

Hyaena Bibliography

Updated most recently in October 2007

Agnew DW, Barbiere RB, Poppenga RH, & Watson GL. 1999. Zinc toxicosis in a captive striped hyena (*Hyaena hyaena*). *Journal of Zoo & Wildlife Medicine*. 30: 431-434.

Albone, E.S. 1984. *Mammalian semiochemistry: the investigation of chemical signals between mammals*. John Wiley, Chichester.

Alexander, K.A. and Appel, M.J.G. 1994. African wild dogs (*Lycaon pictus*) endangered by a canine distemper epizootic among domestic dogs near the Masai Mara National Reserve, Kenya. *Journal of Wildlife Diseases* 30: 481-485.

Alexander, K.A., N.J. Maclaughlin, P.W. Kat, C. House, S.J. O'Brien, N.W. Lerche, M. Sawyer, L.G. Frank, K. E. Holekamp, L. Smale, J.W. McNutt, M.K. Laurenson, M.G.L. Mills, and B. I. Osburn (1994) Evidence of natural bluetongue virus infection among African and Indian carnivores. *American Journal of Tropical Medicine and Hygiene*. 51: 568-576

Alexander, K.A., Kat, P.W., Frank, L.G., Holekamp, K.E., Smale, L. House, C., and Appel, M.J.G. 1995. Evidence of canine distemper virus infection among free-ranging spotted hyenas (*Crocuta crocuta*) in the Masai Mara, Kenya. *Journal of Zoo Wildlife Medicine* 26:201-206

Al-Khalili, A.D. and Nader, I.A. 1984. Nature conservation in Saudi Arabia. An ecological study of the Asir National Park with a check-list of the terrestrial vertebrate fauna of the park and its surroundings. *Fauna of Saudi Arabia* 6:11-31.

Al Younis, J.S. 1993. *Hyaenas in Eastern Jordan*. IUCN/SSC Hyaena Specialist Group Newsl. 6:15-25.

Amman, K. and Amman, K. 1989. *The hunters and the hunted*. Camerapix Publishers International, Nairobi.

Andelt, W.F. 1987. Coyote predation. In: Novak, M., Baker, J.A., Obbard, M.E and Malloch, B. (eds.) *Wild furbearer management and conservation in North America*, 128-40. Ontario Ministry of Natural Resources, Toronto.

Anderson, M.D. 1994. The influence of seasonality and quality of diet on the metabolism of the aardwolf, *Proteles cristatus* (Sparrman 1783). M.Sc thesis, University of Pretoria, Pretoria.

Anderson, M.D. and Richardson, P.R.K. 1992. Remote immobilization of the aardwolf. *South African Journal of Wildlife Research* 22:26-28.

Anderson, M.D., Richardson, P.R.K., and Woodall, P.F. 1992. Functional analysis of the feeding apparatus and digestive anatomy of the aardwolf *Proteles cristatus*. *Journal of Zoology, London* 228:423-434.

Andersson, M. and Krebs, J. 1978. On the evolution of hoarding behavior. *Animal Behaviour* 26:707-711.

Anonymous. 1972. *Ruaha National Park*. Tanzania National Parks, Arusha, Tanzania.

Anonymous. 1977. *Census of predators and other animals on the Serengeti Plains, May 1977*. Serengeti National Park Report 52. Tanzania National Parks, Arusha, Tanzania.

Anonymous. 1991. *Estimates of wildlife populations in Zimbabwe*. Unpublished Report, Dept of National Parks and Wildlife Management, Harare, Zimbabwe.

Anonymous. 1992. *Canid, Hyaena, & Aardwolf conservation assessment and management plan (CAMP)*. IUCN/CBSG, c/o Minnesota Zoological Park, 13000 Zoo Blvd., Apple Valley, Minnesota.

Anonymous. 1995. A terrifying hyena attack. *Newsletter of the Flying Doctor's Society of Africa November 1995*: 1-1.

Ansell, W.F.H. 1960. *Mammals of Northern Rhodesia*. The Government Printer, Lusaka, Northern Rhodesia.

Ansell, W.F.H. 1978. *The mammals of Zambia*. The National Parks and Wildlife Service, Chilanga, Zambia.

Ansell, W.F.H. and Dowsett, R.J. 1988 *Mammals of Malawi*. The Trendrine Press, St Ives, Cornwall, UK.

Anstey, S.G. 1991. *Large mammal distribution in Liberia*. WWF Wildlife of Liberia Survey Report to WWF International.

Apfelbach, R. 1970. *Crocuta crocuta* (Hyaenidae). Spiel der Jungtiere. Film E 1486. *Publikationen zu wissenschaftlichen Filmen Sektion Biologie* 3:63-65.

Apps, P.J. 1982. Possible use of shamming by a brown hyaena in an aggressive encounter with a pride of lions. *South African Journal of Zoology* 17:91-91.

Arabuli, A.B. 1970. Distribution and quantity of some game mammals in eastern Georgia. *Zoologicheskii Zhurnal* 49:418-421. (in Russian)

Ashley, M.V., Melnick, D.J. and Western, D. 1990. Conservation genetics of the black rhinoceros (*Diceros bicornis*), 1: Evidence from the mitochondrial DNA of three populations. *Conservation Biology* 4:71-77.

Aulagnier, S. and Thevenot, M. 1986. *Catalogue des mammifères sauvages du Maroc*. Institut Scientifique Charia Ibn Batouta, Rabat, Morocco.

Avery, G., Avery, D.M., Braine, S., and Loutit, R. 1984. Bone accumulation by hyenas and jackals a

- taphonomic study. *South African Journal of Science* 80:186-187.
- Averyanov AO, & Baryshnikov GF. 1996. Origin and systematic position of aardwolf *Proteles cristatus* (Mammalia, Carnivora) . *ZOOLOGICHESKY ZHURNAL* 75: 1248-1258
- Awan, M.A.Q. 1979. Identification by the blood incubation infectivity test of *Trypanosoma brucei* subspecies isolated from game animals in the Luangwa Valley, Zambia. *Acta Tropica* 36:343-347.
- Azzaroli, L. and Simonetta, A.M. 1966. Carnivori della Somalia ex-italiana. *Monitore Zoologico Italiano* 74 (Suppl.):102-195.
- Baba, M., Doi, T., Ikada, H., Iwamoto, T., and Ono, Y. 1982. A census of large mammals in Omo National Park, Ethiopia. *African Journal of Ecology* 20:207-210.
- Badenhors, W.H. 1970. Drama in the Kruger wildlife preserve. *African Wildlife* 24(2):166-167.
- Baker, J.R. 1968. Trypanosomes of wild mammals in the neighbourhood of the Serengeti National Park. *Symposia of the zoological Society London* 24:147-158.
- Balestra, F.A. 1962. The man-eating hyenas of Mlanje. *African Wild Life* 16:25-27.
- Balsai, A., Tury, E., and Fabian, L. 1979. Analyse der Raubtierverluste (1968-1977) im Zoo Budapest. *Proceedings of the international symposium on diseases of zoo animals* 21:311-313.
- Barnard, B.J.H. 1979. The role played by wildlife in the epizootiology of rabies in South Africa and South West Africa. *Onderstepoort Journal of Veterinary Research* 46:155-163.
- Baskin, LS, Yucel, S, Cunha, GR, Glickman, SE, & Place, NJ. 2006. A neuroanatomical comparison of humans and spotted hyena, a natural animal model for common urogenital sinus: Clinical reflections on feminizing genitoplasty. *Journal of Urology*. 175: 276-283.
- Bearder, S.K. 1975. Inter-relationship between hyaenas and their competitors in the Transvaal Lowveld. *Publikasie Universitaet Pretoria Nuwe Reeks* 97:39-48.
- Bearder, S.K. 1977. Feeding habits of spotted hyaenas in a woodland habitat. *East African Journal of Wildlife* 15:263-280.
- Bearder, S.K. and Randall, R.M. 1978. The use of fecal marking sites by spotted hyaenas and civets. *Carnivore* 1:32-48.
- Beglinger, R., Kauffmann, M., and Müller, R. 1976. Culverts and trypanosome transmission in the Serengeti National Park (Tanzania). Part II. Immobilization of animals and isolation of trypanosomes. *Acta Tropica* 33:68-73.
- Behrensmeyer, A.K. and Boaz, D. 1980. The recent bones of Amboseli Park Kenya in relation to

- east African paleo ecology. In: Behrensmeyer, A.K. and Hill, A.P. (eds.) *Fossils in the making: vertebrate taphonomy and paleoecology*, 72-92. University of Chicago Press, Chicago.
- Berry, H.H. 1981. Abnormal levels of disease and predation as limiting factors for wildebeest in the Etosha National Park. *Madoqua* 12:241-253.
- Bertram, B.C.R. 1973. Sleeping sickness survey in the Serengeti Area (Tanzania) 1971. Part III. Discussion of the relevance of the trypanosome survey to the biology of large mammals in the Serengeti. *Acta Tropica* 30:36-48.
- Bertram, B.C.R. 1978. *Pride of lions*. Dent, London.
- Berube-Genest, F., Morisset, P., Patenaude, R.P. 1987. The karyotype of the striped hyena *Hyaena hyaena*. *Canadian Journal of Zoology* 65:755-758.
- Bhayani DM, Vyas KN, Parsania RR, & Vyas YL. 1999. Histomorphological study on the skin of the hyaena. *Indian Veterinary Journal* 76 (5): 417-420.
- Bigalke, R.C. 1968. The contemporary mammal fauna of Africa. *Quarterly Review of Biology* 43: 65-300.
- Biknevicius, A.R. and Ruff, C.B. 1988. Structure of the carnivore mandible and its relationship to killing and feeding behaviors. *American Zoologist* 28(4):175a-175a.
- Biknevicius, A.R. and Ruff, C.B. 1992. The structure of the mandibular corpus and its relationship to feeding behaviours in extant carnivorans. *Journal of Zoology, London* 228:479-507.
- Biknevicius, A.R. and van Valkenburgh, B. 1991. Feeding behaviors of *Smilodon*. *American Zoologist* 31(5):54a-54a.
- Binepal, V.S., Wariru, B.N., Davies, F.G., Soi, R., and Olubayo, R. 1992. An attempt to define the host range for African horse sickness virus (Orbivirus, Reoviridae) in East Africa by a serological survey in some Equidae, Camelidae, Loxodontidae and Carnivore. *Veterinary Microbiology* 31:19-23.
- Binford, L.R., Mills, M.G.L. and Stone, N.M. 1988. Hyaena scavenging behaviour and its implications for the interpretation of faunal assemblages from FLK 22 (the Zinj floor) at Olduvai Gorge. *Journal of Anthropological Archaeology* 7:99-135.
- Blumenschine, R.J. 1986. Early hominid scavenging opportunities. Implications of carcass availability in the Serengeti and Ngorongoro ecosystems. *British Archaeological Reports International Series* 283. British Archaeological Reports, Oxford.
- Blumenschine, R.J. 1987. Characteristics of an early hominid scavenging niche. *Current Anthropology* 28:383-407. Blumenschine, R.J. 1988. An experimental model of the timing

- of hominid and carnivore influence on archaeological bone assemblages. *Journal of Archaeological Science* 15:483-502.
- Blumenschine, R.J. 1989. A landscape taphonomic model of the scale of prehistoric scavenging opportunities. *Journal of human Evolution* 18:345-372.
- Boessneck, J. 1981. Der Schädel einer Streifenhyäne und Schädelknochen von Hunden aus einem thebanischen Grab. *Säugetierkundliche Mitteilungen* 29:67-74
- Boreham, P.F.L. and Geigy, R. 1976. Culverts and trypanosome transmission in the Serengeti National Park (Tanzania). Part III. Studies on the genus *Auchmeromyia* Brauer and Bergstamm (Diptera: Calliphoridae). *Acta Tropica* 33:74-87.
- Borgarenko, L.F. and Khokhlova, I.G. 1978. *Macracanthorhynchus* infection in carnivores in Tadzhikistan. *Izvestiya Akademii Nauk Tadzhikskoi SSR Biologicheskije Nauki* 73:120-121. (in Russian)
- Borner, M., FitzGibbon, C.D., Borner, Mo., Caro, T.M., Lindsay, W.K., Collins, D.A. and Holt, M.E. 1987. The decline of the Serengeti Thomson's gazelle population. *Oecologia* 73:32-40.
- Bothma, J. du P. and Le Riche, E.A.N. 1984. Aspects of the ecology and the behaviour of the leopard *Panthera pardus* in the Kalahari desert. *Koedoe* 27(Supplement):259-279.
- Bothma, J. du P. and Nel, J.A.J. 1980. Winter food and foraging behaviour of the aardwolf *Proteles cristatus* in the Namib-Naukluft Park. *Madoqua* 12:141-145.
- Bothma, J. du P., Nel, J.A.J., and MacDonald, A.. 1984. Food niche separation between four sympatric Namib Desert carnivores. *Journal of Zoology, London* 202:327-340.
- Boudreau, J.C. and White, T.D. 1978. Flavor chemistry of carnivore taste systems. *American Chemical Society Symposium* 67:102-128.
- Bouskila, Y. 1983. *The hyaena - biology and behaviour of Hyaena hyaena syriaca around Sede Boqer*. The Society for Protection of Nature in Israel.
- Bouskila, Y. 1984. The foraging groups of the striped hyaena (*Hyaena hyaena syriaca*). *Carnivore* 7:2-12.
- Bouskila, Y. 1995. A closer look at the striped hyena. *Israel - Land and Nature* 10:50-56.
- Bowland, A.E., Mills, M.G.L., and Lawson, D. 1994. *Predators and Farmers*. Endangered Wildlife Trust, Johannesburg.
- Bowler, M. 1991. *Implications of large predator management on commercial ranchland in Zimbabwe*. Msc thesis, University of Zimbabwe, Harare.
- Boydston, E. E. and K.E. Holekamp (2000) Applications of geographic information system

- (GIS) technology to hyena conservation. *I.U.C.N. Hyaena Specialist Group Newsletter* 7: 24-27.
- Boydston, E.E., T.L. Morelli, & K. E. Holekamp (2001) Sex differences in territorial behavior exhibited by the spotted hyena (*Crocuta crocuta*). *Ethology*. 107:369-385.
- Boydston, E.E., K. M. Kapheim, M. Szykman, and K. E. Holekamp. (2003) Individual variation in space utilization by female spotted hyenas (*Crocuta crocuta*). *Journal of Mammalogy*. 84: 1006-1018.
- Boydston, E.E., K. M. Kapheim, H. E. Watts, M. Szykman, and K. E. Holekamp. (2003) Altered behavior in spotted hyenas associated with increased human activity. *Animal Conservation*, 6: 207-219.
- Boydston, E. E., K. M. Kapheim, R. C. Van Horn, L. Smale and Holekamp, K. E. (2005) Sexually dimorphic patterns of space use throughout ontogeny in the spotted hyaena (*Crocuta crocuta*). *Journal of Zoology, London*. 267: 271-281.
- Boydston, E. E., K. M. Kapheim, and K. E. Holekamp (2006) Patterns of den occupation by the spotted hyena (*Crocuta crocuta*). *African Journal of Ecology*. 44: 77-86.
- Brain, C.K. 1980. Some criteria for the recognition of bone collecting agencies in African caves. In: Behrensmeier, A.K. and Hill, A.P. (eds.) *Fossils in the making: vertebrate taphonomy and paleoecology*, 107-130. University of Chicago Press, Chicago.
- Braverman, Y. 1979. Experiments on direct and secondary poisoning by fluoroacetamide 1081 in wildlife and domestic carnivores. *Journal of Wildlife Diseases* 15:319-326.
- Brisson, A.D. 1762. *Le regne animal divisé en IX classes*. Jean-Baptiste Bauche, Paris.
- Brocklesby, D.W. and Vidler, B.O. 1963. Some new host records for *Hepatozoon* species in Kenya. *Veterinary Record* 75:1265-1265.
- Brocklesby, D.W. and Vidler, B.O. 1965. Some parasites of East African wild animals. *East African Wildlife Journal* 3:120-122.
- Brown, L.H. and Root, A. 1971. The breeding behaviour of the lesser flamingo *Phoeniconaias minor*. *Ibis* 113:147-172.
- Browne P, Place NJ, Vidal JD, et al. 2006. Endocrine differentiation of fetal ovaries and testes of the spotted hyena (*Crocuta crocuta*): timing of androgen-independent versus androgen-driven genital development. *Biology of Reproduction*. 132 (4): 649-659.
- Buckland-Wright, J. 1969. Craniological observations on *Hyaena* and *Crocuta* (Mammalia). *Journal of Zoology, London* 159:17-29.
- Buglass, A.J., Darling, F.M.C. and Waterhouse, J.S. 1990. Analysis of the anal sac secretion of the

- hyaenidae. In: Macdonald, D.W., Müller-Schwarze, D., and Natynczuk, S.E. (eds.) *Chemical signals in vertebrates 5*. Oxford University Press, Oxford.
- Bunn, H.F., Seal, U.S., and Scott, A.F. 1974. The role of 2,3-di-phospho-glycerate in mediating hemoglobin function of mammalian red cells. *Annals of the New York Academy of Sciences* 241:498-512.
- Burgener N, & Gusset M. 2003. The feeding habits of brown hyaenas (*Hyaena brunnea*) on a game ranch in Limpopo Province, South Africa. *African Zoology* 38: 181-184.
- Butler JRA, du Toit JT, & Bingham J. 2004. Free-ranging domestic dogs (*Canis familiaris*) as predators and prey in rural Zimbabwe: threats of competition and disease to large wild carnivores. *Biological Conservation* 115: 369-378.
- Caldwell, J., French, M.R., Idle, J.R., Renwick, A.G., Bassir, O., and Williams, R.T. 1975. Conjugation of foreign compounds in the elephant and hyaena. *FEBS Letters* 60:391-395.
- Caldwell, J., Williams, R.T., Bassir, O., and French, M.R. 1978. Drug metabolism in exotic animals. *European Journal of Drug Metabolism and Pharmacokinetics* 3(2):61-66.
- Campbell, K.L.I. 1986. *Serengeti Ecological Monitoring Programme 1986 Annual Report*. Serengeti Ecological Monitoring Programme, Arusha, Tanzania.
- Campbell, K.L.I. and Borner, M. 1986. *Census of predators on the Serengeti Plains May 1986*. Serengeti Ecological Monitoring Programme Report SEMP-86-2. Serengeti Ecological Monitoring Programme, Arusha, Tanzania.
- Campbell, K.L.I. and Hofer, H. 1995. People and wildlife: Spatial dynamics and zones of interaction. In: Sinclair, A.R.E. and Arcese, P. (eds.) *Serengeti II - Dynamics, conservation and management of an ecosystem*, 534-570. University of Chicago Press, Chicago.
- Caputo, R. and Hsia, M. 1978. *Hyena day*. Coward, McCann & Geoghegan, New York.
- Caro, T.M. 1989. Missing links in predator and antipredator behavior. *Trends in Ecology Evolution* 4:333-334.
- Caro, T.M. 1994. *Cheetahs of the Serengeti plains*. University of Chicago Press, Chicago.
- Catalano, S, Avila, DM, Marsico, S, Wilson, JD, Glickman, SE & McPhaul, MJ. 2002. Virilization of the female spotted hyena cannot be explained by alterations in the amino acid sequence of the androgen receptor (AR). *Molecular and Cellular Endocrinology*. 194: 85-94
- Chernogaev, E., Kayumov, B., Savich, O., Pogrebnyuk, A., and Aromov, B. 1996. Current status and number of some animals in Uzbekistan strict nature reserves. In: *Works of Uzbekistan nature reserves* 1:23-34. Fan, Tashkent, Uzbekistan. (in Russian)

- Child, G. and Robbel, H. 1975. Drowning of lechwe by spotted hyaena. *Mammalia* 39:705-706.
- Christiansen P, & Adolfssen JS. 2005. Bite forces, canine strength and skull allometry in carnivores (Mammalia, Carnivora) . *Journal of Zoology* 266: 133-151.
- Coaton, W.G.H. 1948. *Trinervitermes* species - the snouted harvester termites. *Bulletin of the Department of Agriculture and Forestry of the Union of South Africa* 261:1-19.
- Coetzee, C.G. 1969. The distribution of mammals in the Namib Desert and adjoining inland escarpment. *Scientific Papers Namib Desert Research Station* 40:23-36.
- Coetzee, C.G. 1977. Order Carnivora. In: Meester, J. and Setzer, H.W. (eds.) *The mammals of Africa: an identification manual*, Part 8, 1-42. Smithsonian Institution Press, Washington, D. C.
- Collier, G.E. and O'Brien, S.J. 1985. A molecular phylogeny of the Felidae: immunological distance. *Evolution* 39:473-487.
- Conley AJ, Corbin, CJ, Browne P, Mapes SM, Place NJ, Hughs, AL & SE Glickman. 2007. Placental expression and molecular characterization of aromatase cytochrome P450 in the spotted hyena (*Crocuta crocuta*). *Placenta*: 1-8.
- Cooper, R.L. and Skinner, J.D. 1979. Importance of termites in the diet of the aardwolf *Proteles cristatus* in Southern Africa. *South African Journal of Zoology* 14:5-8.
- Cooper, S.M. 1989. Clan sizes of spotted hyaenas in the Savuti Region of the Chobe National Park, Botswana. *Botswana Notes and Records* 21:121-133.
- Cooper, S.M. 1990. The hunting behavior of spotted hyaenas (*Crocuta crocuta*) in a region containing both sedentary and migratory populations of herbivores. *African Journal of Ecology* 28:131-141.
- Cooper, S.M. 1991. Optimal hunting group size: the need for lions to defend their kills against loss to spotted hyaenas. *African Journal of Ecology* 29:130-136.
- Cooper, S.M. 1993 Denning behavior of spotted hyaenas (*Crocuta crocuta*) in Botswana. *African Journal of Ecology* 31:178-180.
- Cooper, S. M. K. E. Holekamp, and L. Smale (1999) A seasonal feast: long-term analysis of feeding behavior in the spotted hyaena *Crocuta crocuta* (Erxleben). *African Journal of Ecology*. 37: 149-160.
- Crandall, L.S. 1964. *The management of wild mammals in captivity*. University of Chicago Press, Chicago.

