**Table S1.** Summary of the 56 publications found in the literature search that investigated or reported an ecological effect associated with the use of LGDs. The publication type is denoted as J (peer-reviewed journal article), CP (conference proceedings summary or abstract), R (project report), T (student thesis), CDPN (article from Carnivore Damage Prevention News) or B (book chapter).

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| --- | --- | --- | --- | --- | --- |
| ID | Study | Type | Ecological effect | Method | Description |
| 1 | (Green & Woodruff 1980) | J | Killing wildlife | Farmer reports | 23% of Komondor and 0% of Great Pyrenees LGDs killed predators |
| 2 | (Black 1981) | J | Chasing and killing wildlife | Farmer reports and direct observations | LGDs regularly killed coyotes, porcupines, rodents and rabbits and chased rabbits, ground squirrels and lizards |
| 3 | (McGrew & Blakesley 1982) | J | Chasing wildlife | Direct observations | Komondor LGDs chased coyotes away in an enclosure experiment |
| 4 | (Pfeifer & Goos 1982) | CP | Chasing wildlife | Farmer reports | LGDs regularly chased red foxes and coyotes away from pastures |
| 5 | (Green & Woodruff 1983) | J | Chasing wildlife | Direct observations | LGDs chased coyotes and hares |
| 6 | (Black & Green 1984) | J | Chasing and killing wildlife | Farmer reports | 91% of respondents said their LGDs chased coyotes, and 8% knew of LGDs that had killed coyotes |
| 7 | (Coppinger et al. 1988) | CP | Chasing and killing wildlife | Farmer reports | In 1983:  3% of LGDs chased birds  0.6% of LGDs killed birds  19% of LGDs chased mammals  5% of LGDs killed mammals  In 1984:  5% of LGDs chased birds  0% of LGDs killed birds  22% of LGDs chased mammals  4% of LGDs killed mammals |
| 8 | (Green 1989) | CP | Killing wildlife | Direct observations | 1 LGD (1%) killed a coyote |
| 9 | (Timm & Schmidt 1989) | J | Chasing and killing wildlife | Direct observations | LGDs chased and killed jackrabbits and Columbian black-tailed deer  Sightings of wild turkeys also decreased on LGD-guarded pastures |
| 10 | (Hansen & Bakken 1999) | J | Chasing wildlife | Direct observations | 91% of LGDs chased reindeer  Some LGDs chased brown bears |
| 11 | (Hansen & Smith 1999) | J | Chasing and killing wildlife | Direct observations | LGDs chased moose, roe deer, woodland birds, brown bears and Norway lemmings  50% of lemming chases resulted in the death of the lemming |
| 12 | (Hansen et al. 2002) | J | Chasing and killing wildlife | Direct observations | 1 capercaillie and 1 hare killed by LGDs  Red foxes chased by LGDs on 3 occasions and a wolverine chased once |
| 13 | (Lapeyronie & Moret 2003) | R | Chasing and killing wildlife | Direct observations | 100% of LGDs chased Alpine marmots  Of 174 reported chases of marmots by LGDs, the marmot escaped unharmed from 168  3 chases resulted in the death of a marmot, and in the remaining 3 chases the outcome for the marmot was not known  24% of LGDs chased ungulates (mainly chamois)  LGDs also chased small mammals, birds, wild boar and red foxes |
| 14 | (Rigg 2004) | T | Chasing and killing wildlife | Farmer reports | 1 LGD (7%) chased hares and small birds  1 LGD (7%) chased a brown bear  1 LGD (7%) killed a wild boar |
| 15 | (Caporioni & Teofili 2005) | J | Chasing wildlife | Farmer reports | Some LGDs chased wild boar and other wildlife |
| 16 | (Landry et al. 2005) | CDPN | Chasing and killing wildlife | Direct observations | 1 LGD (1.5%) observed chasing wildlife  Dead badgers and red foxes found near sheep and assumed to have been killed by LGDs |
| 17 | (Marker et al. 2005a) | J | Chasing wildlife | Farmer reports | Almost 50% of LGDs reported to chase game |
