:** eg location of new campsites or RHCT hunter huts in areas without huts where deer numbers are considered too high, concentration on deer blocks where deer numbers are considered too high, etc.

**e) Hunter control of rats, cats, possums:** eg round hunter huts and campsites and elsewhere.

#### 2.4.2 Alternative Management Responses:

**a) Protecting endangered native plants –**

- i) reduce main risk factors eg reduce possum browse by poisoning
- ii) fence off plants from deer (if small colonies)
- iii) reduce deer browse eg by reducing deer density
- iv) remove the plants to areas with no/low browse pressure, eg Some Gunnera Hamiltonii, not browsed by deer, but among the rarest plants in New Zealand, were moved to Ulva Island

**b) Achieving adequate hunter satisfaction** – identifying blocks/areas where deer numbers are too high (poor deer condition, excessive apparent deer browse, deer browse on endangered species, high kill or sighting levels etc) or too low (eg the reverse).

**c) DOC or RHCT budget constraints** – may limit browse measurement, ability to provide new hunter huts, possum control etc. Present deer management is at little or no cost to DOC, and is informal.

**d) Directing hunters to blocks/areas where deer numbers are agreed to be too high eg**

- i) encourage more hunters to these block camps/huts
- ii) consider new huts/camps to increase hunter pressure where deer numbers are considered high in areas away from present blocks

#### 2.4.3 Comments on deer, based on the limited data available:

**a) Presence of deer:** Map 1, recreational hunting blocks on public land, shows over 60% of the Island is in the “residual” central hunting block. The expectation is that deer numbers are low in this area.

Considering the six ecological districts, Anglem, Freshwater, Rakeahua, Pegasus, Tin Range, Lords, the higher parts of Anglem, the swampy parts of Freshwater, much of Rakeahua, most of Pegasus, almost all of Tin Range (high land) would be expected to have low Whitetail deer

numbers. Whitetail deer usually frequent land below 250 metres, though Red deer, which are now at low levels, may be on higher land.

This and additional information from deerstalkers, can assist identify areas where recreational hunting is managing deer numbers, and areas where it may not be.

**b) Additional data that can be supplied by hunters:** Kill and sighting returns by trip and block are already available. Expand already operating jawbone analysis programme.

Showing deerstalkers that their data is being used to improve hunting, as well as to reduce damage to endangered native plants, would also encourage hunters to supply quality data eg on kills, jaws, sightings etc. Getting hunter buy-in requires DOC recognition of the recreational, wild meat and tourist importance of the deer herd.

**c) Better co-ordinating of hunting, research and hunters:** This will result from data being assessed by the Committee, and management decisions and conclusions following that discussion.

**d) Contingency planning:** At present trends, recreational hunter management of the herd is likely to continue. However DOC Southland considers contingency plans are needed in case of runaway population increases.

Should that occur, DOC and deerstalkers are far more capable of addressing it in a timely fashion, than if no Plan or Committee existed. Deerstalkers can be encouraged into areas where deer density is higher. Or more promotion can be done to attract deerstalkers. If all else fails, then contracts with WARO operators could be investigated.

**e) Whitetail or Red:** The Determination is for Whitetail deer. However there is no clear way to remove all Red deer, and no apparent need, given the low number of Reds. Nor is management about controlling numbers as these are difficult to estimate. The management plan and committee would aim at managing effects at important sites across the Island, not deer numbers. This is not dependent on whether the deer is Whitetail or Red. Hence probably the Plan will not differentiate.

### 3 Conclusions

The hunting members of this committee could be determined by the recreational hunting community in Southland. It would be sensible for this Plan and Committee to address all public conservation land on Stewart Island where Whitetail deer are present, not just the National Park.