- Crawford-Cabral, J. 1989. Distributional data and notes on Angolan carnivores (Mammalia: Carnivora). I Small and median-sized species. *Garcia de Orta, Séria Zoologica, Lisboa* 14(2): 3-27.
- Crawford-Cabral, J. and Simões, A.P. 1990. Distributional data and notes on Angolan carnivores (Mammalia: Carnivora). II Larger species. *Garcia de Orta, Séria Zoologica, Lisboa* 15(2):9-20.
- Creel, S.R. and Creel, N.M. 1991. Energetics, reproductive suppression and obligate communal breeding in carnivores. *Behavioral Ecology and Sociobiology* 28:263-270.
- Croizet, J.B. and Jobert, A. 1828. *Recherches sur les ossements fossiles du département du Puy-de-Dôme*. Clermont-Ferrand.
- Cunha, GR, Wang, YZ, Place, NJ, Liu, WH, Baskin, L, Glickman, SE. 2003. Urogenital system of the spotted hyena (*Crocuta crocuta* Erxleben): A functional histological study. *JOURNAL OF MORPHOLOGY*. 256: 205-218
- Cunha, GR, Place, NJ, Baskin, L, Conley, A, Weldele, M Cunha, TJ, Wang, YZ, Cao, M, & Glickman, SE. 2005. The ontogeny of the urogenital system of the spotted hyena (*Crocuta crocuta* Erxleben). *Biology of Reproduction* 73: 554-564.
- Dagg, A.I. 1979. The walk of large quadrupedal mammals. *Canadian Journal of Zoology* 57:1157-1163.
- Das, A.M. 1985. Fusarium infection in a hyena. *Livestock Advisor* 10(7):9-10.
- Davidar, E.R.C. 1985. Den full of hyenas. *Sanctuary Magazine* V(4).
- Davidar, E.R.C. 1990. Observations at a hyena *Hyaena hyaena* Linn. den. *Journal of the Bombay Natural History Society* 87:445-447.
- Davies, F.G. 1981. The possible role of wildlife in the natural history of rabies in Kenya. In: Karstad, L., Nestel, B. and Graham, M. (eds.) *Wildlife disease research and economic development*, 28-29. Proceedings of a Workshop, Kabete, Kenya, Sept. 8-9, 1980. International Development Research Center, Ottawa, Canada.
- de Vos, V. 1981. An unusual case of snaring in a free living spotted hyena, *Crocuta crocuta*, from the Kruger National Park, South Africa. *Koedoe* 24:205-207.
- de Wet, T. 1993. Physical capture of carnivores. In: McKenzie, A.A. (ed.) *The capture and care manual: capture, care, accommodation and transportation of wild African mammals*, 255-261, Wildlife Decision Support Services and South African Veterinary Foundation, Pretoria.
- Depierre, D. and Vivien, J. 1992. *Mammifères sauvages du Cameroun*. Office National des Forêts, Fontainebleau, France.

Di Silvestre I, Novelli O, & Bogliani G. 2000. Feeding habits of the spotted hyaena in the Niokolo Koba National Park, Senegal. *African Journal of Ecology* 38: 102-107

Dloniak, S.M. (2004). Socioendocrinology of spotted hyenas: patterns of androgen and glucocorticoid excretion with a unique social system. Ph D Dissertation. Michigan State University. East Lansing, MI.

Dloniak, S.M., J. A. French, N. J. Place, M. L. Weldele, S. E. Glickman, and K. E. Holekamp (2004) Non-invasive monitoring of fecal androgens in spotted hyenas (*Crocuta crocuta*). *General and Comparative Endocrinology*. 135: 51-61.

Dloniak, S.M., J. A. French, and K. E. Holekamp (2006) Rank-related maternal effects of androgens on behaviour in wild spotted hyaenas. *Nature*. 440: 1190-1193.

Dloniak, S. M., J. A. French and K. E. Holekamp (2006) Faecal androgen levels in adult male spotted hyaenas (*Crocuta crocuta*) reflect interactions with socially dominant females. *Animal Behaviour*. 71: 27-37.

Dloniak, S. M. 2006. Masai Mara Predator Research Project Annual Report of Research Activities. Karen, Kenya

Doumenge, C. 1990. *La conservation des écosystèmes forestiers du Zaïre*. IUCN, Gland.

Doumenge, C. 1992. *La Réserve de Conkouati, Congo: le secteur Sud-Ouest*. IUCN, Gland.

Drake-Brockman, R.E. 1910. *The mammals of Somaliland*. Hurst & Blackett, London.

Drea, C.M., Hawk, J.E., & Glickman, S.E., 1996. Aggression decreases as play emerges in infant spotted hyaenas: preparation for joining the clan, *Anim. Behav.* 51: 1323-1336

Drea, C.M., Weldele, M.L., Forger, N.G., Coscia, E.M., Frank, L.G., Licht, P., & Glickman, S.E., *Androgens and masculinization of genitalia in the spotted hyaena (Crocuta crocuta)*. 2. *Effects of prenatal anti-androgens*, *Journal of Reproduction & Fertility*, vol. 113 (1998), pp. 117-127

Drea, C.M., Coscia, E.M. & Glickman, S.E. 1999. Hyenas. In *Encyclopedia of reproduction*, Vol 2. (Eds E. Knobil, J. Neill & P. Licht). Pp 718-725. Academic Press, San Diego CA.

Drea, C.M., Place, N.J., Weldele, M.L., Coscia, E.M., Licht, P. & Glickman, S.E., *Exposure to naturally circulating androgens during foetal life incurs direct reproductive costs in female spotted hyenas, but is prerequisite for male mating*, *Proceedings of the Royal Society of London*, vol. B no. 269 (2002), pp. 1981-1987

Drea, C.M., Vignieri, S.N., Cunningham, S.B., & Glickman, S.E., *Responses to olfactory stimuli in spotted hyenas (Crocuta crocuta): I. Investigation of environmental odors and the function of rolling*, *Journal of Comparative Psychology*, vol. 116 no. 4 (2002), pp. 331-341

Drea, C.M., Vignieri, S.N., Kim, H.S., Weldele, M.L., & Glickman, S.E., *Responses to olfactory stimuli in spotted hyenas (Crocuta crocuta): II. Discrimination of conspecific scent*, Journal of Comparative Psychology, vol. 116 no. 4 (2002), pp. 342-349

Drea, C.M. & Frank, L.G., *The social complexity of spotted hyenas*, in Animal Social Complexity: Intelligence, Culture, and Individualized Societies, edited by F.B.M de Waal & P.L. Tyack (2003), pp. 121-148, Cambridge, MA: Harvard University Press

Dupuy, A.R. 1982. Note on the presence of some large animals in Ferlo, Senegal. *Mammalia* 46:558-559.

Dupuy, A.R. 1984. Note on the current status of some wild mammals of the Sahel near the northern Senegal River. *Mammalia* 48:599-603.

Earle, M. 1987. A flexible body mass in social carnivores. *American Naturalist* 130:755-760.

East, M.L., Hofer, H., and Türk, A. 1989 Functions of birth dens in spotted hyaenas (*Crocuta crocuta*). *Journal of Zoology, London* 219:690-697.

East, M.L. and Hofer, H. 1991a. Loud-calling in a female-dominated mammalian society: I. Structure and composition of whooping bouts of spotted hyaenas, *Crocuta crocuta*. *Animal Behaviour* 42:637-649.

East, M.L. and Hofer, H. 1991b. Loud-calling in a female-dominated mammalian society: II. Behavioural contexts and functions of whooping of spotted hyaenas, *Crocuta crocuta*. *Animal Behaviour* 42:651-669.

East, M.L., Hofer, H., and Wickler, W. 1993. The erect 'penis' is a flag of submission in a female-dominated society: greetings in Serengeti spotted hyenas. *Behavioral Ecology and Sociobiology* 33:355-370.

East, ML; Hofer, H. 1997. The peniform clitoris of female spotted hyaenas. *Trends in Ecology & Evolution*, 12: 401-402.

East, ML & Hofer, H. 2001. Male spotted hyenas (*Crocuta crocuta*) queue for status in social groups dominated by females. *Behavioral Ecology*, 12: 558-568

East, ML; Hofer, H; Cox, JH; Wulle, U., Wiik, H, & Pitra, C. 2001. Regular exposure to rabies virus and lack of symptomatic disease in Serengeti spotted hyenas. *PNAS*. 98: 15026-15031.

East ML, Burke T, Wilhelm K, Greig C, Hofer H (2003): Sexual conflicts in spotted hyenas: male and female mating tactics and their reproductive outcome with respect to age, social status and tenure. *Proc Roy Soc Lond B Biol*, **270**, 1247 - 1254

East ML, Hofer H (2002): Conflict and co-operation in a female-dominated society: a re-assessment of the "hyper-aggressive" image of spotted hyenas (*Crocuta crocuta*). *Adv. Study Behav.* **31**, 1 - 30

- East ML, Moestl K, Benetka V, Pitra C, Höner OP, Wachter B, Hofer H (2004): Coronavirus infection of spotted hyenas in the Serengeti ecosystem. *Vet Microbiol.* **102**, 1 - 9
- Eaton, R.L. 1971. The cheetah, fastest of the world's land animals, is racing towards extinction. *African Wildlife* 25(4):122-128.
- Eaton, R.L. 1976. Support of the hypothesis that aardwolves mimic hyenas. *Mammalia* 40:342-343.
- Eaton, R.L. 1976. The brown hyena: a review of biology status and conservation. *Mammalia* 40:377-399.
- Eaton, R.L. 1979. Interference competition among carnivores: a model for the evolution of social behavior. *Carnivore* 2(1-2):9-16.
- Edelsten, R.M. 1995. Epidemiology and control of rabies in Malawi. *Tropical Animal Health Production* 27:155-163.
- Efimenko, N.N. 1992. Findings of rare mammal species in central Kopet-dag. *Izvestiya Akademii Nauk Turkmenistan Ser. Biologicheskije Nauki* 3:71-73. (in Russian)
- Eloff, F.C. 1964. On the predatory habits of lions and hyaenas. *Koedoe* 7:105-112.
- Eloff, F.C. 1973. Lion predation in the Kalahari Gemsbok National Park. *Journal of the Southern African Wildlife Management Association* 3:59-64.
- Eloff, F.C. 1975. The spotted hyaena *Crocuta crocuta* (Erxleben) in arid regions of southern Africa. *Publikasie Universitaet Pretoria Nuwe Reeks* 97:35-39.
- Elliot, J.P. and McTaggart Cowan, I. 1978. Territoriality, density and prey of the lion in Ngorongoro Crater Tanzania. *Canadian Journal of Zoology* 56:1726-1734.
- Ellis, S. & Seal, U.S. 1995. Tools of the trade to aid decision-making for species survival. *Biodiversity Conservation* 4:553-572.
- Enders AC, Blankenship TN, Conley AJ, et al.(2006) Hemophagous regions of the placenta of the spotted hyena, *Crocuta crocuta*. *Placenta*. 27 (9-10): A19-A19.
- Enders AC, Blankenship TN, Conley AJ, et al. 2006. Structure of the midterm placenta of the spotted hyena, *Crocuta crocuta*, with emphasis on the diverse hemophagous regions. *Cells, Tissues Organs*. 183 (3): 141-155.
- Engh, A., K. Esch, L. Smale, and K. E. Holekamp (2000). Mechanisms of maternal rank 'inheritance' in the spotted hyaena. *Animal Behaviour*. 60:323-332.
- Engh, A.L., S.M. Funk, R.C. Van Horn, K.T. Scribner, M.W. Bruford, M. Szykman, L. Smale, and K. E. Holekamp (2002) Reproductive skew among males in a female-dominated society.

Behavioral Ecology. 13: 193-200.

Engh, A.L., & K. E. Holekamp. (2003) Uncovering the secret lives of hyenas. *Annual Science Encyclopedia*. World Book Publishing, Chicago. Pp 118-131.

Engh, A. L. & K. E. Holekamp (2003) Maternal rank 'inheritance' in the spotted hyena. In De Waal F. B. M. & P. L. Tyack (Eds). *Social complexity*. Harvard University Press. 149-152.

Engh, A.L., K.G. Nelson, C.R. Peebles, A.D. Hernandez, K.K. Hubbard, and K. E. Holekamp. (2003). A coprological survey of the parasites of spotted hyenas (*Crocuta crocuta*) in the Masai Mara National reserve, Kenya. *Journal of Wildlife Diseases*. Vol. 39, 224-227.

Engh, A.L., E. R. Siebert, D. A. Greenberg & K. E. Holekamp (2005) Patterns of alliance formation and post-conflict aggression indicate spotted hyenas recognize third party relationships. *Animal Behaviour*. 69: 209-217.

Ensley, P.K., Wing, A.E., Gosink, B.B., Lasley, B.L., and Durrant, B. 1982. Application of noninvasive techniques to monitor reproductive function in a brown hyena (*Hyaena brunnea*). *Zoo Biology* 1:333-343.

Erxleben, J.C.P. 1777. *Systema regni animalis, Classis I, Mammalia*. Lipsiae.

Estes, R.D. 1976. The significance of breeding synchrony in the wildebeest. *East African Wildlife Journal* 14:135-152.

Estes, R.D. 1991. *The behavior guide to African mammals*. The University of California Press, Berkeley.

Estes, R.D. and Estes, R.K. 1979. The birth and survival of wildebeest, *Connochaetes taurinus*, calves. *Zeitschrift für Tierpsychologie* 50:45-95.

Estes, R.D. & Goddard, J. 1967. Prey selection and hunting behaviour of the African wild dog. *Journal of Wildlife Management* 31:52-70.

Ewer, R.F. 1955. The fossil carnivores of the Transvaal caves. The lycyaenas of Sterkfontein and Swartkrans, together with some general considerations of the Transvaal fossil hyaenids. *Proceedings of the Zoological Society of London* 124:839-857.

Ewer, R.F. 1985. *The carnivores*. Comstock, Ithaca, New York.

Fa, J.E. 1991. *Conservación de los ecosistemas forestales de Guinea Ecuatorial*. IUCN, Gland.

Feiler, A. 1990. Distribution of mammals in Angola and notes on biogeography. In: Peters, G. and Hutterer, R. (eds.) *Proceedings of the international symposium on vertebrate biogeography in the tropics*, . Alexander Koenig Zoological Research Institute, Bonn, Germany.

Fenstemaker, SB, Zup, SL, Frank, LG, Glickman, SE, Forger, NG, 1999. A sex difference in the

hypothalamus of the spotted hyena. *Nature Neuroscience*. 2: 943-945.

Forger, N. G., L. G. Frank, S. M. Breedlove, and S. E. Glickman. 1996. Sexual dimorphism of perineal muscles and motoneurons in spotted hyenas. *J. Comp. Neurol.* 375:333-343.

Foster, J.B. & Coe, M.J. 1968. The biomass of game animals in Nairobi National Park, 1960-1966. *Journal of Zoology, London* 155:413-425.

Fox, M.W. 1971. Ontogeny of a social display in *Hyaena hyaena*: anal protrusion. *Journal of Mammalogy* 52:467-469.

Frame, G.W. 1986. *Carnivore competition and resource use in the Serengeti ecosystem of Tanzania*. PhD thesis, Utah State University, Logan, USA.

Frame, L.H. & Frame, G.W. 1979. Hyenas and wild dogs. *Pacific Discovery* 32:20-26.

Frank, L.G. 1986a Social organization of the spotted hyaena (*Crocuta crocuta*). I Demography. *Animal Behaviour* 35:1500-1509.

Frank, L.G. 1986b Social organization of the spotted hyaena (*Crocuta crocuta*). II Dominance and reproduction. *Animal Behaviour* 35:1510-27.

Frank, L.G. 1994. When hyenas kill their own. *New Scientist*, 141:38-41.

Frank LG. 1997. Evolution of genital masculinization: Why do female hyaenas have such a large 'penis'? *Trends in Ecology & Evolution*. 12: 58-62.

Frank, L.G., Davidson, J.M., and Smith, E.R. 1985. Androgen levels in the spotted hyaena *Crocuta crocuta*: the influence of social factors. *Journal of Zoology, London* 206:525-531.

Frank, L.G. & Glickman, S.E. 1991. Neonatal siblicide in the spotted hyena (*Crocuta crocuta*). *Aggressive Behavior* 17:67-67.

Frank, L.G. & Glickman, S.E. 1994. Giving birth through a penile clitoris - parturition and dystocia in the spotted hyaena (*Crocuta crocuta*). *Journal of Zoology, London* 234:659-665

Frank, L.G., Weldele, M.L., and Glickman, S.E. 1995b. Masculinization costs in hyaenas. *Nature* 377:584-585.

