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### BRIEF OF EVIDENCE OF WILLIAM ECCLES FLEURY 19 February 2019

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*Dave June*  
*Bill Carl*

## DRAFT MANAGEMENT STRATEGY FOR THE KAIMANAWA WILD HORSE HERD

### ANALYSIS OF SUBMISSIONS RECEIVED BY THE DEPARTMENT OF CONSERVATION

#### THE SUBMISSION PROCESS

The Draft Management Strategy for the Kaimanawa Wild Horse Herd was released for public comment in July 1991. Its availability was notified by public notice in all the major metropolitan newspapers and those smaller papers circulating in the central North Island. Copies of the strategy were sent directly to major conservation groups, horse and animal welfare organizations and other groups and individuals who had previously indicated an interest in the issue.

Although the closing date for submissions was the 26th of August 1991 a considerable number of submissions were received after that date. All submissions received were incorporated in this analysis, those received a significant time after the closing date are prefixed with the letter "L".

A total of 186 submissions have been included in the analysis. The Department of Conservation greatly acknowledges the public input received on this issue.

Each submission has been assigned a number and in the following analysis reference is generally made by number rather than the name of the contributor. Where the submission of a national organization has been commented upon, however, that group has usually been identified. A list of the contributors is contained in appendix 1 and appendix 2 contains a copy of all submissions.

All submissions were examined for comment on major topics and issues addressed by the draft strategy. The comments on each

objectives.

**Recommendation:** A management strategy be adopted that meets with the approval of the major landowner.

ii) Impact on Private Landowners.

This issue was only commented upon by a few submissions. Comments ranged from support for the interests of landowners to suggesting that existing fences should be adequate for control. Mr R.A.L Batley, (26), stated that he would like to see the density of horses in the Northern Motumatai zone be maintained at about 1 per 100 Ha, about half the density recorded in the area in 1986. Mr G. Gummer, 154, stated that he felt that the owners of the Oruamatua Kaimanawa 1U and 1V Blocks would concur with the conservation ethic. Although no submissions were received from them, the managers of Maunganui Station and Erewhon Station and the past manager of Waiouru station discussed aspects of the strategy with DoC staff. In each case they queried the existence of a Kaimanawa Wild Horse and claimed the horses that were protected could not be differentiated from farm stock.

*Comment:* The modification suggested to the draft strategy by Mr Batley does not significantly alter the outcomes of the strategy and therefore should be adopted. It should be noted that the original exclosures measured by Geoff Rogers are on the Batley property, there is therefore a good base line for monitoring any changes occurring.

It is apparent that at the time the horses were given protection there was little or no consultation with the owners of many of the properties affected and there is now confusion over the status of horses on the properties, particularly those included in the south and south east of the protected area. The confusion arises because the blanket protection given to horses does not differentiate between "wild horses" and domestic horses that may be being farmed in an extensive manner. Since protection, land use practises have changed on a number of the properties on the southern boundary of the horse range.

**Recommendations:** 1) The population density suggested by Mr Batley for the Northern Motumatai Block should be adopted.

2) The existing area included in the gazette notice should be reviewed to take into account the wishes of

"BF2"



24 View Rd.,  
Campbell Bay  
Auckland  
31/3/92.  
c/o Wanganui.

Dear Bill Sherry  
re Wild Horses.

Thank you for the invitation to be  
"heard" but I have no need to avail  
myself of it on this occasion.

However, I would like you to know that,  
since we last talked, I have discussed  
culling the wild horses with

(Mr.) TAMA WIPAKI

PUNGATAUA,

R.D.2

TAIHAPE

Please put him  
on your mailing  
list.

- who represents the descendants of Whaitike  
Pine who, like my mother is/was a major  
shareholder in Oramatua - Kaimanawa 10 & 14.  
He concurs with culling & would like  
to be involved regarding employment.  
Best Wishes. Yours sincerely, Graeme Gemmer.

BM CC/WBS Listing

Cost Element (GL Hier)	* Sep Y Actual
Overall Result	500.
Revenue	(64,4
Other Revenue	(64,4
Total Expenses	564.
60 Personnel	365.
61 Operating	98.
64 Depreciation/Asse	100.
Fiscal year (Cust. Excl)	2015
Fiscal Period (Cust. Excl)	3
Profit center/Profit center group	Ops
Dynamic Filters	
CC/WBS Person resp.	
MTD/YTD/FY & Act/Plan/Var (full \$ H)	

Cost Element (GL Hier)

11.10.2018 13:53:48

# "BF3"

File: WAN 0301

17 July 1997

Ms Belinda Clark  
Director  
Office of Treaty Settlements  
PO Box 919  
WELLINGTON

Dear Ms Clark

## **KAIMANAWA WILD HORSES - CONSULTATION WITH IWI**

Your letter of 10 July requesting advice of consultation with iwi, and in particular Ngati Whitikaupaka, refers.