NZDA wishes to work with the Southland Conservancy and its Conservation Board to recognise and manage the Whitetail deer in the Park, and on the Island. Consequent changes also need to be made to the Stewart Island CMS. This is our second revised submission on what may continue to be an iterative process. NZDA sees this process as similar to that leading to the joint DOC-Deerstalker initiative for Wapiti management

NZDA Branches and members have expressed strong support for S 4 (2) (b) recognition, and the responsibility of deerstalkers to provide the majority of the management of the herd. Branches supporting this range right across New Zealand, and are strong not only in Southland and Otago, but also in the Waikato, where significant hunter support was given, to the extent of DOC holding CMS hearings in Hamilton, as well as elsewhere.

A Determination in favour of Whitetail deer in Rakiura National Park is based on seven unique factors, that (apart possibly for Wapiti) are unlikely to exist for other herds in national parks. These are:

- 1) Inability to move the herd off the Island
- 2) A long historic association with Stewart Island and its community
- 3) Attractiveness to deerstalkers nationwide – for both the deer and the scenery of the Park
- 4) The value of the Hunter Camps Trust huts to both hunters and to management of the deer

- 5) Management of the deer being possible by recreational hunters
- 6) The significant expenditure benefit on transport, provisions etc
- 7) A significant amount of data being collected on deer taken, seen, jaws and hunter data

A Determination in favour of Whitetail in the Park will not create a flood of requests for deer determinations in other Parks.

Yours truly

Alec McIver, National President

Dr Hugh Barr, National Advocate

John DeLury, Southland Branch

**Acknowledgements for assistance:** Ray Phillips, Roger McNaughton, Roy Sloan, Maureen Coleman, Bruce Banwell

**New Zealand Deerstalkers' Association Incorporated** (NZDA) is the national body of recreational deerstalkers and other big game hunters. We have 50 branches and hunting member clubs throughout New Zealand. We have 7600 members, and have been actively advocating for recreational deerstalking and hunting, running hunter training courses, trips, conferences etc since 1937. NZDA maintains ethical standards for hunting.

## Appendix 1: Section 4 National Parks Act

### 4 Parks to be maintained in natural state, and public to have right of entry

(1) It is hereby declared that the provisions of this Act shall have effect for the purpose of preserving in perpetuity as national parks, for their intrinsic worth and for the benefit, use, and enjoyment of the public, areas of New Zealand that contain scenery of such distinctive quality, ecological systems, or natural features so beautiful, unique, or scientifically important that their preservation is in the national interest.

(2) It is hereby further declared that, having regard to the general purposes specified in subsection (1) of this section, national parks shall be so administered and maintained under the provisions of this Act that—

(a) They shall be preserved as far as possible in their natural state:

(b) Except where the Authority otherwise determines, the native plants and animals of the parks shall as far as possible be preserved and the introduced plants and animals shall as far as possible be exterminated:

(c) Sites and objects of archaeological and historical interest shall as far as possible be preserved:

(d) Their value as soil, water, and forest conservation areas shall be maintained:

(e) Subject to the provisions of this Act and to the imposition of such conditions and restrictions as may be necessary for the preservation of the native plants and animals or for the welfare in general of the parks, the public shall have freedom of entry and access to the parks, so that they may receive in full measure the inspiration, enjoyment, recreation, and other benefits that may be derived from mountains, forests, sounds, seacoasts, lakes, rivers, and other natural features.      Compare: 1952 No 54 s 3; 1972 No 87 s 2

## Appendix 2: Research shows the Public value deer highly

A piece of independent research confirms that the public value deer and pigs as a resource rather than see them as pests. Wayne Fraser [2001 “*Introduced Wildlife in New Zealand: A Survey of General Public Views*” Landcare Research Science Series 23], used FRST Public Good research funds to survey a sample of 859 responses on their attitudes to introduced wildlife – primarily mammals. The survey was carried out in 1994.

