

Supplementary material for

A snapshot of changes in graziers’ management and attitudes towards dingoes over 60 years

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Table S1 – Comparison of questions asked in each survey

Questions that were asked in both the 1953-4 and 2018 surveys, showing differences in wording and response format as well as additional questions included in the recent survey. The question number refers to the number used in the 1950s survey. No question numbers were used in the recent survey.

Q	1953-4	2018
	ADDRESS:	Please enter your postcode:
	PASTORAL ACTIVITY: (sheep, cattle, dairying, etc.)	Which of the following industries do you engage in on your property? (Please select all that apply): <ul style="list-style-type: none"> - Sheep - Beef - Dairy - Goats - Horses - Poultry - Pigs - Grain, vegetable or fruit production (including viticulture) - Other (may include non-agricultural land use such as mining or conservation)
3c	Can you give the number of stock killed annually by dingoes on your property? Has the number [<i>of attacks on stock</i>] increased or decreased?	If attacks [<i>by dingoes</i>] do occur [<i>on your livestock</i>], can you give the approximate percentage of livestock killed (or maimed) annually by dingoes or wild dogs on your property? Please estimate percentage number of animals and/or equivalent financial loss.

		<p>If you have more than one kind of livestock, you may wish to indicate which you are referring to. While it is not essential that you provide values for all of these fields, the more information you can provide, the better.</p> <p>% loss of animals (killed):</p> <p>% financial loss (killed and/or maimed):</p> <p>Actual number of animals lost</p> <p>Estimate of loss in Australian dollars (due to animals being killed or maimed):</p>
		<p>Has the number of dingoes or wild dogs increased or decreased in the past few years?</p> <ul style="list-style-type: none"> - Increased - Decreased - Stayed the same - Don't know
3d 3e	<p>If killing has increased is it because there have been more dingoes or more stock, or because dingoes have become more clever, or any other reason?</p> <p>If killing has been less is it because of better control measures or some other reason?</p>	<p>Why do you think this is?</p>
4a	<p>Method of extermination and/or control most suitable for your property: What method would you use unaided, e.g., dingo-proof fence, baits, traps, shooting, etc.?</p>	<p>What method(s) do you use to control dingoes and wild dogs or to protect your livestock from attack? (Please select all that apply):</p> <ul style="list-style-type: none"> - Aerial-baiting - Ground-baiting - Professional doggers (i.e., someone whose job it is to cull wild dogs) - Shooting - Trapping - Fencing - Livestock guardian animals - Animal husbandry* - I don't use any management method - Other:

		<p>* Animal husbandry can include a range of management practices designed to minimise the risk of attacks on livestock. For example, strip grazing (intensive grazing over small areas) or moving livestock off land that is bordered by forest during lambing/calving.</p> <p>Why do you use these methods? You may also wish to provide any extra information on your management, such as details of the animal husbandry you use to protect your livestock from attack: </p>
5a 5b	<p>Aerial baiting: If this has been tried in your region, what was the result? What is your opinion of this method?</p>	<p>Please rate your opinion of the effectiveness of the following management methods for protecting livestock from attack by dingoes or wild dogs. You may choose to rate any or all methods, whether you personally use them or not.</p> <ul style="list-style-type: none"> - Aerial-baiting - Ground-baiting - Professional doggers (i.e., someone whose job it is to cull wild dogs - Shooting - Trapping - Fencing - Livestock guardian animals - Animal husbandry <p><i>[Responses were on a 5-point scale from "Very ineffective" to "Very effective", along with a "Don't know" option]</i></p>
7	<p>Shooting: Is this more successful at night or during the day and at what times? Which is more successful – using a car, a horse, on foot, with or without dogs?</p> <p>How do you go about shooting, do you go hunting in the hope of seeing them or do you locate their drinking places or lairs and lie in wait, or any other method?</p>	
10b	<p>Can a dingo find enough food on your property without having to kill stock?</p>	<p>Can a dingo or wild dog find enough food (wild animals) on your property without having to kill livestock?</p> <ul style="list-style-type: none"> - Yes - No - Don't know

