

Gorillas in the midst: the impact of armed conflict on the conservation of protected areas in sub-Saharan Africa

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Appendix Reported environmental impacts of conflict in 10 nations of sub-Saharan Africa, with type (Table 3), site of occurrence (if applicable), year(s) if available, relevant details, source, and Severity and Reliability scores (see text for details). Each impact is individually described and scored using the Severity and Reliability criteria given in Table 2. An impact is categorized as Major, Moderate or Minor when the most frequent score received using the Severity criteria is 3, 2 and 1, respectively. Data were classified as Highly Reliable, Reliable, Moderately Reliable, Potentially Unreliable, Questionable, Moderately Unreliable, Unreliable, and Highly Unreliable where the sum of the score for the three reliability criteria (Table 2) was 9, 8, 7, 6, 5, 4, 3 and 2, respectively.

| Impact | Type | Site* | Year (s) | Details | Source | Severity | | | | | | | | | | Reliability | | |
|------------------------------|---------|-------|-----------|---|---|----------|---|---|---|---|---|---|-------|------------|---|-------------|-------|------------------|
| | | | | | | | | | | | | | | | | | | |
| | | | | | | A | B | C | D | E | F | G | Total | H | I | J | Total | |
| Democratic Republic of Congo | Induced | PNVi | 1994–1997 | Rwandan refugees engaged in large-scale subsistence deforestation in DRC | Kalpers (2001a) | 1 | 2 | 1 | 2 | 3 | 3 | 3 | 3 | Major (15) | 2 | 2 | 4 | Reliable (8) |
| Deforestation: commercial | Induced | PNVi | 1994–1997 | Artisanal bamboo project by an aid agency causes large scale deforestation of bamboo forest | Henquin & Blondel 1997 in Kalpers (2001b) | 3 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | Major (18) | 2 | 2 | 4 | Reliable (8) |
| Deforestation: subsistence | Induced | PNVi | 1994–1997 | Clearance of <i>Podocarpus milanjianus</i> by Rwandan refugees | Kalpers (2001b) | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | Major (20) | 1 | 1 | 4 | Questionable (6) |

Appendix (Continued)

| Impact | Type | Site* | Year (s) | Details | Source | Severity | | | | | | | | | | Reliability | | | | |
|---------------------------------|----------|-------|-----------|--|---|----------|---|---|---|---|---|---|-------|------------|------------|-------------|-------|--------------|-------------------------|-------------------------|
| | | | | | | A | B | C | D | E | F | G | Total | H | I | J | Total | | | |
| | | | | | | 1 | 2 | 1 | 3 | 3 | 3 | 3 | 3 | Major (17) | 2 | 2 | 4 | Reliable (8) | | |
| Deforestation: general | Induced | PNVi | 1994 | Clearance of areas surrounding the Goma - Rutshuru road | Kalpers (2001b) | 1 | 2 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | Major (17) | 2 | 2 | 4 | Reliable (8) |
| Conflict trades: coltan | Indirect | FRO | 1999-2001 | Presence of many coltan mining camps | Kalpers (2001b) | 3 | 2 | 3 | 1 | 3 | 3 | 2 | 2 | 2 | 2 | Major (17) | 1 | 2 | 4 | Moderately Reliable (7) |
| Deforestation: subsistence | Indirect | FRO | 1999-2001 | Presence of many coltan mining camps | Hart & Mwinyihali (2001); Aviram <i>et al.</i> (2003) | 3 | 2 | 3 | 1 | 3 | 2 | 2 | 2 | 2 | 2 | Major (16) | 1 | 2 | 4 | Moderately Reliable (7) |
| Hunting/poaching: general | Indirect | FRO | 1999-2001 | Presence of many coltan mining camps | Hart & Mwinyihali (2001) | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | 2 | Major (18) | 1 | 2 | 4 | Moderately Reliable (7) |
| Deforestation: subsistence | Induced | PNVi | | Influx of pastoralists into area | Hart & Mwinyihali (2001) | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | Major (19) | 1 | 1 | 4 | Questionable (6) |
| Deforestation: general | Induced | PNVi | 1994-2002 | Much deforestation throughout the conflict | Draulans & Van Krunkelsven (2002) | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | Major (19) | 3 | 2 | 4 | Highly Reliable (9) |
| Deforestation: commercial | Induced | All | 2002 | Illegal timber exports at the Ugandan border estimated to have doubled | Draulans & Van Krunkelsven (2002) | 1 | 2 | 1 | 2 | 3 | 3 | 1 | 1 | 1 | Minor (11) | 2 | 1 | 4 | Moderately Reliable (7) | |
| Deforestation: general | Induced | PNKB | 2004 | Clearance of 15 km ² of the Mwaro corridor | Muir (2004) | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | Major (19) | 3 | 1 | 4 | Reliable (8) |
| Deforestation: subsistence | Induced | PNKB | 1994 | Refugees clear 3,758 ha of forest for fuelwood | Kalpers, (2001b) | 1 | 2 | 1 | 2 | 3 | 2 | 1 | 1 | 1 | Minor (12) | 2 | 1 | 4 | Moderately Reliable (7) | |
| Hunting/poaching: commercial | Induced | PNVi | 1999-2004 | 20% decline in <i>Gorilla berengei</i> | Hall <i>et al.</i> (1998); Kalpers (2003) | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 3 | Major (19) | 3 | 2 | 4 | Highly Reliable (9) |
| Hunting/poaching: commercial | Induced | PNVi | 1999-2004 | Growth rate of <i>G. berengei</i> down 1% per annum | Kalpers <i>et al.</i> (2003) | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 3 | Major (19) | 3 | 2 | 4 | Highly Reliable (9) |
| Hunting/poaching: general | Induced | PNS | 2000 | High levels of <i>Pan paniscus</i> hunting | Black (2004) | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | Major (20) | 3 | 1 | 4 | Reliable (8) | |

Appendix (Continued)