Frank, L.G., Glickman, S.E., and Licht, P. 1991. Fatal sibling aggression, precocial development, and androgens in neonatal spotted hyaenas. *Science* 252:702-705.

Frank, L.G., Glickman, S.E., and Powch, I. 1990. Sexual dimorphism in the spotted hyena (*Crocuta crocuta*). *Journal of Zoology, London* 221:308-313.

- Frank, L.G., Glickman, S.E., and Zabel, C.J. 1989. Ontogeny of female dominance in the spotted hyaena: perspectives from nature and captivity. *Symposia of the zoological Society London* 61:127-146.
- Frank, L.G., Holekamp, K.E., and Smale, L. 1995a. Dominance, demography, and reproductive success of female spotted hyenas In: Sinclair A.R.E. and Arcese, P. (eds.) *Serengeti II - Dynamics, conservation and management of an ecosystem*, 364-384. University of Chicago Press, Chicago.
- Frank, L.G., Smith, E.R., and Davidson, J.M. 1985. Testicular origin of circulating androgen in the spotted hyaena *Crocuta crocuta*. *Journal of Zoology, London* 207:613-615.
- Frank, L.G., Weldele, M.L., and Glickman, S.E. 1995b. Masculinization costs in hyaenas. *Nature* 377:584-585.
- Frembgen, J. W. 1998. The magicality of the hyena: beliefs and practices in west and south Asia. *Asian Folklore Studies*. 57: 331-344.
- Fryxell, J.M., Greever, J. & Sinclair, A.R.E. 1988. Why are migratory ungulates so abundant? *American Naturalist* 131:781-798.
- Fuller, T.K. and Kat, P.W. 1990. Movements, activity and prey relationships of African wild dogs *Lycaon pictus* near Aitong, southwestern Kenya. *African Journal of Ecology* 28:330-350.
- Gaisler, J., Povolný, D., Sebek, Z., and Tenora, F. 1968. Faunal and ecological review of mammals occurring in the environs of Jalal-Abad, with notes on further discoveries of mammals in Afghanistan. III Carnivora, Lagomorpha. *Zoologické Listy* 17:185-189.
- Galiano, H. and Frailey, D. 1977. *Chasmaporthetes kani*, new species from China, with remarks on phylogenetic relationships of genera within the Hyaenidae (Mammalia, Carnivore). *American Museum Novitates* 2632:1-16.
- Gandras, R. and Stieger, H. 1976. Wildhunde und Hyaenen. *Proceedings of the international symposium on diseases of zoo animals* 18:83-92.
- Gasaway, W.C., Mossestad, K.T., and Stander, P.E. 1989. Demography of spotted hyaenas in an arid savanna, Etosha National Park, South West Africa/Namibia. *Madoqua* 16:121-127.
- Gasaway, W.C., Mossestad, K.T. and Stander, P.E. 1991. Food acquisition by spotted hyaenas in Etosha National Park, Namibia: predation versus scavenging. *African Journal of Ecology* 29:64-75.
- Gasperetti, J., Harrison, D.L., and Büttiker, W. 1985. The carnivora of Arabia. *Fauna of Saudi Arabia* 7:397-461.
- Gathuma, J.M., Nyaga, P.N., Omuse, J.K., Nderu, F.M.K., and Kaminjolo, J.S. 1982. Exposure of

- calves to taeniid eggs of wild carnivore origin. *Bulletin of Animal Health and Production in Africa* 30:55-60.
- Gaudry, A. 1862-1867. *Animaux fossiles et géologie de l'Attique*. Paris.
- Gebreel, A.O., Gilles, H.M., and Prescott, J.E. 1983. Studies on the seroepidemiology of endemic diseases in Libya 1. Echinococcosis in Libya. *Annals of tropical Medicine and Parasitology* 77:391-398.
- Geigy, R. 1976. Culverts and trypanosome transmission in the Serengeti National Park (Tanzania). General introduction. *Acta Tropica* 33:53-56.
- Geigy, R. and Boreham, P.F.L. 1976. Culverts and trypanosome transmission in the Serengeti National Park (Tanzania). Part I. Survey of the culverts. *Acta Tropica* 33:57-67.
- Geigy, R. and Kauffmann, M. 1973. Sleeping sickness survey in the Serengeti Area (Tanzania) 1971. Part I. Examination of large mammals for trypanosomes. *Acta Tropica* 30:12-23.
- Geigy, R., Kauffmann, M., Mayende, J.S.P., Mwambu, P.M., and Onyango, R.J. 1973. Isolation of *Trypanosoma (Trypanozoon) rhodesiense* from game and domestic animals in Musoma district, Tanzania. *Acta Tropica* 30:49-56.
- Geigy, R., Mwambu, P.M., and Kauffmann, M. 1971. Sleeping sickness survey in Musoma District, Tanzania. Part IV. Examination of wild mammals as a potential reservoir for *T. rhodesiense*. *Acta Tropica* 28:211-220.
- Genevois, J.P., Fayolle, P., Autefage, A., Bonnemaïson, P., and Cazieux, A. 1984. L'anesthésie des espèces insolites en pratique vétérinaire courante. 4. L'anesthésie des carnivores sauvages. *Révue de Médecine vétérinaire* 135:379-384.
- Geoffroy, I. 1824. Description d'un nouveau genre de mammifères carnassiers sous le nom de Proteles. *Mémoires du Muséum National d'Histoire Naturelle, Paris* 11:354-371.
- Giles, R.H.G. 1978. *Wildlife Management*. W.H. Freeman, San Francisco.
- Gillespie, J. 1991. *The causes of molecular evolution*. Oxford University Press, New York.
- Gingerich, P.D. 1974. *Proteles cristatus* from the pleistocene of South Africa with a note on tooth replacement in the aardwolf (Mammalia, Hyaenidae). *Annals of the Transvaal Museum* 29:49-54.
- Gingerich, P.D. 1975. Is the aardwolf a mimic of the hyena? *Nature* 253:191-192.
- Ginsberg, J.R. and Macdonald, D.W. 1990. *Foxes, wolves, jackals and dogs. An action plan for the conservation of Canids*. IUCN, Gland.

- Ginzburg, L.R., Ferson, S. & Akçakaya, H.R. 1990. Reconstructibility of density dependence and the conservative assessment of extinction risks. *Conservation Biology* 4:63-70.
- Gittleman, J.L. 1986. Carnivore life history patterns: allometric, phylogenetic, and ecological associations. *American Naturalist* 127:744-771.
- Gittleman, J.L. 1993. Carnivore life histories: a re-analysis in light of new models. *Symposium of the zoological Society London* 65:65-88.
- Gittleman, J.L. and Oftedal, O.T. 1987. Comparative growth and lactation energetics in carnivores. *Symposia of the zoological Society London* 57:41-77.
- Glickman, S.E. 1995. The spotted hyaena from Aristotle to the Lion King: Reputation is everything. *Social Research* 62:501-537.
- Glickman, S.E., Frank, L.G., Davidson, J.M., Smith, E.R., and Siiteri, P.K. 1987. Androstenedione may organize or activate sex-reversed traits in female spotted hyenas. *Proceedings of the National Academy of Sciences* 84:3444-3447.
- Glickman, S.E., Frank, L.G., Licht, P., Yalcinkaya, T., Siiteri, P.K., and Davidson, J. 1992. Sexual differentiation of the female spotted hyena - one of nature's experiments. *Annals of the New York Academy of Sciences* 662:135-159.
- Glickman, S.E., Frank, L.G., Pavgi, S., and Licht, P. 1992. Hormonal correlates of masculinization in female spotted hyenas (*Crocuta crocuta*) .1. Infancy to sexual maturity. *Journal of Reproduction and Fertility* 95:451-462.
- Glickman, S. E., L. G. Frank, K. E. Holekamp, L. Smale, and P. Licht. 1993. Costs and benefits of "androgenization" in the female spotted hyena: The natural selection of physiological mechanisms. In *Perspectives in ethology: Behaviour and evolution*, ed. P. P. G. Bateson, P. H. Klopfer, and N. S. Thompson, 10:87-117. New York: Plenum Press.
- Glickman, SE, Zabel, CJ, Yoerg, SI, Weldele, ML, Drea, CM, Frank, LG. 1997. Social facilitation, affiliation, and dominance in the social life of spotted hyenas. *Integrative Neurobiology of Affiliation. Ann. NY Academy of Sci*, 807;175-184.
- Glickman, SE, Coscia, EM, Frank, LG, Licht, P, Weldele, ML, & Drea, CM. 1998. Androgens and masculinization of genitalia in the spotted hyaena (*Crocuta crocuta*). 3. Effects of juvenile gonadectomy. *J. Reprod. & Fert.* 113: 129-135
- Glickman, SE, Short, RV, & Renfree, MB. 2005. Sexual differentiation in three unconventional mammals: Spotted hyenas, elephants and tammar wallabies. *Horm. & Behav.* 8: 403-417.
- Glickman SE, Cunha GR, Drea CM, et al. 2006. Mammalian sexual differentiation: lessons from the spotted hyena. *Trends in Endocrinology & Metabolism.* 17 (9): 349-356.
- Golding, R.R. 1969. Birth and development of spotted hyenas *Crocuta crocuta* at the University of

- Ibadan Zoo, Nigeria. *International Zoo Yearbook* 9:93-95.
- Golla, W. 1993. *Aggression während des Saugens bei jungen Tüpfelhyänen (Crocuta crocuta, Erxleben)*. Diploma thesis, Munich University, Munich, Germany.
- Golla, W; Hofer, H, & East, ML. 1999. Within-litter sibling aggression in spotted hyaenas: effect of maternal nursing, sex and age. *Anim Behav.*, 58: 715-726.
- Goltenboth, R. and Klos, H.G. 1980. Übersicht über die Todesursachen und das Krankheitsgeschehen im Raubtierbestand des Zoologischen Gartens Berlin von 1957-1979. *Proceedings of the international symposium on diseases of zoo animals* 22:203-209.
- Gomercic, H. 1985. Muscles of the forelimbs of the spotted hyena *Crocuta crocuta*. *Veterinarski arhiv* 55:193-211.
- Goodhart, C.B. 1975. Does the aardwolf mimic a hyena? *Zoological Journal of the Linnean Society* 57:349-356.
- Gorelov, U. 1973. The problem of rare predator conservation in Badkhyz and in the surrounding regions of Turkmenia. In: *Rare species of mammals in the USSR and their conservation*. Moscow. (in Russian)
- Gorman, M.L. 1979. Dispersion and foraging of the small indian mongoose *Herpestes auro-punctatus* (Carnivora, Viverridae) relative to the evolution of social viverrids. *Journal of Zoology, London* 181:65-74.
- Gorman, M.L. 1990. Scent marking strategies in mammals. *Révue Suisse de Zoologie* 97:3-30.
- Gorman, M.L. and Mills M.G.L. 1984. Scent marking strategies in hyaenas (Mammalia). *Journal of Zoology, London* 202:535-547.
- Gorman ML, Mills MG, Raath JP, Speakman JR. 1998. High hunting costs make African wild dogs vulnerable to kleptoparasitism by hyaenas. *Nature*. 391: 479-481
- Gosling, S.D. (1998) personality dimensions in spotted hyenas (*Crocuta crocuta*). *J. Comp. Psych.* 112: 107-118.
- Goss, R.A. 1986. *The influence of food source on the behavioural ecology of brown hyaenas *Hyaena brunnea* in the Namib Desert*. MSc thesis, University of Pretoria, Pretoria.
- Gottlieb, A. 1989. Hyenas and heteroglossia: Myth and ritual among the Beng of Cote d'Ivoire. *American Ethnologist*. 16: 487-501.
- Goymann, W; Mostl, E; Van't Hof, T; East, ML, & Hofer, H. 1999. Noninvasive fecal monitoring of glucocorticoids in spotted hyenas, *Crocuta crocuta*. *General & Comparative Endocrinology*. 114: 340-348.

- Goymann, W; East, ML; Wachter, B; Honer, O., Mostl, E., Van't Hof, TJ, & Hofer, H. 2001. Social, state-dependent and environmental modulation of faecal corticosteroid levels in free-ranging female spotted hyenas. *Proc. Roy Soc Lond B. -Biol.* 268: 2453-2459.
- Goymann, W; East, ML, & Hofer, H. 2001. Androgens and the role of female hyperaggressiveness" in spotted hyenas (*Crocuta crocuta*). *Horm & Behav.* 39: 83-92.
- Goymann W, East ML, Hofer H (2003): Defense of females, but not social status, predicts plasma androgen levels in male spotted hyenas. *Physiol Biochem Zool* **76**, 586 - 593
- Goymann W, East ML, Wachter B, Höner OP, Möstl E, Hofer H (2003): Social status does not predict corticosteroid levels in post-dispersal male spotted hyenas. *Horm & Behav.* **43**, 474 - 479
- Graber, M. and Blanc, J.P. 1979. *Ancylostoma duodenale* (Dubini, 1843) Creplin, 1843 (Nematoda: Ancylostomidae) parasite de l'hyène tacheté *Crocuta crocuta* (Erxleben), en Ethiopie. *Révue d'Élevage et de Médecine vétérinaire des Pays tropicaux* 32:155-160.
- Grant, J.W.A., Chapman, C.A., and Richardson, K.S. 1992. Defended versus undefended home range size of carnivores, ungulates and primates. *Behavioral Ecology and Sociobiology* 31:149-161.
- Green, A.A. 1986. Status of large mammals of Northern Saudi Arabia. *Mammalia* 50:483-493
- Green, A.A. and Amance, M.S. 1987. *Management plan for Yankari Game Reserve, Bauchi State, Nigeria*. Nigerian Conservation Foundation (Lagos), WWF International, Gland.
- Green, B., Anderson, J., and Whateley, T. 1984. Water and sodium turnover and estimated food consumption in free-living lions (*Panthera leo*) and spotted hyaenas (*Crocuta crocuta*). *Journal of Mammalogy* 65:593-599.
- Greene, H.W. 1977. The aardwolf as hyena mimic: an open question. *Animal Behaviour* 25:245-246.
- Greve, J.H. and Russell, W.C. 1974. The brown hyaena *Hyaena brunnea*, a new host for nymphal *Armillifer armillatus* (Pentastomida, Porocephalidae). *Journal of Parasitology* 60:52-52.
- Grimpe, G. 1917. Hyänologische Studien. *Zoologischer Anzeiger* 48:49-61.
- Grimpe, G. 1923. Neues über die Geschlechtsverhältnisse der gefleckten Hyäne (*Crocotta crocuta* Erxl.). *Verhandlungen der Deutschen Zoologischen Gesellschaft* 28:77-78.
- Gross, C. 1987. *Mammals of the southern gulf*. Motivate Publishing, P.O.Box 2331, Dubai.
- Haas, L., Hofer, H., East, M.L., Wohlsein, P., Liess, B., Barrett, T. 1996. Canine distemper virus infection in Serengeti spotted hyaenas. *Veterinary Microbiology* 49:147-152.

- Hahn, N., J. M. Parker, G. Timmel, M. Weldele, & G. West. (In press) Hyaenidae. To appear in a book on veterinary anesthesiology.
- Hamilton, W.J., Tilson, R.L. and Frank, L.G. 1986. Sexual monomorphism in spotted hyaenas, *Crocuta crocuta*. *Ethology* 71:63-73.
- Hamilton, P.H. 1981. *The leopard Panthera pardus and the cheetah Acinonyx jubatus in Kenya*. Unpublished report for the U.S. Fish and Wildlife Service, the African Wildlife Leadership Foundation and the Government of Kenya.
- Hanby, J.P. and Bygott, J.D. 1979. Population changes in lions and other predators. In: Sinclair, A.R.E. and Norton-Griffiths, M. (eds.) *Serengeti. Dynamics of an ecosystem*, 249-262. University of Chicago Press, Chicago.
- Happold, D.C.D. 1973. *The mammals of West Africa*. Longman, London.
- Happold, D.C.D. 1987. *The mammals of Nigeria*. Clarendon Press, Oxford.
- Harris, R.B., Maguire, L.A. & Shaffer, M.L. 1987. Sample sizes for minimum viable population estimation. *Conservation Biology* 1:72-76.
- Harrison, D.L. and Bates, P.J.J. 1991. *The mammals of Arabia*. 2nd ed., Harrison Zoological Museum Publication, Sevenoaks, Kent, UK.
- Harrison, T.M., J.K. Mazet, K. E. Holekamp, E. Dubovi, A.L. Engh, K. Nelson, R. C. Van Horn, and L. Munson (2004) Antibodies to canine and feline viruses in spotted hyenas (*Crocuta crocuta*) in the Masai Mara National Reserve, Kenya. *Journal of Wildlife Diseases*. 40: 1-10.
- Hartwig, E.K. 1955. Control of snouted harvester termites. *Farming in South Africa* 30:361-366.
- Harvey, M. 1992. Sociological aspects of spotted hyaena predation on farm livestock in areas adjoining the Hluhluwe/Umfolozzi Game Reserve, Natal and solutions to the problem. *IUCN SSC Hyaena Specialist Group Newsletter* 5:15-19.
- Hashim, I.M., Awad, N.M., and Mahgoub, E.F.E. 1992. *The status of wildlife in Jebel Marra*. 24 pp, unpublished report, Agricultural Research Corporation, Wildlife Research Centre, Omdurman, Sudan.
- Hassinger, J.D. 1973. A survey of the mammals of Afghanistan. *Fieldiana (Zoology)* 60:1-195.
- Hatt, R.T. 1959. The mammals of Iraq. *Miscellaneous Publications of the Museum of Zoology University of Michigan* 106:1-113.
- Hayes, G.D. 1972. *A guide to Malawi's national parks and game reserves*. Malawi Government Printers, Zomba, Malawi.

- Haynes, G. 1983. A guide for differentiating mammalian carnivore taxa responsible for gnaw damage to herbivore limb bones. *Paleobiology* 9:164-172.
- Hayward MW. 2006. Prey preferences of the spotted hyaena (*Crocuta crocuta*) and degree of dietary overlap with the lion (*Panthera leo*). *J of Zool. Lond.*, 270 (4): 606-614.
- He, C., Rodewald, K., and Braunitzer, G. 1989. Carnivora: primary structure of the hemoglobin from the spotted hyena (*Crocuta crocuta*, Hyaenidae). *Biological Chemistry Hoppe-Seyler* 370:417-423.
- Hecketsweiler, P. 1990. *La conservation des écosystèmes forestiers du Congo*. IUCN, Gland.
- Hecketsweiler, P., Doumenge, C., Mokoko Ikonga, J. 1991. *Le parc national d'Odzala, Congo*. IUCN, Gland.
- Hecketsweiler, P. and Mokoko Ikonga, J. 1991. *La Réserve de Conkouati, Congo. Le secteur sud-est*. IUCN, Gland.
- Heldstab, A. and Ruedi, D. 1981. Metastasizing intestinal carcinoid in a brown hyena (*Hyaena brunnea*) in the Zoological Garden Basle. *Journal of Zoo Animal Medicine* 12:88-91.
- Henderson, G.M., Borthwick, R., and Camburn, M.A. 1984. Maxillary dento-alveolar abscess in a spotted hyaena *Crocuta crocuta*. *Journal of Zoo Animal Medicine* 15:99-108.
- Hendey, Q.B. 1974. The late cenozoic Carnivora of the south-western Cape Province. *Annals of the South African Museum* 63:1-369.
- Hendey, Q.B. 1975. Relationships of North American hyenas. *South African Journal of Science* 71:187-187.
- Hennig, R. 1986. Zum Beuteverhalten der Tüpfelhyäne (*Crocuta crocuta*). *Zeitschrift für Jagdwissenschaft* 32:53-54.
- Hennig, W. 1966. *Phylogenetic Systematics*. University of Illinois Press, Urbana, IL.
- Henschel, J.R. 1986. *The socio-ecology of a spotted hyaena Crocuta crocuta clan in the Kruger National Park*. DSc thesis, University of Pretoria.
- Henschel, J.R. and Skinner, J.D. 1987. Social relationships and dispersal patterns in a clan of spotted hyaenas, *Crocuta crocuta* in the Kruger National Park. *South African Journal of Zoology* 22:18-24.
- Henschel, J.R., Skinner, J.D. 1990a. The diet of the spotted hyaenas *Crocuta crocuta* in Kruger National Park. *African Journal of Ecology* 28:69-82.

