



CONSERVATION
TE PAPA ATAWHAI

CONSERVATION ADVISORY SCIENCE NOTES

No. 10

COMMENT ON PROPOSED EXPERIMENTAL CONTROL OF WASPS ON
TUHUA ISLAND USING 1% 1080 IN WATER

(Short Answers in Conservation Science)

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Location: NZMS

COMMENT ON PROPOSED EXPERIMENTAL CONTROL OF WASPS ON TUHUA ISLAND USING 1% 1080 IN WATER

E.B. Spurr

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INTRODUCTION

The Department of Conservation has proposed using 1% 1080 in water for experimental control of wasps on Tuhua (Mayor) Island (Appendix 1). Wasps are a problem on the island because they scavenge for food and water in the camping ground and sometimes annoy and sting people. They also sting people when nests close to walking tracks are disturbed.

The proposal to use water for bait is based on the observation that there is a shortage of fresh water on the island and this appears to be a limiting factor for wasps. The proposal is novel but feasible. Wasps require water. If there is a water shortage then wasps will be attracted to water baits.

Specific comments on the proposed method of bait application and monitoring follow.

METHOD OF POISON BAITING

The Department of Conservation has proposed (Appendix 1) that "shallow flat trays of water will be placed in clearings at either end of South East Bay in December and left out until large numbers of wasps have established these as water collecting points. Trays will ... be kept topped up with 10-15 mm of water until wasp drinking patterns are well established, at least 8 days of no rain have occurred, and forecast is good for next 2 days." "If wasp usage at any tray is not great it may be tried at a new location." " When conditions of wasp usage and weather are right the trays would be emptied of water at dawn and refilled with 1% 1080 solution. The 1% 1080 solution would be left for 36 hours, then removed ..."

Comments:

1. Two trays of water (one at each end of the bay) may be insufficient. It should be possible to determine this by counting the number of wasps drinking water at two trays then putting out a third tray and seeing whether the total number of wasps drinking water increases (although the number per tray may decrease).
2. It is not clear why at least 8 days of no rain are required before poisoning. Is this the time required to ensure that there is no surface water on the island?
3. Replacement of non-toxic water with toxic water may not be best done at dawn. Few wasps may use the water trays early in the morning. The daily pattern of water usage by wasps should be established during pre-feeding. Non-toxic water could be removed the night before poisoning. However, toxic water should only be put out when the number of wasps collecting water is expected to be near peak for the day (possibly about 10 am).

4. It may not be necessary to leave the 1% 1080 solution out for 36 hours. If there has been sufficient pre-feeding, the amount of toxic water collected by wasps will probably decline to near zero after about 6 hours. The instruction should be to leave the 1080 solution out for as long as wasps continue to collect it.
3. To reduce risks to nocturnal non-target species, the 1080 solution could be removed or covered overnight. Non-toxic water could be put out the next day to determine whether it was necessary to put out more toxic water.

MONITORING THE EFFECTIVENESS OF POISON BAITING

The Department of Conservation has proposed to monitor "wasp usage" at the two water trays, at two non-toxic fish bait stations, and at any nests located close to South East Bay. Use of water trays by non-target species would also be monitored.

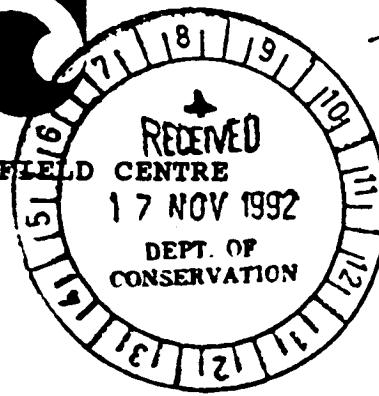
Comments:

1. Wasp usage of water trays. There are no details of how wasp usage of water trays will be monitored; e.g., by counting the number of wasps using the water trays at one "instant" in time, counting the number of wasps arriving at or departing from water trays per unit time (1 minute, 5 minutes, 30 minutes?), or measuring the amount of water removed by wasps? (Dehydration controls would be needed for the latter). How often will counts be made (daily, every second day, weekly)? Time of day of counts and weather conditions will need to be standardised as much as possible (e.g., after 9 am and before 4 pm each day, in fine weather). I suggest "instantaneous" counts, initially at daily intervals. On at least one day before poisoning counts should be made at hourly intervals to establish the time of day when most wasps are using the water trays. This will assist with deciding the best time of day to put out the toxic water.
2. Non-toxic fish bait stations. Preferably have 10 rather than 2 stations. I suggest counting the instantaneous number of wasps using stations on the same days as the number of wasps using water trays are counted.
3. Wasps nests. There are no details of how these will be monitored. I suggest counts of wasp traffic (i.e., number of wasps leaving the nest entrance per minute). Counts should be made about the same time of day (after 9 am and before 4 pm).
4. Non-target species. There are no details of how these will be monitored. I suggest they be counted in the same way and at same time as wasps are counted. I presume that if non-target species are attracted to non-toxic water then toxic water will not be put out.

APPLICATION FOR EXPERIMENTAL USE PERMIT

Use of 1080 in water to control wasps requires an Experimental Use Permit from the Pesticides Board. Application for the permit must be made on the attached form (Appendix 2). A draft proposed label is appended (Appendix 3).

TAURANGA FIELD CENTRE



16 November 1992

Our Ref: MAYOR1

To: BOP Conservancy

Attention: Regional Conservator

From: Alan Jones, Tauranga Field Centre Manager

Subject: PROPOSAL FOR EXPERIMENTAL WASP CONTROL : MAYOR ISLAND

The Mayor Island Board of Trustees have asked the Department of Conservation to undertake joint wasp control at Mayor Island.

Background: Mayor Island enjoys a warm maritime climate and many wasp nests winter over while hibernating queens probably emerge earlier than on the mainland.

The island vegetation is dominated by Pohutukawa and rewarewa, both of which are good nectar sources in early summer, allowing nests to build up quickly from November to January. By late January the pohutukawa and rewarewa flowers have finished and the wasps start scavenging. This coincides with the peak recreational activity at the island and creates a serious problem at the only campground on the island at South East Bay.

There are no running streams or surface water on Mayor Island apart from two lakes in the crater and two small springs which quickly soak into the porous pumice soil. The porous nature of the substrates also prevents ponding of surface water and rainfall quickly soaks away.

It has been noticed during previous work at Mayor Island that the shortage of fresh water during dry summer periods is a limiting factor for wasps. The highest densities of wasps are to be found in the crater area near the two lakes and around the coastal fringe at Te Ananui flat and the south-western side of the island where there are fresh water seeps down the cemented pyroclastic cliff faces from jointing cracks in the pyroclastic flows. There were, however, a number of nests scattered throughout the island at locations at least $1\frac{1}{2}$ kilometres from the nearest known fresh water sources, and the enormous volume of wasps observed gathering water around the crater lakes and leaks in the piped borewater at South East Bay suggests that at Mayor Island wasps may be travelling long distances to water.

The Problem: High numbers of wasps coinciding with peak visitor numbers to Mayor Island create two separate problems

1. Nests close to walking tracks mean trampers are being stung when the nests are disturbed. Scattered throughout island, but highest densities close to crater lakes and coastal areas in South West. Can be dosed with carbaryl powder when located.
2. Hungry wasps scavenging for food and wasps collecting water from around taps, toilets, leaks, etc., creating problems at South East Bay campground.

The practical solution to this problem is to poison the wasps. Either a standard sardine/1080 bait could be used to poison these wasps or a 1% 1080/water solution.

The Proposal : An experiment to trial poisoning of wasps at South East Bay using 1% 1080 in water.