| Impact | Type | Site* | Year (s) | Details | Source | Severity | | | | | | | | | | Reliability | | | | |
|------------------------------|---------|-------|-----------|---|---|----------|---|---|---|---|---|---|---------------|---|---------------|---------------|--------------|---|-------------------------|---------------------|
| | | | | | | A | B | C | D | E | F | G | Total | H | I | J | Total | | | |
| | | | | | | 3 | 3 | 2 | 2 | 3 | 3 | 2 | Moderate (18) | 3 | 1 | 4 | Reliable (8) | | | |
| Hunting/poaching: general | Induced | PNG | 1995–2000 | <i>Loxodonta africana</i> & other large mammals subject to high poaching pressure | Kalpers (2001b) | 3 | 3 | 2 | 2 | 3 | 3 | 2 | 2 | 3 | 2 | Moderate (18) | 3 | 1 | 4 | Reliable (8) |
| Hunting/poaching: commercial | Induced | PNKB | 1995–2000 | <i>G. berengsei berengsei</i> declines to 35% of pre-war population | Elongo (2000) | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | Major (19) | 3 | 1 | 4 | Reliable (8) |
| Hunting/poaching: commercial | Induced | PNG | 2002–2004 | <i>Ceratothrium simum cottoni</i> declines 60% | IUCN (2004); Anon. (2005) | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | Major (20) | 3 | 2 | 4 | Highly Reliable (9) |
| Hunting/poaching: commercial | Induced | PNG | 1995–1999 | 34% of <i>C. simum cottoni</i> population killed | UNEP-WCMC (2002a) | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | Major (19) | 3 | 1 | 4 | Reliable (8) | |
| Hunting/poaching: commercial | Induced | PNKB | 1996–2000 | 0.6% of pre-war population of <i>L. africana</i> remained in 2000 | UNEP-WCMC (2003) | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | Major (19) | 3 | 2 | 4 | Highly Reliable (9) | |
| Hunting/poaching: commercial | Induced | | 2000 | In excess of 2 of elephant ivory on sale in the markets of Bukavu in 2000 | UN (2001) | 1 | 2 | 1 | 2 | 3 | 2 | 1 | 1 | 1 | Minor (9) | 2 | 1 | 4 | Moderately Reliable (7) | |
| Hunting/poaching: general | Induced | PNKB | 1996 | Reports of <i>Hippopotamus amphibius</i> & <i>Gorilla berengsei graueri</i> poaching | Hart <i>et al.</i> (1996) | 3 | 2 | 1 | 2 | 3 | 2 | 3 | 3 | 3 | Moderate (16) | 1 | 2 | 4 | Moderately Reliable (7) | |
| Hunting/poaching: commercial | Induced | All | 2000 | Sharp increase in the number of <i>P. paniscus</i> orphans arriving in Kinshasa | Vogel (2000); Draulans & Van Krunkselven (2002); Reinartz & Inogwabini (2001) | 3 | 2 | 3 | 1 | 3 | 2 | 3 | 3 | 3 | Major (17) | 2 | 2 | 4 | Reliable (8) | |
| Hunting/poaching: commercial | Induced | PNKB | 1996–2000 | 47–50% of the 240 <i>G. berengsei graueri</i> killed in one section of the park | Vogel (2000); Redmond (2001); Plumptre <i>et al.</i> (2003); Yamagiwa (2003) | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | Major (19) | 3 | 2 | 4 | Highly Reliable (9) | |
| Hunting/poaching: commercial | Induced | PNKB | 1996–2001 | Surveys indicate that <i>L. africana</i> has been poached to local extinction in the park | Redmond (2001) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | Major (21) | 3 | 2 | 4 | Highly Reliable (9) | |

Appendix (Continued)

| Impact | Type | Site* | Year (s) | Details | Source | Severity | | | | | | | | | | Reliability | | | |
|---------------------------------|----------|-------|-----------|---|--|----------|---|---|---|---|---|---|---------------|---|---|-------------|-------------------------|--|--|
| | | | | | | A | B | C | D | E | F | G | Total | H | I | J | Total | | |
| | | | | | | 3 | 2 | 2 | 3 | 3 | 3 | 2 | Major (18) | 1 | 2 | 4 | Moderately Reliable (7) | | |
| Conflict trades: coltan | Indirect | PNKB | | Mining causing the pollution of streams, erosion, fuelwood collection, poaching & the debarking of trees | Redmond (2001) | 3 | 2 | 2 | 3 | 3 | 3 | 2 | Major (18) | 1 | 2 | 4 | Moderately Reliable (7) | | |
| Hunting/poaching: general | Induced | PNS | | <i>P. paniscus</i> population estimated at 2% of former levels | Black (2004) | 3 | 3 | 3 | 2 | 3 | 2 | 3 | Major (19) | 3 | 1 | 4 | Reliable (8) | | |
| Hunting/poaching: commercial | Indirect | PNVi | 1996 | Mai-Mai 'decimate' <i>H. amphibiis</i> on the Rutshuru & Rwindi rivers | Hart & Mwinyihali (2001) | 3 | 3 | 1 | 2 | 3 | 2 | 3 | Major (17) | 1 | 1 | 4 | Questionable (6) | | |
| Hunting/poaching: general | Indirect | PNVi | 1999 | RCD-Goma alleged to have killed 350 <i>Syncerus caffer</i> & 450 antelope | Hart & Mwinyihali (2001) | 3 | 2 | 1 | 2 | 3 | 3 | 3 | Major (18) | 2 | 1 | 4 | Moderately Reliable (7) | | |
| Hunting/poaching: general | Induced | PNG | 1996–1997 | Two <i>C. simum cottoni</i> poached | Hart & Mwinyihali (2001) | 3 | 2 | 3 | 2 | 3 | 3 | 3 | Major (19) | 2 | 2 | 4 | Reliable (8) | | |
| Hunting/poaching: commercial | Induced | FRO | 2000 | Poaching of <i>L. africana</i> widespread throughout reserve | Hart & Mwinyihali (2001) | 3 | 1 | 2 | 2 | 3 | 3 | 2 | Moderate (16) | 1 | 1 | 4 | Questionable (6) | | |
| Conflict trades: coltan | Indirect | FRO | 2000 | Coltan mining camps serving as foci for deforestation with the area | Hart & Mwinyihali (2001); Aviram <i>et al.</i> (2003); Enkoto (2003) | 3 | 2 | 2 | 1 | 3 | 3 | 2 | Moderate (16) | 1 | 2 | 4 | Moderately Reliable (7) | | |
| Habitat loss | Induced | PNKB | 1996–2001 | Human population of the park >35,000, all present illegally & many engaged in agriculture, poaching or mining of coltan | Hart & Mwinyihali (2001) | 3 | 2 | 3 | 2 | 3 | 3 | 3 | Major (19) | 2 | 2 | 4 | Reliable (8) | | |
| Hunting/poaching: general | Induced | PNVi | 1996–2001 | Increasing number of illegal fishing villages within the protected area | Hart & Mwinyihali (2001) | 3 | 2 | 2 | 2 | 3 | 2 | 3 | Moderate (17) | 1 | 1 | 4 | Questionable (6) | | |

Appendix (Continued)