- Henschel, J.R. and Skinner, J.D. 1990b. Parturition and early maternal care of spotted hyenas *Crocuta crocuta*: a case report. *Journal of Zoology, London* 222:702-704.
- Henschel, J.R. and Skinner, J.D. 1991. Territorial behaviour by a clan of spotted hyaenas *Crocuta crocuta*. *Ethology* 88:223-235.
- Henschel, J.R. and Tilson, R.L. 1988. How much does a spotted hyaena eat? Perspective from the Namib Desert. *African Journal of Ecology* 26:247-255.
- Henschel, J.R., Tilson, R., and Von Blottnitz, F. 1979. Implications of a spotted hyaena bone assemblage in the Namib Desert. *South African archaeological Bulletin* 34:127-131.
- Heptner VG, Sludskij AA 1980. *Die Säugetiere der Sowjetunion. Vol III: Raubtiere (Feloidea)*. VEB Gustav Fischer Verlag, Jena, Germany.
- Heptner, V.G and Sludskii, A.A. 1992. *Mammals of the Soviet Union Vol. II Part 2. Carnivora: hyaenas and cats*. E. J. Brill, Leiden, Netherlands.
- Hewitt, P.H., Nel, J.J.C., and Schoeman, I. 1972. The solar and ultraviolet radiation tolerances of several termite species. *Journal of the Entomological Society of Southern Africa* 35:119-121.
- Hilborn, R. & Sinclair, A.R.E. 1979. A simulation of the wildebeest population, other ungulates and their predators. In: Sinclair, A.R.E. & Norton-Griffiths, M. (eds.) *Serengeti: Dynamics of an ecosystem*, 287-309. University of Chicago Press, Chicago.
- Hill, A. 1978. Paleo-ecological significance of bones from a modern hyena lair. *American Journal of physical Anthropology* 48:405-405.
- Hill, A. 1980. Hyaena provisioning of juvenile offspring at the den. *Mammalia* 44:594-595.
- Hitchins, P.M. and Anderson, J.L. 1983. Reproduction, population characteristics and management of the black rhinoceros *Diceros bicornis minor* in the Hluhluwe/Corridor/Umfolozzi Game Reserve complex. *South African Journal of Wildlife Research* 13:78-85.
- Hofer, H., Campbell, K.L.I., East, M.L., and Huish, S.A. 1996. The impact of game meat hunting on target and non-target species in the Serengeti. In: Taylor, V.J. and Dunstone, N. (eds.) *The exploitation of mammal populations*, 117-146. Chapman and Hall, London.
- Hofer, H. and East, M.L. 1993a. The commuting system of Serengeti spotted hyaenas: how a predator copes with migratory prey. I. Social organization. *Animal Behaviour* 46:547-557.
- Hofer, H. and East, M.L. 1993b. The commuting system of Serengeti spotted hyaenas: how a predator copes with migratory prey. II. Intrusion pressure and commuters' space use. *Animal Behaviour* 46:559-574.
- Hofer, H. and East, M.L. 1993c. The commuting system of serengeti spotted hyaenas - how a

- predator copes with migratory prey. III. Attendance and maternal care. *Animal Behaviour* 46:575-589.
- Hofer, H. and East, M.L. 1995a. Population dynamics, population size, and the commuting system of Serengeti spotted hyaenas. In: Sinclair, A.R.E. and Arcese, P. (eds.) *Serengeti II: Dynamics, conservation and management of an ecosystem*, 332-363. University of Chicago Press, Chicago.
- Hofer, H. and East, M.L. 1995b. Virilized sexual genitalia as adaptations of female spotted hyaenas. *Révue Suisse de Zoologie* 102:895-906.
- Hofer, H. and East, M.L. 1996a. The components of parental care and their fitness consequences: a life history perspective. *Verhandlungen der Deutschen Gesellschaft für Zoologie* 89.2:149-164
- Hofer, H. and East, M.L. 1996b. Skewed offspring sex ratios and sex composition of twin litters in Serengeti spotted hyaenas (*Crocuta crocuta*) are a consequence of siblicide. *Applied Animal Behaviour Sciences*
- Hofer, H., East, M.L., and Campbell, K.L.I. 1993. Snares, commuting hyaenas, and migratory herbivores: humans as predators in the Serengeti. *Symposia of the zoological Society London* 65:347-366.
- Hofer, H. and East, M.L. 2007. Siblicide in Serengeti spotted hyenas: a long-term study of maternal input and cub survival. *Behavioral Ecology & Sociobiology*. In press.
- Hofer H, East ML (2003): Behavioural processes and costs of co-existence in female spotted hyenas: a life history perspective. *Evol. Ecol.* **17**, 315 - 331
- Hole_kova, D, Plainer, J., Trejbal, V., Koderova, X., Vahala, J., Volf, J., Mitakov_a, Z., Kus, E., Pali_ka, P. and Fraiss, M. 1992. Chov hyen v _eskoslovenských zoologických zahradBch (Breeding of hyenas at Czechoslovak Zoological Gardens) *Gazella* 19: 63-118.
- Holekamp, K.E., Ogutu, J.O., Dublin, H.T., Frank, L.G., and Smale, L. 1993. Fission of a spotted hyena clan: consequences of prolonged female absenteeism and causes of female emigration. *Ethology* 93:285-299.
- Holekamp, K.E. and Smale, L. 1990. Provisioning and food sharing by lactating spotted hyenas, *Crocuta crocuta* (Mammalia, Hyaenidae). *Ethology* 86:191-202.
- Holekamp, K.E. and Smale, L. 1991. Dominance acquisition and mammalian social development: the 'inheritance 'of maternal rank. *American Zoologist* 31:306-317.
- Holekamp, K.E. and Smale, L. 1992. Human-hyaena relations in and around the Masai Mara National Reserve, Kenya. *IUCN SSC Hyaena Specialist Group Newsletter* 5:19-20.

- Holekamp, K.E. and Smale, L. 1993. Ontogeny of dominance in free-living spotted hyaenas: juvenile rank relations with other immature individuals. *Animal Behaviour* 46:451-466.
- Holekamp, K.E. and Smale, L. 1995. Rapid change in offspring sex ratios after clan fission in the spotted hyena. *American Naturalist* 145:261-278.
- Holekamp, K.E., Smale, L., Berg, R. and Cooper, S.M. 1997. Hunting rates and hunting success in the spotted hyena (*Crocuta crocuta*). *Journal of Zoology, London* 241:(in press).
- Holekamp, K.E., Smale, L. and Szykman, M. 1996. Rank and reproduction in the female spotted hyaena. *Journal of Reproduction and Fertility* 108:229-237.
- Holekamp, K. E., S. M. Cooper, C.I. Katona, N.A. Berry, L.G. Frank, and L. Smale (1997) Patterns of association among female spotted hyenas (*Crocuta crocuta*). *Journal of Mammalogy*. 78: 55-64.
- Holekamp, K.E. and L. Smale (1998). Behavioral development in the spotted hyena. *Bioscience*, 48: 997-1005.
- Holekamp, K.E. and L. Smale (1998). Dispersal status influences hormones and behavior in the male spotted hyena. *Hormones and Behavior*. 33: 205-216.
- Holekamp, K.E., E.E. Boydston, M. Szykman, I. Graham, K. Nutt, S. Birch, A. Piskiel, and M. Singh (1999) Vocal recognition in the spotted hyaena and its possible implications regarding the evolution of intelligence. *Animal Behaviour*. 58:383-395.
- Holekamp, K.E., M. Szykman, E.E. Boydston, and L. Smale (1999) Association of seasonal reproductive patterns with changing food availability in an equatorial carnivore. *Journal of Reproduction and Fertility*. 116: 87-93.
- Holekamp, K.E. and L. Smale (2000) Feisty females and meek males: reproductive strategies in the spotted hyena. In *Reproduction in Context*. K. Wallen and J. Schneider (Eds). MIT Press. Cambridge. MA. Pp. 257-285.
- Holekamp, K.E. and L. Smale (2000). A hostile homecoming. Pages 118-121 in: *The Smile of a Dolphin: Remarkable Accounts of Animal Emotions*. M. Bekoff (Ed.) Discovery Books (Random House). New York.
- Holekamp, K. E., E. E. Boydston, and L. Smale (2000) Group travel in social carnivores. In *On the move: group travel in primates and other animals*. S. Boinski and P. Garber (Eds.), University of Chicago Press, Chicago. Pp 587-627
- Holekamp, K. E. & A. L. Engh (2002) Field studies of social cognition in spotted hyenas. In Bekoff, M., Allen, C., & Burghardt, G. M. (Eds) *The Cognitive Animal: Empirical and Theoretical Perspectives on Animal Cognition*. Oxford University Press. Pp 371-377.

- Holekamp, K. E. And C. L. Sisk (2003) Effects of dispersal status on gonadal and pituitary function in the male spotted hyena. *Hormones and Behavior*. 44: 385-394.
- Holekamp, K. E. (2006) Spotted hyaenas. *Current Biology*. 16: R944-R945.
- Holekamp, K. E., S. T. Sakai & B. L. Lundrigan. (2007) Social intelligence in the spotted hyena (*Crocuta crocuta*). *Philosophical Transactions of the Royal Society B*. 362:523-538.
- Holekamp, K. E., S. T. Sakai & B. L. Lundrigan. (2007) The spotted hyena as a model system for study of the evolution of intelligence. *Journal of Mammalogy*. 88: 545-554.
- Holekamp, K. E. & Dloniak, S. M. (2007) Maternal effects in fissiped carnivores. In *Maternal Effects in Mammals*. D. Maestripieri and J. Mateo (Eds.) University of Chicago Press, Chicago. In press.
- Holekamp, K. E., S. T. Sakai & Lundrigan, B. L. (2007) Social intelligence in the spotted hyena (*Crocuta crocuta*). Pp 63-88 in A special volume based on a symposium on social intelligence at the Royal Society, from *Philosophical Transactions of the Royal Society B*. N.J. Emery & N. S. Clayton (Eds.) Oxford University Press. Oxford, UK. In press.
- Holekamp, K. E. & Engh, A. L. (2007) Reproductive skew in female-dominated mammalian societies. In *Reproductive Skew in Vertebrates: Behavioural, Ecological, and Genetic Factors*, R. Hager and C.B. Jones (Eds.) Cambridge University Press, Cambridge. In press.
- Holekamp, K. E (2007) Questioning the social intelligence hypothesis. *Trends in Cognitive Science*. 11: 65-69.
- Holmern T, Nyahongo J, Roskaft E. 2007. Livestock loss caused by predators outside the Serengeti National Park, Tanzania. *Biological Conservation* 135 (4): 518-526.
- Holzappel, M. 1938. Über Bewegungstereotypien bei gehaltenen Säugern. I. Mitteilung: Bewegungstereotypien bei Caniden und Hyänen. *Zeitschrift für Tierpsychologie* 2:46-72.
- Holzappel, M. 1939. Markierungsverhalten bei der Hyäne. *Zeitschrift für Morphologie und Ökologie der Tiere* 35:10-13.
- Höner OP, Wachter B, East ML, Runyoro VA, Hofer H (2005): The effect of prey abundance and foraging tactics on the population dynamics of a social carnivore, the spotted hyena. *Oikos* **108**, 544 - 554
- Höner OP, Wachter B, East ML, Hofer H (2002): The response of spotted hyenas to long-term changes in prey populations: functional response and interspecific kleptoparasitism. *Journal of Animal Ecology* **71**, 236 – 246
- Höner OP, Wachter B, Speck S, et al. (2006) Severe streptococcus infection in spotted hyenas in the Ngorongoro Crater, Tanzania. *Veterinary Microbiology*. 115 (1-3): 223-228.
- Höner, O.P., Wachter, B., east, M. L., Streich, W. J., Wilhelm, K., Burke, T. & Hofer, H. (2007)

- Female mate-choice drives the evolution of male-biased dispersal in a social mammal. *Nature*. 448: 798-801.
- Hopkins, G.H.E. 1960. Notes on some Mallophaga from mammals. *Bulletin British Museum (Natural History) Entomology* 10:75-95.
- Hopkins, P. 1977. Interactions between the spotted hyena and potential prey species in the Aberdare Mountains of Kenya. *East African Wildlife Journal* 15:165-166.
- Horwitz, L.K. and Smith, P. 1988. The effects of striped hyena activity on human remains. *Journal of archaeological Science* 15:471-482.
- Houston, D.C. 1979. The adaptations of scavengers. Sinclair, A.R.E. and Norton-Griffiths, M. (eds.) *Serengeti: dynamics of an ecosystem*, 263-286. University of Chicago Press, Chicago.
- Houston, D.C. 1988. Digestive efficiency and hunting behaviour in cats, dogs and vultures. *Journal of Zoology, London* 216:603-605.
- Hufnagl, E. 1972. *Libyan mammals*. The Oleander Press, Cambridge.
- Hunt, R.M., Xue, X.X., and Kaufman, J. 1983. Miocene burrows of extinct bear-dogs: indication of early denning behavior of large mammalian carnivores. *Science* 221:364-366.
- Huntley, B. J. 1974. Outlines of wildlife conservation in Angola. *Journal of the Southern African Wildlife Management Association* 4:157-166.
- Ilani, G. 1975. Hyenas in Israel. *Israel - Land and Nature* 16:10-18.
- Ilani, G. 1977. Zoogeographical and ecological survey of carnivores (Mammalia, Carnivora) in Israel and the administered areas. *Israel Journal of Zoology* 26:254-254.
- Ilani, G. 1979. *A zoogeographic and ecological survey of carnivores in Israel*. Report No 3: Nature Reserves Authority of Israel, Jerusalem.
- Irwin, D.M., Kocher, T.D. and Wilson, A.C. 1991. Evolution of the cytochrome b gene of mammals. *Journal of Molecular Evolution* 32:128-144.
- Isakov, S.I., Khabilov, T.K., Davidov, G.S., and Sokov, A.I. 1988. Mammalia. In: Abdusalamov, I.A. (ed.) *Red Data Book of Tadzhikistan*. Donish, Dushanbe, Tadzhikistan. (in Russian)
- Ishadov, N. 1982. Effect of the Kara-kum canal (Turkmen-SSR, USSR) on the distribution and number of mammal species. *Byulleten' Moskovskogo Obshchestva Ispytatelei Prirody Otdel Biologicheskii* 87: 15-23. (in Russian)
- IUCN. 1994. *IUCN Red List Categories*. IUCN, Gland.

- IUCN. 1996. *IUCN Red List of Threatened Animals*. IUCN Gland.
- Ivy, R.H. 1957. The spotted hyena. *African Wildlife* 11:281-283.
- Jakob. 1970. Studies on amyloidosis of carnivora with special reference to amyloidosis in the aged. *Zentralblatt für Veterinärmedizin* A17:818-829.
- James WH, & Hofer H. 1999. A note on sex ratios and sex combinations in Serengeti spotted hyaenas: siblicide and sub-binomial variance. *Applied Animal Behaviour Science* 65: 153-158.
- Jeannin, A. 1936. *Les mammifères sauvages du Cameroun*. Paul Lechevalier, Paris.
- Jenks, S.M., Weldele, M.L., Frank, L.G., and Glickman, S.E. 1995. Acquisition of matrilineal rank in captive spotted hyaenas - emergence of a natural social system in peer-reared animals and their offspring. *Animal Behaviour* 50:893-904.
- Joeckel RM. 1998. Unique frontal sinuses in fossil and living Hyaenidae (Mammalia, Carnivora): Description and interpretation. *Journal of Vertebrate Paleontology* 18: 627-639.
- Johnson, J.M. 1987. Hyena predating on a domestic calf. *Journal of the Bombay Natural History Society* 84:422-422.
- Johnston, H.H. 1905. Notes on the mammals of Liberia. *Proceedings of the Zoological Society London* 75:197-210.
- Jones, A. 1982. *Taenia* spp parasitic in the hyena. *Parasitology* 84:LXIII-LXIII.
- Jones, A. and Khalil, L.F. 1982. Species of *Taenia* Linnaeus, 1758, in game animals and predators in East Africa. *Parasitology* 84:XXVI-XXVI.
- Joubert, E. and Mostert, P.K.N. 1975. Distribution patterns and status of some mammals in South-West Africa. *Madoqua* 9:5-44.
- Juste, J. and Castroviejo, J. 1992. Unusual record of the spotted hyena (*Crocuta crocuta*) in Rio Muni, Equatorial Guinea (Central Africa). *Zeitschrift für Säugetierkunde* 57:380-381.
- Karanth, K.U. 1982. Factors governing the distribution of wild mammals in Karnataka India. *Journal of the Bombay Natural History Society* 79:409-411.
- Karanth, K.U. 1986. Status of wildlife and habitat conservation in Karnataka. *Journal of the Bombay Natural History Society* 83:166-179.
- Kattinger, E. 1971. Beiträge zur Säugetierkunde der südlichen Balkanhalbinsel und des vorderen Orients. *Berichte der naturforschenden Gesellschaft Bamberg* 46:11-32.
- Kaup, J.J. 1828. Über *Hyaena*, *Uromastix*, *Basiliscus*, *Corythaeolus*, *Acontias*. *Isis* 21:1144-1150.

- Keep, M.E. 1970. Hepatozoonosis of some wild animals in Zululand. *Lammergeyer* 12:70-71.
- Kerbis-Peterhans, J.C. and Horwitz, L.K. 1992. A bone assemblage from a striped hyaena (*Hyaena hyaena*) den in the Negev Desert, Israel. *Israel Journal of Zoology* 37:225-245.
- Khadim, A.H., Nadachowksi, A., and Rzebik-Kowalska, B. 1977. *Review of present knowledge of Iraqi mammals*. 31 pp, Bulletin of the Biological Research Centre 6, Scientific Research Foundation, Baghdad, Iraq.
- Kingdon, J. 1977. *East African mammals. An atlas of evolution in East Africa. Vol IIIA: Carnivores*. Academic Press, London.
- King, G.E. 1975. Socioterritorial units among carnivores and early hominids. *Journal of anthropological Research* 31:69-87.
- King, G.E. 1976. Socioterritorial units and interspecific competition: modern carnivores and early hominids. *Journal of anthropological Research* 32:276-284.
- Kinsey, F.M. and kreider, D. 1990. reintroduction of a hand-reared spotted hyena cub *Crocuta crocuta*. *International Zoo Yearbook* 29:164-169.
- Klein, R.G. 1975. Paleo-anthropological implications of the nonarchaeological bone assemblage from Swartklip in southwestern Cape Province, South Africa. *Quaternary Research* 5:275-288.
- Klein, R.G. 1986. Carnivore size and quaternary climatic change in southern Africa. *Quaternary Research* 26:153-170.
- Klein, R.G., Crux-Uribe, K., and Beaumont, P.B. 1991. Environmental, ecological and paleo-anthropological implications of the late pleistocene mammalian fauna from Equus Cave, northern Cape Province, South Africa. *Quaternary Research* 36:94-119.
- Klein, R.G. and Scott, K. 1989. Glacial/interglacial size variation in fossil spotted hyenas (*Crocuta crocuta*) from Britain. *Quaternary Research* 32:88-95.
- Knight, M.H., van Jaarsveld, A., and Mills, M.G.L. 1992. Allo-suckling in spotted hyenas (*Crocuta crocuta*): an example of behavioural flexibility in carnivores. *African Journal of Ecology* 30:245-251.
- Kocher, T.D, Thomas, W.K., Meyer, A., Edwards, S.V., Pääbo, S., Villablanca, F.C. and Wilson, A.C. 1989 Dynamics of mitochondrial DNA evolution in animals: Amplification and sequencing with conserved primers. *Proceedings of the National Academy of Sciences, USA* 86:6196-6200.
- Kocula, K. 1979. Attempts at tuberculosis diagnosis in animals in zoological gardens. *Przeгляд*

zoologiczny 23:91-94.

