

Review

Human-felid conflict: a review of the patterns and priorities worldwide

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Appendix 1 GIS data layer sources (all resources accessed March–December 2007)

| Layer | Source |
|-----------------------------------|---|
| Caracal | http://en.wikipedia.org/wiki/File:Caracal_distribution.GIF |
| Cheetah | http://www.uvm.edu/~jdecher/PHOTOS/CheetahMap.jpg |
| Eurasian lynx | <i>European data</i> http://www.kora.ch/en/proj/elois/online/index.html (select Distribution tab in main menu) |
| | <i>Asian data</i> http://www.waza.org/virtualzoo/factsheet.php?id=112-007-001-015&view=Cats |
| Jaguar | http://savethejaguar.com/jag-index/jag-conservation/jag-conservationmillennium |
| Leopard | http://www.waza.org/virtualzoo/factsheet.php?id=112-007-002-004&view=Cats |
| Lion | <i>West & Central Africa</i> IUCN/SSC Cat Specialist Group (2006a) <i>Eastern & Southern Africa</i> IUCN/SSC Cat Specialist Group (2006b) |
| Puma | http://www.natureserve.org/getData/animalData.jsp |
| Snow leopard | Nowell & Jackson, 1996 |
| Tiger | http://www.savethetigerfund.org/am/customsource/tiger/mapping/index.cfm?CFID=2981690&CFTOKEN=45498445 |
| Cattle density | http://www.fao.org/geonetwork/srv/en/main.home (search for Global Cattle Density using search facility in left-hand pane) |
| Small ruminant density | http://www.fao.org/geonetwork/srv/en/main.home (search for Global Small Ruminant Density using search facility in left-hand pane) |
| World Database on Protected Areas | http://www.wdpa.org |
| World countries | ARC World Supplement, ESRI Data & Maps, 2006 |

Appendix 2 Summary of the livestock depredation data, including economic data, for the nine conflict species.

| Number of livestock lost | Livestock lost (%) | Scat analysis | Total loss to predators (%) | Other | Economic loss & compensation |
|---|---|--|---|---|---|
| Caracal 5.2 small stock per adult caracal per year (W Coast National Park, S Africa; Avenant & Nel, 2002) | | Goat remains in 9 of 12 scats, sheep remains in 2 (N United Arab Emirates & Musandam Territory, Oman; Stuart & Stuart, 2007) | | Mammals comprised 97% of caracal diet with 28% of this being small stock (Free State, S Africa; Kok & Nel, 2004) | |
| Cheetah 1980–1990: average 11.2 sheep per year; no cattle (Loldiaiga Hills Ranch, Kenya; Mizutani, 1993) 211 livestock killed in 3 years (Kweneng district, Botswana; Schiess-Meier et al., 2007) | Average 0.7% of cattle (N-central Namibian farmlands; Marker et al., 2003a) Average 10–15% of small stock, 3–5% of cattle calves (sub-Saharan Africa; Nowell & Jackson, 1996) | No small stock remains (Sariska Tiger Reserve, India; Mukherjee et al., 2004) | 29% of cattle & 3% of small stock losses (N-central Namibian farmlands; Marker, 2001) | No losses attributed to cheetah (Maasai Mara National Reserve, Kenya; Kolowski & Holekamp, 2006) Cheetah attacks on livestock reported by 11–13% of villagers (Ngorongoro & Lolliondo, Tanzania; Maddox, 2003) | |
| Eurasian lynx 40 reindeer per year per lynx (Sweden; Swenson & Andrén, 2005) 2000: 8,500 sheep killed (Norway; Andren et al., 2006) 400 sheep over 15 years (Switzerland; Jackson & Nowell, 1996) 1994–2001: 324 sheep (Hedmark, Telemark & Nord-Trøndelag Counties, Norway; Herfindal | Average 5.7–10.9% of lambs (Hedmark, Telemark & Nord-Trøndelag Counties, Norway; Herfindal et al., 2005) 0.56% of sheep, 1.19% of reindeer (Norway; Swenson & Andrén, 2005) 0.8% of sheep, 14.7% of reindeer (Sweden; Swenson & | | | 51% of kills were semi-domestic reindeer (Sarek National Park, Sweden; Pedersen et al., 1999) 39% of semi-domestic reindeer mortality attributed to lynx (Norway; Nybakk et al., 2002) | Sheep loss = USD 2.6 million (Norway; Andrén et al., 2006) 2000: USD 2,155,971 paid in compensation for sheep loss, & USD 613,501 for reindeer loss (Norway; Swenson & Andrén, 2005) |