| Impact | Type | Site* | Year (s) | Details | Source | Severity | | | | | | | | | | Reliability | | | |
|------------------------------|----------|-------|-----------|--|--|----------|---|---|---|---|---|---|---------------|---|---|-------------|-------------------------|--|--|
| | | | | | | A | B | C | D | E | F | G | Total | H | I | J | Total | | |
| Hunting/poaching: general | Induced | PNS | 1996–2001 | High levels of poaching in the protected area | Hart & Mwinyihali (2001) | 1 | 2 | 2 | 1 | 3 | 2 | 3 | Moderate (14) | 1 | 2 | 4 | Moderately Reliable (7) | | |
| Hunting/poaching: general | Indirect | | | Many soldiers observed with live parrots & monkeys | Draulans & Van Krunkelsven (2002) | 1 | 2 | 1 | 2 | 3 | 2 | 2 | Moderate (13) | 1 | 1 | 4 | Questionable (6) | | |
| Hunting/poaching: commercial | Induced | PNKB | 2002 | Two juvenile <i>G. berengei graueri</i> for sale in Bumba market | Draulans & Van Krunkelsven (2002) | 3 | 1 | 3 | 2 | 3 | 2 | 3 | Major (17) | 2 | 1 | 4 | Moderately Reliable (7) | | |
| Hunting/poaching: general | Induced | PNVi | 1994–1995 | The number of confiscated snares & machetes tripled in both 1994 & 1995 | Draulans & Van Krunkelsven (2002) | 3 | 2 | 2 | 1 | 3 | 2 | 3 | Moderate (16) | 3 | 1 | 4 | Reliable (8) | | |
| Hunting/poaching: general | Induced | PNM | 1996–1998 | Poaching of <i>G. berengei graueri</i> reported | Hart <i>et al.</i> (1998) | 1 | 2 | 2 | 2 | 3 | 2 | 2 | Major (17) | 1 | 1 | 4 | Questionable (6) | | |
| Deforestation: general | Induced | FRO | 1996–1997 | Uncontrolled deforestation within protected area | Stephenson & Newby (1997) | 1 | 2 | 2 | 2 | 3 | 2 | 2 | Moderate (14) | 1 | 2 | 4 | Moderately Reliable (7) | | |
| Hunting/poaching: general | Induced | FRO | 1996–1997 | Illegal hunting of primates & antelope | Stephenson & Newby (1997) | 1 | 2 | 2 | 2 | 3 | 2 | 2 | Moderate (14) | 1 | 2 | 4 | Moderately Reliable (7) | | |
| Conflict trades: gold | Induced | FRO | 1996–1997 | Gold mining widespread across protected area | Stephenson & Newby (1997); Enkoto (2003) | 1 | 2 | 2 | 2 | 3 | 2 | 2 | Moderate (14) | 1 | 1 | 4 | Questionable (6) | | |
| Hunting/poaching: general | Induced | FRO | 1996–1997 | Systematic ivory poaching reported | Stephenson & Newby (1997) | 1 | 2 | 2 | 2 | 3 | 2 | 2 | Moderate (14) | 1 | 2 | 4 | Moderately Reliable (7) | | |
| Hunting/poaching: general | Induced | PNVi | 1992–2000 | 12–17 <i>G. berengei</i> (4–5% of total population) killed | Lanjouw (2001); Kalpers <i>et al.</i> (2003) | 3 | 2 | 3 | 1 | 3 | 2 | 3 | Major (17) | 3 | 2 | 4 | Highly Reliable (9) | | |
| Hunting/poaching: general | Induced | PNVi | 1999–2003 | 20% decline in the population of habituated <i>G. berengei berengei</i> groups | Kalpers <i>et al.</i> (2003) | 3 | 2 | 3 | 2 | 3 | 2 | 3 | Major (18) | 3 | 1 | 4 | Reliable (8) | | |

Appendix (Continued)

| Impact | Type | Site* | Year (s) | Details | Source | Severity | | | | | | | | | | Reliability | | | | | | | | | |
|-------------------------------|---------|-------|-----------|--|---|----------|---|---|---|---|---|---|---|---|-------|-------------|---|---|------------|---------------|---|---|---------------------|---------------------|-------------------------|
| | | | | | | A | B | C | 3 | 2 | D | E | F | G | Total | H | I | J | Total | | | | | | |
| | | | | | | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 4 | 4 | Highly Reliable (9) | | |
| Hunting/poaching: general | Induced | PNKB | 1996–2000 | 50% decline in <i>G. berengei graueri</i> in the highland sector of PNKB | Sato <i>et al.</i> (2000); Kalpers <i>et al.</i> (2003) | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | Major (19) | 3 | 2 | 4 | 4 | Highly Reliable (9) |
| Deforestation: subsistence | Induced | PNVi | 1994–1997 | >80,000 people entering the protected area over 27 months; estimated 1,000 t of timber removed from the protected area per day | Lanjuy (1995) & Blondel (1997) in Kalpers (2001b) | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | Major (20) | 2 | 2 | 4 | 4 | Moderately Reliable (7) |
| Deforestation: subsistence | Induced | PNVi | 1994–1997 | 105 km ² of Nyamuligura sector affected by deforestation, but two-thirds of forests of low ecological value | Lanjouw (2001); Kalpers (2001b) | 3 | 3 | 2 | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | Moderate (17) | 2 | 1 | 4 | 4 | Reliable (8) |
| Deforestation: subsistence | Induced | PNVi | 1994–1997 | Deforestation causes damage to <i>Podocarpus milanjianus</i> forest, important primate habitat | Kalpers (2001b) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | Major (21) | 2 | 1 | 4 | 4 | Reliable (8) |
| Deforestation: general | Induced | PNVi | 1994–1997 | In excess of 192 ha of Mikeno sector affected by deforestation caused by an artisanal bamboo project; estimated that >50% of all <i>Arundinaria alpina</i> stems cut | Henquin & Blondel 1997 in Kalpers (2001b) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | Major (21) | 3 | 2 | 4 | 4 | Highly Reliable (9) | |
| Hunting/poaching: general | Induced | PNVi | 1991–1998 | Increased poaching of <i>Tragelaphus scriptus</i> , <i>Cephalophus nigrifrons kiouensis</i> , & <i>S. caffer</i> | Plumptre <i>et al.</i> (1997); Kalpers (2001b) | 3 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | Moderate (15) | 1 | 2 | 4 | 4 | Moderately Reliable (7) |

Appendix (Continued)

| Impact | Type | Site* | Year (s) | Details | Source | Severity | | | | | | | | | | Reliability | | | |
|---------------------------------|---------|-------|-----------|--|----------------------------------|----------|---|---|---|---|---|---|-------|------------|---|-------------|-------|-------------------------|--|
| | | | | | | A | B | C | D | E | F | G | Total | H | I | J | Total | | |
| Hunting/poaching: general | Induced | PNVi | 1995 | Three female & one male <i>G. berengei</i> killed in July & August 1995 | Cooper & Cooper (1996) | 3 | 2 | 3 | 1 | 3 | 2 | 3 | 3 | Major (17) | 2 | 2 | 4 | Reliable (8) | |
| Pollution | Induced | PNVi | 1994 | Significant amounts of medical waste dumped in the park | Biswas & Tortajada-Quiróz (1996) | 3 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | Major (19) | 1 | 2 | 4 | Moderately Reliable (7) | |
| Direct military | Direct | PNVi | 2004 | Strategic deforestation of the Mwaro Corridor | Kalperts (2001b) | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | Major (20) | 2 | 2 | 4 | Reliable (8) | |
| Exotic species introduction | Induced | PNVi | | Introduction of exotic plants to the protected area, including potato, hemp, wheat & tobacco | Kalperts (2001a) | 1 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | Major (17) | 1 | 1 | 4 | Questionable (6) | |
| Deforestation: subsistence | Induced | PNVi | 1994–1997 | Deforestation of wide areas, with the removal of stumps preventing regrowth | Sato <i>et al.</i> (2000) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | Major (21) | 1 | 2 | 4 | Moderately Reliable (7) | |
| Direct military | Direct | PNVi | 1997 | Landmines laid in 1997 by refugees as camps were deserted | Sato <i>et al.</i> (2000) | 1 | 2 | 3 | 1 | 3 | 2 | 3 | 3 | Major (15) | 1 | 1 | 4 | Questionable (6) | |
| Habitat loss | Induced | PNKB | 1996–2001 | Msimi camp founded, causing uncontrollable human habitation within the park | Sato <i>et al.</i> (2000) | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | Major (20) | 1 | 2 | 4 | Moderately Reliable (7) | |
| Hunting/poaching: general | Induced | PNKB | 1996–1997 | More than 150 <i>L. affricana</i> killed between October 1996 & July 1997 | Sato <i>et al.</i> (2000) | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | Major (18) | 2 | 2 | 4 | Reliable (8) | |
| Hunting/poaching: commercial | Induced | PNG | 2002–2004 | 60% decline in <i>C. simum cottonii</i> population | IUCN (2004); Anon. (2005) | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | Major (20) | 3 | 2 | 4 | Highly Reliable (9) | |
| Hunting/poaching: general | Induced | PNG | 1996–1998 | All key species within the protected area declined significantly | IUCN (2004); Anon. (2005) | 3 | 2 | 2 | 1 | 3 | 3 | 3 | 3 | Major (17) | 3 | 2 | 4 | Highly Reliable (9) | |

