

Supplementary material for Marker et al (2020). Twenty-five years of livestock guarding dog use across Namibian farmlands.

**Table S1.** Summary statistics of mixed effects ordinal logistic regression models.

Subsection	Outcome	Predictor	Tested term	OR (95% CI)	p-value	
LGD age and sex differences and (perceived) effectiveness	Reduction in livestock loss	Age (cont.)	Age per 1 year (cont.)	1.00 (0.89, 1.14)	0.941	
		Age (cat.)	13-24m ( <i>vs.</i> 6-12 m)	0.92 (0.59, 1.43)	0.703	
		Age (cat.)	25-48 ( <i>vs.</i> 6-12 m)	0.93 (0.57, 1.52)	0.761	
		Age (cat.)	> 48 m ( <i>vs.</i> 6-12 m)	1.02 (0.49, 2.12)	0.962	
	Perceived effectiveness of LGD	Age (cont.) with rand. slope	Age per 1 year (cont.)	2.29 (0.70, 7.50)	0.094	
		Age (cat.)	13-24 m ( <i>vs.</i> 6-12 m)	2.11 (1.06, 4.21)	0.032 *	
		Age (cat.)	25-48 ( <i>vs.</i> 6-12 m)	3.19 (1.36, 7.47)	0.006 **	
		Age (cat.)	> 48 m ( <i>vs.</i> 6-12 m)	2.51 (1.24, 5.06)	0.01 *	
		Reduction in livestock loss	Age at placement (cat.)	0-8 w ( <i>vs.</i> 9-12 w)	0.74 (0.33, 1.64)	0.448
			Age at placement (cat.)	> 12 w (first) ( <i>vs.</i> 9-12 w)	1.02 (0.28, 3.69)	0.971
Age at placement (cat.)	> 12 w (rehomed) ( <i>vs.</i> 9-12 w)		1.51 (0.65, 3.52)	0.333		
Reduction in livestock loss	Sex (cat.)	M ( <i>vs.</i> F)	0.98 (0.49, 1.99)	0.96		
Perceived effectiveness of LGD	Sex (cat.)	M ( <i>vs.</i> F)	0.80 (0.44, 1.45)	0.451		
Condition of LGD, behavioural problems and farmers perceptions	LGD body condition	Perception of performance	Poor ( <i>vs.</i> Excellent)	0.23 (0.07, 0.73)	0.013 *	
		Perception of performance	Fair ( <i>vs.</i> Excellent)	0.31 (0.13, 0.77)	0.011 *	
		Perception of performance	Good ( <i>vs.</i> Excellent)	2.02 (0.69, 5.92)	0.201	
		Expectations	Y ( <i>vs.</i> N)	5.22 (2.48, 10.99)	< 0.001 ***	
		Perception of economic benefit	Y ( <i>vs.</i> N)	2.43 (0.85, 6.99)	0.097	
	Chasing game	Perception of performance	Poor ( <i>vs.</i> Excellent)	5.95 (1.28, 27.56)	0.027 *	
		Perception of performance	Fair ( <i>vs.</i> Excellent)	1.26 (0.29, 5.56)	0.713	
		Perception of performance	Good ( <i>vs.</i> Excellent)	1.53 (0.99, 2.36)	0.053	
		Expectations	Y ( <i>vs.</i> N)	0.51 (0.05, 5.42)	0.487	
		Perception of economic benefit	Y ( <i>vs.</i> N)	1.51 (0.44, 5.11)	0.447	
	Biting livestock	Perception of performance	Poor ( <i>vs.</i> Excellent)	1.42 (0.43, 4.69)	0.539	
		Perception of performance	Fair ( <i>vs.</i> Excellent)	1.48 (0.29, 7.55)	0.565	
		Perception of performance	Good ( <i>vs.</i> Excellent)	1.51 (0.40, 5.62)	0.449	
		Expectations	Y ( <i>vs.</i> N)	0.91 (0.18, 4.59)	0.891	
		Perception of economic benefit	Y ( <i>vs.</i> N)	0.82 (0.41, 1.68)	0.567	
Staying home	Perception of performance	Poor ( <i>vs.</i> Excellent)	7.03 (1.76, 28.11)	0.009 **		
	Perception of performance	Fair ( <i>vs.</i> Excellent)	3.58 (1.74, 7.36)	0.002 **		