I have detailed below a summary of the Department's contact with iwi undertaken during the planning for and implementation of the programme for management of the Kaimanawa wild horses. Please note that the range of these horses covers the rohe of three iwi groups: Ngati Tuwharetoa, Ngati Rangi and Ngati Tama Whiti. There have been discussions with all three groups over this issue.

To understand the Department's position and the involvement of tangata whenua in the process I consider it important that the relationship with and views of each of the iwi groups is presented. Please note that it is only recently that DoC has been approached by Ngati Whitikaupaka as a separate entity. This group had previously been represented through discussions involving Ngati Tama Whiti.

### **1. Preparation of the Draft Plan (1991-1995)**

#### **a. Ngati Tuwharetoa**

The DoC/Tuwharetoa Conservation Committee provided a forum for discussions with the Tuwharetoa on the management of the Kaimanawa Horses. The Tongariro/Taupo Regional Conservator, Paul Green, briefed the committee on a number of occasions between 1993 and 1995. No concerns were ever voiced to Mr. Green at the removal of horses.

The Tuwharetoa Trust Board was sent copies of both the 1991 draft strategy and the 1995 draft plan with an invitation to comment, no acknowledgment or comment was received.

Ngati Tuwharetoa kaumatua Mr. Darkie Downs has represented iwi on the Taupo/Tongariro Conservation Board. He has been present at most meetings and on at least two occasions has moved or seconded resolutions supporting management or removal of the horses. Mr Tumu Te Heuheu has also been present at some meetings of the board as a further iwi representative. He has expressed no concern at horse removal.

Individual members of the Taupo/Tongariro Conservation Board, including iwi representatives received copies of the 1995 draft plan.

b. Ngati Tama Whiti

During development of, and consultation arising from the document "Draft Management Strategy for Kaimanawa Wild Horses" (Department of Conservation, 1991), staff from the Department had several meetings or discussions with representatives of the Ngati Tama Whiti owners of the Oruamatua Kaimanawa blocks 1U and 1V (located to the east of the Army land). In particular the Department discussed its plans with Mr. Tama Wipaki and Mr. Graeme Gummer.

At a meeting in Taihape (20 October 1992) a sub-committee of the Rangitikei/Hawkes Bay Conservation Board met with a number of owners of land within the wild horse range to discuss modifications of the protection status of the herd. Mr. Wipaki and several members of his whanau attended this meeting, these people confirmed that Mr. Wipaki spoke on their behalf. Mr. Wipaki spoke in support of the proposal to reduce the protection area and identified it as being important to protect conservation values of the current protection area including the Maori land.

During mustering trials carried out in 1993, 1994 and 1995 Mr. Wipaki was present to observe proceedings and discussed horse management issues with DoC staff in attendance including the Regional Conservator, Wanganui, Bill Carlin.

Mr. Wipaki was invited to, and attended, a seminar organised by the Department on 2 November 1994, to discuss future management of the Kaimanawa Horses.

After a draft Plan for the Kaimanawa Wild Horses was finalised in May 1995 and released for public comment staff from the Department met with Mr. Wipaki and another interested party (Mr. Tony Batley) at Moawhango. Mr. Wipaki stated that he agreed that the horses must be managed but his preference was that some horses remain on the Oruamatua Kaimanawa 1U and 1V blocks. He agreed that there should be fewer horses than currently present to ensure that the land was not degraded. He made it clear that the Department should meet with owners to discuss the final plan. A hui at Moawhango upon completion of the plan was proposed by DoC staff and Mr. Wipaki concurred that that would be best.

Partly as a consequence of Mr. Wipaki's preference to retain a small number of horses on the lands remaining in Ngati Tama Whiti ownership the draft plan was amended to remove prescriptive recommendations for private land. The original recommendation to remove all horses from these lands was replaced with a recommendation to enter into negotiation with the owners to seek compatible management of horses on their land with management on adjoining Army land.