Appendix (Continued)

| Impact | Type | Site* PNVi | Year (s) | Details | Source | Severity | | | | | | | | | | Reliability | | | |
|------------------------------|---------|---------------|-----------|--|---------------------------------|----------|---|---|---|---|---|---|------------|---|---------------|-------------|--------------|---|-------------------------|
| | | | | | | A | B | C | D | E | F | G | Total | H | I | J | Total | | |
| | | | | | | 3 | 3 | 2 | 2 | 3 | 3 | 3 | Major (19) | 2 | 2 | 4 | Reliable (8) | | |
| Direct military | Direct | PNVi | 2004 | Significant deforestation of the Mwaro Corridor during 29 May–10 June | Muir (2004); CARPE (2005) | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | Major (19) | 2 | 2 | 4 | Reliable (8) |
| Habitat loss | Induced | PNVi | 2004 | Large numbers of domestic livestock grazing in the Mwaro Corridor | Muir (2004) | 3 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | Major (19) | 1 | 1 | 4 | Questionable (6) |
| Habitat loss | Induced | PNVi | 2004 | Settlement, encroachment & agriculture increasing within the Nyamulagira sector | Muir (2004) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | Major (21) | 1 | 1 | 4 | Questionable (6) |
| Hunting/poaching: general | Induced | | 1996–2000 | 50% decline in the <i>P. pariscus</i> population, from c. 10,000 individuals | Saegusa (2000) | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | Major (19) | 3 | 1 | 4 | Reliable (8) |
| Deforestation: general | Induced | PNKB | | Protected area 'severely affected' by conflict | Omari (2004) | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | Major (18) | 1 | 2 | 4 | Moderately Reliable (7) |
| Hunting/poaching: general | Induced | PNKB | 1996–2000 | Most terrestrial mammal populations at very low concentrations compared to their pre-war populations | Inogwabini <i>et al.</i> (2000) | 3 | 2 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | Major (18) | 1 | 2 | 4 | Moderately Reliable (7) |
| Hunting/poaching: commercial | Induced | PNKB | 1996–2000 | Shift in favoured habitat by <i>L. africana</i> to areas where conservation authorities continue to patrol | Inogwabini <i>et al.</i> (2000) | 3 | 2 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | Moderate (17) | 1 | 1 | 4 | Questionable (6) |

Appendix (Continued)

| Impact | Type | Site* | Year (s) | Details | Source | Severity | | | | | | | | | | Reliability | | | |
|------------------------------|---------|-------|-----------|--|----------------------------------|----------|---|---|---|---|---|---|------------|---|---|-------------|-------------------------|--|--|
| | | | | | | A | B | C | D | E | F | G | Total | H | I | J | Total | | |
| | | | | | | 3 | 3 | 2 | 1 | 3 | 3 | 3 | Major (18) | 3 | 1 | 4 | Reliable (8) | | |
| Habitat loss | Induced | PNKB | | >60% of the highland sector threatened by agricultural encroachment | Inogwabini <i>et al.</i> (2000) | 3 | 3 | 2 | 1 | 3 | 3 | 3 | Major (18) | 3 | 1 | 4 | Reliable (8) | | |
| Hunting/poaching: general | Induced | PNKB | 1999–2003 | 50% of the <i>C. berengeti graueri</i> population poached in the highland sector | Yamagiwa (2003) | 3 | 3 | 3 | 2 | 3 | 3 | 3 | Major (20) | 3 | 2 | 4 | Highly Reliable (9) | | |
| Hunting/poaching: general | Induced | PNKB | 1999–2003 | 95% of <i>L. africana</i> killed since 1999 | Plumptre (2003); Yamagiwa (2003) | 3 | 3 | 2 | 3 | 3 | 3 | 3 | Major (20) | 3 | 2 | 4 | Highly Reliable (9) | | |
| Hunting/poaching: general | Induced | PNKB | 1999–2003 | All four habituated <i>C. berengeti graueri</i> groups have fragmented since 1999 | Elongo (2000); Yamagiwa (2003) | 3 | 3 | 3 | 1 | 3 | 3 | 3 | Major (19) | 1 | 1 | 4 | Questionable (6) | | |
| Deforestation: general | Induced | PNKB | 1998 | Increase in tree felling reported | Yamagiwa (2003) | 1 | 2 | 1 | 2 | 3 | 3 | 3 | Major (15) | 1 | 1 | 4 | Questionable (6) | | |
| Hunting/poaching: commercial | Induced | PNKB | 1999 | Gorilla meat for sale in a number of markets local to the protected area | Yamagiwa (2003) | 3 | 1 | 3 | 2 | 3 | 2 | 3 | Major (17) | 1 | 1 | 4 | Questionable (6) | | |
| Hunting/poaching: general | Induced | FR0 | | <i>C. nigrifrons kiruensis</i> population 'decimated' as a consequence of the conflict | Plumptre (2003) | 3 | 3 | 1 | 2 | 3 | 2 | 3 | Major (17) | 1 | 2 | 4 | Moderately Reliable (7) | | |
| Deforestation: general | Induced | | 1994–1996 | Extensive deforestation around Goma, Bukavu & the Ruzizi Plain | Biswas & Tortajada-Quiroz (1996) | 1 | 3 | 1 | 2 | 3 | 3 | 3 | Major (15) | 1 | 2 | 4 | Moderately Reliable (7) | | |
| Deforestation: subsistence | Induced | | 1994 | 3,758 ha deforested in the 3 weeks immediately following the arrival of Rwandan refugees | Biswas & Tortajada-Quiroz (1996) | 1 | 3 | 1 | 2 | 3 | 3 | 3 | Major (15) | 2 | 1 | 4 | Moderately Reliable (7) | | |