Method: All leaks in the pipework at the campground will be repaired or screened and shallow flat trays of water will be placed in clearings at either end of South East Bay in December and left out until large numbers of wasps have established these as water collecting points. Trays will be elevated to exclude ground invertebrates and reptiles, covered with bird netting to exclude birds, fenced with standards and netting and signposted to deter people interference.

Trays will contain flat stones or other suitable material to allow wasps to settle and drink, and will be kept topped up with 10-15mm of water until wasp drinking patterns are well established, at least 8 days of no rain have occurred, and forecast is good for next 2 days.

The water volume to fill the tray to a prescribed level will be carefully measured to enable accurate calculation of 1% solution required.

When conditions of wasp usage and weather are right the trays would be emptied of water at dawn and refilled with 1% 1080 solution. The 1% 1080 solution would be left for 36 hours, then removed and poured into prepared pits at a suitable disposal site, buried along with the stones or other material from the tray. Trays would be washed, replaced and refilled with fresh water. Trays could be monitored by personnel during daylight hours to ensure public safety and record the effect on wasp traffic. Trays would be left out filled with water over the summer period and if wasp numbers increased again in late summer the poisoning could be repeated.

Monitoring : Trays would be placed out in early December and monitored to record wasp usage. If wasp usage at any tray is not great it may be tried at a new location. Monitoring would continue throughout the summer especially up to the poisoning and immediately afterwards. At the same time a fish bait non-toxic station would be set up in the centre of the bay and wasp traffic recorded pre and post poisoning. A further non-toxic fishmeat bait station could be established and monitored at the northern end of Western Bay approximately 400 metres from the nearest water tray.

Any nests located close to South East Bay would also be monitored pre and post poisoning. Use of the water trays by non-target species would also be monitored.

Advantages of Water as a Carrier for 1080 for Wasps :

The prefeed is very simple. Non-toxic trays can be left out all summer. No deterioration of non-toxic bait - ease of handling. Non-toxic trays useful to monitor wasp use pre and post poisoning. Toxic stock solution easily transported and stored safely - easily mixed - unused toxic 1% solution easily disposed of safely.