The approved plan containing this recommendation was released by the Minister of Conservation on 2nd May 1996.

### c. Ngati Rangi

The Department has also had some discussion with Mr. Mark Gray (Ngati Rangi Kaumatua) about the management of the horse herd but there have been no formal meetings with Ngati Rangi other than via the Taupo/Tongariro Conservation Board. (Mark Grey did attend an on site briefing with senior Departmental officials in late 1996)

### d. Summary

From the above it is clear there has been proactive contact with iwi, especially key landowner groups, over the department's horse management programme. Up until the release of the Plan iwi had been generally supportive with the few concerns expressed relating to the future of the horses on private and maori land. These were able to be dealt with through changes to the plan.

The Plan's focus is on management of the horses on lands administered by the Department of Conservation or Ministry of Defence. It was important, however, to involve adjoining private landowners as horses also range over their lands. It was on this basis, (i.e., maintaining relationships with neighbours), that DoC kept regular contact the iwi groups (who comprised the majority of adjoining landowners). Until the time of submission of a claim to the Waitangi Tribunal concerning the horses (Wai 558) there had been no indication that iwi had an interest in the horses except for those proposals which affected horses roaming over their properties.

## 2. Release of Final Plan - 1996

Following release of the Plan in 1996 the Department became aware that concerns over the proposed cull were being voiced by Mr. Ike Hunter as spokesman for Ngati Tama Whiti. Departmental staff contacted Mr. Hunter to request a meeting in order that the Department could explain its position about the proposal to cull the herd as a conservation measure. Mr. Hunter's response was that his own people were concerned about the culling but they would not meet with DoC and any future contact would come from them and not the other way around, "don't call us we'll call you". In a later conversation, when he rang to query the date of the proposed cull, Mr. Hunter repeated his "don't call me I'll call you" statement.

On 12 July 1996 the Tribunal made it's decision regarding claim WAI 558 lodged by Ike Hunter on behalf of Ngati Tama, Ngati Whiti. It considered that as the Crown's intention is to effect sustainable management of the wild horses rather than complete annihilation, the claim made by the claimants will not be prejudiced.

In August 1996 the agreed hui with Ngati Tama Whiti took place. The department's staff assured iwi that:



- a. No actions (re horse management) will be undertaken on land which remains in Ngati Tama Whiti ownership without agreement of the owners.
- b. The plan for the Kaimanawa horses does not seek to eradicate the horses either entirely or from lands which are in the rohe of Ngati Tama Whiti
- c. Opportunities for future exploitation of the horses as a tourist resource are not jeopardised by the plan.

They also noted that there will be opportunities Ngati Tama Whiti to participate in the ongoing management of the horses either:

- . by management of horses remaining on their lands, or
- . participation in the proposed Kaimanawa Wild Horse Trust.

Ngati Tama Whiti leaders reiterated their view that no horses should be removed from any land due to their treaty claims even though environmental damage was occurring. They were advised that this position was unacceptable to the Department.

### **3. The current Muster and Sale Programme - 1997**

Departmental staff met with representatives of Ngati Tama Whiti in April 1997 to clarify the relationship between the Kaimanawa Horse plan and the management of horses on lands they own. Ngati Tama Whiti's ongoing interest in the long term management of the horses on defence land was also covered and they again stated their complete opposition to removing horses north of the Moawhango river regardless of environmental problems. A Draft Memorandum of Understanding, covering these issues, was prepared (refer attached).

At this time a representative from Ngati Tama Whiti was also invited to participate in the pre muster census. This was accepted with the census being attended by Tama Wipaki, although on the day of the census Mr. Wipaki required a note indicating that he was not formally representing the iwi before he would participate.

It is planned to hold further meetings with Tuwharetoa and Ngati Tama Whiti to discuss future horse management (Recommendation 8 of the Plan refers) on their lands.

### **4. Consultation Summary**

The Kaimanawa Horse Plan has been the result of extensive consultation since 1991, involving a wide variety of public interest and other groups. Consultation has occurred on a regular basis with representatives of Tuwharetoa, Ngati Tama Whiti and Ngati Rangī. They have been involved in the decision making process.



The recent interest by Ngati Tama Whiti in the overall future of the horses has been addressed through hui between this group and departmental staff in 1996 and 1997. The department has sought to clarify issues and recognise future participation by Ngati Tama Whiti in horse management through a draft protocol. This is currently under discussion.