		Perception of performance Expectations	Good ( <i>vs.</i> Excellent) Y ( <i>vs.</i> N)	1.59 (0.86, 2.94) 0.19 (0.03, 1.08)	0.118 0.058
		Perception of economic benefit	Y ( <i>vs.</i> N)	0.61 (0.25, 1.52)	0.257
Attacking people		Perception of performance	Poor ( <i>vs.</i> Excellent)	1.97 (0.44, 8.94)	0.33
		Perception of performance	Fair ( <i>vs.</i> Excellent)	0.94 (0.08, 10.65)	0.948
		Perception of performance	Good ( <i>vs.</i> Excellent)	1.40 (0.38, 5.18)	0.533
		Expectations	Y ( <i>vs.</i> N)	1.40 (0.42, 4.64)	0.527
		Perception of economic benefit	Y ( <i>vs.</i> N)	1.23 (0.24, 6.17)	0.761
Behaviour: Other		Perception of performance	Poor ( <i>vs.</i> Excellent)	2.88 (0.10, 84.31)	0.462
		Perception of performance	Fair ( <i>vs.</i> Excellent)	1.38 (0.35, 5.37)	0.587
		Perception of performance	Good ( <i>vs.</i> Excellent)	1.74 (0.97, 3.12)	0.06
		Expectations	Y ( <i>vs.</i> N)	1.26 (0.08, 19.07)	0.834
		Perception of economic benefit	Y ( <i>vs.</i> N)	0.92 (0.25, 3.41)	0.88
Behavioural composite		Perception of performance	Poor ( <i>vs.</i> Excellent)	38.43 (13.24, 111.58)	< 0.001 ***
		Perception of performance	Fair ( <i>vs.</i> Excellent)	13.04 (7.38, 23.06)	< 0.001 ***
		Perception of performance	Good ( <i>vs.</i> Excellent)	1.86 (1.37, 2.54)	< 0.001 ***
		Expectations	Y ( <i>vs.</i> N)	0.11 (0.06, 0.19)	< 0.001 ***
		Perception of economic benefit	Y ( <i>vs.</i> N)	0.21 (0.13, 0.34)	< 0.001 ***
Herder present		Perception of performance	Poor ( <i>vs.</i> Excellent)	1.08 (0.59, 1.99)	0.796
		Perception of performance	Fair ( <i>vs.</i> Excellent)	0.82 (0.55, 1.23)	0.347
		Perception of performance	Good ( <i>vs.</i> Excellent)	1.20 (0.93, 1.53)	0.154
		Expectations	Y ( <i>vs.</i> N)	0.89 (0.57, 1.38)	0.592
		Perception of economic benefit	Y ( <i>vs.</i> N)	0.85 (0.52, 1.37)	0.487
Reduction in livestock loss		Stock protectiveness	Poor ( <i>vs.</i> Excellent)	1.17 (0.35, 3.88)	0.788
		Stock protectiveness	Fair ( <i>vs.</i> Excellent)	2.29 (1.07, 4.89)	0.033
		Stock protectiveness	Good ( <i>vs.</i> Excellent)	1.33 (0.84, 2.10)	0.206
		Stay with stock at night	Y ( <i>vs.</i> N)	0.91 (0.53, 1.56)	0.718
		Part of stock	Y ( <i>vs.</i> N)	1.18 (0.47, 2.97)	0.713
		Submissive to stock	Y ( <i>vs.</i> N)	1.50 (0.74, 3.06)	0.253
		Bonded with stock	Y ( <i>vs.</i> N)	1.40 (0.45, 4.39)	0.533
Puppy characteristics	Reduction in livestock loss	Puppy Q1	Y ( <i>vs.</i> N)	1.23 (0.43, 3.51)	0.687
		Puppy Q2	Y ( <i>vs.</i> N)	1.08 (0.46, 2.58)	0.845
		Puppy Q3	Y ( <i>vs.</i> N)	1.19 (0.35, 4.03)	0.77
		Puppy Q4	Y ( <i>vs.</i> N)	1.50 (0.63, 3.58)	0.34
		Puppy Q6	Y ( <i>vs.</i> N)	0.49 (0.08, 3.07)	0.444