Appendix 2 (Continued)

| Number of livestock lost | Livestock lost (%) | Scat analysis | Total loss to predators (%) | Other | Economic loss & compensation |
|--|---|---------------|---|---|--|
| et al., 2005) | Andrén, 2005) | | | 34 radio-collared lynx killed 63 sheep & 3 goats during 6 grazing seasons (Hedmark & Nord-Trøndelag Counties, Norway; Odden et al., 2002) | 2000: USD 31,478 paid in compensation for sheep loss & USD 3,016,912 for reindeer (Sweden; Swenson & Andren, 2005) |
| 1984–1998: 1,620 small stock killed & 162 injured (French Jura; Stahl et al., 2001a) | | | | | |
| 1995–1999: 246 sheep killed or injured (French Jura; Stahl et al., 2002) | | | | | |
| Jaguar | | | | | |
| 1998–2000: 29 pigs, 28 horses, 26 deer & 4 dogs killed by large cats i.e. jaguar & puma (2 study areas, SE Sao Paulo State, Brazil; Palmeira & Barrella, 2007) | 0.4% of farm stock (1 farm in N Goiás, mid-W Brazil; Palmeira, 2004) | | 14% of total livestock losses to large cats (Hato Piñero, Cojedes, Venezuela; Polisar et al., 2003) | Cattle comprised 47.5% of prey (Pantanal, Brazil; Jorgenson & Redford, 1993) | BRL 80,700 (USD 25,865) on one ranch over 6 years; an average of BRL 13,450 (USD 4,310) per year (Brazil; Palmeira, 2004) |
| | 2.3% of cattle holdings (N Pantanal, Brazil; Zimmermann et al., 2005) | | | Domestic animals comprised 31.58% of prey items (Parana State, Brazil; Leite & Galvão, 2002) | USD 4,672 lost across 2 study areas between 1998–2000; c. USD 56 per property per year which is equal to c. 7% of a household's total income (SE Sao Paulo State, Brazil; Palmeira & Barrella, 2007) |
| | 0.26–1.24% of cattle (Alta Floresta, Brazil; Michalski et al., 2006) | | | 21.7% of cattle mortality attributed to jaguar (1 farm in N Goiás, mid-W Brazil; Palmeira, 2004) | |
| | | | | Cattle constituted 35–56% of total prey killed (3 ranches in the Venezuelan Llanos; Hoogesteijn et al., 1993) | |
| | | | | 1.8% of calf losses (Ranch in Los Llanos, Venezuela; Scognamiglio et al., 2002) | |
| | | | | Cattle constituted 51.3%, 41.3% & 50% of kills by 3 jaguars (S Pantanal, Brazil; Cavalcanti, 2003) | |

Appendix 2 (Continued)

| Number of livestock lost | Livestock lost (%) | Scat analysis | Total loss to predators (%) | Other | Economic loss & compensation |
|---|--------------------|---|---|--|---|
| Leopard 1993–2003: 1,606 livestock (Maharashtra State Forest Department, India; Athreya et al., 2004) | | No livestock remains reported (Lopé National Park, Gabon; Henschel et al., 2005) | 12% of livestock losses (Gokwe Communal Land, Zimbabwe; Butler, 2000) | 38 (of 39) reported attacks on cattle by big cats were by jaguar (Iguacu National Park area, S Brazil; Conforti & Azevedo, 2003) | Average 9% of family income (Maharashtra State Forest Department, India; Athreya et al., 2004) |
| 1992–2002: 2,294 reported losses (Baria Forest Division, Gujarat, India; Athreya et al., 2004) | | Cattle remains in 33% of scats, buffalo & goat in < 15% of scats (Majhahatal Harsang Wildlife Sanctuary, India; Mukherjee & Mishra, 2001) | 32% of livestock losses (Maasai Mara National Reserve, Kenya; Kolowski & Holekamp, 2006) | | Leopards accounted for 19% of a total monetary loss of KES 460,000 (USD 6,049) (Maasai Mara National Reserve, Kenya; Kolowski & Holekamp, 2006) |
| 1980–1990: Average of 14.4 sheep and 3.7 cattle per year (Lolldaiga Hills Ranch, Kenya; Mizutani, 1993) | | Goat remains made up the bulk of all scats (N United Arab Emirates & Musandam Territory of Oman; Stuart & Stuart, 2007) | 53% of domestic animals (Jigme Singye Wangchuk National Park, Bhutan; Wang & Macdonald, 2006) | | Cost of having leopards present = KES 8,277 per year or KES 1.84 per livestock unit or USD 0.74 per livestock unit per year (Lolldaiga Hills Ranch, Kenya; Mizutani 1999) |
| 857 livestock killed in 3 years (Kweneng district, Botswana; Schiess-Meier et al., 2007) | | | | | Leopards responsible for 53% of financial loss, totalling USD 6,681 (Jigme Singye Wangchuk National Park, Bhutan; Wang & Macdonald, 2006) |
| | | | | | Cost to maintain one leopard = USD 211 per year (Laikipia, Kenya; Frank et al., 2005) |