The level of involvement of iwi in the Kaimanawa Wild Horse programme has been equitable to the level of consultation afforded other tangata whenua in major DoC initiatives. While the Kaimanawa Horse Plan is not a Conservation Management Plan (CMP) prepared under the Conservation Act 1987 the importance of public and iwi participation in it's preparation has been recognised. Indeed over 4800 submissions were received on the draft.

## 5. Recommendation

It is recommended that you:

1. Note there has been regular consultation with key tangata whenua throughout the planning for and implementation of the Kaimanawa Wild Horse programme.
2. Note that throughout the process various iwi representatives have indicated either their support for the proposed plan or that they don't oppose it.
3. Note that in particular, prior to the claim made for the horses, a Ngati Tama Whiti spokesman agreed that there should be fewer horses, though a request was made for some horses to remain on their blocks. The plan was amended to accommodate this.
4. Note that there has been ongoing contact with Ngati Tama Whiti during the current programme (1996/97) and that this has included their participation in recent horse census work.
5. Note that Ngati Tama Whiti continue to state their opposition to the removal of any horses even though environmental damage is occurring, and that this position is unacceptable to the Department.
6. Note options for involving Ngati Tama Whiti in the future management of the horses have been discussed with them, and that these comprise:
  - a. participation in the Kaimanawa Wild Horse Trust
  - b. Assistance from the department in the ongoing management of horses on their lands.

Hugh Logan  
Director-General

Notes from meeting with T. Batley & T. Wipaki on 23<sup>rd</sup> August 1995 - Post draft plan release - pre 28<sup>th</sup> August W.P. meeting.

Discussed representative 'status'.

Tony described how he interpreted 'ownership' of horses on private land. - As army had taken land to West of Batley Reserve they ~~were~~ the original owners were awarded damages for loss of horses - Therefore Col. Beek (who paid for those horses) owned the horses. T. Batley therefore also had a stake in wild horses on his land. However he stated his interest was not just for a personal benefit, he sees it as a guardianship role for all New Zealanders - as impt. to retain a wild herd of Kaimanawa horses.

Tama Wipaki was there as an interested individual from Ngati tama whiti - not able to represent his people.

Jangata Whenua still not consulted or represented fully. Requested a meeting in the near future before final plan decided & prior to any implementation. to ensure Jangata Whenua views were heard. Suggested the

" " were very interested in the herd. Tama was able to speak only as a private land owner. (Tama gave background to Wairangi claim for army land - because way it was acquired - then ~~Coronel~~ - 49% owners not compensated).

In relation to private land blocks - Batley reserve, Maori land - some leased to Doc & Ohineuaitia station.

T Batley & Tama indicated some horse removal was needed as current lack of management was causing damage to land & ecology - Tony suggested a figure of about 50 horses was appropriate on his land.

Tony made a number of observations about the herd - Motumatai area - horses do have a 'territory' & generally stay within the area - those that move do so for reproduction purposes. He thinks they ~~come up~~ move between the Ago of the Awapoti areas and Motumatai as there is a natural corridor running between these areas.

The horses in the Motumatai don't pose a threat to the Moawhango headwaters - movement doesn't occur between these areas because of natural relief.



He suggested the horses were the saddle between M. Trig & the Stouman Range - the headwaters of the Alexandra Valley has a lot of horses.

Reiterated he & (Tama Wipaki also) does want to retain a small no. of horses in their area. (Dr Roger rec'd 10 areas for protection - 80% of which are Maori land).

Mentioned Dave Humley who reps D.O.C. as leaseholder of K.F. Forest Park in Tongariro National Park Conservancy. Dave agreed with Tony that there were horses in the mine-shaft area - which is one of the few areas places the public can go to see the horses. Horses from Tama's land range into this mine shaft area & back.

Tama is interested in keeping 30-50 horses in 14 blocks agrees with idea that recruitment is from the Argo & Awapatu. Key point "The horses must be allowed to have their place".

No Fencing between boundaries is recog. as a problem as horses can move Sth East of M-Trig or Nth or Sth of the Trig. But don't want fencing between their land & army land

1V

Both Tony & Tama want horses retained in One V. Valley.