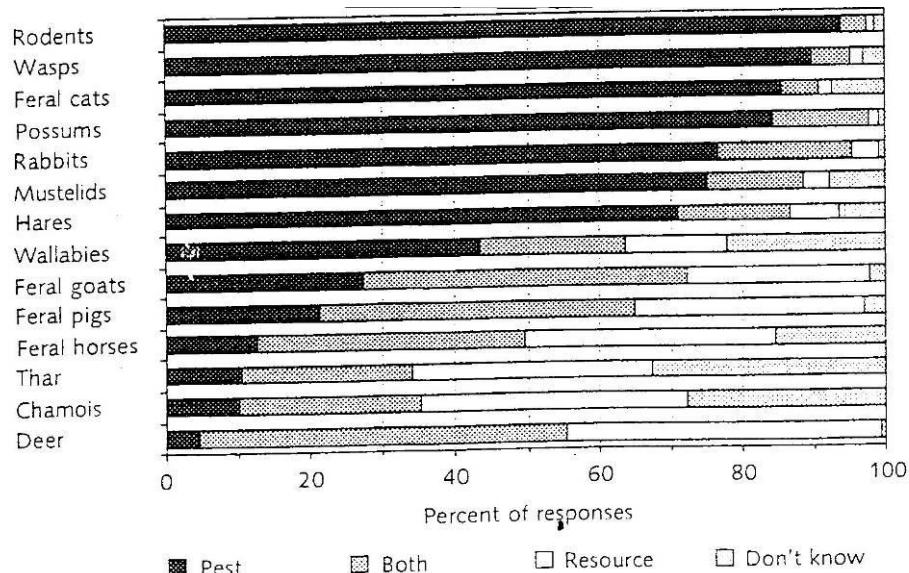


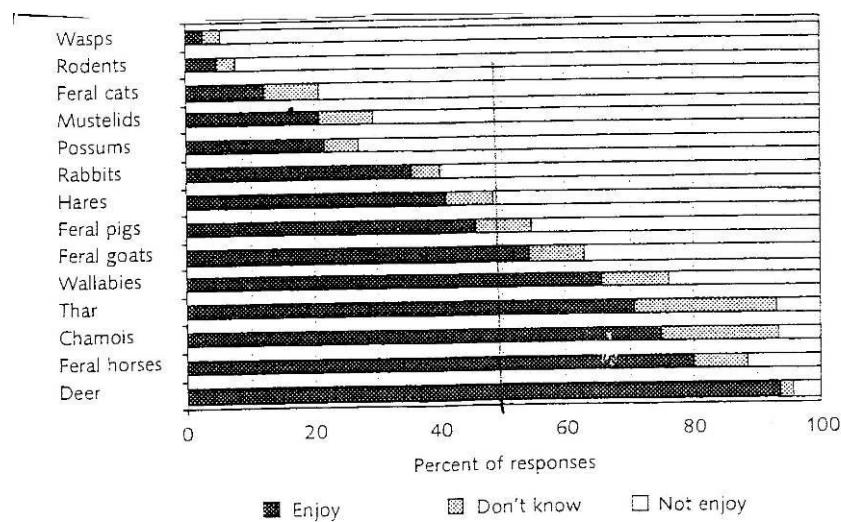
Figure 8: Perceptions of introduced species as pests or resources (from Fraser 2001)

Fraser asked two key questions:

- 1) Did the respondent consider an introduced species as a pest or a resource (or both)?
- 2) If encountered on a trip into the bush or high country, would it increase or decrease their enjoyment?

Effectively the public were asked whether they thought the species were valued introduced species or not. The responses to these questions are summarised in Figures 8 and 9 in the Report, reproduced below.

Figure 8 clearly shows that deer are considered the least pest (4%), and the most as both a pest and resource 51% and as a resource (44%). Rodents, wasps, feral cats, possums rabbits, mustelids and hares, in that decreasing order, are considered primarily as pests.



**Figure 9: Likely reaction on seeing introduced wild animals** (from Fraser 2001)

Figure 9 shows a similar response to meeting deer, chamois or tahr on a visit to the back country. Deer are the most positively regarded, with 95% of respondents being positive.