Appendix 2 (Continued)

| Number of livestock lost | Livestock lost (%) | Scat analysis | Total loss to predators (%) | Other | Economic loss & compensation |
|--|---|---------------|---|---|--|
| Lion | | | | | |
| 1980–1990: Average of 9.3 sheep & 27 cattle per year (Lolldaiga Hills Ranch, Kenya; Mizutani, 1993) | Average 0.8% (Laikipia, Kenya; Frank & Woodroffe, 2002) | | 15% livestock losses (Maasai Mara National Reserve, Kenya; Kolowski & Holekamp, 2006) | 30–35% of prey killed (Gir Forest, India; Nowell & Jackson, 1996) | Cost to maintain one lion on a ranch = USD 362 (Laikipia, Kenya; Frank & Woodroffe, 2002) |
| 1984–1988: 46 cattle, 13 goats, 8 donkeys, 3 horses (farms bordering Etosha National Park, Namibia; Stander, 1990) | 2.13% (Tsavo, Kenya; Patterson et al., 2004) | | 34% livestock losses (Gokwe Communal land, Zimbabwe; Butler, 2000) | Average of 0.07 cattle per rancher per year (S Africa; Hermann, 2002) | Lions accounted for 36% of an annual monetary loss of KES 460,000 (USD 6,049) (Maasai Mara National Reserve, Kenya; Kolowski & Holekamp, 2006) |
| 1998: estimated loss of 699 cattle, 742 sheep, 507 goats (Waza National Park, Cameroon; Bauer & de Iongh, 2005) | | | 38% cattle losses (Kgalagadi-N, Botswana; Hermann, 2002) | | Lions responsible for 86.1% of the total economic losses to wildlife, estimated at USD 8,749 annually (Tsavo, Kenya; Patterson et al., 2004) |
| 1986–1990: 1,268 livestock per year (Gir Forest, India; Saberwal et al., 1990) | | | 75% cattle losses (Kgalagadi-S, Botswana; Hermann, 2002) | | |
| 1995: 1,650 livestock (Gir Forest, India; Srivastav, 1997) | | | | | |
| 0–20 large stock & 0–75 small stock reportedly lost annually per settlement (Waza National Park, Cameroon; Bauer & Kari, 2001) | | | | | |
| 588 livestock killed in 3 years (Kweneng district, Botswana; Schiess-Meier et al., 2007) | | | | | USD 130,000 per annum (Waza National Park, Cameroon; Bauer & de Iongh, 2005) |
| 500–1,000 livestock per year (area surrounding Makgadikgadi Pans National Park, Botswana; Hemson & Macdonald, 2002) | | | | | Lions responsible for 58% (USD 2,640) of a total economic loss of USD 4,585 (Gokwe Communal land, Zimbabwe; Butler, 2000) |

