DEPARTMENT OF CONSERVATION TECHNICAL SERIES No. 4

MONITORING AND CONTROL OF MUSTELIDS ON CONSERVATION LANDS PART 2. FIELD AND WORKSHOP GUIDE

by
C.M. King, Colin F.J. O'Donnell,
and Stephen M. Phillipson

PUBLISHED BY
DEPARTMENT OF CONSERVATION, WELLINGTON, NEW ZEALAND

ISSN 1172-6873

ISBN 0-478-01583-6

Cataloguing-in-Publication data

King, C. M. (Carolyn Mary)
Monitoring and control of mustelids on conservation lands. Part 2: Field and workshop guide / by C.M. King, Colin F.J. O'Donnell, and Stephen M. Phillipson. Wellington, N.Z. : Dept. of Conservation, 1994.
1 v. ; 30 cm. (Department of Conservation technical series, 1172-6873 ; no. 4.)
Includes bibliographical references.
ISBN 0478015836
1. Mustelidae--Research--New Zealand. 2. Pests--Control--New Zealand. I. O'Donnell, C. F. J. (Colin F. J.), 1958- II. Phillipson, Stephen M. (Stephen Mitchell), 1959- III. New Zealand. Dept. of Conservation. IV. Title. V. Series: Department of Conservation technical series ; no. 4.
599.744470993 639.960993 20
zbn94-028809

Keywords: footprints, scats, dens, tracking, live trapping, Fenn trapping, anaesthetising, ear tagging, baiting, density index, age determination, conservation management

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MONITORING AND CONTROL OF MUSTELIDS ON CONSERVATION LANDS

PART 2: FIELD AND WORKSHOP GUIDE

by

C.M. King[1], Colin F.J. O'Donnell[2], and Stephen M. Phillipson[3]

[1] Department of Biological Sciences, Waikato University, Hamilton, New Zealand
[2] Science and Research Division, Department of Conservation, Private Bag, Christchurch, New Zealand
[3] Waimakariri Field Centre, Department of Conservation, PO Box 8, Arthur's Pass, Canterbury, New Zealand

ABSTRACT

This guide describes present standard techniques for monitoring and trapping (alive or dead) the three species of mustelids in New Zealand. Field signs indicating the presence of mustelids include tracks, scats, and dens, but all are hard to find; established populations can be monitored by a network of footprint recording tunnels. Live-trapping is practicable only if the target population is at sufficient density. For stoats and weasels, the wooden Edgar live-trap is recommended, and handling under anaesthetic is necessary, but ferrets usually tolerate wire mesh traps and handling while conscious. The routine work of kill-trapping using the Fenn trap is described in detail, including the working and maintenance of the trap, choosing and spacing of trap sites, design and placing of tunnels, lures and baits, recording results, calculating a density index, determining the sex and age of captures and assessing the effectiveness of the campaign. No poisons are registered for use against mustelids at present.

1. INTRODUCTION

This guide outlines practical instructions on the use and maintenance of Fenn traps, tracking tunnels and live-traps for stoats. The same techniques, with minor modifications, can be applied to ferrets and weasels where they are present.

The small-page format has been chosen so that field operators can conveniently have a separate set of practical instructions to put in their pockets.

However, it is important that Part 1 (King 1994) is read first. The content of Part 2 assumes that the reader has already done this.

For Fenn trapping, the general technique described is based on early experimental trials in Fiordland by King (1980), recently improved by refinements developed by Dilks *et al.* (1992) during a threatened species management programme for mohua, or yellowhead (*Mohoua ochrocephala)* (O'Donnell *et al.* 1992; O'Donnell 1992). The method is designed to provide a cost effective, practicable control technique in a limited area.The field instructions cover trap setting, placement and spacing, bait types, and a guide to the aging and sexing of captured mustelids. Advice on planning a trapping operation of this and other types, and on assessing its performance, is given in Part 1 (King 1994).

For tracking tunnels, the instructions cover construction of tunnels and preparation of ink and paper, plus the routine of setting and checking the tunnels. The published system (King and Edgar 1977) has been improved by recent work at Forest Research Institute (Anon. 1991).

The construction and operation of the Edgar live-trap are described, plus the technique for handling live mustelids under anaesthetic, summarised from King and Edgar (1977) and King (1973).