Koehler, C.E. and Richardson, P.R.K. 1990. *Proteles cristatus*. *Mammalian Species* 353:1-6.

Koenig, C. 1976. Interspecific and intraspecific competition for food in old-world vultures. *Journal für Ornithologie* 117:297-316.

Koepfli KP, Jenks SM, Eizirik E, Zahirpour T, Van Valkenburgh B, Wayne RK. 2006. Molecular systematics of the Hyaenidae: Relationships of a relictual lineage resolved by a molecular supermatrix. *Molecular Phylogenetics and Evolution* 38: 603-620.

Kolowski, J. M. 2007. Anthropogenic influences on the behaviour of large carnivores in the northern Serengeti ecosystem. Ph.D.Dissertation. Michigan State University. East Lansing, MI, USA.

Kolowski, J. M. & K. E. Holekamp. (2006) Spatial and temporal variation in livestock depredation by large carnivores along a Kenyan reserve border. *Biological Conservation*. 128: 529-541.

Kolowski, J. M., Katan, D., Theis, K. R., & Holekamp, K. E. (2007) Daily patterns of activity in the spotted hyena. *Journal of Mammalogy*. 88: 1017-1028.

Kolowski, J. M. & Holekamp, K. E. (In press) Effects of an open refuse pit on space use patterns of spotted hyenas. *African Journal of Ecology*.

Kolska Horwitz, L. 1991. Scavenging activities of striped hyaenas *Hyaena hyaena* in Israel. *Israel Journal of Zoology* 37:189-189.

Kothari, A., Pande, P., Singh, S., and Variava, D.N. 1989. *Management of National Parks and sanctuaries in India - a status report*. Indian Institute of Public Administration, Indra Prastha Estate, New Delhi.

Kowalski, K. and Rzebik-Kowalska, B. 1991. *Mammals of Algeria*. Polish Academy of Sciences, Warszawa.

Krampitz, H.E., Sachs, R., Schaller, G.B., Schindler, R. 1968. Zur Verbreitung von Parasiten der Gattung *Hepatozoon* Miller, 1908 (Protozoa, Adeleidae) in ostafrikanischen Wildsäugetieren. *Zeitschrift für Parasitenkunde* 31:203-210.

Kranendonk, H.J., Kuipers, J., and Lensink, B.M. 1983. The management of spotted hyaenas, *Crocuta crocuta*, in Artis-Zoo, Amsterdam, The Netherlands. *Zoologischer Garten N.F.* 53:339-353.

Kronberg-Bericht. 1979. *Gegenwärtiger Status der Comoé- und Taç-Nationalparks sowie des Azagny -Reservates und Vorschläge zu deren Erhaltung und Entwicklung zur Förderung des Tourismus. Band II. Comoé Nationalpark. Teil 1: Bestandsaufnahme der ökologischen und*

- biologischen Verhältnisse*. 231 pp, FGU-Kronberg, Kronberg, Germany.
- Kruuk, H. 1966. Clan-system and feeding habits of spotted hyaenas (*Crocuta crocuta* Erxleben). *Nature* 209:1257-1258.
- Kruuk, H. 1970. Interactions between populations of spotted hyaenas (*Crocuta crocuta* Erx.) and their prey species. In: Watson, A. (ed) *Animal populations in relation to their food resources*, 359-374. Blackwell, Oxford.
- Kruuk, H. 1972a. *The spotted hyena. A study of predation and social behavior*. The University of Chicago Press, Chicago.
- Kruuk, H. 1972b. Surplus killing by carnivores. *Journal of Zoology, London* 166:233-244.
- Kruuk, H. 1975a. *Hyaena*. Oxford University Press, Oxford.
- Kruuk, H. 1975b. Functional aspects of social hunting in carnivores. In: Baerends, G., Beer, C., and Manning, A. (eds.) *Function and evolution in behaviour*, 119-141. Oxford University Press, Oxford.
- Kruuk, H. 1976. Feeding and social behaviour of the striped hyaena (*Hyaena vulgaris* Desmarest). *East African Wildlife Journal* 14:91-111.
- Kruuk, H. 1980 *The effects of large carnivores on livestock and animal husbandry in Marsabit district, Kenya*. 52 pp, IPAL Technical Report E-4, UNEP-MAB, Nairobi.
- Kruuk, H. 1991. Hunting carnivores and social strategies - a citation classic commentary. *Current Contents/Agriculture Biology & Environmental Sciences* 18:10-10.
- Kruuk, H. and Sands, W.A. 1972. The aardwolf (*Proteles cristatus* Sparrman 1783) as predator of termites. *East African Wildlife Journal* 10:211-227.
- Kuhn, H.J. 1965. A provisional checklist of mammals of Liberia. *Senckenbergiana Biologica* 46:321-340.
- Kurtén, B. 1957. The bears and hyaenas of the interglacials. *Quaternaria* 4:69-81.
- Kuhme, W. 1965. Freilandstudien zur Soziologie des Hyänenhundes (*Lycaon pictus* Thomas 1902). *Zeitschrift für Tierpsychologie* 22:495-541.
- Kullman, E. 1965. Die Säugetiere Afghanistans. I. Carnivora, Artiodactyla, Primates. *Scientific Quarterly Journal of the Faculty of Sciences Kabul* 1965:1-17.
- Kumerloeve, H. 1967. Zur Verbreitung kleinasiatischer Raub- und Huftiere sowie einiger Großnager. *Säugetierkundliche Mitteilungen* 15:337-409.

- Kumerloeve, H. 1970. Jagd- und Schutzbestimmungen für Säugetiere in der Türkei. *Säugetierkundliche Mitteilungen* 18:79-81.
- Lamprecht, J. 1978. The relationship between food competition and foraging group size in some larger carnivores - a hypothesis. *Zeitschrift für Tierpsychologie* 46:337-343.
- Lamprecht, J. 1981. The function of social hunting in larger terrestrial carnivores. *Mammal Review* 11:169-179.
- Lam, Y.M. 1992. Variability in the behaviour of spotted hyaenas as taphonomic agents. *Journal of archaeological Science* 19:389-406.
- Lang, E.M. 1958. Zur Haltung des Strandwolfes (*Hyaena brunnea*). *Zoologischer Garten Leipzig N.F.* 24:81-90.
- Laurenson, M.K. 1995. Implications of high offspring mortality for cheetah population dynamics. In: Sinclair, A.R.E. and Arcese, P. (eds.) *Serengeti II: Dynamics, conservation and management of an ecosystem*, 385-399. University of Chicago Press, Chicago.
- Laurenson, M.K., Caro, T., and Borner, M. 1992. Female cheetah reproduction. *National Geographic Research & Exploration* 7:64-75.
- Lay, D.M. 1967. A study of the mammals of Iran. *Fieldiana (Zoology)* 54:1-282.
- Leakey LN, Milledge SAH, Leakey SM, Edung J, Haynes P, Kiptoo DK, McGeorge A. 1999. Diet of striped hyaena in northern Kenya. *African Journal of Ecology* 37 (3): 314-326
- Le Berre, M. 1990. *Faune du Sahara. 2. Mammifères*. Lechevalier-Raymond Chabaud, Paris.
- Ledger, J.A. 1968. The lice of mammals. *Fauna and Flora* 19:61-65.
- Legendre, S. and Roth, C. 1988. Correlation of carnassial tooth size and body weight in recent carnivores (Mammalia). *Historical Biology* 1:85-98.
- Levine, N.D. and Ivens, V. 1981. The coccidian parasites (Protozoa, Apicomplexa) of carnivores.. *Illinois biological monographs* 51:1-249.
- Lewis, M.E. 1992. Forelimb functional anatomy in extinct large-bodied carnivorans. *Journal of vertebrate paleontology* 12(Supplement):39a-40a.
- Li, Wen-Hsiung and Graur, D. 1991. *Fundamentals of Molecular Evolution*. Sinauer, Sunderland, MA.
- Licht, P., Frank, L.G., Pavgi, S., Yalcinkaya, T.M., Siiteri, P.K., and Glickman, S.E. 1992. Hormonal correlates of masculinization in female spotted hyaenas (*Crocuta crocuta*) .2. Maternal and fetal steroids. *Journal of Reproduction & Fertility* 95:463-474.

- Licht, P, Hayes, T, Tsai, P, Cunha, G, Kim, H, Golbus, M, Hayward, S, Martin, MC, Jaffe, RB, & Glickman, SE. 1998. Androgens and masculinization of genitalia in the spotted hyaena (*Crocuta crocuta*). 1. Urogenital morphology and placental androgen production during fetal life. *Journal of Reproduction and Fertility*. 113: 105-116.
- Lightner, L.K. and Reardon, M.J. 1983. *Dipetalonema dracunculoides* in dogs and spotted hyena (*Crocuta crocuta*) in the Turkana District of Kenya. *Proceedings of the Helminthological Society Washington* 50:333-335.
- Limoges, B. 1989. *Résultats de l'inventaire faunique au niveau national et propositions de modifications B la loi sur la chasse*. Rapport technique CECI/MDRA/IUCN. Bissau, 144pp.
- Lindeque, M. and Skinner, J.D. 1982. Aseasonal breeding in the spotted hyaena (*Crocuta crocuta*, Erxleben), in southern Africa. *African Journal of Ecology* 20:271-278.
- Lindeque, M. and Skinner, J.D. 1984. Size frequency analysis of tooth wear in spotted hyaenas (*Crocuta crocuta*). *South African Journal of Zoology* 19:291-294.
- Lindeque, M., Skinner, J.D., and Millar, R.P. 1986. Adrenal and gonadal contribution to circulating androgens in spotted hyaenas (*Crocuta crocuta*) as revealed by LHRH, hCG and ACTH stimulation. *Journal of Reproduction and Fertility* 78:211-217.
- Linné, C. 1758. *Systema Naturae*, 10th ed. Stockholm.
- Loevinsohn, M.E. and Green, A.A. 1981. *Les mammifères du Parc National de la Pendjari (Bénin)*. Rapport Technique No 2. FAO, Rome: FO:DP/CAF/78/006.
- Loos-Frank, B. 1990. Cestodes of the genus *Mesocestoides* (Mesocestoididae) from carnivores in Israel. *Israel Journal of Zoology* 37:3-13.
- Lukarevsky, V.S. 1988. Feeding of leopard *Panthera pardus*, striped hyena *Hyaena hyaena* and wolf *Canis lupus* in the south-west Kopeth-Dag, USSR. *Zoologicheskii Zhurnal* 67:310-315. (in Russian)
- Lukarevsky, V.S. 1995. Striped hyaena. In: *Mammals of Turkmenistan*, 130-141. Ilim, Ashgabad, Turkmenistan. (in Russian)
- Lloyd, P.H. and Millar, J.C.G. 1983. A questionnaire survey (1969-1974) of some of the larger mammals of the Cape Province. *Bontebok* 3:1-49.
- Lynch, C.D. 1983. The mammals of the Orange Free State. *Memoirs van die Nasionale Museum Bloemfontein* 18:109-139.
- Lyon, F. 1994. *Aardwolf (Proteles cristatus): North American regional studbook 1993*. Oklahoma City Zoo, Oklahoma City.

- Maberley, C.T.A. 1963. *The game animals of southern Africa*. Nelson, Cape Town.
- Macdonald, D.W. 1978. Observations on the behaviour and ecology of the striped hyaena, *Hyaena hyaena*, in Israel. *Israel Journal of Zoology* 27:189-198.
- Macdonald, D.W. 1980a. *Rabies and wildlife: A biologist's perspective*. Oxford University Press, Oxford.
- Macdonald, D.W. 1980b. Patterns of scent marking with urine and faeces amongst carnivore communities. *Symposia of the zoological Society London* 45:107-139.
- Macdonald, D.W. 1983. The ecology of carnivore social behaviour. *Nature* 301:379-384.
- Macdonald, D.W. 1984. *The encyclopaedia of mammals*. George Allen & Unwin, London.
- Mace, G.M. and Lande, R. 1990. Assessing extinction threats: Towards a reevaluation of IUCN threatened species categories. *Conservation Biology* 5:148-157.
- Mackenzie, A.R. and Boreham, P.F.L. 1974. Autoimmunity in trypanosome infections. iv. Natural infections in hartebeest, hyena and the lion in the Serengeti National Park, Tanzania. *Acta Tropica* 31:369-372.
- Maddison W.P. and Maddison D.R. 1992. *MacClade: Analysis for Phylogeny and Character Evolution*. Sinauer, Sunderland, MA.
- Maddock, A.H. 1993. Analysis of brown hyena (*Hyena brunnea*) scats from the central Karoo, South Africa. *Journal of Zoology, London* 231:679-683.
- Maddock, A.H. & Mills, M.G.L. 1993. Population characteristics of African wild dogs *Lycaon pictus* in the Eastern Transvaal Lowveld, South Africa as revealed through photographic records. *Biological Conservation* 67:57-62.
- Marean, C.W. 1991. Measuring the post-depositional destruction of bone in archaeological assemblages. *Journal of archaeological Science* 18:677-694.
- Marean, C.W., Spencer, L.M., Blumenschine, R.J., and Capaldo, S.D. 1992. Captive hyaena bone choice and destruction: the schlepp effect and Olduvai archaeofaunas. *Journal of archaeological Science* 19:101-121.
- Marennikova, S.S., Maltseva, N.N., Korneeva, V.I., and Garanina, V.M. 1975. Pox infection in carnivora of the family Felidae. *Acta Virologica Prague* 19:260-260.
- Mariam, S.H. 1985. Epidemiology of rabies in Ethiopia. In: Kuwert, E.K., Merieux, C., Koprowski, H., and Bögel, K. (eds.) *Rabies in the tropics*, 473-480. Springer, Berlin.
- Matassa, E. and Pandolfi, F. 1984. Iperplasia ghiandolare cistica dell'utero in una iena. *Acta medica*

veterinaria 30:413-421.

Matthews, L.H. 1939a. The subspecies and variation of the spotted hyaena, *Crocuta crocuta* Erxl. *Proceedings of the Zoological Society of London* 109:237-260.

Matthews, L.H. 1939b. Reproduction in the spotted hyaena, *Crocuta crocuta* (Erxleben). *Philosophical Transactions of the Royal Society London* 230:1-78.

Matthews, L.H. 1939c. The bionomics of the spotted hyaena, *Crocuta crocuta* Erxl. *Proceedings of the Zoological Society of London* 109:43-56.

Maude, G. & Mills, MGL. 2005. The comparative feeding ecology of the brown hyaena in a cattle area and a national park in Botswana. *South African Journal of Wildlife Research* 35: 201-214.

McConnell, E.E., Basson, P.A.V., Myers, B.J., and Kuntz, R.E. 1974. A survey of diseases among 100 free ranging baboons, *Papio ursinus*, from the Kruger National Park. *Onderstepoort Journal of veterinary Research* 41:97-168.

McCully, R.M., Basson, P.A., Bigalke, R.D., de Vos, V., Young, E. 1975 Observations on naturally acquired hepatozoonosis of wild carnivores and dogs in the Republic of South Africa. *Onderstepoort Journal of veterinary Research* 42:117-134.

Mchitika, Z.J. 1996. Everloving memory of Masasi hyaenas. *Malihai News Tanzania* 3:8-8.

McKenzie, A.A. and Burroughs, R.E.J. 1993. Chemical capture of carnivores. In: McKenzie, A.A. (ed.) *The capture and care manual: capture, care, accommodation and transportation of wild African mammals*, 224-244, Wildlife Decision Support Services and South African Veterinary Foundation, Pretoria.

McKenzie, A.A., Meltzer, D.G.A., Roux, P.G. and Goss, R.A. 1990. Use of implantable radio transmitters in large African carnivores. *South African Journal of Wildlife Research* 20:33-35.

McNab BK. (2000) The standard energetics of mammalian carnivores: Felidae and Hyaenidae. *Canadian J. Zoology*. 78: 2227-2239.

Mebatsion, T., Cox, J.H., and Frost, J.W. 1992. Isolation and characterization of 115 street rabies virus isolates from Ethiopia by using monoclonal antibodies: identification of 2 isolates as Mokola and Lagos Bat viruses. *Journal of Infectious Diseases* 166:972-977.

Mech, L.D. 1975. Hunting behavior in two similar species of social canids. In: Fox, M.W. (ed.) *The wild canids. Their systematics, behavioral ecology and evolution*, 363-368. Van Nostrand Reinhold, New York.

Meester, J.A.J., Reutenbach, I.L., Dippenaar, N.J. and Baker, C.M. 1986. *Classification of Southern*

- African Mammals*. Transvaal Museum Monograph 5, Transvaal Museum, Pretoria.
- Mellen, J., Cheney, C., and Barker, J. 1993. *Carnivore space survey for AAZPA zoos*. Metro Washington Park Zoo, Portland, Oregon.
- Mendelssohn, H. 1985. The striped hyaena in Israel. *IUCN/SSC Hyaena Specialist Group Newsletter* 2:7-14.
- Mendelssohn, H. and Yom-Tov, Y. 1988. *Plants and animals of the land of Israel. Vol 7: Mammals II*. Ministry of Security Publications, Tel Aviv.
- Meyer, A. and Wilson, A.C. 1990. Origin of tetrapods inferred from their mitochondrial DNA affiliation to lungfish. *Journal of Molecular Evolution* 31:359-364.
- Millar, R.P. and Aehnelt, C. 1977. Application of ovine luteinizing hormone radio immunoassay in the quantitation of luteinizing hormone in different mammalian species. *Endocrinology* 101:760-768.
- Miller, S.D., and Everett, D.D. 1986. *Cats of the world: biology, conservation, and management*. National Wildlife Federation, Washington, D.C.
- Millington, S.J. and Tiega, A. 1990. *Biodiversity assessment for Niger*. IUCN and Direction Faune Peche et pisciculture, Niger.
- Millington, S.J. and Tiega, A. 1991. *Biological diversity in Niger*. WWF report for USAID.
- Mills, M.G.L. 1976. Ecology and behaviour of the brown hyaena in the Kalahari with some suggestions for management. *Proceedings of a Symposium on Endangered Wildlife*. Endangered Wildlife Trust, Pretoria, July 1976:36-42.
- Mills, M.G.L. 1978a. Foraging behaviour of the brown hyaena (*Hyaena brunnea* Thunberg, 1820) in the Southern Kalahari. *Zeitschrift für Tierpsychologie* 48:113-141.
- Mills, M.G.L. 1978b. The comparative socio-ecology of the hyaenidae. *Carnivore* 1:1-6.
- Mills, M.G.L. 1982a. Notes on age determination, growth and measurements of brown hyenas, *Hyaena brunnea*, from the Kalahari Gemsbok National Park, South Africa. *Koedoe* 25:55-62.
- Mills, M.G.L. 1982b. *Hyaena brunnea*. *Mammalian Species* 194:1-5.
- Mills, M.G.L. 1982c. Factors affecting group size and territory size of the Brown hyaena, *Hyaena brunnea*, in the southern Kalahari. *Journal of Zoology, London* 198:39-51.
- Mills, M.G.L. 1982d. The mating system of the brown hyaena, *Hyaena brunnea* in the southern Kalahari. *Behavioral Ecology and Sociobiology* 10:131-136.