Appendix (Continued)

| Impact | Type | Site* | Year (s) | Details | Source | Severity | | | | | | | | | | Reliability | | | |
|------------------------------|---------|-------|-----------|--|--------------------------------------|----------|---|---|---|---|---|---|-------|---------------|------------|-------------|-------|-------------------------|-------------------------|
| | | | | | | A | B | C | D | E | F | G | Total | H | I | J | Total | | |
| Habitat loss | Induced | PNKB | 1996–1998 | More than 3,500 ha of the protected area damaged by fires linked to the presence of refugees | Elongo (2000) | 1 | 2 | 3 | 3 | 1 | 3 | 2 | 3 | 3 | Major (21) | 2 | 1 | 4 | Moderately Reliable (7) |
| Hunting/poaching: general | Induced | PNKB | 1996–2000 | 67% of <i>G. berengsi graueri</i> in the highland sector poached | Elongo (2000) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | Major (21) | 3 | 2 | 4 | Highly Reliable (9) | |
| Hunting/poaching: commercial | Induced | PNKB | 1996–2000 | Only 1.9% of the former <i>L. africana</i> population in the highland sector remains | Elongo (2000) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | Major (16) | 3 | 2 | 4 | Highly Reliable (9) | |
| Hunting/poaching: commercial | Induced | PNS | | Massive hunting pressure on <i>L. africana</i> population | Van Krunkelsven <i>et al.</i> (2000) | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | Major (18) | 1 | 2 | 4 | Questionable (6) | |
| Hunting/poaching: general | Induced | PNS | | No evidence that the <i>H. amphihibus</i> & <i>S. coffey</i> populations remain | Van Krunkelsven <i>et al.</i> (2000) | 3 | 3 | 1 | 2 | 3 | 3 | 3 | 3 | Major (17) | 2 | 1 | 4 | Reliable (8) | |
| Hunting/poaching: general | Induced | PNS | | Considerable density of hunting camps along the Salonga River | Van Krunkelsven <i>et al.</i> (2000) | 1 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | Major (21) | 2 | 2 | 4 | Moderately Reliable (7) | |
| Hunting/poaching: commercial | Induced | PNG | 2005 | Four <i>C. simum cottoni</i> observed during a survey of their last remaining natural habitat; considered likely that <10 individuals remain in the wild | de Merode <i>et al.</i> (2005) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | Moderate (16) | 3 | 1 | 4 | Moderately Reliable (7) | |
| Hunting/poaching: general | Induced | PNG | 2005 | Reports of 13 small poaching camps within the protected area | de Merode <i>et al.</i> (2005) | 1 | 2 | 3 | 2 | 3 | 2 | 3 | 3 | Major (19) | 2 | 1 | 4 | Reliable (8) | |

Appendix (Continued)

| Impact | Type | Site* | Year (s) | Details | Source | Severity | | | | | | | Reliability | | | | | |
|---------------------------------|----------|-------|-----------|--|--|----------|---|---|---|---|---|---|-------------|---------------|---|---|-------------------------|-------------------------|
| | | | | | | A | B | C | D | E | F | G | Total | H | I | J | Total | |
| | | | | | | 3 | 3 | 2 | 2 | 3 | 3 | 3 | Major (19) | 3 | 1 | 4 | Moderately Reliable (7) | |
| Hunting/poaching: general | Induced | PNG | 2005 | Poaching of <i>L. africana</i> has increased 2-fold; if current level is sustained, it is unlikely that the population will survive for >4 years | de Merode <i>et al.</i> (2005) | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | Major (19) | 3 | 1 | 4 | Moderately Reliable (7) |
| Habitat loss | Induced | PNVi | | Frequent human signs throughout the protected area | Owinji <i>et al.</i> (2005); Debonnet & Hillman-Smith (2004) | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | Major (19) | 1 | 2 | 4 | Reliable (8) |
| Habitat loss | Induced | PNVi | | 38% of all management units report 10–100% agricultural encroachment | Debonnet & Hillman-Smith (2004) | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | Major (19) | 3 | 2 | 4 | Highly Reliable (9) |
| Conflict trades: coltan | Indirect | FRO | 2000 | Estimated 4,000 coltan miners within the reserve, surviving on wild resources | Hayes (2002); Tshombe <i>et al.</i> (2005) | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | Major (19) | 2 | 2 | 4 | Moderately Reliable (7) |
| Hunting/poaching: commercial | Induced | FRO | 2000 | During Apr.–Oct. 2000, >60 <i>L. africana</i> killed in the reserve | Tshombe <i>et al.</i> (2005) | 3 | 2 | 2 | 2 | 3 | 2 | 3 | 3 | Major (17) | 2 | 1 | 4 | Reliable (8) |
| Hunting/poaching: commercial | Induced | FRO | 2003 | >11,000 kg of ivory exported from within the reserve | Tshombe <i>et al.</i> (2005) | 3 | 2 | 2 | 2 | 3 | 2 | 3 | 3 | Major (17) | 2 | 1 | 4 | Reliable (8) |
| Hunting/poaching: commercial | Induced | FRO | 2002–2003 | 230–460 <i>L. africana</i> killed in the reserve, equivalent to 10% of the pre-war population | Tshombe <i>et al.</i> (2005) | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | Major (18) | 3 | 1 | 4 | Moderately Reliable (7) |
| Hunting/poaching: commercial | Induced | FRO | 2003 | 4,000 kg of primate meat on sale in local markets during May–Nov. | Mapilanga in Tshombe <i>et al.</i> (2005) | 1 | 2 | 2 | 2 | 3 | 2 | 3 | 3 | Moderate (15) | 2 | 1 | 4 | Reliable (8) |
| Habitat loss | Induced | FRO | | Agricultural encroachment reported | Encoto (2003) | 1 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | Moderate (15) | 1 | 1 | 4 | Questionable (6) |

Appendix (Continued)

