

CONTROL MEASURES TO CONTAIN A TUBERCULOSIS BREAKDOWN IN A DEER HERD

Barry O'Neil

This paper is to present the series of events and actions that occurred in Tauranga county as a result of an outbreak of tuberculosis in a deer herd.

HISTORY

The deer farm was a 55 hectare property that had 35 hectares of deer and cattle grazing with the remainder being bush. The property was situated 5 km from the Kaimai Ranges. In 1985 the property was purchased by the present owner and 43 sale tested deer were moved onto the property over the next 12 months. These deer were purchased from 6 different properties, 3 of which had previously been under movement control for TB problems and 3 of which had only sale tested previously. However, when these deer were sold, none of the 6 vendors properties were under movement control.

Table 1 shows the deer TB testing history on the property from 1986. An important feature of this was the first whole herd test in October 1987 when 52 deer were tested and 4 standard test positive animals were detected. Two were found to have Mycobacterium bovis lesions on post-mortem. However, six months later when 46 deer were whole herd tested, 22 standard test positive animals were detected. Eleven had tuberculosis lesions at slaughter. The farm also ran 15 steers and when these were tested on 21.3.88, 2 caudal fold reactors were detected. One of these had a retropharyngeal tuberculous lesion when slaughtered.

TABLE 1

TESTING HISTORY OF PROPERTY WHICH SUFFERED A TUBERCULOSIS OUTBREAK

DATE	NUMBER TESTED	STANDARD TEST POSITIVE	NUMBER WITH TUBERCULOUS LESIONS
18.12.86	15 weaners sale test	0	
28.5.87	29 weaners sale test	0	
11.8.87	0	0	1 stag TB lesion found at DSP - mesenteric lymph node.
19.10.87	52 whole herd test	4	Blood tested 2 Bovine reactivity. 2 slaughtered - Both had tuberculous lesions in popliteal lymph nodes.
3.3.88	45 whole herd test (Comparative test)	22 - palpable Swellings-Range-1-4 cm	11 of 22 had lesions at slaughter. Mixed lesions present.
16.4.88	30 weaners tested	8	5 of 8 had lesions at slaughter. Mixed lesions present.
24.6.88	41 whole herd test	6	2 of 6 had lesions at slaughter. 1 poor animal slaughtered - lesions present.
22.9.88	35 whole herd tested	6	3 of 6 had lesions at slaughter.
14.11.88	-	-	29 remaining deer slaughtered. 3 lesions - 1 generalised - 2 mesenteric.

FURTHER INVESTIGATIONS AND ACTIONS

Due to the large number of deer reactors detected at the March 1988 whole herd test, a possum survey was started on 18.3.89 to determine if there was a tuberculous problem in the possum population. 70 possums were recovered and one of these was found to have generalised tuberculous lesions on post-mortem.

The area was then classified as an endemic area due to Mycobacterium bovis being identified in the feral possum population. Previously the area had been clear of TB with no deer or cattle herds being infected. The closest endemic area was Kopuatai swamp which is 50 kms away. It was assumed that the infection in possums was as a result of the infection in the deer herd.

To define the extent of the tuberculosis problem all cattle within a 5 km radius of the property were TB tested. 3,200 cattle were tested during March and April 1988 with no tuberculous animals detected. However, 12 caudal fold reactors were slaughtered with no visible lesions found. The area was then classified into different TB testing areas to monitor any spread of TB within the area. In defining these areas, the proximity of the Kaimai ranges was taken into account to ensure that the area between the deer farm and the ranges was being constantly monitored. The control areas can be seen in Figure 1. The endemic area comprised 462 hectares farmed as 12 different properties. The fringe area comprise of 7,765 hectares farmed as 199 properties. A non-endemic buffer zone of 4,145 hectares, farmed as 179 properties, was also created around this control area. All the cattle within the endemic and fringe areas were programmed for testing on a 6-monthly basis to monitor the presence of TB. Deer farmers within this area were also recommended to test their herds but MAF could not enforce deer farmers to test because of the voluntary nature of the deer TB control scheme at that time. All cattle within the non-endemic buffer zone were placed on a biannual testing rather than a triennial testing regime, with a randomised testing programme to ensure the entire area was constantly under surveillance.

POSSUM CONTROL

Possum control operations were initiated in April 1988. Figure 2 shows the extent of the initial 1080 poisoning operation. The closeness of the property to the Kaimai Ranges meant that every effort had to be taken to ensure that tuberculosis infected possums did not migrate into the Kaimai Ranges. The topography of the area including the various water courses and the different types of farm, horticultural, and bush areas was also assessed to define the area to be poisoned. As can be seen from Figure 2 the area poisoned was not just at a fixed distance around the deer property, but was defined according to the assessment of topography and location. Following the completion of the initial 1080 poison, night monitoring of the possum population was instigated to monitor the possum populations within the poisoned area. Once the possum population was found to be increasing, the poison operation was repeated. A 5-10 year possum control plan was also developed to ensure future control.

