Aerial vs Ground Control of Possums, Clarence Valley 2015

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May 2016

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Aims

Aerial control

Fixed-wing aircraft strip sowing at wide flightpath spacing with low sowing rate compared to helicopter sowing

Ground control

Contract for possum control and collection of possum carcasses for TB surveillance

Focus on refining methodologies and maximising effective TBfree programme delivery

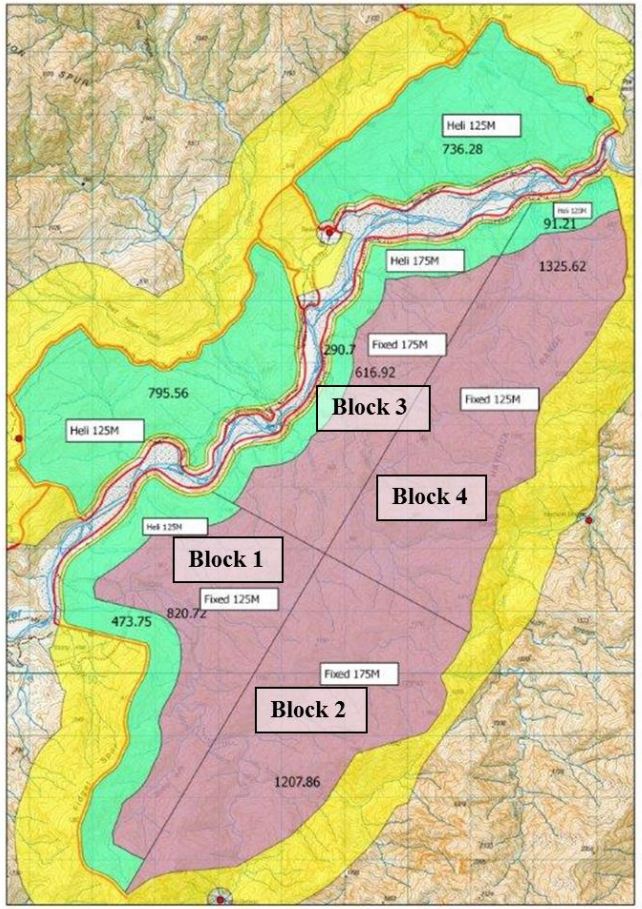
Aerial control

6358 ha baited

Two different flight path spacings:
125 and 175 m

Sowing rate:
0.4 and 0.3 kg/ha

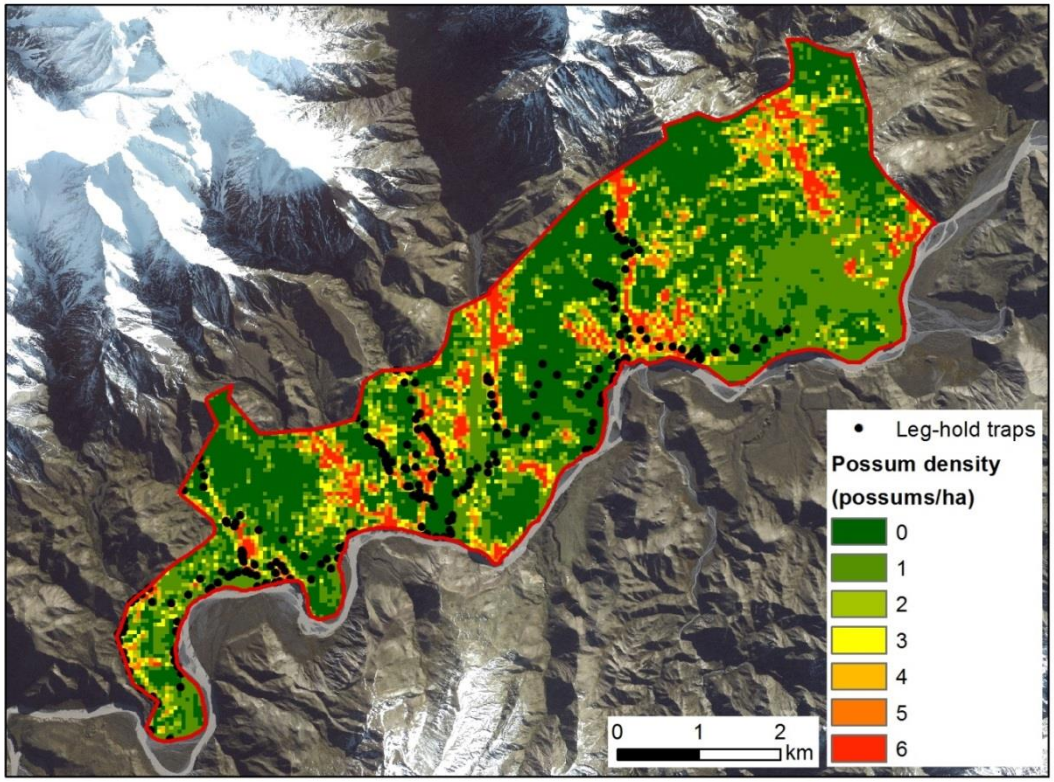
FPS	Fixed wing	Helicopter
125 m	2147 ha	2097 ha
175 m	1825 ha	289 ha