- Mills, M.G.L. 1983a. Mating and denning behavior of the brown hyena *Hyaena brunnea* and comparisons with other Hyaenidae. *Zeitschrift für Tierpsychologie* 63:331-342.
- Mills, M.G.L. 1983b. Behavioural mechanisms in territory and group maintenance of the brown hyaena, *Hyaena brunnea*, in the Southern Kalahari. *Animal Behaviour* 31:503-510.
- Mills, M.G.L. 1984a. The comparative behavioural ecology of the brown hyaena, *Hyaena brunnea*, and the spotted hyaena, *Crocuta crocuta*, in the southern Kalahari. *Koedoe* 27(Supplement):237-247.
- Mills, M.G.L. 1984b. Prey selection and feeding habits of the large carnivores in the Southern Kalahari. *Koedoe* 27(Supplement):281-294.
- Mills, M.G.L. 1985a. Related spotted hyaenas forage together but do not cooperate in rearing young. *Nature* 316:61-62.
- Mills, M.G.L. 1985b. Hyaena survey of Kruger National Park: August-October 1984. *IUCN/SSC Hyaena Specialist Group Newsletter* 2,15-25.
- Mills, M.G.L. 1987. Behavioral adaptations of brown and spotted hyaenas in the Southern Kalahari. *South African Journal of Science* 83:595-598.
- Mills, M.G.L. 1989. The comparative behavioral ecology of hyenas: the importance of diet and food dispersion. In: Gittleman, J. L. (ed.) *Carnivore behaviour, ecology and evolution*, 125-142. Cornell University Press, Ithaca, USA.
- Mills, M.G.L. 1990. *Kalahari hyaenas: the comparative behavioural ecology of two species*. Unwin Hyman, London.
- Mills, M.G.L. 1991. Conservation management of large carnivores in Africa. *Koedoe* 34:81-90.
- Mills, M.G.L. 1992. A comparison of methods used to study food habits of large African carnivores. In McCullough, D.R. (ed.) *Wildlife 2001: populations*, 1112-1124. Elsevier, New York.
- Mills, M.G.L. 1993. Social systems and behaviour of the African wild dog *Lycaon pictus* and the spotted hyaena *Crocuta crocuta* with special reference to rabies. *Onderstepoort Journal of Veterinary Research* 60:405-409.
- Mills, M.G.L. 1996. Methodological advances in capture, census and food habit studies of large African carnivores. In: Gittleman, J.L. (ed.) *Carnivore behaviour, ecology and evolution*, 223-242. Cornell University Press, Ithaca, USA.
- Mills, M.G.L. and Biggs H.C. 1993. Prey apportionment and related ecological relationships between large carnivores in Kruger National Park. *Symposia of the zoological Society London* 65:253-268.

- Mills, M.G.L., Biggs, H.C., and Whyte, I.J. 1995. The relationship between lion predation, population trends in African herbivores and rainfall. *Wildlife Research* 22:75-87.
- Mills, M.G.L. and Gorman, M.L. 1987. The scent-marking behaviour of the spotted hyaena *Crocuta crocuta* in the southern Kalahari. *Journal of Zoology, London* 212:483-497.
- Mills, M.G.L., Gorman, M.L., and Mills M.E.J. 1980. The scent marking behavior of the brown hyena *Hyaena brunnea*. *South African Journal of Zoology* 15:240-248.
- Mills, M.G.L. and Haagner, C. 1989. *Guide to the Kalahari Gemsbok National Park*. Southern Books, Johannesburg.
- Mills, M.G.L. and Mills, M.E.J. 1978. Diet of the brown hyena *Hyaena brunnea* in the southern Kalahari, South Africa. *Koedoe* 21:125-150.
- Mills, M.G.L. and Mills, M.E.J.. 1982a. An analysis of bones collected at hyaena breeding dens in the Gemsbok National parks (Mammalia; Carnivora). *Annals of the Transvaal Museum* 30:145-155.
- Mills, M.G.L. and Mills, M.E.J. 1982b. Factors affecting the movement patterns of brown hyaenas, *Hyaena brunnea*, in the southern Kalahari. *South African Journal of Wildlife Research* 12:111-117.
- Mills, M.G.L. and Shenk, T.M. 1992. Predator prey relationships - the impact of lion predation on wildebeest and zebra populations. *Journal of Animal Ecology* 61:693-702.
- Mills, M.G.L. and Hofer, H. (eds.) 1992. *Hyaenas: Status Survey & Conservation Action Plan*. IUCN, Gland Switzerland.
- Mills MGL, Juritz JM, & Zucchini W. 2001. Estimating the size of spotted hyaena (*Crocuta crocuta*) populations through playback recordings allowing for non-response. *Animal Conservation* 4: 335-343.
- Mitchell, B.L., Shenton, J.B., and Uys, J.C.M. 1965. Predation on large mammals in the Kafue National Park, Zambia. *Zoologica Africana* 1: 297-318.
- Mitchell, R.M. and Derksen, D.V. 1976 Additional new mammal records from Nepal. *Mammalia* 40:55-65.
- Monard, A. 1935. Contribution B la mammalogie d'Angola et prodrome d'une faune d'Angola. *Arquiv Museu Bocage Lisboa* 6:1-312.
- Moritz, C., Dowling, T.E. and Brown, W.M. 1987. Evolution of animal mitochondrial DNA: Relevance for population biology and systematic. *Annual Review of Ecology and Systematics* 18:269-292.

- Nader, I.A. and Büttiker, W. 1982. Recent records of the striped haena, *Hyaena hyaena* (Linnaeus 1758) from the Kingdom of Saudi Arabia. *Fauna of Saudi Arabia* 4:503-508.
- Nair, S.S.C., Nair, P.V., Sharatchandra, H.C., and Gadgil, M. 1977. An ecological reconnaissance of the proposed Jawahar National Park India. *Journal of the Bombay Natural History Society* 74:401-435.
- Naumann, C. and Nogge, G. 1973. Die Großsäuger Afghanistans. *Zeitschrift des Kölner Zoo* 16:79-93.
- Neaves, W.B., Griffin, J.E., and Wilson, J.D. 1980. Sexual dimorphism of the phallus in spotted hyaena (*Crocuta crocuta*). *Journal of Reproduction and Fertility* 59:509-513.
- Nel, J.A.J. and Bothma, J. du P. 1983. Scent marking and midden use by aardwolves (*Proteles cristatus*) in the Namib Desert. *African Journal of Ecology* 21:25-39.
- Nieboer, E. 1962. Notes on hand-rearing various species of mammals - hyaenas. *International Zoo Yearbook* : 316-316.
- Niphadkar, S.M., Narsapur, V.S., Deshpande, V.S., and Nehete, R.S. 1989. Parasitic infections of zoo animals in bombay. *Journal of Bombay Veterinary College* 1:37-40.
- Nissim, D. 1985 *Hyaena survey Jordan Valley northern Dead Sea 1984*. Nature Reserves Authority, Jerusalem, unpublished report.
- Nissim, D. 1986 *Hyaena survey Kalya 1985/86*. Nature Reserves Authority, Jerusalem, unpublished report.
- Nowell, K. and Jackson, P. 1996. Status survey and onservaion action plan: Wild cats. IUCN, Gland.
- Nyange, J.F.C. and Kuwert, E.K. 1985. Animal rabies control in Arusha Region, Tanzania. In: Kuwert, E.K, Merieux, C., Koprowski, H., and Bögel, K. (eds.) *Rabies in the tropics*, 742-747. Springer, Berlin, Germany.
- Oftedal, O.T. and Gittleman, J.G. 1989. Patterns of energy output during reproduction in carnivores. In: Gittleman, J.G. (ed.) *Carnivore behavior, ecology, and evolution*, 355-378. Cornell University Press, Ithaca, USA.
- Ogada MO, Woodroffe R, Oguge NO, & Frank, LG. 2003. Limiting depredation by African carnivores: the role of livestock husbandry. *Conservation Biology*. 17: 1521-1530.□
- Ogutu, JO & HT Dublin. 1998. The responses of lions and spotted hyaenas to sound playbacks as a technique for estimating population size. *Afric. J. Ecol.* 36: 83095.
- Ogutu, JO, N. Bholá & RS Reid. 2005. The effects of pastoralism and protection on the density and distribution of carnivores and their prey in the Mara ecosystem of Kenya. *J. Zoology, Lond.*, 265: 281-293.

- Okiwelu, S.N. 1990. Tick-wildlife association in Rivers State, Nigeria. *Bulletin of Animal Health and Production in Africa* 38:11-14.
- Okoh, A.E.J. and Onazi, M. 1980. Notes on Salmonellae isolated from wildlife in Kano Zoological Gardens, Nigeria. *Journal of Wildlife Diseases* 16:7-10.
- Osborn, D.J. and Helmy, I. 1980. The contemporary land mammals of Egypt (including Sinai). *Fieldiana (Zoology) New Series* 5:1-579.
- Owens, D.D. and Owens, M.J. 1979a. Communal denning and clan associations in brown hyenas, *Hyaena brunnea* Thunberg, of the central Kalahari Desert, Botswana. *African Journal of Ecology* 17: 35-44.
- Owens, D.D. and Owens, M.J. 1979b. Notes on social organization and behavior in brown hyenas (*Hyaena brunnea*). *Journal of Mammalogy* 60:405-408.
- Owens, D.D. and Owens, M.J. 1980. Hyenas of the Kalahari. *Natural History* 89:44-53.
- Owens, D.D. and Owens, M.J. 1984. Helping behaviour in brown hyenas. *Nature* 308:843-845.
- Owens, D.D. and Owens, M.J. 1996. Social dominance and reproduction patterns in brown hyaenas, *Hyaena brunnea*, of the central Kalahari desert. *Animal Behaviour* 51:535-551.
- Owens, M.J. and Owens, D.D. 1978. Feeding ecology and its influence on social organization in Brown hyenas (*Hyaena brunnea*, Thunberg) of the Central Kalahari Desert. *East African Wildlife Journal* 16:113-135.
- Owens, M.J. and Owens, D.D. 1984. *Cry of the Kalahari*. Houghton Mifflin, Boston.
- Packer C., Lewis, S., and Pusey, A. 1992. A comparative analysis of non-offspring nursing. *Animal Behaviour* 43:265-281.
- Packer, C. and Ruttan, L. 1988. The evolution of cooperative hunting. *American Naturalist* 132:159-198.
- Packer, C., Scheel, D. and Pusey, A.E. 1990. Why lions form groups: food is not enough. *American Naturalist* 136:1-19.
- Panousse, J.B. 1957. Les mammifères du Maroc. *Travaux de l'Institut scientifique Chérifien Série Zoologie* 5:1-206.
- Panwar, H.S. 1979. A note on the tiger census technique based on pugmark tracings. *Indian Forestry* February, 70-77.
- Paris, B. 1991. *Plan de developpement de la Réserve de Dulombi*. Rapport technique CECI/MDRA, Bissau, 43 pp.

- Pedersen, J.M., Glickman, S.E., Frank, L.G., and Beach, F.A. 1990. Sex differences in the play behavior of immature spotted hyenas, *Crocuta crocuta*. *Hormones and Behavior* 24:403-420.
- Pennycuik, C.J. 1975. On the running of the gnu (*Connochaetes taurinus*) and other animals. *Journal of Experimental Biology* 63:775-799.
- Peters, G. 1984. On the structure of friendly close range vocalizations in terrestrial carnivores (Mammalia, Carnivora, Fissipedia). *Zeitschrift für Säugetierkunde* 49:157-182.
- Peters G, East ML, Herzog H, et al. 2004. Spotted hyena whoops: Frequent incidence of vocal instabilities in a mammalian loud call. *Bioacoustics-The International Journal of Animal Sound and its Recording* 14 (2): 99-109 2004
- Peterzell, P. 1995. Hyena's terrifying attack. *Marin Independent Journal* 26 August 1995: A1 and A4.
- Pettifer H.L. 1981. Aspects of the ecology of cheetahs (*Acinonyx jubatus*) on the Suikerbosrand Nature Reserve. In: Chapman, J.A. and Pursley, D (eds). *Worldwide Furbearer Conference Proceedings, Vol.2*, 1121-1142. R.R. Donneley, Virginia.
- Phillipson, J. undated. *Wildlife conservation and management in Sierra Leone*. Unpublished report, Oxford University, Oxford.
- Pienaar, U.D.V. 1969. Predator-prey relationships amongst the larger mammals of the Kruger National Park. *Koedoe* 12:108-176.
- Pienaar, U.D.V., Riche, E., and Roux, C.S. 1969. The use of drugs in the management and control of large carnivorous mammals. *Koedoe* 12:177-183.
- Pilgrim, G.E. 1932. The fossil Carnivora of India. *Paleontologica Indica*, n.s. 18:1-232.
- Place, N. J. K. E. Holekamp, C. L. Sisk, M. L. Weldele, E. M. Coscia, C.M. Drea, and S.E. Glickman. (2002) Effects of prenatal treatment with anti-androgens on luteinizing hormone secretion and sex steroid concentrations in adult spotted hyenas, *Crocuta crocuta*. *Biology of Reproduction* 67: 1405-1413.
- Place, NJ & Glickman, SE. 2004. Masculinization of female mammals: Lessons from nature. *Advances in Experimental Medicine and Biology*. 545: 243-253.
- Pocock, R.I. 1934. The races of the striped and brown hyenas. *Proceedings of the Zoological Society of 1934*. 799-825.
- Pocock, R.I. 1941. *The fauna of British India. Mammalia Vol II*. Taylor & Francis, London.

- Porter, R.E., Russon, R.H., and Cambre, R.C. 1987. Intestinal and intraocular lymphosarcoma in a striped hyena (*Hyaena hyaena*). *Journal of Zoo Animal Medicine* 18:159-161.
- Pospisil, J., Kase, F., and Vahala, J. 1987a. Basic haematological values in carnivores - I. The canidae, the hyaenidae and the ursidae. *Comparative Biochemistry and Physiology* 86A:649-652.
- Pospisil, J., Vahala, J., Spala, J., and Kase, F. 1987b. Haematological and biochemical values in the peripheral blood of striped hyenas (*Hyaena hyaena*) kept in the East-Bohemian Zoological Garden at Dvur Kralove and Labem. *Acta vet. Brno* 56:495-503.
- Potts, R. 1986. Temporal span of bone accumulations at Olduvai Gorge, Tanzania, and implications for early hominid foraging behavior. *Paleobiology* 12:25-31.
- Potts, R., Shipman, P., and Ingall, E. 1988. Taphonomy, paleoecology and hominids of Lainyamok, Kenya. *Journal of Human Evolution* 17:597-614.
- Pournelle, G. 1965. Observations on birth and early development of the spotted hyaena. *Journal of Mammalogy* 46:503-503.
- Prater, S. 1948. *The book of Indian animals*. Bombay Natural History Society, Bombay.
- Pringle, J.A. 1977. The distribution of mammals in Natal, South Africa. Part 2. Carnivora. *Annals of the Natal Museum* 23:93-116.
- Qumsiyeh, M.B., Amr, Z.S., and Shafei, D.M. 1993. Status and conservation of carnivores in Jordan. *Mammalia* 57:55-62.
- Racey, P.A. and Skinner, J.D. 1979. Endocrine aspects of sexual mimicry in spotted hyaenas *Crocuta crocuta*. *Journal of Zoology, London* 187:315-326.
- Rainy, M. and Rainy, J. 1989. High noon on the Maasai Mara. *New Scientist* 124(1694):48-52.
- Rautenbach, I.L. 1982. Mammals of the Transvaal. *Ecoplan Monograph* 1:1-211.
- Rautenbach, I.L. and Nel, J.A.J. 1978. Coexistence in Transvaal carnivora. *Bulletin of Carnegie Museum of Natural History* 6:138-145.
- Reitz, F.H.H. 1972. Breeding the spotted hyaena at Flamingo Park Zoo. *International Zoo Yearbook* 12:118-119.
- Rensberger JM, & Stefen C. 2006. Functional differentiation of the microstructure in the upper carnassial enamel of the spotted hyena. *PALAEONTOGRAPHICA ABTEILUNG A-PALAOZOOLOGIE-STRATIGRAPHIE* 278 (1-6): 149-+
- Richardson, P.R.K. 1983. An improved darting system for immobilizing smaller mammals in the

- wild. *South African Journal of Wildlife Research* 19:67-70.
- Richardson, P.R.K. 1985. *The social behaviour and ecology of the aardwolf, Proteles cristatus (Sparrman, 1783) in relation to its food resources*. DPhil thesis, Oxford University, Oxford.
- Richardson, P.R.K. 1986. Aardwolf: African werewolf of the savannas. *Quagga* 14:6-10.
- Richardson, P.R.K. 1987a. Food consumption and seasonal variation in the diet of the aardwolf *Proteles cristatus* in southern Africa. *Zeitschrift für Säugetierkunde* 52:307-325.
- Richardson, P.R.K. 1987b. Aardwolf mating system: overt cuckoldry in an apparently monogamous mammal. *South African Journal of Science* 83:405-410.
- Richardson, P.R.K. 1987c. Aardwolf: The most highly specialized myrmecophagous mammal? *South African Journal of Science* 83:643-646.
- Richardson, P.R.K. 1987d. Protele une hyene paradoxale. *L'Univers du Vivant* 23:23-33.
- Richardson, P.R.K. 1990. Scent marking and territoriality in the aardwolf. In: Macdonald, D.W., Müller-Schwarze, and Natynzuk, S eds.) *Chemical signals in vertebrates*, 378-387, Oxford University Press, Oxford.
- Richardson, P.R.K. 1991. Territorial significance of scent marking during the nonmating season in the aardwolf *Proteles cristatus* (Carnivora, Protelidae). *Ethology* 87:9-27.
- Richardson, P.R.K. 1993. The function of scent marking in territories - a resurrection of the intimidation hypothesis. *Transactions of the Royal Society of South Africa* 48:195-206.
- Richardson, P.R.K. and Anderson, M.D. 1993a. Chemical capture of the aardwolf *Proteles crstatus*. In: McKenzie, A.A. (ed.) *The capture and care manual: capture, care, accommodation and transportation of wild African mammals*, 244-246, Wildlife Decision Support Services and South African Veterinary Foundation, Pretoria.
- Richardson, P.R.K. and Anderson, M.D. 1993b. Physical capture of the aardwolf *Proteles crstatus*. In: McKenzie, A.A. (ed.) *The capture and care manual: capture, care, accommodation and transportation of wild African mammals*, 262-263, Wildlife Decision Support Services and South African Veterinary Foundation, Pretoria.
- Richardson, P.R.K. and Bearder, S.K. 1984. The aardwolf. In: Macdonald, D.W. (ed.) *The encyclopaedia of mammals, Vol 1*, 158-159, George Allen and Unwin, London.
- Richardson, P.R.K. and Coetzee, E.M. 1988. Mate desertion in response to female promiscuity in the socially monogamous aardwolf. *South African Journal of Zoology* 23:306-308.
- Richardson, P.R.K. and Levitan, C.D. 1994. Tolerance of aardwolves to defence secretions of *Trinervitermes trinervoides*. *Journal of Mammalogy* 75:84-91.