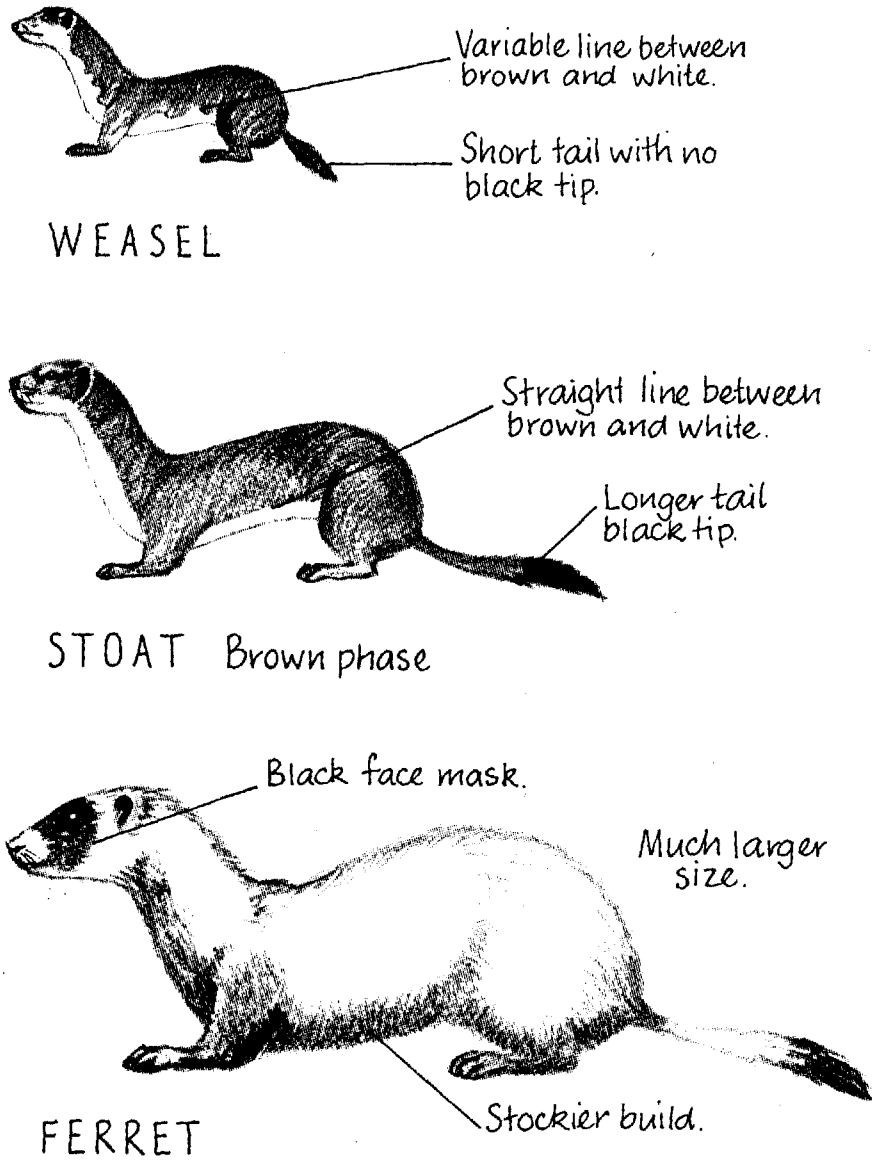

Fig. 1 **Distinguishing the three species of mustelids In New Zealand. (C. Cass)**

Table 1 Distinguishing characters of stoats, weasels, and ferrets.

Character		Stoat	Weasel	Ferret
Coat				
Colour of body		Brown and white	Brown and white	Variable
Colour of legs		Brown	Brown	Black
Markings		Black tail tip	None	Black face mask
Size (New Zealand means and individual ranges)				
Length head + body	♂	284 mm (204–312)	217 mm (171–239)	417 mm (382–438)
	♀	256 mm (223–282)	182 mm (178–186)	350 mm (343–367)
Body weight	♂	324 g (160–475)	126 g (72–185)	1 200 g (789–1750)
	♀	207 g (102–314)	57 g (47–67)	600 g (403–885)
Breeding				
Age at first mating	♂	1 year	3–4 months	1 year
	♀	1–2 months	3–4 months	1 year
Gestation period[1]		220–380 days	35–37 days	41–42 days
Litter size —potential		0–20	0–11	0–12
—usual		4–8	3–6	4–8
Survival				
Average lifespan		< 1 year	< 1 year	? < 1 year
Max. lifespan		3–8 years	2–3 years	? 5–10 years
Mortality in 1st year		30–80%	75–90%	?