The conclusion from Wayne Fraser's research is that the New Zealand public sees deer especially as valued introduced species, and are positive about other larger introduced species.

### Appendix 3: National Recreational Hunter numbers and harvests

**Table 1: Recreational hunters, effort and take (1988 Survey)**

From [Nugent G; Hunting in NZ in 1988, Forest Research Inst, Chch, 1989], Table 5.

Species	No of hunters	% of population	Total days hunted	Average Days/hunter	Animals taken	Animals /day	Annual bag/hunter
<b>Big Game</b>							
All deer	<b>29,739</b>	<b>0.92</b>	<b>391,713</b>	<b>13.2</b>	<b>52,481</b>	<b>0.13</b>	<b>1.8</b>
Wild pigs	20,506	0.62	303,738	14.8	101,653	0.33	5.0
Wild goats	10,253	0.31	66,151	6.5	87,677	1.33	8.6
Chamois	2291	0.07	10,839	4.7	1,794	0.17	0.8
Tahr	953	0.03	3,848	4.0	782	0.20	0.8
All big game*	<b>42,174</b>	<b>1.27</b>	<b>776,288</b>	<b>18.4</b>	<b>240,454</b>	<b>0.31</b>	<b>5.7</b>
<b>Small Game</b>							
Possums	<b>50,724</b>	<b>1.53</b>	<b>695,216</b>	<b>13.7</b>	<b>3,001,618</b>	<b>4.32</b>	<b>59.2</b>
Rabbits	79,329	2.39	1,062,857	13.4	2,439,835	2.30	30.8
Hares	36,302	1.1	429,154	11.8	373,522	0.87	10.3
Wallabies	2,754	0.12	9,726	3.5	13,040	1.34	4.7
All small game*	<b>91,475</b>	<b>2.76</b>	<b>2,196,952</b>	<b>24.0</b>	<b>5,828,015</b>	<b>2.65</b>	<b>63.7</b>
<b>Game Birds</b>							
All Game birds	<b>53,988</b>	<b>1.63</b>	<b>757,678</b>	<b>14.0</b>	<b>736,018</b>	<b>0.97</b>	<b>13.6</b>
All Game	<b>113,683</b>	<b>3.43</b>	<b>3,730,918</b>	<b>32.8</b>	<b>6,804,487</b>	<b>1.82</b>	<b>59.9</b>

\* many hunters hunt more than one big or small game species, but only count as one hunter in the total

### **1 Recreational Hunter numbers (1988 Survey):**

NZDA sets out the following information on recreational hunting and attitudes of the public to introduced species, and whether they see them as valued resources or pests, as information to be taken account of in this CMS Review.

A national survey carried out by Landcare Research's noted deer ecologist Graham Nugent in 1988 showed there were some 60,000 active deerstalkers and pig hunters in New Zealand. These numbers are likely to be similar today, and may have grown. Membership of NZDA branches is growing at about 7% a year, showing deerstalking is becoming more popular, as is providing wild meat for the table.

Table 1 below shows Nugent's estimated numbers who hunted in 1988, based on a survey of firearms owners. Some 20% of the sample said they did not hunt in that year, but intended to hunt in the future, showing the additional potential continuing hunters.

Recreational harvesting opportunities for the population nearby reduces the need for travelling large distances to the central North Island, or the South Island to hunt and harvest big game. This helps reduce carbon emissions from transport, something DOC claims an interest in reducing. Also harvesting the game is far better in terms of sustainability than shooting or poisoning them to waste.

Table 1 also shows also the significant number of small game, mainly possums and rabbits, and Game-birds harvested in 1988. Altogether some 140,000 New Zealanders are hunters, and the lands administered by DOC provide by far the largest area where they can readily recreate, and is a significant actual and potential recreational use of these public lands.