Tony & Tama both state the K.W.H.s are different to other horses (hoof-size studied by Tony, the pony-like appearance) -

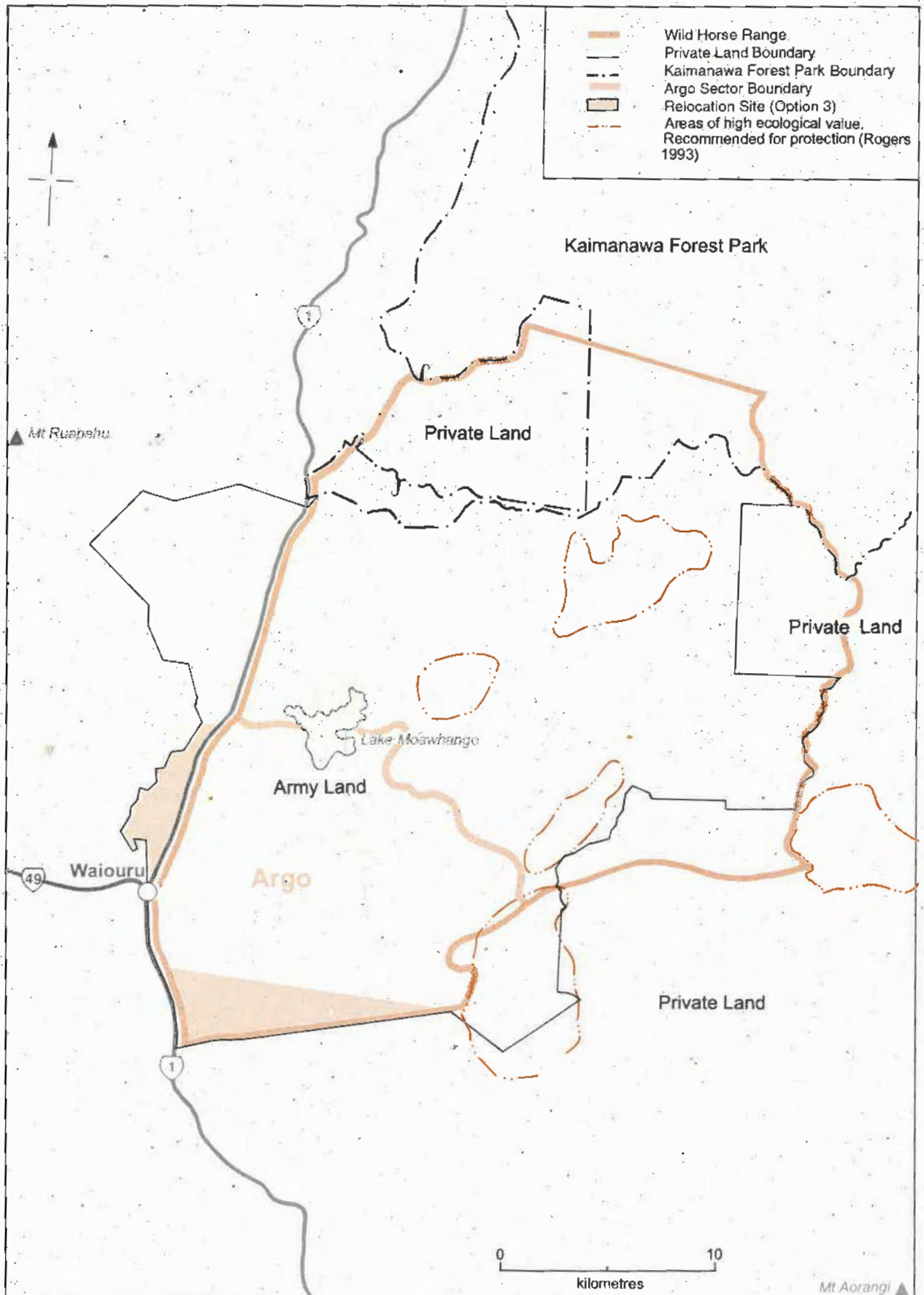
The free-ranging, unmanaged values are also very imp.

Dr B? said K.W.H. appear less prone to bone fractures. Commented on Renard Bush enclosure plots - can see where rabbits & hare have been excluded is much better. Can't see much difference where rabbits & hare & horses have been excluded. The original protection planket was very big & covered unusual areas eg private land.

Mentioned disruption to grazing leases (Mrs Tracy Peters) if relocated here Tony wld liase with a Trust to manage horses on his land, so long as a min. no. of horses was guaranteed. He would see himself as owner of the horses in that event Tama also wishes to share land values (native flora & fauna) with others - but someone has to regain control of horses in conjunction with the proposed Trust. Landowners shld have a right to monitor their own land & adjacent areas.