Active gestation 28 days; the rest of the time is due to "delayed implantation", when the development of the embryos is temporarily halted. The delay is compulsory for all female stoats, and the result is that the young born in one spring were conceived in the previous spring. See King (1989), chap. 9.

2. FIELD SIGNS OF MUSTELIDS

To identify the three species of mustelids present in New Zealand, see Table 1 and Fig. 1.

2.1 Footprints

All mustelids have five toes on each foot, furred between the pads. Their typical gait when moving across an open space is a bounding gallop. In snow or on sand, they leave a trail of indistinct small footprints grouped together with large gaps in between. Fine prints in soft mud may clearly show the whole length of the foot, including the long heel of the hind foot (Fig. 2a and 2b). Tracks on a harder surface show only the pads, arranged in a shallow semicircle. The sizes of individual tracks and the lengths of the bounds vary with the size of the animal and the ground surface, but are roughly as given in Table 2.

2.2 Scats

Scats (droppings) are easily identified.All mustelids produce long, thin scats, often with a characteristic tapering point or twist at each end (Fig. 3). They are filled with fur, feathers and bone fragments (seldom any undigested meat), hard and black when dry, and often carefully placed in a conspicuous position, e.g., on a stone in the middle of a track. The differences between the three species hinge only on size.

Table 2 Field sign of mustelids.

		Approx. Measurement (mm)[1]		
		Ferret	Stoat	Weasel
Tracks				
Front foot	width	35	22	10
	length	35	20	13
Hind foot	width	35	25	13
	length	50	42	15
Bounding stride		450–500	300–500	250–300
Scats				
Length		40–70	40–80	30–60
Width		10	7	6

[1] There is too much variation between individuals and sexes to allow positive identification to species in most circumstances.

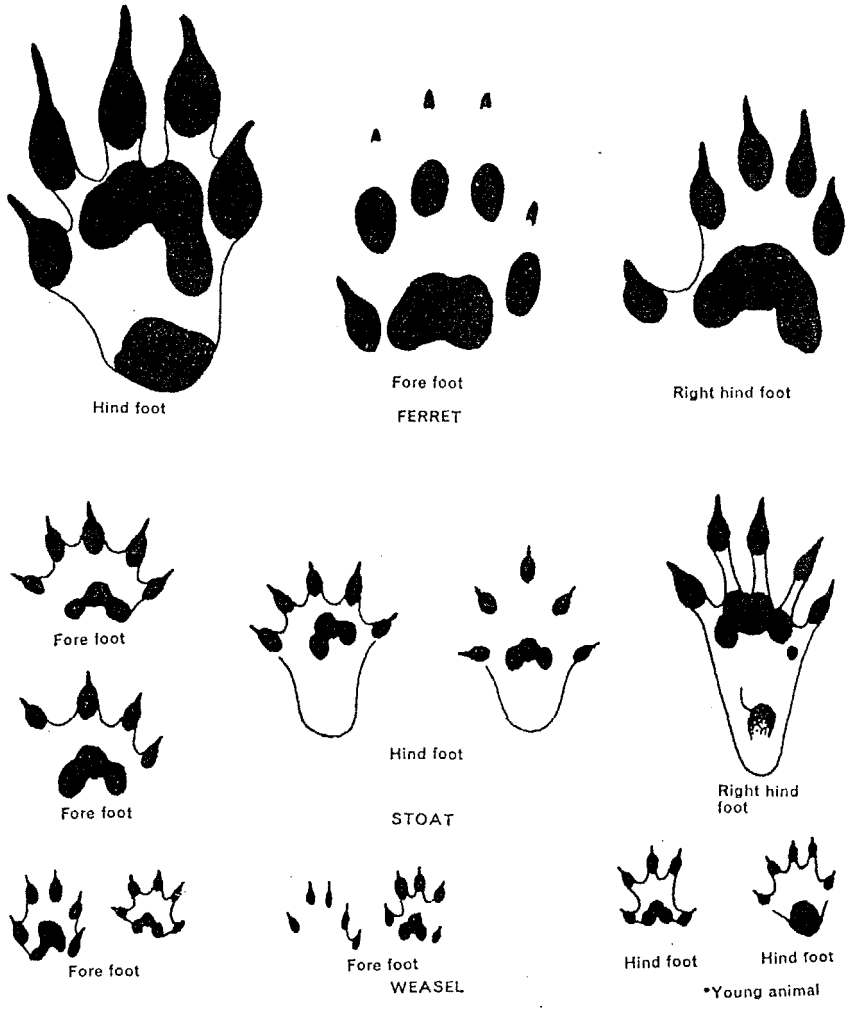

Fig. 2a Idealised tracks (individual footprints) of mustelids. Real tracks are seldom as clear as these. (Lawrence and Brown 1973)