Appendix 2 (Continued)

| Number of livestock lost | Livestock lost (%) | Scat analysis | Total loss to predators (%) | Other | Economic loss & compensation |
|---|--|--|---|---|--|
| Puma | | | | | |
| 60 sheep on one ranch in 1 year (Sao Paulo State, Brazil; Verdade & Campos, 2004) | 7% of sheep (SW Utah; Jackson & Nowell, 1996) 0.3% of sheep (Nevada; Jackson & Nowell, 1996) 20–27% of goats & 4–12% of cattle (La Rioja Province, Argentina; Johnson et al., 2005) 3.7% of cattle, 25.8% of sheep, 5.6% of swine (15 ranches in Santa Catarina, Brazil; Mazzolli et al., 2002) | | 86% of total livestock losses to large cats (Hato Piñero, Cojedes, Venezuela; Polisar et al., 2003) | Cattle comprised 43.3%, and sheep 13.3% of prey species (Pantanal, Brazil; Jorgenson & Redford, 1995) Cattle comprise 15% of puma diet (Mexico; Luna-Soria & López-González, 2005) 23% of annual lamb mortality attributed to puma (Santa Cruz Province, Argentina; Johnson et al., 2005) 72% of respondents reported predation of goats by pumas at least once per year (N Argentine Chaco; Altrichter et al., 2006) 11.5% of total calf losses (Ranch in Los Llanos, Venezuela; Scognamiglio et al., 2002) Cattle comprised <1% of diet (Escalante, Utah; Ackerman et al., 1984) | Average % loss calculated as % of total value of all flocks/herds from all ranches: cattle = 0.27% (USD 1,890); sheep (without corrals) = 32% (USD 5,900); sheep (with corrals) = 3% & 14%; goat = 38% (USD 4,332); swine = 11% (USD 300) (15 ranches in Santa Catarina, Brazil; Mazzolli et al., 2002) USD 3,600 lost on one ranch in 1 year (Sao Paulo State, Brazil; Verdade & Campos, 2004) |
| Snow leopard | | | | | |
| 1988–1989: 60 livestock (Annapurna Conservation Area, Nepal; Oli et al., 1994) | 1.9% of livestock (Sagarmatha National Park, Tibet; Ale et al., 2007) 2% (Skoyo, Baltistan, Pakistan; Hussain, 2000) 2.6% of livestock (Annapurna Conservation Area, Nepal; Oli et al., 1994) | scats (Annapurna Conservation Area, Nepal; Oli et al., 1993) | 55% depredation incidents (Hemis National Park, India; Jackson & Wangchuk, 2001) | 48–50% of snow leopard diet was livestock (Skoyo, Baltistan, Pakistan; Bagchi & Mishra, 2006) | Average value of losses (1988–1989: NPR 2,070; 1989–1990: NPR 2,175 (GBP 1 = NPR 75 at time of writing)) equivalent to a quarter of the average per capita income for Nepal (Annapurna Conservation Area, Nepal; Oli et al., 1994) |

Appendix 2 (Continued)

| Number of livestock lost | Livestock lost (%) | Scat analysis | Total loss to predators (%) | Other | Economic loss & compensation |
|--|---|---------------|-----------------------------|-------|--|
| | 0.2% of herd (116 farms in 4 Mongolian Provinces; Bayan Olgi, Gobi-Alyai, Khovd, Uvs; Allen et al., 2002) | | | | Total of USD 2,383 lost per year across all farms; average financial loss per affected farm per annum was USD 49 (1% total value of herd) (116 farms in 4 Mongolian Provinces; Bayan Olgi, Gobi-Alyai, Khovd, Uvs; Allen et al., 2002) |
| Tiger | | | | | |
| 1977–2001: 1,444 cattle (Kanha Tiger Reserve, India; Karanth & Gopal, 2005) | 1.7% (Lao PDR; Johnson et al., 2006) | | | | Tigers responsible for 26% monetary loss, totalling USD 3,414 (Jigme Singye Wangchuk National Park, Bhutan; Wang & Macdonald, 2006) |
| 1997–2002: 23 attacks on livestock (5 Sumatran Provinces; Nugraha, 2005) | | | | | |
| 2000–2004: 9 ducks/chickens, 15 goats, 51 dogs, 17 water buffalo/cattle, 5 horses (Kerinci Seblat National Park, Sumatra; Nugraha, 2005) | | | | | |
| 870 livestock killed over 20 years (Sumatra; Nyhus & Tilson, 2004) | | | | | 1977–2001: USD 22,166 paid in compensation (Kahna Tiger Reserve, India; Karanth & Gopal, 2005) |
| 1–60 cattle lost per village per year (Bandhavgarh National Park, India; Macdonald & Sillero-Zubiri, 2002) | | | | | |
| March 2000–July 2002: 60 cattle (Jerangau Forest Reserve, Ulu Terengganu, Malaysia; Mohd Azlan & Sharma, 2006) | | | | | |
| 100 livestock per year (Russian Far East; Miquelle et al., 2005) | | | | | |
| October 2003–July 2005: 302 horses, mules, cattle and yak lost to tigers (Gendang, Tibet; Qui, 1996) | | | | | |