FIGURE 6 : MANAGEMENT AREAS



**KAIMANAWA WILD HORSES - ONGOING MANAGEMENT**

Briefing for Ngati Tama and Ngati Whiti - 26 July 1996

**1. Outline of programme**

The Kaimanawa Wild Horses plan contains a number of recommendations for the management of the horses. Actions that have been or will be undertaken with respect to the first six recommendations are outlined in the draft operational plan that was handed to Mr Hunter at the Waitaangi Tribunal hearing. That section of the operational plan is reproduced below.

**Implementation of Kaimanawa Wild Horses Plan Recommendations**

The Plan contains six recommendations that are described as strategic preparation to be completed during 1996. These recommendations and a brief summary of implementation (*italics*) to date are;

**Recommendation 1** "Facilitate the establishment of a Kaimanawa Wild Horse Trust, by inviting interested parties to form a "Board of Trustees" and helping them establish a "Trust Deed".

*The Department of Conservation will seek the advice and assistance of members of the working party, that assisted in the development of the Kaimanawa Wild Horses Plan, to implement this recommendation.*

**Recommendation 2** "Negotiate and establish an agreement to enter into a management contract with Army Training Group."

*The Department of Conservation and Army staff have had some initial discussion as to the form that such an agreement may take. Negotiations during the remainder of 1996 will establish the detail of the agreement such as the responsibility for specific actions.*

**Recommendation 3** "Appraise army grazing lease land to determine its suitability for relocation of a representative herd."

*No appraisal has yet occurred (July 1996) Appraisal will occur during the latter half of 1996, before any reduction of the herd in the Argo zone is planned as part of the implementation of Recommendation # 9 of the Kaimanawa Wild Horses Plan.*

**Recommendation 4** "Prepare and establish performance monitoring programmes in the current wild horse range",

*Performance monitoring baselines exist in the areas planned for clearance in 1996. Monitoring includes;*

- transect and photographic vegetation plots in the higher altitude grasslands of the northern sections of the area,*
- exclosure plots established in the Awapatu catchment,*

- special/rare plant plots and transects,
- exclosure plots at Motumatai.

*Additional monitoring points will be established in the remaining area during the 1996/97 summer period.*

**Recommendation 5** "Horse welfare issues must remain paramount in all handling of the horses. Ensure that the principles the working party developed for humaneness are adhered to at all times."

*The principles for humaneness have been incorporated into the protocols and procedures for the ground shooting of horses.*

**Recommendation 6** "Remove the current protected area listing from Schedule IV, once it is certain that agreement between the Department of Conservation and the army can be successfully established to be managed in accordance with the objectives of this plan."

*The Army supported the Minister of Conservation's request to Cabinet for uplifting the protection of the herd and during that process indicated their support for the plan. The protected area listing was removed by Order In Council on 2 May 1996.*

## 2. Operational Plan

The operational plan has been developed and includes the following actions:

### a. Census of herd:

The Department is planning to undertake a census of, at least, that portion of the herd located in the area south and west of Westlawn hut and in the Motumatai area north from the Army/Ohinewairua station boundary. The census will take place as soon as weather conditions allow. The Department intends to invite Mr Wipaki to take part during at least that part of the census covering the Oruamatua Kaimanawa 1U, 1V and 1W blocks. Further involvement may be possible but the number of seats available in the helicopter is limited and the Department must involve other interest groups as well.

### b. Culling operation:

#### *Army land*

The Department intends to begin culling operations when the census of the above are is complete, provided that the number of horses present exceeds the 800 necessary to provide for full implementation of the plan. Culling operations will initially be undertaken in the most ecologically sensitive areas. Culling will only occur up until the end of August. Culling operations would not start again until April 1997.

### *Private land*

The Department intends to discuss the management of horses on lands adjacent to the Army training area with the owners of that land. The Department will be seeking (in accordance with the plan) management of the horses on those lands that is compatible with management on the adjoining private land. No culling on private lands would occur without the consent of the owners.