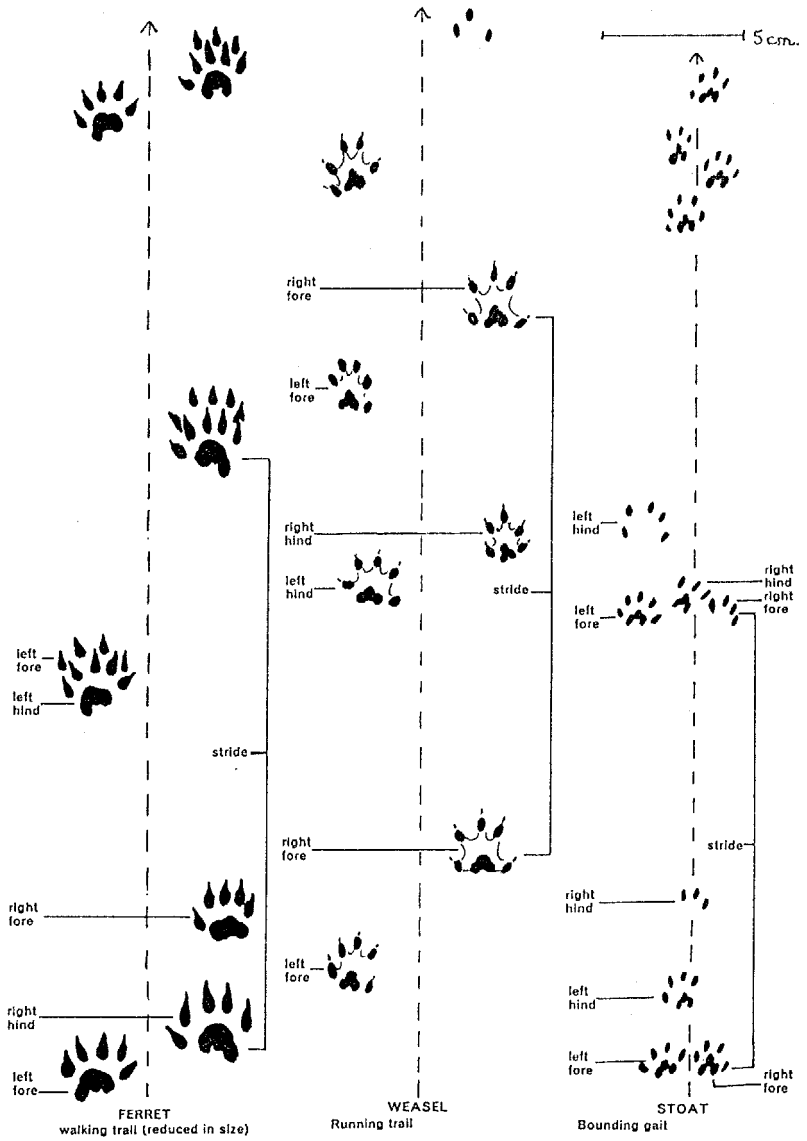

Fig. 2b Idealised trails (sequences of footprints) of mustelids. Real tracks are seldom as clear as these. (Lawrence and Brown 1973)

2.3 Signs of kills

Mustelids always carry a kill under cover if possible, so signs of their work are rare. Toothmarks in small eggs can be diagnostic (Fig. 4); chicks are usually removed cleanly from a nest. "Messy" remains (smashed eggshells, chewed carcases, disturbed nest lining) are more typical of the work of a rat than a mustelid (Moors 1978). Otherwise, mustelid kills are not specifically distinguishable from those of other predators.

2.4 Dens

Mustelids use several dens and resting places scattered through their home range. They usually take over the ready-made den of some other small mammal - in New Zealand, most likely that of a possum or a rat. The den may be under a pile of brush or logs, in a tree (in a hole or amongst epiphytes), amongst tree roots, in a stone wall or under a building. On open ground such as grazed pasture, dens may be found along fencelines or under old sheets of corrugated iron. The entrance is small and inconspicuous, and not likely to be visible from any distance.