| Impact | Type | Site* | Year (s) | Details | Source | Severity | | | | | | | | | | Reliability | | | |
|------------------------------|---------|-------|----------|--|--|----------|---|---|---|---|---|---|---------------|---|---|-------------|----------------------------|--|--|
| | | | | | | A | B | C | D | E | F | G | Total | H | I | J | Total | | |
| | | | | | | 1 | 2 | 1 | 2 | 3 | 3 | 2 | Moderate (14) | 2 | 1 | 4 | Reliable (8) | | |
| Deforestation: general | Induced | BC | | >20,000 trees felled | Anderson (2002) | 1 | 2 | 1 | 2 | 3 | 3 | 2 | Moderate (14) | 2 | 1 | 4 | Reliable (8) | | |
| Hunting/poaching: general | Induced | CC | | 40 <i>Hippotragus niger</i> & 200 <i>Taurotragus oryx</i> killed | Anderson (2002) | 1 | 1 | 1 | 2 | 3 | 2 | 2 | Minor (12) | 2 | 2 | 4 | Moderately Reliable (7) | | |
| Hunting/poaching: general | Induced | SRC | | 2,761 animals killed & >26,000 snares collected | Anderson (2002) | 1 | 2 | 1 | 2 | 3 | 3 | 2 | Moderate (14) | 2 | 1 | 4 | Reliable (8) | | |
| Hunting/poaching: general | Induced | GC | | >3,000 animals killed by poachers at the large game conservancies | Hanyona (2003) | 3 | 2 | 1 | 2 | 3 | 2 | 3 | Moderate (16) | 2 | 1 | 2 | Potentially Unreliable (5) | | |
| Hunting/poaching: general | Induced | GC | | Large game conservancies lost 80–90% of their stock | ZCTF (2006) | 3 | 3 | 1 | 2 | 2 | 3 | 2 | Moderate (16) | 3 | 1 | 2 | Questionable (6) | | |
| Hunting/poaching: general | Induced | GC | | Loss of 60% of the wildlife in game conservancies | ZCTF (2006) | 3 | 3 | 1 | 2 | 2 | 3 | 2 | Moderate (16) | 3 | 1 | 2 | Questionable (6) | | |
| Hunting/poaching: commercial | Induced | MBL | | 50% decline in the population of <i>Diceros bicornis</i> due to poaching | ZCTF (2006) | 3 | 3 | 2 | 2 | 3 | 2 | 3 | Major (18) | 3 | 1 | 2 | Questionable (6) | | |
| Hunting/poaching: general | Induced | LK | | Large scale illegal fishing operations reported | ZCTF (2006) | 3 | 3 | 2 | 1 | 2 | 1 | 3 | Major (15) | 3 | 1 | 2 | Questionable (6) | | |
| Conflict trades: gold | Induced | | | Gold mining reportedly widespread | ZCTF (2006) | 1 | 3 | 1 | 3 | 3 | 3 | 3 | Major (17) | 3 | 1 | 2 | Questionable (6) | | |
| Deforestation: general | Induced | GNP | | Deforestation along western boundary | Sokanele-Zvakwana (2005) | 3 | 3 | 2 | 3 | 1 | 3 | 3 | Major (18) | 1 | 1 | 2 | Unreliable (4) | | |
| Habitat loss | Induced | GNP | | Removal of veterinary fence, allowing grazing of domestic stock; fence wire used to manufacture snares | Sharman (2001); Sokanele-Zvakwana (2005) | 3 | 2 | 2 | 1 | 3 | 3 | 3 | Major (16) | 1 | 2 | 2 | Potentially Unreliable (5) | | |
| Habitat loss | Induced | GNP | | Agricultural encroachment reported | Sharman (2001); Sokanele-Zvakwana (2005) | 1 | 2 | 2 | 2 | 3 | 3 | 3 | Moderate (14) | 2 | 2 | 2 | Questionable (6) | | |

Appendix (Continued)

| Impact | Type | Site* | Year (s) | Details | Source | Severity | | | | | | | | | | Reliability | | |
|---------------------------------|---------|-------|-----------|--|--|----------|---|---|---|---|---|---|-------|---------------|---|-------------|-------|----------------------------|
| | | | | | | A | B | C | D | E | F | G | Total | H | I | J | Total | |
| Hunting/poaching: general | Induced | GNP | | Abundant evidence of poaching activity within the boundary | Sharman (2001); Sokanele-Zvakwana (2005) | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | Moderate (15) | 1 | 1 | 2 | Unreliable (4) |
| Habitat loss | Induced | GNP | | Loss of 5-10 km strip along western boundary to agricultural encroachment & settlement | Sharman (2001); Sokanele-Zvakwana (2005) | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | Moderate (15) | 1 | 2 | 2 | Potentially Unreliable (5) |
| Hunting/poaching: general | Induced | GVC | | 80% of stock poached | Sokanele-Zvakwana (2005) | 3 | 3 | 1 | 2 | 3 | 2 | 3 | 3 | Major (17) | 3 | 1 | 2 | Questionable (6) |
| Hunting/poaching: general | Induced | GVC | | Widespread illegal safari hunting | Sokanele-Zvakwana (2005) | 1 | 2 | 1 | 2 | 3 | 2 | 3 | 3 | Moderate (14) | 1 | 1 | 2 | Unreliable (4) |
| Hunting/poaching: general | Induced | HNP | 2003 | Local Governor allowing hunting to occur | Hanyona (2003) | 3 | 2 | 2 | 2 | 3 | 2 | 3 | 3 | Moderate (14) | 1 | 1 | 2 | Unreliable (4) |
| Hunting/poaching: commercial | Induced | | 1998-2003 | >300 of the remaining <i>D. bicornis</i> in Zimbabwe killed | Hanyona (2003) | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | Major (18) | 2 | 1 | 2 | Potentially Unreliable (5) |
| Habitat loss | Induced | SVC | | 25% of the conservancy used for agriculture & settlement | Sharman (2001) | 3 | 2 | 1 | 2 | 3 | 3 | 3 | 3 | Major (17) | 3 | 1 | 2 | Questionable (6) |
| Hunting/poaching: general | Induced | SVC | 2001 | 214 incidents of poaching, with an estimated 444 animals killed | Sharman (2001); Anderson (2002) | 3 | 2 | 1 | 2 | 3 | 2 | 3 | 3 | Moderate (16) | 2 | 2 | 4 | Moderately Reliable (7) |
| Deforestation: general | Induced | GC | | Widespread deforestation | Sharman (2001) | 1 | 1 | 1 | 2 | 3 | 3 | 3 | 3 | Minor (14) | 1 | 1 | 2 | Unreliable (4) |
| Hunting/poaching: general | Induced | GC | | Massive levels of illegal hunting | Sharman (2001) | 1 | 1 | 1 | 2 | 3 | 3 | 3 | 3 | Minor (14) | 1 | 1 | 2 | Unreliable (4) |
| Hunting/poaching: general | Induced | SVC | | Six <i>Lycodon pictus</i> killed, representing 2.4% of the Zimbabwean population | Sharman (2001) | 3 | 1 | 3 | 1 | 3 | 2 | 3 | 3 | Major (16) | 2 | 1 | 2 | Potentially Unreliable (5) |
| Hunting/poaching: general | Induced | SVC | 2000-2001 | 30,000 animals killed | Sharman (2001) | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | Major (19) | 2 | 1 | 2 | Potentially Unreliable (5) |
| Deforestation: subsistence | Induced | SVC | | 240,000 trees felled | Sharman (2001) | 3 | 3 | 1 | 2 | 3 | 3 | 2 | 2 | Major (17) | 2 | 1 | 2 | Potentially Unreliable (5) |