### 3. Consultation with Ngati Whiti - Ngati Tama

The Department is willing to meet with Whiti Tama at a mutually convenient time and place. The Department would seek to reassure Whiti Tama that;

- 1) No action will be undertaken on land which remains in Whiti Tama ownership without the agreement of the owners.
- 2) The plan for the Kaimanawa horses does not seek to eradicate the horses either entirely or from lands that are within the rohe of Whiti Tama.
- 3) Opportunities for future exploitation of the horses as a tourist resource are not jeopardised by the plan.
- 4) That there are opportunities for Whiti Tama to participate in the ongoing management of the horses either;
  - a) by management of horses remaining on land still owned by the iwi, or
  - b) participation in the proposed Kaimanawa Wild Horses Trust.

The Department would endeavour to explain the ecological and landscape values that it believes are being threatened by the presence of horses in the sensitive habitats of the Moawhango area.

Bill Fleury  
SCO (Wild Animal Management)  
for Regional Conservator



"BF7"



# Northern Ruahine Battle for our Birds 2017

## Monitoring Summary

Author: Sue Moore, Senior Ranger Biodiversity Manawatu Operations District





Cover image: *Whio surveying in Mangatera catchment*, February 2018. Photo by Anthony Behrens.

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## 1. Northern Ruahine BFOB Operation

On 13-15 November 2017, an aerial 1080 operation was carried out across 30,260 ha of public conservation land and 2,562 ha of private land (the Awarua o Hinemanu block) in the Northern Ruahine Ranges.

The operation was carried out to protect the high biodiversity values of this site from rodents and mustelids in response to a beech mast that occurred in 2017 and from possums as the site has not received possum control since 2010.

## 2. Monitoring Overview

The pest control aimed to decrease the abundance of rodents (rats and mice), mustelids (weasels, stoats and ferrets) and possums within the treatment area to protect a wide range of native species within the treatment area, including whio (blue duck) and the giant land snail *Powelliphanta marchanti*.

To monitor the results and outcomes of the operation, three species were chosen for monitoring:

- Rats (pest species that prey on native animals including *Powelliphanta marchanti* and provide a major food for stoats, driving stoat population increases)
- Whio (taonga species sensitive to stoat predation)
- *Powelliphanta marchanti*. (taonga species sensitive to rat and possum predation).

## 3. Rats

### 3.1. Result target

The result target for this operation was a Rat Tracking Index of < 2% within six weeks of the operation.

### 3.2. Method

Tracking tunnels were used to monitor rat abundance. Sixteen rodent monitoring lines were set up within the operational area. Each line consists of 10 tracking tunnels at 50 m spacings and is 450 m long. Manawatu Operations team staff and contractors carried out the first rodent monitor on 8 June 2016. Subsequent monitors have been carried out by DOC's national biodiversity monitoring team.



Fig 1. Closeup of a tracking card showing inked area on left and rat footprints on the right.  
Photo by Anthony Behrens.

### 3.3. Results

The result target was met.

Table 1. Rodent tracking abundance measured using footprint tracking tunnels.

Date tracking tunnel papers put out	Rat tracking index	Mouse tracking index
8 June 2017 (pre-operation)	11%	3%
7 December 2017 (3 weeks post-operation)	0%	0.6%
27 January 2018	0%	0.6%
7 May 2018	1%	16%

## 4. Whio

### 4.1. Outcome target

Repeated counts of whio over the next 5 years using trained whio dogs in two catchments show no decline.

## 4.2. Methods

Whio surveys using a trained whio dog are more accurate than any other survey technique. The Apias catchment in the eastern side of the Northern Ruahine was surveyed using a trained whio dog in November 2010 and December 2016. The Mangatera catchment in the west was surveyed using a trained dog in November 2009 and December 2016 (see table below).

Whio populations in the Apias and Mangatera catchments were surveyed in late February 2018. The Apias catchment was surveyed by conservation dog Fern with her handler and a Manawatu DOC ranger. The Mangatera catchment was surveyed by conservation dog Beau with her handler, a Manawatu DOC Manawatu ranger and a volunteer.

These surveys will be repeated annually for the next four years, to monitor the whio population over time.

## 4.3. Initial results

Counts from these surveys are summarised in the table below. Duckling age classes range from newly hatched (class 1) to nearly fledged (class 5).