OTHER ACTIVITIES

Another activity that occurred during this time, was to educate farmers within the area about their responsibilities to ensure that tuberculosis did not spread further within the area, particularly by movement of animals for grazing. There were also tracebacks of deer and cattle that had been sold out of the area, specially from within the endemic area, to ensure that tuberculosis infected animals were not endangering new areas. Feral goats were found to be present in the bush areas of the infected deer property. A sample of these were rounded up and TB tested. A number were also shot and post-mortemed to check the TB status. These investigations found that no TB was present in the goat population.

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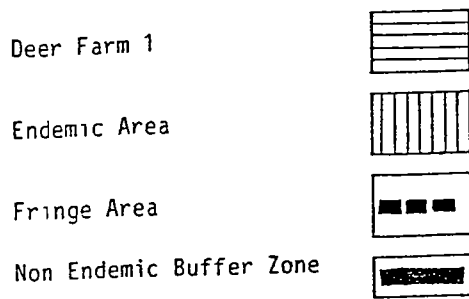
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CONCLUSION

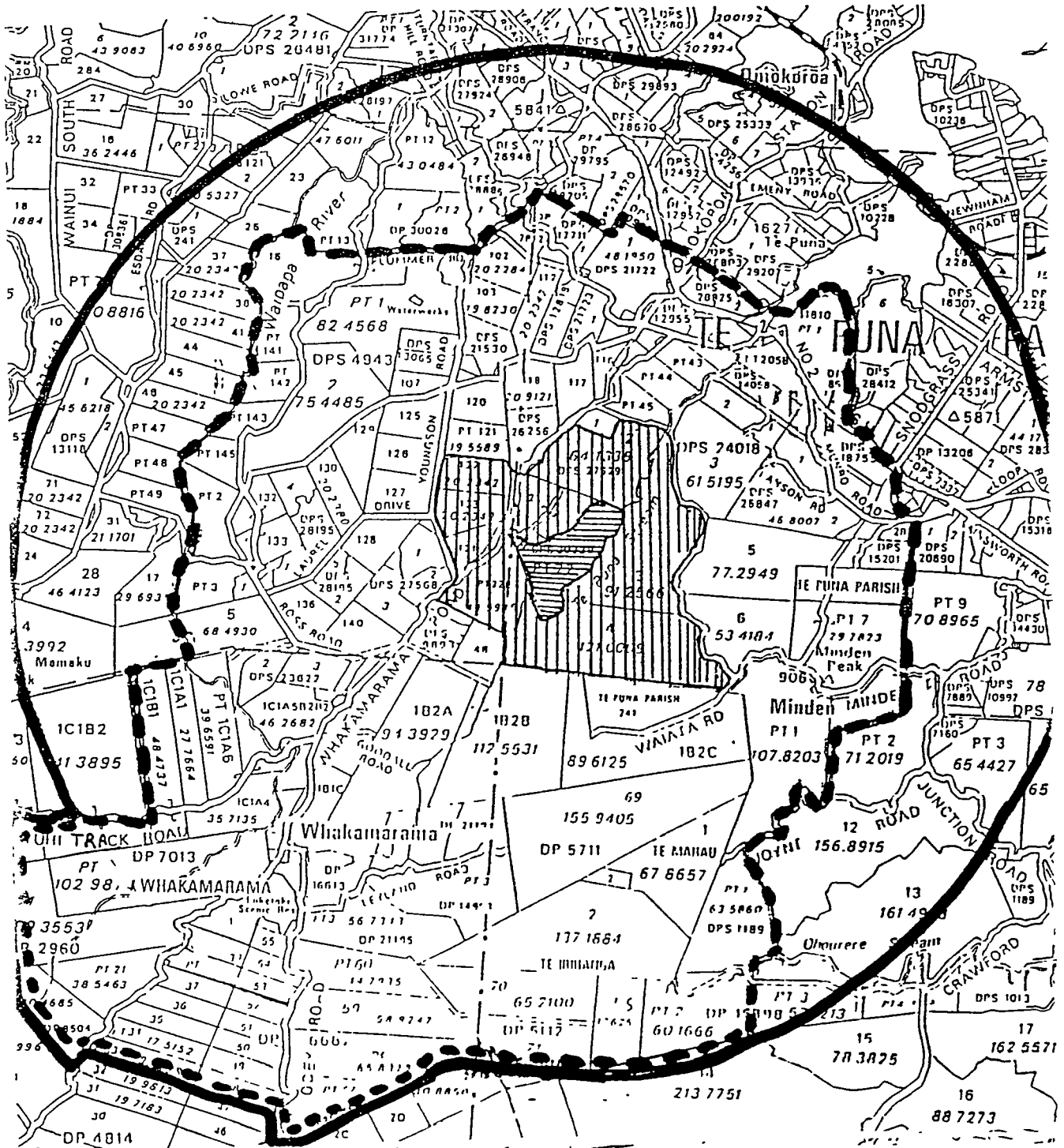
As a result of these actions the area currently does not have any cattle or deer herds on movement control. No further tuberculous animals have been found in the area, and the original deer property is now running a successful stag weaner fattening operation.

TE PUNA TUBERCULOSIS CONTROL AREA

FIGURE 1



Scale 1km = 2cm.



INITIAL 1080 POISONING OPERATION

FIGURE 2

Deer Farm 1