| 18 | (Marker et al. 2005b) | CDPN | Chasing and killing wildlife | Direct observations | LGDs chased game species e.g. kudu and sometimes killed then ate these species  LGDs killed black-backed jackals, leopards and chacma baboons that were threatening livestock |
| 19 | (Ribeiro & Petrucci-Fonseca 2005) | CDPN | Chasing and killing wildlife  Reduction in lethal predator control | Direct observations | 83% of LGDs chased red foxes, wild boar and rabbits  On 3 occasions, a fox or rabbit was killed  LGD use associated with a reduction in lethal control |
| 20 | (Sedefchev 2005) | CDPN | Chasing wildlife | Direct observations | LGDs chase predators as far as 2 km away from livestock |
| 21 | (Tedesco & Ciucci 2005) | J | Chasing and killing wildlife | Farmer reports | LGDs chased wildlife and seen killing then eating roe deer and Alpine marmots |
| 22 | (Tuğ 2005) | T | Chasing wildlife | Farmer reports | LGDs chased wolves away from livestock |
| 23 | (Yılmaz 2007) | B | Chasing and killing wildlife | NA | Statement that Kangal LGDs are known for chasing and killing wolves |
| 24 | (VerCauteren et al. 2008) | J | Spatial response | Direct observations, Motion-activated cameras | LGDs reduced the rates of white-tailed deer entering pastures and using cattle feed |
| 25 | (Gingold et al. 2009) | J | Spatial response  Anti-predator behaviour  Reproduction | Direct observations | Mountain gazelles avoided LGDs in enclosures  Also spent more time running instead of resting in enclosures with LGDs  Fawn survival decreased in enclosures with LGDs |
| 26 | (Gehring et al. 2010b) | J | Killing wildlife  Spatial response  Temporal response | Direct observations, Farmer reports, Track swaths | LGDs killed mesopredators (opossums, striped skunks, raccoons and red foxes)  LGDs excluded coyotes, wolves and non-target mesopredators from pastures  White-tailed deer changed activity spending less time in pastures with LGDs |
| 27 | (Gehring et al. 2011) | J | Chasing wildlife | Direct observations | LGDs chased white-tailed deer, predators and other wildlife from pastures |
| 28 | (Marucco 2011) | R | Killing wildlife | Direct observations | One issue stated to be a problem for LGDs is that they can disturb and kill wildlife |
| 29 | (Rigg et al. 2011) | J | Chasing wildlife | Farmer reports | LGDs chased predators away |
| 30 | (van Vliet 2011) | T | Chasing and consumption of wildlife | Scat analysis | Scrub hare, rodents and common duiker found in the scats of LGDs (common duiker remains likely from the killing of one by an LGD when it approached livestock) |
| 31 | (González et al. 2012) | J | Reduction in lethal predator control | Farmer reports | 88% of farmers with LGDs reported they no longer kill carnivores |
| 32 | (VerCauteren et al. 2012) | J | Chasing wildlife  Spatial response | Direct observations | LGDs chased grey wolves, deer and wildlife away from pastures  Red deer avoided pastures protected by LGDs |
| 33 | (Potgieter et al. 2013) | J | Chasing wildlife | Farmer reports | 15% of LGDs chased wildlife |
| 34 | (VerCauteren et al. 2013) | B | Chasing and killing wildlife  Spatial response | Direct observations | LGDs observed preying on small mammals in pastures. Overall fewer small mammals in pastures guarded by LGDs. These small mammals are named in Gehring et al. (2010a), but this is not included as a separate study due to being the same effect reported.  LGDs killed ≥ 10 Virginia opossums per year on one farm  LGDs useful for deterring bighorn sheep from domestic sheep  LGDs possibly beneficial for sage grouse conservation by reducing predation |