10i	Did any variety of wild animal rapidly increase in numbers after all the dingoes had been cleared from your property?	Does any variety of wild animal increase in numbers after dingoes or wild dogs are removed or control on your property? (Please select all that apply). <ul style="list-style-type: none"> - Kangaroos and/or wallabies - Foxes - Feral cats - Rabbits and/or hares - Feral pigs - Small native species e.g., bandicoots, dunnarts - No change in the populations of any wild animals - Don't know - Other:
19k	Do you know of any instance of dingoes controlling other vermin such as rats, bandicoots, wombats, etc.?	
10k	Do you think that any particular conditions such as drought, flood, cold, etc. cause increased stock killing by dingoes?	Do climatic conditions (e.g., drought, cold) affect dingo or wild dog predation on livestock? <ul style="list-style-type: none"> - Yes - No - Don't know If you wish to comment on how climate affects predation by dingoes and wild dogs, please do so here:
19b	What is the largest number [<i>of dingoes</i>] you have seen in a pack?	What is the largest number of dingoes or wild dogs you've seen on your property at one time?
19l	Are fewer stock killed where rabbits are plentiful?	If any effect, how does fluctuation in rabbit populations influence predation on livestock by dingoes and wild dogs? <ul style="list-style-type: none"> - Fewer rabbits mean less predation on stock (and vice versa) - Fewer rabbits mean more predation on stock (and vice versa) - No difference - Don't know
19n	Does the number of dingoes increase or decrease in proportion to the increase and decrease of rabbits?	
		What is your age? (in years) ...
		What is your gender? <ul style="list-style-type: none"> - Male - Female - Prefer not to say
		Where were your parents born? <ul style="list-style-type: none"> - Mother [<i>drop-down list of countries</i>] - Father [<i>drop-down list of countries</i>]

		Do you identify as Aboriginal or Torres Strait Islander? <ul style="list-style-type: none">- Yes- No- Prefer not to say
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Table S2 – Changes in production type and losses

Livestock production type and loss estimates for livestock, comparing 1953-4 with 2018. Empty cells indicate no value was provided. In 2017-8, respondents provided an estimate of losses as a percentage of their herds, as number of animals, and/or financial losses. All information provided is included here (in summary format). Changes in predation levels (as trends) are indicated where relevant as increasing (↑), remaining fairly constant (→), or decreasing (↓).

1953-4				2018		Trend
ID	State	Production	Loss summary	Production & land use	Annual loss summary	
2	QLD	Cattle	8-10%	Cattle, Goats, Horses	20% goats (N = >100), 10 calves attacked; \$3000 losses in goats, unknown cattle	↑
12	QLD	Cattle		Cattle	<1%, \$500	
16	QLD	Sheep	~42 per year (250 over 6 yrs)	Sheep	3-4% (N = 300-400); \$50,000	↑
19	QLD	Sheep & Cattle		Cattle	<1%	
31	QLD	Cattle	Some calves	Cattle & Conservation	1 calf maimed or killed every 2-5 years	→
44	QLD	Sheep		Cattle	<1%	
46	QLD	Sheep & Cattle		Sheep & Cattle	5 sheep killed & 4 maimed; \$400	
47	QLD	Sheep		Sheep & Cattle	0.8% sheep lost (N = 40); \$40,000 sheep, \$0 cattle	
50	QLD	Sheep	10%	Cattle	Presumed no losses, some value loss through bites	↓
54	QLD	Sheep & Cattle	1000-2500 sheep annually	Cattle	1% (N = 20) killed; \$20,000	↓
55	QLD	Sheep & Cattle		Cattle		
59	QLD	Cattle		Cattle	None	
73	NSW	Sheep & Cattle	Odd calves and weak cattle. Sheep only killed if dingo gets in netting fence.	Sheep & Cattle	20% killed	↑
87	NSW	Sheep & Cattle	up to 300	Sheep, Cattle & Goats	0.2% (N = 26) lost; \$5000	↓
93	Vic	Sheep & Cattle	4 or 5 average (one year, 500)	Sheep, Cattle, Horses, Poultry	1%	

107	Vic	Sheep & Cattle	None in 7 years (previously, 100)	Cattle		
112	SA	Sheep	None	Sheep		
116	SA	Sheep	120 sheep	Cattle & Goats	5 killed	↓
117	SA	Sheep	100 sheep			
120	SA	Sheep	20-40 per year	Cattle	1.5% calves (N = 4, 0.4% entire herd)	↓
121	SA	Cattle		Cattle	2% lost, 2 per week; \$100,000	
122	WA	Sheep		Cattle	Too hard to determine	
132	NT	Cattle		Cattle & Horses	150 animals lost; \$150,000	
137	NT	Sheep & Cattle		Cattle	2% calves (N = ~20, 0.5% total herd); \$20,000	