Appendix 3 The number of deaths or injured people resulting from attacks by felid species. Years calculated are inclusive of all years stated in an article unless otherwise stated. Average attacks per year calculated by authors, references for original data provided. The different spatial scales of reports must be taken into account when comparing these average data.

| Species | Location | Dates | No. of years | No. attacks on humans | Average attack rate (per year) | Reference |
|---------------------------------------|--|---------------------|------------------|-----------------------|--------------------------------|--------------------------------|
| Jaguar | N Argentine Chaco | 1995 | 1 | 1 | | Altrichter et al., 2006 |
| | Argentina | 1991–1995 | 5 | 10 | 2 | Perovic & Herrán, 1998 |
| Leopard | Baria Forest Division, Gujarat, India | 1992–2002 | 11 | 847 | 77 | Athreya et al., 2004 |
| | Baria Forest Division, Gujarat, India | 2003 | 1 | 78 | | Athreya et al., 2004 |
| | Gir Forest, India | 1990–1999 | 10 | 27 | 2.7 | Vijayan & Pati, 2002 |
| | Maharashtra State Forest Department, India | 1993–2003 | 11 | 83 | 7.55 | Athreya et al., 2004 |
| | Maharashtra State Forest Department, India | 2001–2003 | 3 | 51 | 17 | Athreya et al., 2004 |
| Lion | Uganda | 1923–1994 | 72 | 114 | 1.58 | Treves & Naughton-Treves, 1999 |
| | Gir Forest, India | 1978–1988 | 11 | 73 | 6.64 | Saberwal et al., 1990 |
| | Gir Forest, India | May 1988–May 1990 | 2 | 97 | 48.5 | Saberwal et al., 1990 |
| | Gir Forest, India | 1978–1991 | 13 ¹ | 193 | 14.8 ² | Saberwal et al., 1994 |
| | Gir Forest, India | May 1988–March 1991 | 3 ¹ | 120 | 40 | Chellam & Johnsingh, 1993 |
| | Talala sub-district, Gir Forest, India | 1990–1999 | 10 | 18 | 1.8 | Vijayan & Pati, 2002 |
| | Luangwa Valley, Zambia | July–August 1991 | | 3 ² | | Yamazaki & Bwalya, 1999 |
| | Tanzania, 4 regions (38% of Tanzania) | 1989–2004 | 16 | 175 ² | 10.94 | Thirgood et al., 2005 |
| | Tanzania | 1990–2005 | 16 | 871 | 54.44 | Packer et al., 2005 |
| | Tarantire National Park, Tanzania | 1997–2000 | 4 | 18 | 4.5 | Skuja, 2002 |
| Puma | Uganda | 1923–1994 | 72 | 275 | 3.82 | Treves & Naughton-Treves, 1999 |
| | Waza National Park, Cameroon | | 10 ¹ | 3 | 0.3 | Bauer & Kari, 2001 |
| Tiger | USA & Canada | 1890–1990 | 10 ¹ | 53 | 0.52 | Beier, 1991 |
| | Bangladesh Sundarbans | 1860–1866 | 7 | 4,218 ² | 602.57 | Reza et al., 2000 |
| | Bangladesh Sundarbans | 1912–1921 | 10 | 452 ² | 45.20 | Reza et al., 2000 |
| | Bangladesh Sundarbans | 1948–1986 | 39 | 814 ² | 20.87 | Khan, 1987 |
| | Bangladesh Sundarbans | 1956–1983 | 27 | 535 ² | 19.81 | Reza et al., 2000 |
| | Bangladesh Sundarbans | 1975–1982 | | | 45 ^{2,3} | Sanyal, 1987 |
| | Bangladesh Sundarbans | 1983–1992 | 9 | 301 ² | 33.44 | Reza et al., 2000 |
| | Bangladesh Sundarbans | 1984–2000 | 17 | 401 ² | 23.59 | Reza et al., 2002 |
| | Sundarbans Tiger Reserve, India | 1975–1976 | 2 | 66 | 33 | Nowell & Jackson, 1996 |
| | Sundarbans Tiger Reserve, India | 1985–2001 | 17 | 351 | 20.65 | Karanth & Gopal, 2005 |
| Sundarbans Tiger Reserve, India | 1989 | 1 | 15 | | Nowell & Jackson, 1996 | |
| Sundarbans Tiger Reserve, India | 1992 | 1 | 42 | | Nowell & Jackson, 1996 | |
| British Administered Provinces, India | 1877 | 1 | 798 ² | | McDougal, 1987 | |