| 35 | (Kopaliani et al. 2014) | J | Hybridisation | Genetics | Recent wolf ancestry in 10% of the dogs and recent dog ancestry in 13% of the wolves, with 3% of the dogs and 2% of the wolves likely being first-generation hybrids |
| 36 | (Landry et al. 2014) | CDPN | Chasing wildlife | Video observations, GPS tracking of LGDs | 0% of LGDs chased red deer, European hares or mountain hares  Unknown percentage of LGDs chased chamois, red foxes and grey wolves |
| 37 | (Sepúlveda et al. 2014) | J | Direct interactions with wildlife | Farmer/household reports | Percentage of households reporting interactions between their LGDs and the following species:  0% (river otter, lesser grison)  1% (marine otter, coypu)  6% (southern pudu, American mink)  8% (Molina’s hog-nosed skunk)  8.1% (kodkod)  10.6% (pumas)  17.9% (chilla’s fox)  59.3% (European hare) |
| 38 | (Chynoweth et al. 2015) | J | Killing wildlife | NA | Statement that Caucasian lynx are regularly killed and threatened by LGDs |
| 39 | (Horgan 2015) | T | Chasing and killing wildlife  Reduction in lethal predator control | Farmer reports | Approx. 50% of LGDs chased game  21% of LGDs killed non-target game species  51% of farmers reduced and 38% stopped lethal control after using LGDs |
| 40 | (King et al. 2015) | J | Killing wildlife | Direct observations | LGDs thought to have injured and killed some of the Little penguins they are protecting through playful behaviour |
| 41 | (Linnell & Lescureux 2015) | R | Hybridisation | NA | Statement that LGDs breed with wolves in Europe |
| 42 | (Ali et al. 2016) | J | Killing wildlife | Farmer reports | 1 LGD killed a grey wolf |
| 43 | (Potgieter et al. 2016) | J | Killing wildlife  Reduction in lethal predator control | Farmer reports | 15 LGDs (18%) killed prey species e.g. gemsbok, eland and kudu  8 LGDs (10%) killed baboons  1 LGD (1%) killed 1 bat-eared fox  1 LGD (1%) killed 1 cheetah  1 LGD (1%) killed an unknown number of African wildcats  0 LGDs (0%) killed leopards  37 LGDs (47%) killed black-backed jackals  3 LGDs (4%) killed caracals  Net mortality after LGD introduction was lower for cheetahs and leopards, but higher for black-backed jackals and caracals  Numbers of target predators killed per farm per year (by farmers alone before LGD introduction  by farmers and LGDs combined):  Cheetah: 0.11 ± SE 0.06 0.02 ± SE 0.02 (not significant)  Leopard: 0.02 ± SE 0.02 0.00 ± SE 0.00 (not significant)  Black-backed jackal: 1.7 ± SE 0.68 3.4 ± SE 0.77 (significant)  Caracal: 0.10 ± SE 0.06 0.19 ± SE 0.10 (not significant)  Fewer predators killed by farmers |
| 44 | (van Bommel & Johnson 2016) | J | Spatial response  Temporal response | Camera traps, Pellet counts, GPS tracking of LGDs | Spatial avoidance of LGDs noted for Eastern grey kangaroo, common wombat, swamp wallaby, sambar deer and red foxes  Temporal avoidance of LGDs noted for Eastern grey kangaroo, red fox  No temporal change noted for sambar deer and swamp wallaby |
| 45 | (Allen et al. 2017) | J | Spatial response | GPS tracking of LGDs and dingoes | Dingo territory overlapped with Maremma LGD territory suggesting no spatial avoidance of LGDs by dingoes |
| 46 | (Binge 2017) | T | Chasing and killing wildlife  Reduction in lethal control | Farmer reports | LGDs chased black-backed jackals away from livestock  1 LGD (4%) killed a hare  1 LGD (4%) killed an unknown number of hyraxes  1 LGD (4%) killed a skunk (assumed African skunk AKA striped polecat)  36% of farmers reported their LGDs killed target predators. 6 LGDs (24%) killed black-backed jackals  3 LGDs (12%) killed caracals  5 respondents said their LGDs killed 1-2 caracals or black-backed jackals a year  1 respondent said their LGD killed approximately 5 caracals per year  79% (n = 19) of farmers killed predators before LGD use compared to only 21% after (n = 5)  3/5 farmers said they killed fewer predators than before |