## **Appendix 4: Endangered species claimed affected by deer (from DOC)**

The following are locally endangered or possess a national threat status (in bold, capitalised type font).

**1 *Euphorbia glauca* (Shore Spurge): DECLINING.** Localised and uncommon on the island. Where it is found it has been heavily browsed by deer.

**2 *Stilbocarpa lyallii* (Punui): RECOVERING.** Almost entirely eradicated by browsers on the mainland. Common on offshore islands.

**3 *Lepidium oleraceum* (Cooks Scurvey Grass): NATIONALLY VULNERABLE.** Formerly common in coastal areas of the island. Now almost absent on the mainland and only present on offshore islands.

**4 *Raukaua edgerleyi* (Raukawa):** Increasingly rare and hard to find outside of the Half Moon Bay area or offshore islands.

Note: Some of these will be browsed by possums (milkweed), rats (Punui, milkweed): etc, not just Whitetail

The following plants have been added by Geoff Rogers. These nominated additions are based on field observation, the vulnerability of sister taxa, and notes from floras and websites.

**5 *Stenostachys laevis* (Grassland wheatgrass): NATURALLY UNCOMMON**

**6 *Lepidium desvauxii* (Bushy peppercress):** Limited in distribution.

**7 *Melicytus flexuosus*:** DECLINING. Browsed especially on its epicormic shoots.

**8 *Sonchus kirkii* (Shore puha): RELICT**

**9 *Celmisia rigida*: NATURALLY UNCOMMON.** Plentiful on Whenua Hou but scarce on the mainland.

Please refer to DOCDM277701 for a list of threatened plants on the island.

### **Species significantly damaged by deer on the Island:**

Some of the more significantly damaged, and increasingly uncommon species on the island are *Raukaua simplex*, *Pseudopanax crassifolius*, *Fuchsia excortica*, *Myrsine australis*, *Schefflera digitata*, *Coprosma lucida*, *Coprosma foetidissima*, *Asplenium bulbiferum*, *Dicsonia squarrosa*, *Brachyglottis rotundifolia*, *Pseudopanax colensoi* var *fiordensis*, *Astelia aff nervosa*.

**Note: None of these species ranks as endangered. Only one ranks as nationally vulnerable. Many could be protected by fencing if this was thought necessary**