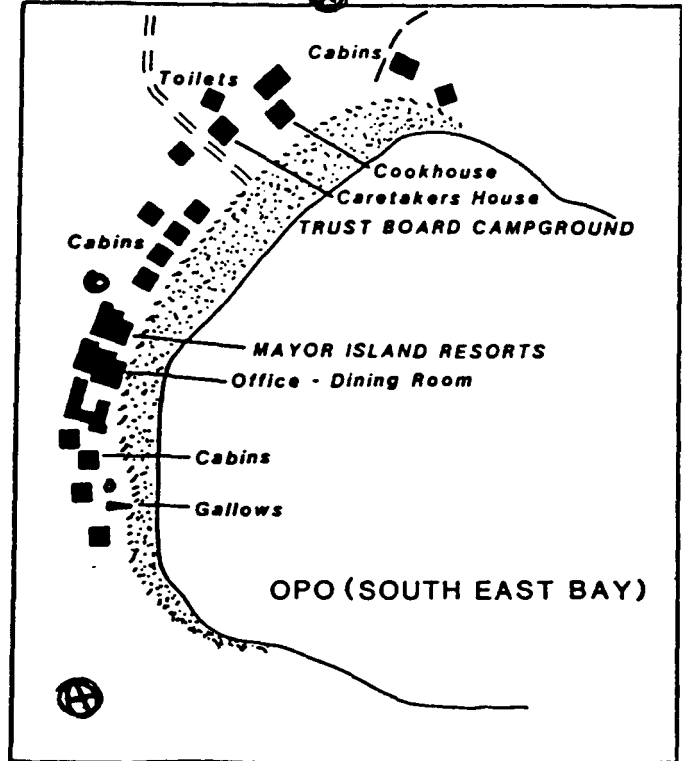
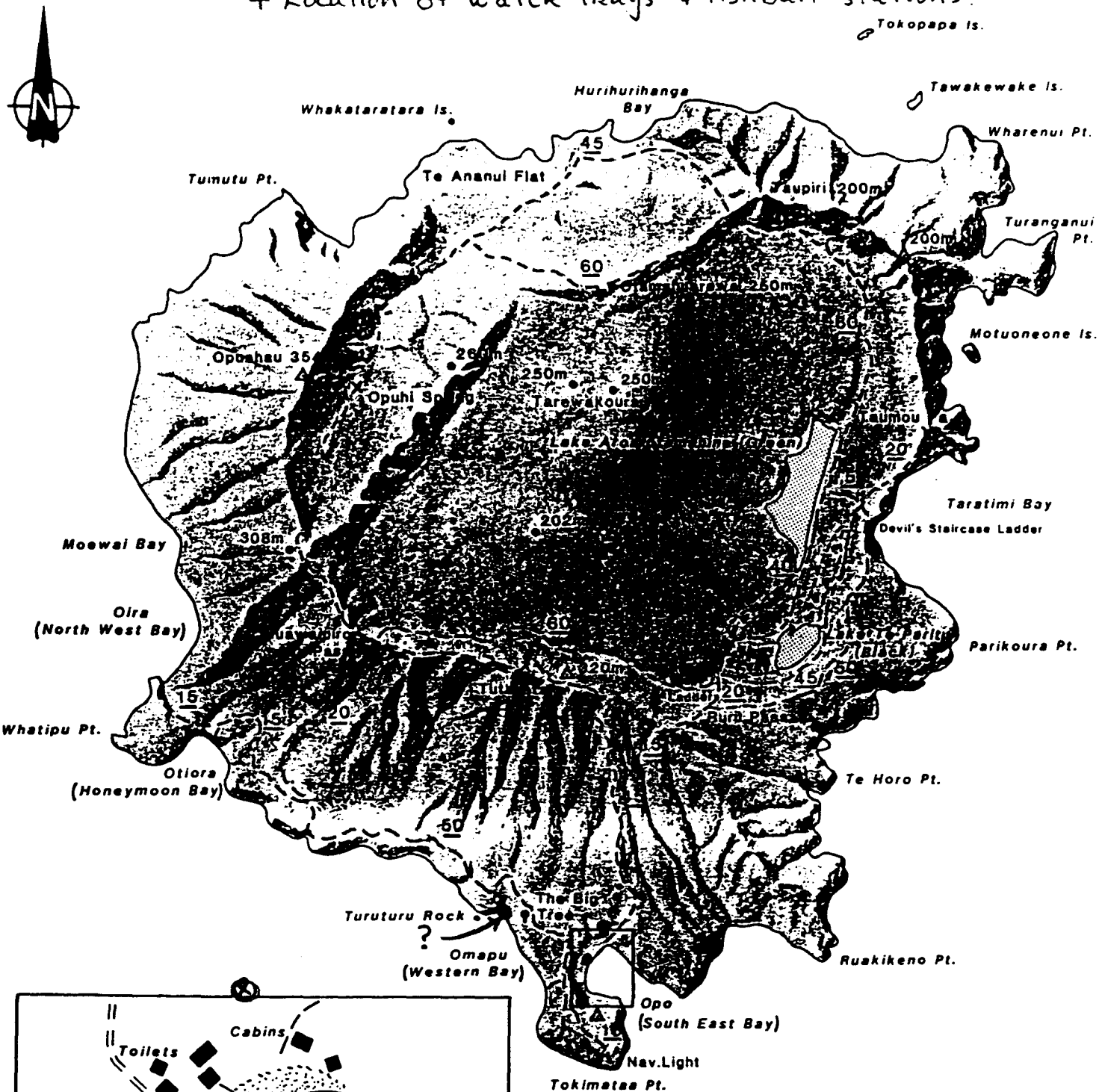
Other Non-target Species: Birds, reptiles and ground invertebrates can be easily excluded by careful screening and placement of trays. There are no honey bees on Mayor Island though there are bumblebees and blowflies. The smaller sizes of bird mesh should exclude the large bumblebees but it is not known what other non-target invertebrates may be attracted to the water trays until monitoring has commenced.