- Richardson, P.R.K., Mundy, P.J. and Plug, I. 1986. Bone crushing carnivores and their significance to osteodystrophy in Griffon vulture chicks. *Journal of Zoology, London* A210:23-44.
- Rieger, I. 1977a. Markierungsverhalten von Streifenhyänen, *Hyaena hyaena*, im Zoologischen Garten Zürich. *Zeitschrift für Säugetierkunde* 42:307-317.
- Rieger, I. 1977b. Das Raum-Zeit-System der Streifenhyänen, *Hyaena hyaena*, im Zoologischen Garten Zürich *Zool. Garten* 6:423-443.
- Rieger, I. 1978. Social behaviour of the striped hyaena at Zürich Zoo. *Carnivore* 1(2):49-60.
- Rieger, I. 1979a. A review of the biology of striped hyaenas, *Hyaena hyaena* (Linné, 1758). *Säugetierkundliche Mitteilungen* 27:81-95.
- Rieger, I. 1979b. Report on rearing of striped hyenas *Hyaena hyaena*. *Vierteljahrsschrift der naturforschenden Gesellschaft in Zürich* 124:169-184.
- Rieger, I. 1979c. Beobachtungen zur Aufzucht von Strifenhyänen, *Hyaena hyaena*. *Vierteljahrsschrift der Naturforschenden Gesellschaft in Zürich* 124:169-183.
- Rieger, I. 1979d. Breeding the striped hyaena *Hyaena hyaena* in captivity. *International Zoo Yearbook* 19:193-198.
- Rieger, I. 1981. *Hyaena hyaena*. *Mammalian Species* 150:1-5.
- Rieger, I. and Weihe, W.H. 1975. Weather dependent behavior of captive striped hyenas *Hyaena hyaena*. *International Journal of Biometeorology* 19:122-126.
- Rifkin, A & Glickman, SE. 2004. Separation as a natural cue to danger in the spotted hyena (*Crocuta crocuta*). *Developmental Psychobiology*. 44: 199-207.
- Roberts, A. 1954. *The mammals of South Africa*. 2nd ed. Trustees of "The mammals of South Africa" Book Fund, Johannesburg.
- Roberts, T.J. 1977. *The mammals of Pakistan*. E. Benn, London.
- Robillard, M.J. 1989. *Utilisation et perception de la faune et du milieu naturel en Guinée-Bissau*. Rapport technique CECI/MDRA/IUCN. Bissau 106 pp.
- Robinson, M.D. 1977. An observation on parental care of young in the steenbok in South-West Africa. *Madoqua* 10:215-216.
- Rogers, D. and Boreham, P.F.L. 1971. Sleeping sickness survey in the Serengeti Area (Tanzania) 1971. Part II. The vector role of *Glossina swynnertoni* Austen. *Acta Tropica* 30:24-35.
- Rogers, P.S. 1993. The capture of large carnivores using orally administered drugs. In: McKenzie,

- A.A. (ed.) *The capture and care manual: capture, care, accommodation and transportation of wild African mammals*, 251-254, Wildlife Decision Support Services and South African Veterinary Foundation, Pretoria.
- Ronnefeld, U. 1969. Verbreitung und Lebensweise afrikanischer Feloidea (Felidae et Hyaenidae). *Säugetierkundliche Mitteilungen* 17:285-350.
- Rosen GJ, De Vries GJ, Villalba C, et al. 2006. Distribution of vasopressin in the forebrain of spotted hyenas. *JOURNAL OF COMPARATIVE NEUROLOGY* 498 (1): 80-92
- Rosevear, D.R. 1953. *Checklist and atlas of Nigerian mammals*. The Government Printer, Lagos.
- Rosevear, D.R. 1974. *Carnivores of West Africa*. British Museum of Natural History, London.
- Röttcher, D. and Sawchuk, A. M. 1978. Wildlife rabies in Zambia. *Journal of Wildlife Diseases* 14:513-517.
- Rowe-Rowe, D.T. 1978. The small carnivores of Natal. *Lammergeyer* 25:1-48.
- Rowe-Rowe, D.T. 1992. *The carnivores of Natal*. National Park Board, Pietermaritzburg.
- Rudnai, J. 1979. Ecology of lions in Nairobi National Park and the adjoining Kitengela Conservation Unit in Kenya. *African Journal of Ecology* 17:85-95
- Rohland, N, JL Pollack, D Nagel, C Beauval, J Airvaux, S. Paabo & M Hofreiter. 2005. The population history of extant and extinct hyenas. *Mol. Biol. Evol.*, 22: 2435-2443.
- Röhrs, M., Ebinger, P., and Weidemann, W. 1989. Cephalisation bei Viverridae, Hyaenidae, Procyonidae und Ursidae. *Zeitschrift für zoologische Systematik und Evolutionsforschung* 27:169-180.
- Sachs, R. and Staak, C. 1966. Evidence of brucellosis in antelopes of the Serengeti. *Veterinary Record* 79:857-858.
- Sachs, R., Schaller, G.B., and Schindler, R. 1971. Untersuchungen über das Vorkommen von Trypanosomen bei Wildkarnivoren des Serengeti-Nationalparks in Tanzania. *Acta Tropica* 28:323-328.
- Sadighian, A., Arfaa, F., and Movafagh, K. 1973. *Trichinella spiralis* in carnivores and rodents in Isfahan Iran. *Journal of Parasitology* 59:986-986.
- Salnicki, J. (2004) Home range area dynamics of spotted hyaenas (*Crocuta crocuta*) in the woodland habitat of Hwange National park, Zimbabwe. M.Phil. thesis, University of Zimbabwe.
- Schaller, G.B. 1967. *The deer and the tiger*. Chicago University Press, Chicago.

- Schaller, G.B. 1972a. *The Serengeti lion*. University of Chicago Press, Chicago.
- Schaller, G.B. 1972b. The endless race of life. *Natural History* 81(4):38-43.
- Schaller, G.B. 1972c. Predators of the Serengeti. Part 2. Are you running with me hominid. *Natural History* 81(3):60-68.
- Schaller, G.B. and Lowther, G.R. 1969. The relevance of carnivore behavior to the study of early hominids. *Southwestern Journal of Anthropology* 25:307-341.
- Schlosser, M. 1890. Die Affen, Lemuren, Chiropteren, Insectivoren, Marsupialier, Creodonten und Carnivoren des europäischen Tertiars. III. *Beiträge zur Paläontologie und Geologie Österreich-Ungarns und des Orients* 8:1-107.
- Schneider, K.M. 1923. Beobachtungen aus dem Leipziger Zoologischen Garten über das Geschlechtsleben der Fleckenhyaäne. *Verhandlungen der Deutschen Zoologischen Gesellschaft* 28:78-79.
- Schneider, K.M. 1926. Über Hyänenzucht, Teil I. *Die Pelztierzucht* 2(8):1-4.
- Schneider, K.M. 1926. Über Hyänenzucht, Teil II. *Die Pelztierzucht* 2(9):9-11.
- Schneider, K.M. 1926. Über Hyänenzucht, Teil III. *Die Pelztierzucht* 2(10):12-14.
- Schneider, K.M. 1952. Einige Bilder zur Paarung der Fleckenhyaäne, *Crocotta crocuta* Erxl. *Der Zoologische Garten N.F.* 19:135-149.
- Schulz, W.C. 1966. Breeding and hand-rearing Brown hyaenas, *Hyaena brunnea*, at Okahandja Zoopark, South-West Africa. *International Zoo Yearbook* 6: 173-176.
- Schwerin, M., Pitra, C. 1994 Sex determination in spotted hyena (*Crocotta crocuta*) by restriction fragment length polymorphism of amplified zfx/zfy loci. *Theriogenology* 41:553-559.
- Sclater, W.L. 1900. *The mammals of South Africa*. R.H. Porter, London.
- Scott, A.F., Bunn, H.F. and Brush, A.H. 1977. The phylogenetic distribution of red cell 2,3 diphosphoglycerate and its interaction with mammalian hemoglobins. *Journal of Experimental Zoology* 201:269-288.
- Scott, L. 1987. Pollen analysis of hyena coprolites and sediments from Equus Cave, Taung, southern Kalahari, South Africa. *Quaternary Research* 28:144-156.
- Scott, L. and Klein, R.G. 1981. A hyena accumulated bone assemblage from late holocene deposits at Deelpan, Orange Free State, South Africa. *Annals of the South African Museum* 86:217-227.

- Searight, A. 1987. Some records of mammals from north-eastern Jordan. *Beihefte zum Tübinger Atlas des Vorderen Orients, Reihe A: Naturwissenschaften, Wiesbaden* 28:311-317.
- Seber, G.A.F. 1982. *The estimation of animal abundance and related parameters*. 2nd ed., London: Charles Griffen.
- Seddon, P.J. 1996. *Conservation status and distribution of the striped hyena in Saudi Arabia*. Unpublished Report to IUCN/SSC Hyaena Specialist Group July 1996, Typescript, 5 pp.
- Seidel, B. 1975. Zur Immobilisation und Narkose afrikanischer Tiere (Aves, Canidae, Felidae, Hippopotamidae, Hyaenidae, Pongidae, Cercopithecidae). *Proceedings of the international symposium on diseases of zoo animals* 17:117-133.
- Shakhmardanov, Z.A. 1977. Protection of wildlife in the Dagestan-ASSR. *Izvestiya Severo-Kavkazskogo Nauchnogo Tsentra Vysshei Shkoly Estestvennye Nauki* 5:102-103. (in Russian)
- Sheppey, K. and Bernard, R.T.F. 1984. Relative brain size in the mammalian carnivores of the Cape Province of South Africa. *South African Journal of Zoology* 19:305-308.
- Sheppe, W. and Haas, P. 1976. Large mammal populations of the lower Chobe River, Botswana. *Mammalia* 40:223-244.
- Shipman, P. and Phillips-Conroy, J. 1977. Hominid tool making versus carnivore scavenging. *American Journal of Physical Anthropology* 46:77-86.
- Shoemaker, A.H. 1978. Studbook for the brown hyena, *Hyaena brunnea*, in captivity. *International Zoo Yearbook* 18:224-227.
- Shoemaker, A.H. 1979. 1977 report on the brown hyena, *Hyaena brunnea*, studbook. *International Zoo Yearbook* 19:284-286.
- Shoemaker, A.H. 1983. 1982 studbook report on the brown hyena, *Hyaena brunnea*: decline of a pedigree species. *Zoo Biology* 2:133-136.
- Shoemaker, A.H. 1993. *1993 international brown hyena studbook*. Riverbanks Zoological Park, Columbia, South Carolina.
- Shortridge, G.C. 1934 *The mammals of South West Africa*. William Heinemann, London.
- Sidiyine, E.A. and Tranier, M. 1990. Données récentes sur les mammifères de l'Ardrar des Iforas (Mali). *Mammalia* 54:471-477.
- Siegfried, W.R. 1978. Let the strandwolf fly. *African Wildlife*, 32:

- Siegfried, W.R. 1984. An analysis of fecal pellets of the brown hyena, *Hyaena brunnea*, on the Namib coast, South Africa. *South African Journal of Zoology* 19:61-61.
- Sillero-Zubiri, C. and Gottelli, M.D. 1987. *The ecology of the spotted hyaena in the Salient Aberdare N.P. and recommendations for wildlife management*. Report for the Wildlife Conservation and Management Department, Ministry of Tourism and Wildlife of Kenya, Nairobi.
- Sillero-Zubiri, C. and Gottelli, M.D. 1992a. Feeding ecology of spotted hyaena (*Mammalia: Crocuta crocuta*) in a mountain forest habitat. *Journal of African Zoology* 106:169-176.
- Sillero-Zubiri, C. and Gottelli, M.D. 1992b. Population ecology of spotted hyaena in an equatorial mountain forest. *African Journal of Ecology* 30:292-300.
- Sinclair, A.R.E. and Norton-Griffiths, M. 1979. *Serengeti. Dynamics of an ecosystem*. University of Chicago Press, Chicago.
- Siongok, T.K.A. and Karama, M. 1985. Epidemiology of human rabies in Kenya. Kuwert, E.K., Merieux, C., Koprowski, H., and Bögel, K. (eds.) *Rabies in the tropics*, 445-450. Springer, Berlin.
- Skinner, J.D. 1976. Ecology of the brown hyaena *Hyaena brunnea* in the Transvaal with a distribution map for Southern Africa. *South African Journal of Science* 72: 262-269.
- Skinner, J.D., Davis S., and Ilani, G. 1980. Bone collecting by striped hyaenas, *Hyaena hyaena*, in Israel. *Palaeontologica africana* 23:99-104.
- Skinner, J.D., Funston, P.J., van Aarde, R.J., Dyk, G. and Haupt, M.A. 1992. Diet of spotted hyaenas in some mesic and arid southern African game reserves adjoining farmland. *South African Journal of Wildlife Research* 22:119-121.
- Skinner, J.D., Henschel, J.R., and van Jaarsveld, A.S. 1986. Bone-collecting habits of spotted hyaenas *Crocuta crocuta* in the Kruger National Park. *South African Journal of Zoology* 21:303-308.
- Skinner, J.D. and Ilani, G. 1979. The striped hyaena *Hyaena hyaena* of the Judean and Negev Deserts and a comparison with the brown hyaena *H. brunnea*. *Israel Journal of Zoology* 28:229-232.
- Skinner, J.D. and van Aarde, R.J. 1981 The distribution and ecology of the brown hyaena *Hyaena brunnea* and spotted hyaena *Crocuta crocuta* in the central Namib desert. *Madoqua* 12:231-239.
- Skinner, J.D. and van Aarde, R.J. 1984. Adaptations in large mammals to a desert environment. *South African Journal of Science* 80:185-185.

- Skinner, J.D. and van Aarde, R.J. 1986. The use of space by the aardwolf *Proteles cristatus*. *Journal of Zoology, London* A209:299-301.
- Skinner, J.D. & van Aarde, R.J. 1987. Range use by brown hyaenas, *Hyaena brunnea*, relocated in an agricultural area of the Transvaal. *Journal of Zoology, London* 212:350-352.
- Skinner, J.D. & van Aarde, R.J. 1991. Bone collecting by brown hyenas, *Hyaena brunnea*, in the central Namib desert, Namibia. *Journal of archaeological Science* 18:513-524.
- Skinner, J.D., van Aarde, R.J. & van Jaarsveld, A.S. 1984. Adaptations in three species of large mammals (*Antidorcas marsupialis*, *Hystrix africaeaustralis*, *Hyaena brunnea*) to arid environments. *South African Journal of Zoology* 19:82-86.
- Slaughter, R.H., Pink, R.H., and Pine, N.E. 1974. Eruption of cheek teeth in Insectivora and Carnivora. *Journal of Mammalogy* 55:115-125.
- Sliwa, A. 1966. *A functional analysis of scent marking and mating behaviour in the aardwolf (Proteles cristatus, Sparrman 1783)*. PhD thesis, University of Pretoria, Pretoria, South Africa.
- Smale, L., Frank, L.G., and Holekamp, K.E. 1993. Ontogeny of dominance in free-living spotted hyaenas: juvenile rank relations with adult females and immigrant males. *Animal Behaviour* 46:467-477.
- Smale, L. and Holekamp, K.E. 1993. Growing up in the clan. *Natural History* (102):42-53.
- Smale, L., Holekamp, K.E., Weldele, M., Frank, L.G., and Glickman, S.E. 1995. Competition and cooperation between litter-mates in the spotted hyena, *Crocuta crocuta*. *Animal Behaviour* 50:671-682.
- Smale, L., Nunes, S. and Holekamp, K.E. 1997. Sexually dimorphic dispersal in mammals: Patterns, causes, and consequences. In: Slater, P.J.B., Rosenblatt, M., Milinski, M. and Snowdon, C.T. (eds.) *Advances in the Study of behavior, Vol 26*, 181-250, Academic Press, New York.
- Smale, L., K. E. Holekamp, and P. A. White. (1999) Siblicide revisited in the spotted hyaena: does it conform to obligate or facultative models? *Animal Behaviour*, 58: 545-551.
- Smallwood, K.S. & Fitzhugh, E.L. 1993. A rigorous technique for identifying individual mountain lions *Felis concolor* by their tracks. *Biological Conservation* 65:51-59.
- Smallwood, K.S. & Fitzhugh, E.L. 1995. A track count for estimating mountain lion *Felis concolor californica* population trend. *Biological Conservation* 71:251-259.
- Smith, J. E., S. K. Memenis, & K. E. Holekamp. (In press) Rank-related partner choice in the fission-fusion society of the spotted hyena (*Crocuta crocuta*). *Behavioral Ecology and*

Sociobiology. 61: 753-765.

Smith, R.M. 1977. Movement patterns and feeding behaviour of leopard in the Rhodes Matopos National Park, Rhodesia. *Arnoldia* 8:1-16.

Smithers, R.H.N. 1966. *The mammals of Rhodesia, Zambia and Malawi*. Collins, London.

Smithers, R.H.N. 1968. *A checklist and atlas of the mammals of Botswana (Africa)*. Trustees of the National Museums of Rhodesia, Salisbury.

Smithers, R.H.N. 1971. *The mammals of Botswana*. Trustees of the National Museum, Rhodesia, Salisbury.

Smithers, R.H.N. 1983. *The mammals of the Southern African subregion*. University of Pretoria, Pretoria.

Smithers, R.H.N. 1986. *South African red data book - terrestrial mammals*. South African National Scientific Programmes Report 125. Foundation for Research and Development, Pretoria.

Smithers, R.H.N. and Lobvo Tello, J.L.P.L. 1976. *Check list and atlas of the mammals of Moçambique*. The Trustees of the National Museums and Monuments of Rhodesia, Salisbury, Zimbabwe.

Smuts, G.L. 1973. Ketamine hydrochloride: a useful drug for the field immobilization of the spotted hyaena, *Crocuta crocuta*. *Koedoe* 16:175-180.

Smuts, G.L. 1976. Population characteristics of Burchell's zebra, *Equus burchelli antiquorum*, in the Kruger National Park, South Africa. *South African Journal of Wildlife Research* 6:99-112.

Smuts, G.L. 1978. Interrelations between predators, prey and their environment. *Bioscience* 28:316-320.

Soulé, M.E. 1987. *Viable populations for conservation*. Cambridge University Press, Cambridge.

Soyka, J. 1979. Serengeti, das fast bankrotte Paradies. *Nationalpark* 23(2):38-41.

Sparrman, A. 1783. Resa till Goda Hopps-Udden Södra Polkretsen och Omkring Jordklotet saint till Hottentott- och Caffer-landen Åren 1772-76. A. J. Nordström, Stockholm.

Spong, G.F. 1995. Spatial pattern and size of the spotted hyaena (*Crocuta crocuta*) population on the short-grass plains of Serengeti, Tanzania. MSc thesis, Upsalla University, Upsalla.

Spoor, C.F. 1985. Body proportions in Hyenidae. *Anatomischer Anzeiger Jena* 160:215-220.

Spoor, C.F. and Belterman, T. 1986. Locomotion in Hyenidae. *Bijdragen tot de Dierkunde* 56:24-28.