	Puppy Q7	Y (vs. N)	0.60 (0.14, 2.56)	0.487	
	Puppy Q8	Y (vs. N)	0.90 (0.39, 2.04)	0.793	
	Puppy Q9	Y (vs. N)	0.99 (0.52, 1.88)	0.97	
	Puppy Q10	Y (vs. N)	1.04 (0.22, 4.90)	0.95	
	Puppy Q12	Y (vs. N)	1.23 (0.21, 7.34)	0.816	
	Puppy Q13	Y (vs. N)	1.00 (0.42, 2.37)	0.997	
Perceived effectiveness of LGD	Puppy Q1	Y (vs. N)	1.23 (0.83, 1.83)	0.303	
	Puppy Q2	Y (vs. N)	0.88 (0.56, 1.39)	0.565	
	Puppy Q3	Y (vs. N)	1.07 (0.64, 1.77)	0.799	
	Puppy Q4	Y (vs. N)	0.91 (0.63, 1.30)	0.592	
	Puppy Q6	Y (vs. N)	2.25 (0.81, 6.29)	0.114	
	Puppy Q7	Y (vs. N)	1.03 (0.46, 2.32)	0.934	
	Puppy Q8	Y (vs. N)	1.32 (0.72, 2.42)	0.36	
	Puppy Q9	Y (vs. N)	1.05 (0.72, 1.52)	0.803	
	Puppy Q10	Y (vs. N)	0.77 (0.44, 1.33)	0.335	
	Puppy Q12	Y (vs. N)	1.74 (0.71, 4.29)	0.225	
	Puppy Q13	Y (vs. N)	0.98 (0.53, 1.84)	0.959	
	Comparison between surveys	Survey (cat.)	1994-2001 (vs. 2010-2018)	1.05 (0.17, 6.48)	0.951
		Survey (cat.)	2002-2009 (vs. 2010-2018)	1.06 (0.49, 2.29)	0.875
Survey (cat.): Jackal		1994-2001 (vs. 2010-2018)	0.85 (0.39, 1.85)	0.672	
Survey (cat.): Jackal		2002-2009 (vs. 2010-2018)	0.84 (0.46, 1.55)	0.564	
Survey (cat.): Cheetah		1994-2001 (vs. 2010-2018)	1.15 (0.51, 2.59)	0.73	
Survey (cat.): Cheetah		2002-2009 (vs. 2010-2018)	1.00 (0.65, 1.55)	0.99	
Survey (cat.): Leopard		1994-2001 (vs. 2010-2018)	1.12 (0.45, 2.78)	0.811	
Survey (cat.): Leopard		2002-2009 (vs. 2010-2018)	0.88 (0.47, 1.63)	0.683	
Survey (cat.): Caracal		1994-2001 (vs. 2010-2018)	1.01 (0.44, 2.32)	0.978	
Survey (cat.): Caracal		2002-2009 (vs. 2010-2018)	0.70 (0.31, 1.59)	0.337	
Survey (cat.): Theft		1994-2001 (vs. 2010-2018)	0.44 (0.12, 1.55)	0.164	
Survey (cat.): Theft		2002-2009 (vs. 2010-2018)	0.57 (0.36, 0.91)	0.021 *	
Survey (cat.): Other		1994-2001 (vs. 2010-2018)	0.99 (0.27, 3.62)	0.988	
Survey (cat.): Other		2002-2009 (vs. 2010-2018)	0.93 (0.47, 1.83)	0.822	
LGD body condition		Survey (cat.)	1994-2001 (vs. 2010-2018)	2.21 (1.49, 3.30)	< 0.001 ***
	Survey (cat.)	2002-2009 (vs. 2010-2018)	1.63 (1.15, 2.31)	0.006 **	
Chasing game	Survey (cat.)	1994-2001 (vs. 2010-2018)	4.47 (1.82, 10.98)	0.004 **	
	Survey (cat.)	2002-2009 (vs. 2010-2018)	1.34 (0.80, 2.25)	0.243	

Biting livestock	Survey (cat.)	1994-2001 ( <i>vs.</i> 2010-2018)	2.49 (0.41, 15.08)	0.249
	Survey (cat.)	2002-2009 ( <i>vs.</i> 2010-2018)	1.12 (0.39, 3.18)	0.802
Staying home	Survey (cat.)	1994-2001 ( <i>vs.</i> 2010-2018)	3.03 (0.67, 13.64)	0.119
	Survey (cat.)	2002-2009 ( <i>vs.</i> 2010-2018)	0.84 (0.30, 2.35)	0.694
Attacking people	Survey (cat.)	1994-2001 ( <i>vs.</i> 2010-2018)	0.91 (0.24, 3.39)	0.862
	Survey (cat.)	2002-2009 ( <i>vs.</i> 2010-2018)	0.68 (0.33, 1.39)	0.244
Behaviour: Other	Survey (cat.)	1994-2001 ( <i>vs.</i> 2010-2018)	0.59 (0.19, 1.84)	0.3
	Survey (cat.)	2002-2009 ( <i>vs.</i> 2010-2018)	0.49 (0.26, 0.91)	0.029 *
Behavioural composite	Survey (cat.)	1994-2001 ( <i>vs.</i> 2010-2018)	3.49 (2.27, 5.37)	< 0.001 ***
	Survey (cat.)	2002-2009 ( <i>vs.</i> 2010-2018)	2.11 (1.47, 3.01)	< 0.001 ***
Herder present	Survey (cat.)	1994-2001 ( <i>vs.</i> 2010-2018)	1.92 (1.15, 3.19)	0.013 *
	Survey (cat.)	2002-2009 ( <i>vs.</i> 2010-2018)	1.61 (1.16, 2.26)	0.005 **
Recommend LGD program	Survey (cat.)	1994-2001 ( <i>vs.</i> 2010-2018)	0.18 (0.05, 0.64)	0.009 **
	Survey (cat.)	2002-2009 ( <i>vs.</i> 2010-2018)	0.58 (0.14, 2.30)	0.424

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