Appendix 3 (Continued)

| Species | Location | Dates | No. of years | No. attacks on humans | Average attack rate (per year) | Reference |
|---------|---------------------------------------|-----------|--------------|-----------------------|--------------------------------|------------------------|
| | British Administered Provinces, India | 1908 | 1 | 908 ² | | McDougal, 1987 |
| | Dudhwa National Park, India | 1978–1988 | 11 | 197 ² | 17.91 | Nowell & Jackson, 1996 |
| | Kanha Tiger Reserve, India | 1985–2001 | 17 | 47 | 2.76 | Karanth & Gopal, 2005 |
| | Chitwan National Park, Nepal | 1979–1996 | 18 | 222 | 1.22 | McDougal, 1999 |
| | Chitwan National Park, Nepal | 1998–1999 | 1 | 11 ² | | McDougal, 1999 |
| | Russian Far East | 1970–2001 | 32 | 51 | 1.59 | Miquelle et al., 2005 |
| | Sumatra | 1978–1997 | 201 | 176 | 8.8 | Nyhus & Tilson, 2004 |
| | 8 Sumatran Provinces | 1997–2002 | 6 | 18 | 3 | Nugraha, 2005 |
| | Kerinci Seblat National Park, Sumatra | 2000–2004 | 5 | 7 ² | 1.4 | Nugraha, 2005 |

¹Specifies the number of years (rather than the dates only) for which the data are applicable

²Reports deaths only

³Specifies a yearly average

Appendix 4 Retaliatory actions as reported in the literature. Numbers represent felids killed unless otherwise stated. Years calculated are inclusive of all years provided unless otherwise stated. Average attacks per year calculated by authors, references for original data provided. The different spatial scales of reports must be taken into account when comparing these average data.