| 47 | (Infante & Azorin 2017) | CDPN | Reduction in lethal predator control | Direct observations | Reduction in illegal poisoning noted after LGD use |
| 48 | (Ribeiro et al. 2017) | CDPN | Chasing and killing wildlife | Direct observations | 42% of LGDs chased rabbits/hares  72% of LGDs chased wild boar or roe deer  89% of LGDs chased red foxes  13% of LGDs killed rabbits/hares  15% of LGDs killed red foxes  17% of LGDs killed wild boar or roe deer |
| 49 | (Rigg et al. 2017) | CDPN | Chasing and killing wildlife | Farmer reports | LGDs barked at and chased grey wolves away in > 90% of encounters  LGDs killed 2 grey wolves |
| 50 | (Salvatori et al. 2017) | CDPN | Chasing and killing wildlife | Farmer reports | 7 LGDs (47%) regularly killed wildlife including hares, roe deer and red foxes, and were observed consuming these kills too  13 LGDs (87%) chased wolves and bears |
| 51 | (van Bommel & Johnson 2017) | J | Olfactory cue  Spatial response | Direct observations | Dingoes actively investigated LGD urine  Dingoes showed no spatial avoidance of LGD urine |
| 52 | (Bromen et al. 2019) | J | Spatial response | Camera traps, GPS tracking of LGDs | Spatial avoidance of LGDs noted for bobcats, gray foxes and skunk species  Positive spatial response noted for ringtails and raccoons, suggesting these species could be attracted to LGDs |
| 53 | (Drouilly et al. 2020) | J | Consumption of wildlife | Scat analysis | Relative frequency of occurrence of animal remains in LGDs scats as follows:  Wild ungulates (springbok, klipspringer, steenbok, common duiker) – 4.8%  Rock hyrax – 3.8%  Micromammals (bush vlei rat, Namaqua rock mouse & unknowns) – 3.2%  Invertebrates – 2.3% (mainly beetles but 1 scat comprised entirely of termites)  Cape porcupine – 2.2%  Scrub hare – 2.6%  Small carnivores (meerkats) – 0.5%  Reptiles – 0.8%  Birds – 0.2% (only in 1 scat) |
| 54 | (Landry et al. 2020) | J | Chasing and killing wildlife | Video observations | 175 LGD-wolf interactions observed through infrared video:  65.7% of interactions were agonistic including chasing, pursuing and fighting  25.1% of interactions were LGDs searching for wolves  5.9% of interactions were LGDs barking  3.3% of interactions were non-belligerent, including tolerance of wolves and play behaviour  1 wolf reported to have been killed by LGDs |
| 55 | (Spencer et al. 2020) | J | Spatial response | Camera traps | No spatial response to LGDs noted for leopards or black-backed jackals as equal occupancy of farmland guarded by LGDs than farmland without LGDs  Increase in occupancy for brown hyaena on LGD-guarded farms |
| 56 | (Whitehouse-Tedd et al. 2020) | J | ‘Non-lethal interactions’ with and killing wildlife | Farmer reports | 48% of LGDs involved in non-lethal interactions and 9% of LGDs involved in lethal interactions with herbivores (impala, springbok, blesbok, waterbuck, helmeted guineafowl, warthog, bush pig, steenbok, ostrich, nyala, kudu, bushbuck)  22 LGDs (10%) had non-lethal interactions, and 23 LGDs (10%) had lethal interactions with civets, African wildcats, honey badgers and chacma baboons  0 LGDs (0%) killed cheetahs  5 LGDs (2%) had non-lethal interactions with cheetahs  1 LGD (0.5%) killed brown hyaena  8 LGDs (3.5%) had non-lethal interactions with brown hyaena  0 LGDs (0%) killed lions  3 LGDs (1%) had non-lethal interactions with lions  0 LGDs (0%) killed leopards  12 LGDs (5%) had non-lethal interactions with leopards |

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