Dens are very hard for a human searcher to find unaided, unless the activities of the owner are visible to the casual observer. For example, at Arthur's Pass in February 1977, a stoat had a den under one of the motel cottages, and its comings and goings were reported on six different days by six different people. But in forest, the only effective way to find dens is to live-trap and

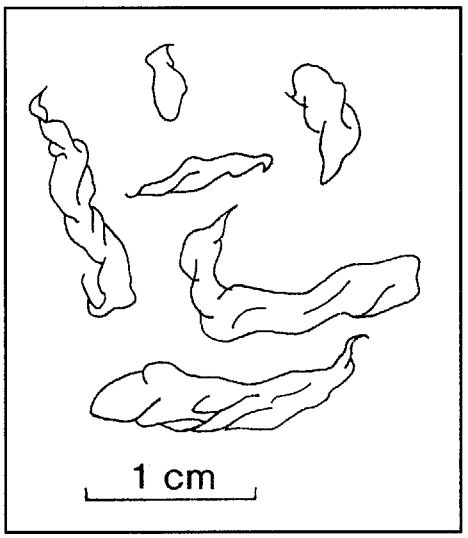

Fig. 3 Scats of mustelids are dry; filled with tufts of hair and bits ol broken bone and insect cuticle.
(C.M.King]

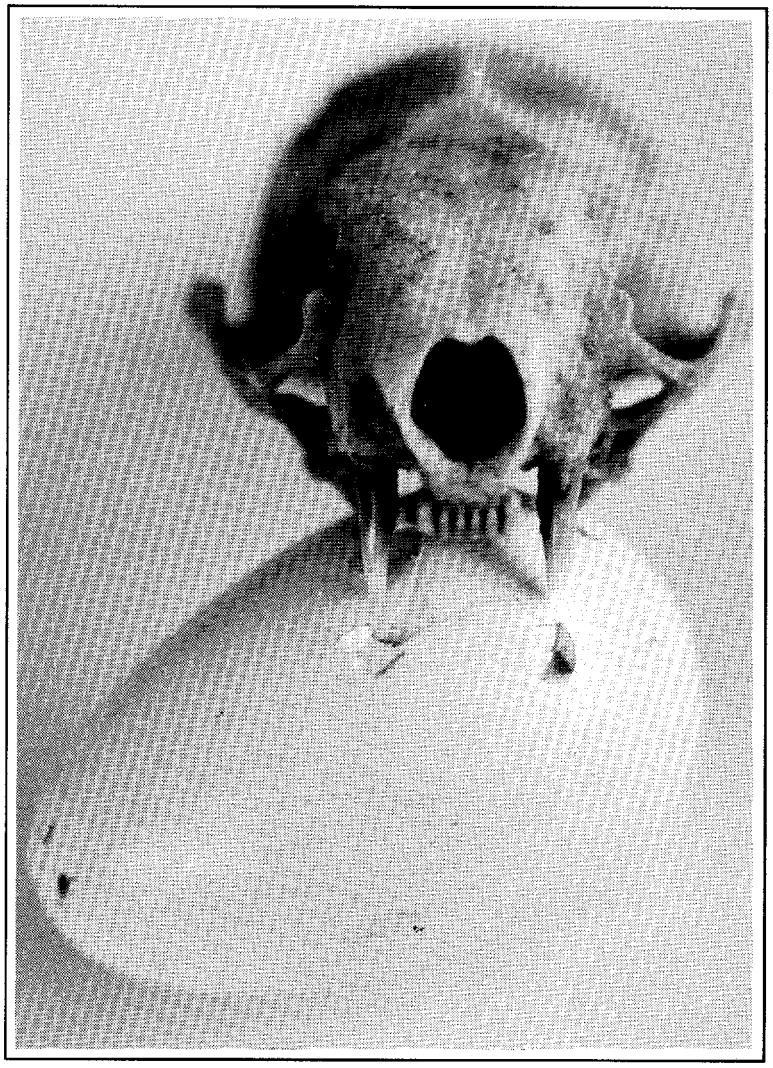

Fig. 4 Small paired toothmarks on an egg may be made by a stoat. (J.E.C. Flux)

mark resident animals with radios and follow them when released. Most of the dens found this way by Murphy & Dowding (1991) were holes in the ground under tree roots, no different to look at than any other hole. Some were holes in trees, well above head height.
Dogs may find a den by chance, which can be identified as belonging to a mustelid from the piles of scats that can usually be found inside or nearby. But mustelids commonly visit any one den only briefly and at intervals; even breeding females move their litters every few days. So even a den with apparently fresh scats and/or food remains may not be currently occupied.

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