| Species | Location | Time scale | No. of years | No. of felids killed or removed | Additional information | Annual persecution rate | References |
|---|---|------------|----------------|---------------------------------|---|--------------------------|--------------------------------|
| Caracal | S Africa's Karoo | 1931–1952 | 22 | | | 2,000 ¹ | Marker & Dickman, 2005 |
| | Namibia | 1981 | 1 | 2,800 | | | Marker & Dickman, 2005 |
| Cheetah | Laikipia, Kenya | 1995–1996 | 2 | | Per km ² per year on 26 ranches | 0.36 | Ogada et al., 2003 |
| | N-central Namibia | 1980–1993 | 14 | 2,646 | Removals reported by farmers from 7% of Namibia's farms | 189 | Marker, 2001 |
| Jaguar | N-central Namibia | 1978–1985 | 8 | | On farmlands | 827 ¹ | Marker, 2001 |
| | N-central Namibia | 1986–1995 | 10 | | On farmlands | 297 ¹ | Marker, 2001 |
| | Iguaçu National Park, Brazil | 1995–1997 | 3 | 30 | | 10 | Conforti & Azevedo, 2003 |
| Leopard | Alta Floresta, Brazil | 2002–2003 | 1 ² | 75–90 | Includes jaguar & puma | | Michalski & Peres, 2005 |
| | Alta Floresta, Brazil | 2003–2004 | 1 ² | 110–150 | Includes jaguar & puma | | Michalski et al., 2006 |
| | N Goiás, mid-W Brazil | 1998–2003 | 6 | 8 | On one ranch | 1.33 | Palmeira, 2004 |
| | Baria Forest Division, Gujarat, India | 2003 | 1 | 2 | | | Athreya et al., 2004 |
| | Maharashtra State Forest Department, India | 2002–2004 | 3 | 200 | Captured individuals | 66.67 | Athreya, 2006 |
| Lion | Phinda Private Game Reserve, S Africa | 2002–2005 | 3 ² | 21 | Deaths recorded in Phinda & adjacent properties | 5.25 | Balme, 2005 |
| | Laikipia, Kenya | 1995–1996 | 2 | | Per km ² per year on 26 ranches | 0.23 | Ogada et al., 2003 |
| | Lawdar Area, Yemen | 1979–1986 | 8 | 22 | | 2.75 | Jumaily et al., 2006 |
| | Uganda | 1923–1994 | 72 | 106 | Leopards killed by game department | 1.47 | Treves & Naughton-Treves, 1999 |
| | Region between Amboseli & Tsavo W National Parks, Kenya | 2001–2005 | 5 | 108 | Figure provided is a minimum value | 18 ¹ | Frank, 2006 |
| | Nairobi National Park, Kenya | 1998–2004 | 7 | 87 | | 12.42 | Frank et al., 2006 |
| | Laikipia, Kenya | 1995–1996 | 2 | | | 33 | Frank & Woodroffe, 2002 |
| | Etosha National Park, Namibia | 1982–86 | 5 | | On farms bordering the Park | 37 | Stander, 1990 |
| | Laikipia, Kenya | 1995–1996 | 2 | | Per km ² per year on 26 ranches | 2.63 | Ogada et al., 2003 |
| | Tarangire National Park, Tanzania | 1997–2000 | 4 | 5 | | 1.25 | Skuja, 2002 |
| Talala subdistrict, Gir Forest, India | 1994–1999 | 6 | 5 | | 0.83 | Vijayan & Pati, 2002 | |
| Makgadikgadi Pans National Park, Botswana | Mid 1998–early 2000 | | 11 | Over an 18 month period | 7.26 | Hemson & Macdonald, 2002 | |

Appendix 4 (Continued)

| Species | Location | Time scale | No. of years | No. of felids killed or removed | Additional information | Annual persecution rate | References |
|--------------|---------------------------------------|------------|--------------|---------------------------------|--|-------------------------|----------------------------|
| Puma | Santa Catarina, Brazil | 1988–1995 | 8 | 27 | On 15 ranches | 3.37 | Mazzolli et al., 2002 |
| Snow leopard | Sao Paulo State, Brazil | 1984–1994 | 11 | 7 | On 1 ranch | 0.64 | Verdade & Campos, 2004 |
| | Annapurna Conservation Area, Nepal | 1989–2002 | 14 | 10 | Figure provided is a minimum value | | Oli et al., 1994 |
| Tiger | Wakham Corridor, Afghanistan | 2003–2004 | 2 | 7 | Reported snow leopard killings | 0.71 | Mishra & Fitzherbert, 2004 |
| | Lao PDR | 1912–1971 | 60 | 1,295 | | 3.5 | Johnson et al., 2006 |
| | Bangladesh Sundarbans | 1971–1973 | 3 | 20–25 | | 21.58 | Khan, 1987 |
| | Bangladesh Sundarbans | 1979–1985 | 7 | 7 | | 7.5 ³ | Khan, 1987 |
| | Bangladesh Sundarbans | 1984–2000 | 17 | 41 | | 1 | Khan, 1987 |
| | 5 Sumatran Provinces | 1997–2002 | 6 | 17 | | 2.41 | Reza et al., 2002 |
| | Kerinci Seblat National Park, Sumatra | 2000–2004 | 5 | 16 | | 2.8 | Nugraha, 2005 |
| | Sumatra | 1978–1997 | 20 | 265 | Tigers killed for profit, retaliation or by accident | 3.2 | Nugraha, 2005 |
| | SE Tibet | 1990–1996 | 7 | 5 | | 13.25 | Nyhus & Tilson, 2004 |
| | | | | | | 0.71 | Qui, 1996 |

¹Reports yearly average²Specifies the number of years (rather than the dates only) for which the data are applicable³Using the average of 22.5