Appendix (Continued)

| Impact | Type | Site* | Year (s) | Details | Source | Severity | | | | | | | | | | Reliability | | | |
|---------------------------------|----------|-------|-----------|---|---|----------|---|---|---|---|---|---|-------|---------------|---------------|-------------|-------|------------------|-------------------------|
| | | | | | | A | B | C | D | E | F | G | Total | H | I | J | Total | | |
| | | | | | | | | | | | | | | | | | | | |
| Habitat loss | Induced | SVC | | >50% burnt to flush game & clear land for agriculture | Sharman (2001) | 3 | 1 | 1 | 2 | 3 | 3 | 3 | 3 | 3 | Major (16) | 3 | 1 | 2 | Questionable (6) |
| Direct military | Direct | GNP | | Landmines laid | Westing (1992) | 3 | 2 | 2 | 1 | 3 | 2 | 3 | 3 | 3 | Major (16) | 1 | 1 | 4 | Questionable (6) |
| Central African Republic | | | | | | | | | | | | | | | | | | | |
| Hunting/poaching: commercial | Induced | | 1994–1995 | <i>L. africana</i> population declined 90% | Blom & Yamidou (2001) | 3 | 3 | 3 | 2 | 3 | 3 | 1 | 3 | 1 | Major (18) | 3 | 1 | 4 | Reliable (8) |
| Hunting/poaching: commercial | Induced | | 1971–2001 | <i>C. simum cottoni</i> population becomes nationally extinct | Blom & Yamidou (2001) | 3 | 3 | 3 | 2 | 3 | 3 | 1 | 3 | 1 | Major (18) | 3 | 1 | 4 | Reliable (8) |
| Ethiopia | | | | | | | | | | | | | | | | | | | |
| Direct military | Direct | | | Looting of park infrastructure | Westing (1992); Jacobs & Schloeder (2001) | 1 | 2 | - | 1 | 3 | 1 | 1 | 1 | 1 | Minor (9) | 1 | 2 | 4 | Moderately Reliable (7) |
| Liberia | | | | | | | | | | | | | | | | | | | |
| Hunting/poaching: general | Induced | | | Increasing mammal population due to a decline in disturbance & hunting activity | Appleton & Morris (1997) | - | - | - | - | - | - | - | - | - | Positive | 1 | 1 | 4 | Questionable (6) |
| Hunting/poaching: general | Induced | | | Increased illegal hunting of <i>T. scriptus</i> & <i>Cephalopterus nigrifrons</i> | Appleton & Morris (1997) | 1 | 2 | 1 | 3 | 2 | 2 | 3 | 3 | 3 | Moderate (14) | 1 | 1 | 4 | Questionable (6) |
| Deforestation: commercial | Induced | | | Increased illegal logging, estimated from the quantity of timber exported from Buchanan | Appleton & Morris (1997); Global Witness (2004a, b); (2005) | 1 | 2 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | Moderate (13) | 1 | 2 | 4 | Moderately Reliable (7) |
| Sudan | | | | | | | | | | | | | | | | | | | |
| Hunting/poaching: general | Indirect | NR | 1984 | Military personnel hunting mammals in the Nimule Reserve | Westing (1992) | 3 | 1 | 2 | 1 | 3 | 1 | 1 | 1 | 1 | Minor (12) | 1 | 1 | 4 | Questionable (6) |
| Uganda | | | | | | | | | | | | | | | | | | | |
| Hunting/poaching: general | Indirect | RNP | 1978–1979 | Tanzanian troops involved in poaching game in the protected area | Westing (1992) | 3 | 1 | 2 | 2 | 3 | 2 | 3 | 3 | Moderate (15) | 1 | 1 | 4 | Questionable (6) | |

Appendix (Continued)

| Impact | Type | Site* | Year (s) | Details | Source | Severity | | | | | | | | | | | | | | | Reliability | | | |
|---------------------------|----------|-------|-----------|---|--|----------|---|---|---|---|---|---|-------|---|---|---|---------------|---|---|---|-------------------------|--|--|--|
| | | | | | | A | B | C | D | E | F | G | Total | H | I | J | Total | | | | | | | |
| Direct military | Direct | KNP | 1981–1987 | Battle damage to Kidepo Valley & Kabalega NP | Westing (1992) | 3 | 1 | 2 | 2 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | Moderate (15) | 1 | 1 | 4 | Questionable (6) | | | |
| Rwanda | | | | | | | | | | | | | | | | | | | | | | | | |
| Habitat loss | Indirect | ANP | 1990–1991 | Severely affected by RPF occupation | Wilson (1991); Plumptre <i>et al.</i> (2001) | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | Major (18) | 1 | 2 | 4 | Moderately Reliable (7) | | | |
| Habitat loss | Induced | GFR | | Reserve converted to agriculture | Plumptre <i>et al.</i> (2001) | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | Major (19) | 2 | 1 | 4 | Moderately Reliable (7) | | | |
| Habitat loss | Induced | MFR | | Loss of 60% of pre-war area to agricultural encroachment | Plumptre <i>et al.</i> (2001) | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | Major (19) | 2 | 1 | 4 | Moderately Reliable (7) | | | |
| Habitat loss | Induced | ANP | 1994–1997 | Boundaries of Akagera NP redrawn, with remaining designated area a third of the previous size; herbaceous plant species declined by 20%, tree & shrub species by 15% & bird spp. by 13% | Plumptre <i>et al.</i> (2001) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | Major (21) | 3 | 2 | 4 | Highly Reliable (9) | | | |
| Hunting/poaching: general | Induced | ANP | 1990–1997 | Large mammal populations of Akagera NP decline 60% as a consequence of the conflict | Williams & Nyatomba in Plumptre <i>et al.</i> (2001) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | Major (21) | 3 | 1 | 4 | Reliable (8) | | | |
| Hunting/poaching: general | Indirect | ANP | 1990–1993 | Many animals killed by RPF soldiers | Plumptre (2003) | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | Major (18) | 1 | 2 | 4 | Moderately Reliable (7) | | | |
| Habitat loss | Induced | ANP | 1997 | Boundaries of protected area redrawn, excluding three major ecosystems from the new area & causing major decline in all species | Kanyamibwa (1998); Schoene (2003) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | Major (21) | 1 | 2 | 4 | Moderately Reliable (7) | | | |

Appendix (Continued)

| Impact | Type | Site* | Year (s) | Details | Source | Severity | | | | | | | Reliability | | | | | | |
|----------------------------|---------|-------|-----------|---|---|----------|---|---|---|---|---|---|-------------|------------|---------------|---|-------------------------|--------------|-------------------------|
| | | | | | | A | B | C | D | E | F | G | Total | H | I | J | Total | | |
| | | | | | | 3 | 3 | 3 | 2 | 2 | 2 | 2 | Major (19) | 1 | 1 | 4 | Moderately Reliable (7) | | |
| Habitat loss | Induced | ANP | 1994–2001 | Heavy grazing pressure by domestic stock leading to increasing populations of perennial weeds & gully erosion | Schoene (2003) | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | Major (19) | 1 | 1 | 4 | Moderately Reliable (7) |
| Hunting/poaching: general | Induced | ANP | 1990–1998 | 70–80% decline in <i>S. caffer</i> , <i>Aepyceros melampus</i> & <i>Placochocerus africanus massaiicus</i> | Schoene (2003) | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | Major (17) | 3 | 1 | 4 | Reliable (8) |
| Hunting/poaching: general | Induced | ANP | 1990–2002 | Ungulate populations declined 85–96% | Schoene (2003) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | Major (21) | 3 | 1 | 4 | Reliable (8) | |
| Direct military | Direct | PNdV | 1991 | 10 m swathe cut through strategic locations within the protected area | Kalpers (2001a); Plumptre <i>et al.</i> (2001); Plumptre (2003) | 1 | 2 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | Major (16) | 2 | 2 | 4 | Reliable (8) |
| Habitat loss | Induced | PNdV | 1991 | 50–100 m strip of bamboo forest cleared on the border | Kalpers (2001b) | 1 | 2 | 3 | 1 | 2 | 2 | 3 | 2 | 3 | Moderate (16) | 2 | 1 | 4 | Moderately Reliable (7) |
| Deforestation: subsistence | Induced | PNdV | | Clearance of large areas along the border with DRC | Plumptre <i>et al.</i> (2001) | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | Major (18) | 1 | 1 | 4 | Questionable (6) |
| Hunting/poaching: general | Induced | PNdV | 1996 | Migration of ungulate species to inaccessible & high altitude zones in the park | Plumptre <i>et al.</i> (2001) | 2 | 2 | 3 | 1 | 3 | 2 | 3 | 2 | 3 | Moderate (16) | 3 | 1 | 4 | Reliable (8) |
| Hunting/poaching: general | Induced | PNdV | 1990–2001 | All large mammal populations in decline | Plumptre <i>et al.</i> (2001) | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | Major (19) | 1 | 1 | 4 | Questionable (6) |
| Hunting/poaching: general | Induced | NFR | | Reductions in all large mammal populations | Plumptre <i>et al.</i> (2001) | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | Moderate (16) | 1 | 1 | 4 | Questionable (6) |