Logistics: There are people employed by the Board of Trustees who reside on the island and can undertake monitoring, filling water trays and fishbait stations. Tauranga Field Centre staff frequently visit the island in the course of other activities and have two staff with 1080 operators certificates who can undertake the poisoning and oversee the monitoring.

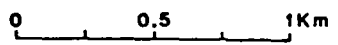


A.J. Jones
Field Centre Manager

TUHUA (MAYOR ISLAND) WALKING TRACKS + Location of water trays + fishbait stations.



Walking Tracks	--
Approximate walking times between track junctions	<u>70</u>
Height (metres)	250m
Swamp	☛
Trig Station	△
Location water trays	⊗
Location non-toxic fishbait stations	●



Application Form for
Experimental Use Permit
(Not for Sale) pursuant
to the Pesticides Act 1979
(Three copies required)

FOR OFFICE USE ONLY
EUP NO.

APPLICATION FOR AN EXPERIMENTAL USE
PERMIT (NOT FOR SALE)

NEW PRODUCT)
~~NEW USE FOR PRODUCT WHICH HAS EUP (NS)~~) Delete as
~~NEW USE FOR PRODUCT WITH EUP (LS)~~) appropriate
~~NEW USE FOR PRODUCT ALREADY REGISTERED~~)

Trade Name and/or Code
No. of Pesticide

1% 1080 SOLUTION

If Confidential EUP
sought specify

Name and Address of
Company seeking permit:

Department of Conservation

PO Box 10420

Wellington

Name and Address of
Manufacturer of active
ingredient:

Common Name (if any)

Compound 1080

Chemical Name (IUPAC)

Sodium fluoroacetate

Structural Formula of
Active Ingredient:

C₂H₂FNaO₂

Use Category (Herbicide,
insecticide etc):

Insecticide

Concentration and Units
of active ingredient:
(g/kg for solids, g/litre
for liquids):

10g / litre

Type of Formulation
(Wettable powder,
Emulsifiable
Concentrate)

Ready to use liquid

Scope and aim of experiments
in New Zealand (may be
attached as a supplementary
statement if required)

Trial to reduce wasp numbers in
the camping ground at South East
Bay, Tuhua (Mayor) Island,
January - February 1993

Quantity requested for EUP:

10 litres

Toxicity to Humans and
Animals:

LD₅₀ = 0.22 mg/kg (rat)
acute oral

First Aid Treatment:

If swallowed drink water,
induce vomiting
GET TO A DOCTOR

ENCLOSURES: Two copies of methods of analysis and experiment data
if available.

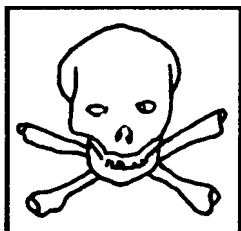
Four copies of the proposed label.

Signature: _____

Designation: _____

Date: _____

Deadly Poison



1% 1080 SOLUTION

FOR EXPERIMENTAL USE ONLY. NOT FOR SALE.

CONTAINS: 10g/litre sodium fluoroacetate.

WARNING: Extremely dangerous if swallowed or absorbed through the skin.

PRECAUTIONS: Only a 1080 LICENSED OPERATOR can apply this product. Wear protective clothing. Apply only in bait stations. For accidental contact, thoroughly wash affected area.

SPILLAGE: Soak up if possible, otherwise dilute spillage with water.

SYMPTOMS OF POISONING: Nausea, vomiting, tingling and numbness in face and hands, stomach pains, apprehension and anxiety.

FIRST AID: If swallowed drink water, induce vomiting. GET A DOCTOR.

Experimental Use Permit (Not for Sale) No.

Issued pursuant to the Pesticides Act 1979.

Manufactured by Department of Conservation, Wellington.

Net contents: 1 litre