YEAR	# PERMITS ISSUED	# RETURNED	# HUNTERS	ESTIMATED # HUNTERS Permits issued x average per party	AVERAGE # PER PARTY	TOTAL DAYS HUNTED	ESTIMATED TOTAL DAYS HUNTED estimated hunters x average days	AVERAGE LENGTH OF STAY	WHITETAIL SEEN	ESTIMATED WHITETAIL SHOT estimated hunters x average # shot	AVERAGE SEEN PER PARTY	AVERAGE SHOT PER HUNTER	AVERAGE SHOT PER PARTY	RED DEER SEEN	CATS DESTROYED	AVERAGE \$ COST PER HUNTER	SOURCE	
1974	190	673		3.54			213				1.12	0.32					NZFS	
1975	300	852		2.84			381				1.27	0.44					NZFS	
1976	308	967		3.13			314				1.01	0.32					NZFS	
1977	363	958		2.63			503				1.38	0.52					NZFS	
1978	413	1128		2.73			730				1.76	0.64					NZFS	
1979																		
1980	753			5715	7.58	7.58	483						5				NZFS	
1981	868			6166	7.1	7.1	585						10				NZFS	
1982	1065			6437	6.04		554						0				NZFS	
1983	902			5707	6.32		573						3				NZFS	
1984	956			6761	7.07		581						1				NZFS	
1985	810			5287	6.52		570						10	25			NZFS	
1986	998			5813	5.82		578						5	77			NZFS	
1987	1092			5898	5.4		715						8	72			NZFS	
1988	1063			5522	5.19		681						19	50			NZFS	
1989	997						674											
1990	903			5392			632						22		NZDA conference	DOC		
1991	No records available 1990 - 96																	
1992																		
1996																		
1997	490	108	440	1994	4.07	2532	5.75	11270		838	225	1016	7.75	1.9	2.08	0.51	9	3 26 515 NZDA
1998	448	170	656	1800	4.02	3619	5.51	9873	7.5	1238	310	846	7.28	1.88	1.82	0.47	28	12 79 457 NZDA
1999	532	155	646	2213	4.16	3104	4.8	10214	7.25	1279	347	1172	8.25	1.97	2.23	0.53	28	15 56 444 NZDA
2000	581	131	484	2149	3.7	2709	5.59	12991	7.5	1406	329	1439	10.7	2.9	2.5	0.67	31	11 56 508 NZDA
2001	520	132	556	2225	4.28	2803	5.04	11214	7.55	1140	250	979	8.6	2.05	1.89	0.44	30	6 32 503 NZDA
2002	517	134	563	2171	4.2	3096	5.5	11940	7.4	1161	272	1042	8.66	2.06	2.02	0.48	18	7 15 450 NZDA
2003	505	137	548	2020	4	3288	6	12120	7.5	1210	315	1151	9	2.2	2.29	0.57	18	4 120 611 NZDA
2004	519	123	462	1946	3.75	2772	6	11676	7.5	1147	255	1070	9.3	2.48	2.07	0.55	13	6 32 629 NZDA
2005	502	134	527	1972	3.93	3056	5.8	11437	7.5	1165	288	1064	8.69	2.21	2.14	0.54	22	8 27 601 NZDA
2006	515	114	632	2008	3.9	3792	6	12294	7.5	1016	257	802	8.9	1.6	2.25	0.4	10	5 22 454 NZDA
2007	559	162	626	2157	3.86	3568	5.7	11286	7.54	1335	354	1108	8.24	2.13	2.18	0.56	34	8 40 712 NZDA
2008	523	116	452	2039	3.9	2741	6.1	12437	7.5	946	230	1039	8.2	2.09	1.98	0.51	12	7 35 585 NZDA

## Appendix 5: Permit and hunter returns V2 1974-2008 (NZ Forest Service, DOC, NZDA)

## Appendix 6: Stewart Island Whitetail Deer Research Group. Deer ageing from jaws programme.

*For some years we have been learning more about Whitetail by ageing animals that are shot.*

### **Ages established to November 2008**

AGE in years	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Male #	19	25	69	51	48	20	26	18	12	6	8	6	1	1	-	1	1
Female #	18	40	42	35	22	11	7	7	8	12	3	2	4	1	-	-	1
Unknown #	3	8	7	3	2	4			1								

**Of over 500 deer we have aged only 18 were over ten years of age.**

#### **Of the mature bucks:-**

6 yr old: 14 point DS 141  
 6 yr old: 8 points DS 166  
 6 yr old: 8 points DS 140  
 7 yr old: 8 points DS 120  
 7 yr old: 8 points DS 167  
 7 yr old: 11 points DS 150  
 7 yr old: 8 points DS 150  
 9 yr old: 4 points  
 11 yr old: spikes

10 yr old: 9 points DS 144  
 10 yr old: 4 points DS 66  
 10 yr old: 5 inch spikes  
 11 yr old: 4 points  
 11 yr old: 3 inch spikes  
 11 yr old: 9 points DS 146  
 13 yr old: 4 points DS 65  
 15 yr old: spikes

**It would seem that bucks reach best antler potential at 6 - 8 years and decline from 9 - 10 years.**

**Clean (preferably boiled) jaws can be sent to SIWRG, PO Box 1588 Invercargill.** We need to know, sex, block, date and hunter's name and contact details. This is not a DoC project but one carried out by hunters wanting to learn a bit more about the Whitetail deer we all enjoy hunting. Please assist by returning as many jaws as possible, even the very young ones.