Appendix (Continued)

| Impact | Type | Site* | Year (s) | Details | Source | Severity | | | | | | | | | | Reliability | | | | | |
|------------------------------|---------|-------|-----------|--|--|----------|---|---|---|---|---|---|-------|---|---|---------------|---------------|---|---|-------------------------|-------------------------|
| | | | | | | A | B | C | D | E | F | G | Total | H | I | J | Total | | | | |
| Hunting/poaching: general | Induced | NFR | | Decline in <i>Atherurus africanus</i> , <i>Circetomys gambianus</i> & ungulate populations | Plumptre <i>et al.</i> (2001) | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 3 | 3 | 2 | 2 | Moderate (16) | 3 | 1 | 4 | Moderately Reliable (7) |
| Hunting/poaching: commercial | Induced | NFR | 1999 | Local extinction of <i>L. africana</i> | Plumptre <i>et al.</i> (2001) | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | Major (19) | 3 | 1 | 4 | Moderately Reliable (7) |
| Habitat loss | Induced | ANP | 1990–1998 | Increased poaching & agricultural encroachment | Kanyamibwa (1998) | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | Major (18) | 1 | 2 | 4 | Moderately Reliable (7) |
| Hunting/poaching: general | Induced | ANP | | Dramatic decline in <i>Cephaloplos</i> spp. | Kanyamibwa (1998) | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 3 | Major (18) | 1 | 1 | 4 | Questionable (6) |
| Hunting/poaching: general | Induced | ANP | 1990–1993 | 90% decline in the population of large mammals | Kanyamibwa (1998) | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | Major (20) | 3 | 2 | 4 | Highly Reliable (9) |
| Hunting/poaching: commercial | Induced | PNdV | | Dispersal of <i>L. africana</i> into DRC | Kanyamibwa (1998) | 3 | 2 | 3 | 1 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | Moderate (16) | 1 | 1 | 4 | Questionable (6) |
| Hunting/poaching: general | Induced | PNdV | | Male <i>G. berengei</i> found shot | Kanyamibwa (1998) | 3 | 1 | 3 | 1 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | Major (16) | 1 | 2 | 4 | Moderately Reliable (7) |
| Hunting/poaching: general | Induced | | 1994–1996 | Decline in crop raiding & low bushmeat market prices indicate an increase in poaching | Plumptre (1996); Plumptre <i>et al.</i> (1997) | 3 | 2 | 3 | 1 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | Major (17) | 3 | 2 | 4 | Highly Reliable (9) |
| Hunting/poaching: general | Induced | PNdV | 1992–2000 | 12–17 <i>G. berengei</i> killed, representing 4–5% of the population | Kalpers <i>et al.</i> (2003) | 3 | 2 | 3 | 1 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | Major (17) | 3 | 2 | 4 | Highly Reliable (9) |
| Direct military | Direct | PNdV | 1991 | Several hundred antipersonnel mines laid in strategic locations in the park | Kalpers (2001b) | 3 | 2 | 3 | 1 | 2 | 2 | 3 | 2 | 3 | 3 | Moderate (16) | 1 | 1 | 4 | Questionable (6) | |
| Hunting/poaching: general | Induced | PNdV | 1991–1998 | At least two <i>G. berengei</i> killed by poachers | Kalpers (2001b) | 3 | 2 | 3 | 1 | 3 | 2 | 3 | 2 | 3 | 3 | Major (17) | 2 | 2 | 4 | Moderately Reliable (7) | |
| Hunting/poaching: general | Induced | NFR | | Reduced occurrence of <i>P. troglodytes</i> , <i>Cerocebus agilis</i> & other mammal species in areas of known poaching activity | Plumptre <i>et al.</i> (2002) | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 3 | 2 | 2 | Moderate (16) | 3 | 1 | 4 | Reliable (8) | |

Appendix (Continued)

| Impact | Type | Site* | Year (s) | Details | Source | Severity | | | | | | | | | | Reliability | | | | |
|---------------------------|---------|-------|-----------|---|-------------------------------|----------|---|---|---|---|---|---|-------|---|---|---------------|-------|---|---|--------------|
| | | | | | | A | B | C | D | E | F | G | Total | H | I | J | Total | | | |
| Conflict trades: gold | Induced | NFR | | Reduced occurrence of <i>Potamochoerus porcus</i> & ungulates in the vicinity of mining camps | Plumptre <i>et al.</i> (2002) | 3 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | Moderate (16) | 3 | 1 | 4 | Reliable (8) |
| Hunting/poaching: general | Induced | NFR | 1996–1998 | Significant declines in spp. richness; population declines observable in 23% of mammal spp. present | Plumptre <i>et al.</i> (2002) | 3 | 3 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 2 | Moderate (15) | 3 | 1 | 4 | Reliable (8) |

*ANP, Akagera National Park; BC, Bubiiana Conservancy; CC, Chiredzi Conservancy; DFR, Deere Forest Reserve; FRO, Réserve de Faune à Okapi; GC, Save Valley, Mahenye, Bubiiana, Bubyne and Chiredzi Game Conservancies; GNP, Gonarehou National Park; GONP, Gorongosa National Park; GVC, Gwai Valley Conservancy; HNP, Hwange National Park; KNP, Kabalega National Park; LK, Lake Kariba; MFR, Moribane Forest Reserve; MANP, Marroneu National Park; MBL, Matabeleland; MNP, Maputaland National Park; NFR, Nyungwe Forest Reserve; NR, Nimulé Reserve; PNKB, Parc National du Kahuzi-Biega; PNdV, Parc National des Volcans; PNG, Parc National du Garamba; PNM, Parc National du Maiko; PNS, Parc National de la Salonga; PNVi, Parc National des Virunga; RNP, Ruwenzori National Park; SNP, Sapo National Park; SRC, Sameur River Conservancy