**Table 2. Whio counted in the Apias and Mangatera catchments during dog surveys in 2010, 2016 and 2018**

Catchment	Survey date	No. pairs	No. singles	No. ducklings	DOCCM ref
Apias	27-30 Nov 2010	2	8	0	682165
Apias	13-16 Dec 2016	3	5	6 (class II)	2945726
Apias	27 Feb – 1 March 2018	4	6 adult + 1 juvenile	4 (class IV) and 4 (class V)	
Mangatera	1-3 Nov 2009	5	7	7 (2 broods)	515069
Mangatera	13-15 Dec 2016	3	7	6 (class II)	2945726
Mangatera	27 Feb – 1 March 2018	2	3 + 12 juveniles		

# 5. *Powelliphanta marchanti*

## 5.1. Outcome target

The incidence of recent possum predation on *Powelliphanta marchanti* within the operational area is significantly lower than that outside the operational area within 7 months of the operation.

## 5.2. Methods

Ten 100 m<sup>2</sup> plots outside or along the boundary of the operational area (Mokai Patea plots) and ten 100 m<sup>2</sup> plots within the operational area (Ruahine Corner plots) were carefully searched for all *Powelliphanta marchanti* (dead and alive) as per the national *Powelliphanta* monitoring protocol.

A team of four monitored seven of the Mokai Patea plots (Mokai plots 1, 2, 3, 4, 5, 6, 8) on 14 – 16 March 2018. A team of five monitored the other three Mokai Patea plots (Bruce Ridge plots 1, 2, 3) on 8–9 May 2018. A team of four monitored the Ruahine Corner plots 7 – 10 May 2018. A volunteer assisted on 7–8 May 2018 photographing the Ruahine Corner snail monitoring.

Each team was led by someone experienced in monitoring *Powelliphanta*, and the likely predator identities of any predated shells were recorded and later verified by independent experts based in Nelson.

The results were analysed using a Fisher exact test to determine if the difference in predation rate by possums was significant.

## 5.3. Results

Across the 10 Ruahine Corner plots a total of 43 live, 52 empty and 12 predated shells were found. Across the 15 Mokai Patea Range plots a total of 52 live, 59 empty and 15 predated shells were found. The identities of predators at both sites are listed in Table 1.

**Table 3. Total numbers of predated snails from Ruahine Corner and Mokai Patea snail monitoring plots.**

Site	Possum predation	Rat predation	Pig predation	Thrush predation
Mokai Patea	14	1	0	0
Ruahine Corner	0	0	9	3

Note the Ruahine Corner plots are all within the Battle for our Birds operational area. The Mokai Patea plots are either outside or just on the boundary of the operational area.

The Fisher's exact tests found there was a highly statistically significant difference in possum predation rates between the two sites both when possum predation between sites was compared with the number of live snails found ( $P=0.0007$ ) and with the number of live and other recently depredated snails ( $P=0.0002$ ).



## 6. Discussion

The result target for the 2017 Northern Ruahine Battle for our Birds operation was a “*Rat Tracking Index of < 2% within six weeks of the toxic application.*” This was achieved; 3 weeks after the operation rat tracking was at 0%.

Rat tracking has remained low since the operation and was at 1% in May 2018. However, temperature-based beech mast predictions and samples collected in March 2018 suggest a beech mast is highly likely in the 2018/2019 summer. Rodent tracking will continue to be monitored at approximately 3-monthly intervals to assess rat populations at this site.

Achievement of the outcome target for whio will not be known until 2022 (*repeated counts of whio over the next 5 years using trained whio dogs in two catchments show no decline*). However, the high number of nearly fledged ducklings and juveniles seen in 2018, despite extensive storm damage to the rivers within the past 12 months, was encouraging.

The outcome target for whio was set over a 5-year period due to the small numbers of birds involved in the catchments surveyed. The small sample and dynamic nature of the waterways involved would make it difficult to determine any significant changes from year to year, and a trend over a longer time period is likely to be a more reliable indicator of the effects of pest control.

The outcome target for *Powelliphanta marchanti* was achieved (*the incidence of recent possum predation on Powelliphanta marchanti within the operational area is significantly lower than that outside the operational area within 7 months of the operation*) with no possum predation recorded at Ruahine Corner.

The Ruahine Corner *Powelliphanta* monitoring also highlighted that pigs are preying on the *Powelliphanta* at this site. In addition to the pig-predated snail shells that were picked up inside the monitoring plot, numerous shells were picked up outside of the plots. Pig control will need to be undertaken at this site to protect the snails, but careful thought will need to be given to control techniques given the remote location of the site and presence of kiwi in the area.



Fig 2. A few of the pig predated snails found near Ruahine Corner. Photo by Sue Moore.



Fig 3. Pig rooting in *Powelliphanta marchanti* habitat, Ruahine Corner. Photo by Sue Moore.