Ground control

2600 ha input contract

- Leghold traps & Feratox strikers used
- Recovery of carcasses for TB necropsy



Estimating Possum Kill

Mortality sensing radio collars fitted to possums

93 in aerial control blocks

68 in ground control block
+ 32 ear-tagged only

- Mortality of radio-collared possums provide kill estimate
- Recovery of marked and unmarked carcasses in ground control block enabled density estimation

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Results – Aerial control

100% kill of radio-collared possums with both flightpath spacings

	125-m FPS	175-m FPS
Radio-collared possums present during poisoning	42	44
Radio-collars with time-since-death function	32	36
Possums dying within one day	31	33
Possums dead after one day	1	3
Possums alive post-poison	0	0

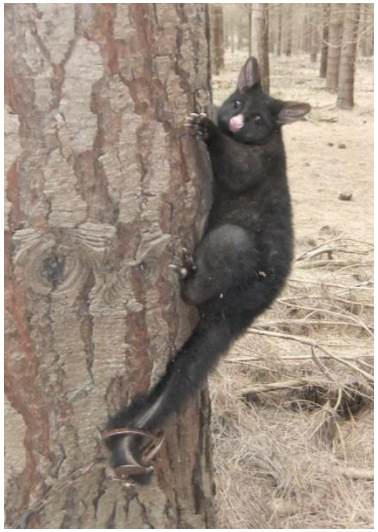
94% dead first night

Results – Ground control

Radio-collared possums present and alive just before control	60
Radio-collared possums killed	52
% kill (from collared possum recovery)	**87%**
Number of possums killed (carcasses found)	382
Total possums (estimated from recovery of tagged possums)	531
Area controlled (ha)	2600
Estimated density (possums/ha)	0.2
% kill (from marked possum density estimation)	**72%**

Comparative cost possum control Clarence Valley 2015

	Aerial control	**Ground control**
Hectares	6358	2600
Cost	$154 870	$40 000
Cost/ha	$24.40[#]	$15.40



[#]2014 Aerial control $19.11/ha

Comparison of control method: points to consider

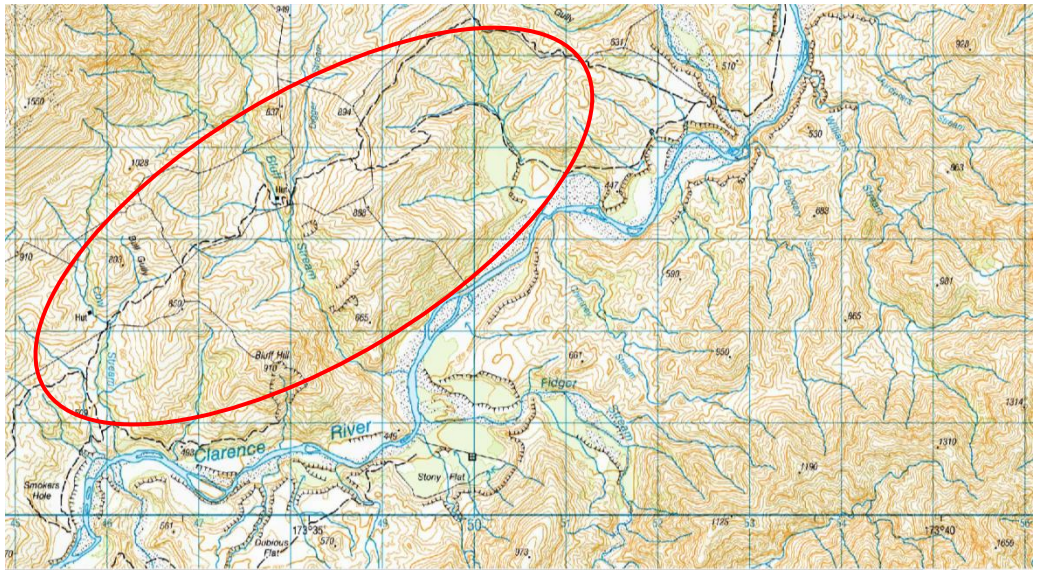
Aerial control:

- Block was steep and untracked so unsuitable for ground control
- Small block size made operation more expensive per ha
  - shorter sowing runs reduced efficiency
  - experimental fixed-wing with a low sow hopper
- Airstrip used for loading bait was 27 km from block
- Need for consented flying corridor to carry toxic bait to block
- Limited companies with ability to sow at low rate

Comparison of control method: points to consider

Ground control:

- Targeting of best possum habitat rather than overall coverage
- Tools used had less risk to livestock
- Farm tracks for good access



Conclusions

- Aerial control achieved a higher possum kill than ground control but %kill achieved by ground control was better than expected
- Each method was fit for purpose in the areas treated
- Mortality of radio-collared possums allowed meaningful measurement of possum control outcomes soon after each operation was completed
- Aerial control killed 94% possums on the first night

Acknowledgements

This project was funded by OSPRI who manage the TBfree programme

We thank Colin and Tina Nimmo and Guy and Fiona Redfern for access and accommodation on Muzzle Station

Vertebrate Pest Management and Ravensdown Aerowork carried out the aerial control

Nick Latter and crew from Feral Animal Solutions carried out the ground control.