- Spoor, C.F. and Badoux, D.M. 1986. Descriptive and functional myology of the neck and forelimb of the striped hyena (*Hyaena hyaena*, L. 1758). *Anatomischer Anzeiger Jena* 161, 375-387.
- Spoor, C.F. and Badoux, D.M. 1988. Descriptive and functional myology of the back and hindlimb of the striped hyena (*Hyaena hyaena*, L. 1758). *Anatomischer Anzeiger Jena* 167:313-321.
- Spoor, C.F. and Badoux, D.M. 1989. Descriptive and functional morphology of the locomotory apparatus of the spotted hyaena (*Crocuta crocuta*, Erxleben, 1777). *Anatomischer Anzeiger Jena* 168:261-266.
- Stander, P.E. 1987. Predation on springbok lambs. *Madoqua* 15:263-264.
- Stander, P.E. (In press). Spoor counts as indices of large carnivore populations. *Conservation Biology*.
- Stander, P.E. and Gasaway, W.C. 1991. Spotted hyaenas immobilized with ketamine xylazine and antagonized with tolazoline. *African Journal of Ecology* 29:168-169.
- Stanley, M.J. 1990. Rabies in Yemen 1982 to 1986. *Tropical Animal Health Production* 22:273-274.
- Steinetz, B.G., Randolph, C., Weldele, M., Frank, L.G., Licht, P. & Glickman, S.E. 1997. Pattern and source of secretion of relaxin in the reproductive cycle of the spotted hyena (*Crocuta crocuta*). *Biology of Reproduction*. 56:1301-1306.
- Stelzner, J. and Strier, K. 1981. Hyena predation on an adult male baboon. *Mammalia* 45:259-260.
- Sterner, R.T. and Shumaker, S.A. 1978. Coyote damage control research: A review and analysis. In: Bekoff, M. (ed.) *Coyotes: Biology, behaviour and management*, 297-325. Academic Press, New York.
- Stevens, J.E. 1993. Hyenas fatal fighting is nothing to laugh about. *Bioscience* 43:202-205.
- Stewart, K.J. 1987. Spotted hyaenas: the importance of being dominant. *Trends in Ecology Evolution* 2:88-89.
- Stoeva, S., Kleinschmidt, T., Braunitzer, G. and Scheil, H.G. 1991. The primary structure of the hemoglobin from the aardwolf (*Proteles cristatus*, Hyaenidae). *Biological Chemistry Hoppe-Seyler* 372:393-399.
- Stuart, C.T. 1975. Preliminary notes on the mammals of the Namib Desert Park. *Madoqua* 4:5-68.
- Stuart, C.T. 1976. Plant food in the diet of the spotted hyaena. *South African Journal of Science* 72:148-148.
- Stuart, C.T. 1977. The distribution, status, feeding and reproduction of carnivores of the Cape

- Province. *Department of Nature and Environmental Conservation Research Report, Mammals* 1977:91-174.
- Stuart, C.T. 1981. Notes on the mammalian carnivores of the Cape Province, South Africa. *Bontebok* 1:1-58.
- Stuart, C.T., Macdonald, I.A.W., and Mills M.G.L. 1985. History, current status and conservation of large mammalian predators in Cape Province, Republic of South Africa. *Biological Conservation* 31:7-19.
- Stuart, C.T. and Shaughnessy, P.D. 1984. Content of *Hyaena brunnea* and *Canis mesomelas* scats from southern coastal Namibia. *Mammalia* 48:611-612.
- Stuart, C.T. & Stuart, T. 1991. A leopard in the wilderness. *African Wildlife* 45:251-254.
- Sutcliffe, A.J. 1970. Spotted hyaena: crusher, gnawer, digester and collector of bones. *Nature* 227:1110-1113.
- Swanepoel, R., Barnard, B.J.H., Meredith, C.D., Bishop, G.C., Brückner, G.K., Foggin, C.M., and Hübschle, O.J.B. 1993. Rabies in southern Africa. *Onderstepoort Journal of Veterinary Research* 60:325-346.
- Sweeney, R.C.H. 1959. *A preliminary annotated checklist of the mammals of Nyasaland*. The Nyasaland Society, Blantyre.
- Swofford, D.L. 1993. *PAUP: Phylogenetic Analysis Using Parsimony, Version 3.1*. Illinois Natural History Survey, Champaign.
- Swynnerton, G.H. 1951. A check list of the land mammals of the Tanganyika Territory and the Zanzibar protectorate. *Journal of the East African Natural History Society* 20(6-7):274-312.
- Szykman M., 2001 Sexual behavior and male mate choice in the spotted hyena, *Crocuta crocuta*. PhD Dissertation. Michigan State University. East Lansing, MI, USA.
- Szykman M., A.L. Engh, R.C. Van Horn, S. Funk, K.T. Scribner, & K. E. Holekamp. (2001) Association patterns between male and female spotted hyenas reflect male mate choice. *Behavioral Ecology and Sociobiology*. 50: 231-238.
- Szykman, M., A.L. Engh, R. C. Van Horn, K. T. Scribner, L. Smale & K. E. Holekamp (2003) Rare male aggression directed toward females in a female-dominated society: baiting behavior in the spotted hyena. *Aggressive Behavior*, 29: 457-474.
- Szykman. M., R.C. Van Horn, A.L. Engh, E.E. Boydston, & K.E. Holekamp (2007) Courtship and mating in free-living spotted hyenas. *Behaviour*. July issue.
- Tanner, J. B., Smale, L, & Holekamp, K. E. (2007) Ontogenetic variation in the play behavior of

- spotted hyenas (*Crocuta crocuta*). *Journal of Developmental Processes*. In press.
- Thackeray, J.F. and Kieser J.A. 1992. Body mass and carnassial length in modern and fossil carnivores. *Annals of the Transvaal Museum* 35:337-341.
- Theis, K. R., Greene, K. M., Benson-Amram, S. R., & Holekamp, K. E. (2007). Sources of variation in the long-distance vocalizations of spotted hyenas. *Behaviour*. 144: 557-584.
- Theis, K. R., Heckla, A. L., Verge, J. R. & Holekamp, K. E. (2007) The ontogeny of pasting behavior in free-living spotted hyenas (*Crocuta crocuta*). In: J. Hurst and R. Beynon (Eds.), *Chemical Signals in Vertebrates* 11. Springer, New York. In press.
- Thenius, E. 1966. Zur Stammesgeschichte der Hyänen (Carnivora, Mammalia). *Zeitschrift für Säugetierkunde* 31 :293-300.
- Thenius, E. 1976. Remains of animals consumed by hyenas recovered from the Villafranchian era in Austria. *Säugetierkundliche Mitteilungen* 24:95-99.
- Thesiger, W. 1996. *The Danakil diary. Journeys through Abyssinia, 1930-1934*. Harper Collins, London.
- Thunberg, C.P. 1820. Beskrifning och teckning pÅ ett nytt species, *Hyaena brunnea*. *Kongliga Vetenskapsakademiens Handlingar för År 1820*:59-65.
- Tilson, R.L. and Hamilton, W.J. 1984. Social dominance and feeding patterns of spotted hyaenas. *Animal Behaviour* 32:715-724.
- Tilson, R.L. and Henschel J.R. 1984. Spotted hyaenas in the central Namib Desert. *South African Journal of Science* 80:185-185.
- Tilson, R.L. and Henschel, J.R. 1985. The spotted hyaena - predator of the Namib night. *African Wildlife* 39:50-55.
- Tilson, R.L. and Henschel, J.R. 1986. Spatial arrangement of spotted hyaena groups in a desert environment, Namibia. *African Journal of Ecology* 24:173-180.
- Tilson, R.L., von Blottnitz, F., and Henschel, J.R. 1980 Prey Selection by spotted hyaena (*Crocuta crocuta*) in the Namib Desert. *Madoqua* 12:41-49.
- TohmII, G. and TohmII, H. 1983. Quelques nouvelles données sur le status actuel de l'hyIIne *Hyaena hyaena syriaca* Matschie, 1900 (Carnivora) au Liban. *Mammalia* 47:345-351.
- Trevor, S. 1971. Animals in focus: the old prejudices about the hyena must fall. *Nature's Verden* 8-9: 290-294.
- Trinkel M, Fleischmann PH, Steindorfer AF, & Kastberger G. 2004. Spotted hyenas (*Crocuta*

- crocuta) follow migratory prey. Seasonal expansion of a clan territory in Etosha, Namibia. *J. Zool. London*. 264: 125-133.
- Trinkel M, & Kastberger G. 2005. Competitive interactions between spotted hyenas and lions in the Etosha National Park, Namibia. *Afric J. Ecol.* 43: 220-224
- Trotignon, J. 1976. Nest building on the bank of Arguin, Mauritania, in the spring of 1974. *Alauda* 44:119-134.
- Turner, A. 1985. Extinction, speciation and dispersal in African larger carnivores from the late miocene to recent. *South African Journal of Science* 81:256-257.
- Ulbrich, F. and Schmitt, J. 1969. Die Chromosomen des Erdwolfs, *Proteles cristatus* (Sparrmann, 1738). *Zeitschrift für Säugetierkunde* 34:61-62.
- van Aarde, R.J. and Skinner, J.D. 1986. The use of ^{65}Zn for estimating group size of brown hyaenas, *Hyaena brunnea*. *South African Journal of Zoology* 21:73-75.
- van Aarde, R.J., Skinner, J.D., Knight, M.H., and Skinner, D.C. 1988. Range use by a striped hyaena (*Hyaena hyaena*) in the Negev desert. *Journal of Zoology, London* 216:575-577.
- Van Horn, R.C., T.L. McElhinny, and K. E. Holekamp (2003) Age estimation and dispersal in the spotted hyena (*Crocota crocuta*). *Journal of Mammalogy*. 84: 1019-1030.
- Van Horn, RC, SA Wahaj, and K. E. Holekamp (2004). Role-reversed nepotistic interactions between sires and offspring in the spotted hyena. *Ethology*. 110: 1-14.
- Van Horn, R.C., A. L. Engh, K.T. Scribner, S. M. Funk, and K.E. Holekamp (2004) Behavioral structuring of relatedness in the spotted hyena (*Crocota crocuta*) suggests direct fitness benefits of clan-level cooperation. *Molecular Ecology*. 13: 449-458.
- van Jaarsveld, A.S. 1988. The use of zoletil for the immobilization of spotted hyaenas. *South African Journal of Wildlife Research* 18:65-66.
- van Jaarsveld, A.S. 1992. A multivariate approach to socioecological development and endocrine variance in the spotted hyena, *Crocota crocuta* Erxleben. *Experientia* 48:774-778.
- van Jaarsveld, A.S. 1993. A comparative investigation of hyaenid and aardwolf life-histories, with notes on spotted hyena mortality patterns. *Transactions of the Royal Society of South Africa* 48:219-232.
- van Jaarsveld, A.S., Henschel, J.R., and Skinner, J.D. 1987. Improved age estimation in spotted hyaenas (*Crocota crocuta*). *Journal of Zoology, London* 213:758-762.
- van Jaarsveld, A.S., Lindeque, M., and Skinner, J.D. 1992. Morphological and steroidogenic assessment of ovarian activity during lactation in the spotted hyaena (*Crocota crocuta*).

- Journal of Zoology, London* 226:31-46.
- van Jaarsveld, A.S., McKenzie, A.A., and Meltzer, D.G.A. 1984. Immobilization and anaesthesia of spotted hyaenas, *Crocuta crocuta*. *South African Journal of Wildlife Research* 14:120-122.
- van Jaarsveld, A.S., McKenzie, A.A., and Skinner, J.D. 1992. Changes in concentration of serum prolactin during social and reproductive development of the spotted hyena (*Crocuta crocuta*). *Journal of Reproduction and Fertility* 95:765-773.
- van Jaarsveld, A.S. and Skinner, J.D. 1987. Spotted hyaena monomorphism: an adaptive 'phallusy'? *South African Journal of Science* 83:612-615.
- van Jaarsveld, A.S. and Skinner, J.D. 1991a. Plasma androgens in spotted hyaenas (*Crocuta crocuta*) - influence of social and reproductive development. *Journal of Reproduction and Fertility* 93:195-201.
- van Jaarsveld, A.S. and Skinner, J.D. 1991b. Plasma androgen concentrations in initial samples from spotted hyaenas immobilized with zoletil (CI-744) reflect hormonal status estimated by GnRH challenge and immobilization stress response. *South African Journal of Zoology* 26:1-5.
- van Jaarsveld, A.S. & Skinner, J.D. 1992. Adrenocortical responsiveness to immobilization stress in spotted hyenas (*Crocuta crocuta*). *Comparative Biochemistry and Physiology* A103:73-79.
- van Jaarsveld, A.S., Skinner, J.D., and Lindeque, M. 1988. Growth, development and parental investment in the spotted hyaena, *Crocuta crocuta*. *Journal of Zoology, London* 216:45-53.
- van Jaarsveld, A.S., van Aarde, R.J., Skinner, J.D. & Wwyk V 1992. Sex-specific androgen binding in spotted hyena (*Crocuta crocuta*) plasma. *Comparative Biochemistry and Physiology* A103:319-322.
- van Lawick, H. and van Lawick-Goodall, J. 1970. *Innocent killers*. Collins, London.
- van Lawick-Goodall, J. 1970. The Scratching Rocks clan. *Animals London* 13:401-407.
- Van Meter, P. E., French, J. A., Bidali, K., Weldele, M. L., Brown, J. L., & Holekamp, K. E. (2007) Non-invasive Measurement of Fecal Estrogens in the Spotted Hyena (*Crocuta crocuta*). *General and Comparative Endocrinology*. In press.
- Van Valkenburgh, B. 1985. Locomotory diversity within past and present guilds of large predatory mammals. *Paleobiology* 11:406-428.
- Van Valkenburgh, B. 1988a. Incidence of tooth breakage among large, predatory mammals. *American Naturalist* 131:291-302.
- Van Valkenburgh, B. 1988b. Dental microwear and dietary differences in living and fossil

- carnivores. *American Zoologist* 28:175a-175a.
- Van Valkenburgh, B. 1988c. Trophic diversity in past and present guilds of large predatory mammals. *Paleobiology* 14:155-173.
- Van Valkenburgh, B. 1989. Carnivore dental adaptations and diet: a study of trophic diversity within guilds. In: Gittleman, J.L. (ed.) *Carnivore behavior, ecology and evolution*, 410-436. Cornell University Press, Ithaca, USA.
- Van Valkenburgh, B. and Ruff, C.B. 1987. Canine tooth strength and killing behaviour in large carnivores. *Journal of Zoology, London* 212:379-397.
- Van Valkenburgh, B., Teaford, M.F., and Walker, A. 1990. Molar microwear and diet in large carnivores: inferences concerning diet in the sabertooth cat, *Smilodon fatalis*. *Journal of Zoology, London* 222:319-340.
- Verberne, G. 1970. Beobachtungen und Versuche über das Flehmen katzenartiger Raubtiere. *Zeitschrift für Tierpsychologie* 27:807-827.
- Verschuren, J. 1958. *Exploration du parc national de la Garamba. Vol 9: Ecologie et biologie des grands mammifères (Primates, Carnivores, Ongulés)*. Institut des Parcs Nationaux du Congo belge, Bruxelles.
- Verschuren, J. 1987. Liste commentée des mammifères des Parcs Nationaux du Zaïre, du Rwanda et du Burundi. *Bulletin Institut Royal des Sciences Naturelles Belgique* 57:17-39.
- Viljoen, S. and Davis, D.H.S. 1973. Notes on stomach contents analyses of various carnivores in southern Africa (Mammalia: Carnivora). *Annals of the Transvaal Museum* 28:353-363.
- von Rosen, B. 1953. *Game animals of Ethiopia*. The Swedish-Ethiopian Company, Addis Abeba.
- Waage, J.K. 1981. How the zebra got its stripes: biting flies as selective agents in the evolution of zebra coloration. *Journal of the Entomological Society of Southern Africa* 44:351-358.
- Wachter B, Höner OP, East ML, Golla W, Hofer H (2002): Low aggression levels and unbiased sex ratios in a prey-rich environment: no evidence of siblicide in Ngorongoro spotted hyenas (*Crocuta crocuta*). *Behav.Ecol. Sociobiol.* 52: 348 - 356
- Wade, D.A. 1978. Coyote damage: A survey of its nature and scope, control measures and their application. In: Bekoff, M. (ed.) *Coyotes: Biology, behaviour and management*, 347-368. Academic Press, New York.
- Wafula, J.S., Mushi, E.Z., and Karstad, L. 1982. Antibodies to rinderpest virus in the sera of some wildlife in Kenya. *Bulletin of Animal Health and Production in Africa* 30:363-365.
- Wagner, A.P. (2006) Behavioral ecology of the striped hyaena (*Hyaena hyaena*). PhD

Dissertation. Montana State University, Bozeman, MT.

Wagner AP, Creel S, Kalinowski ST. 2006. Estimating relatedness and relationships using microsatellite loci with null alleles. *Heredity*. 97 (5): 336-345 NOV 2006

Wagner, A.P. L.G. Frank, S. Creel & E. M. Coscia. 2007. Transient genital anomalies in the striped hyena. *Hormones & Behavior*. 51: 626-632.

Wagner, A.P. (2007) *Hyaena hyaena* (Linnaeus). In: *The Mammals of Africa*, Eds. J. Kingdon, D. Hapold and T. Butynski. Elsevier Science: London, UK. In press. †

Wahaj, S. A., K. Guse, and K. E. Holekamp (2001) Reconciliation in the spotted hyena (*Crocuta crocuta*). *Ethology*. 107: 1057-1074.

Wahaj, S. A. & K. E. Holekamp (2003) Conflict resolution in the spotted hyena. In De Waal F. B. M. & P. L. Tyack (Eds). *Social complexity*. Harvard University Press. 249-253.

Wahaj, S.A, R.C. Van Horn, T. Van Horn, R. Dreyer, R. Hilgris, J. Schwarz, & K. E. Holekamp. (2004) Kin discrimination in the spotted hyena (*Crocuta crocuta*): Nepotism among siblings. *Behavioral Ecology and Sociobiology*. 56: 237-247.

Wahaj, S.A. & K. E. Holekamp (2006) Functions of sibling aggression in the spotted hyaena (*Crocuta crocuta*) *Animal Behaviour*. 71:1401-1409.

Wahaj, S. A., Place, N. J., Weldele, M. L., Glickman, S. E. & Holekamp, K. E. (2007) Siblicide in the spotted hyena: analysis with ultrasonic examination of wild and captive individuals. *Behavioral Ecology*. doi: 10.1093/beheco/arm076

Wallace, C. and Neil, F. (1970). Chromosome analysis in the Kruger National Park: the chromosomes of the spotted hyaena, *Crocuta crocuta*. *Koedoe* 13:151-155.

Wallach, J.D. and Boever, W.J. (1983). Viverridae and Hyaenidae. In: Wallach, J.D. and Boever, W.J. *Diseases of exotic animals. Medical and surgical management*, 535-547. Saunders, Philadelphia.

Waser, P.M. (1980). Small nocturnal carnivores: ecological studies in the Serengeti. *African Journal of Ecology* 18:167-185.

Watson, R.M. (1965). Observations on the behaviour of young spotted hyaena (*Crocuta crocuta*) in the burrow. *East African Wildlife Journal* 3:122-123.

Watts, H.E. (2007) Socio-ecological influences on fitness in the spotted hyena. PhD Dissertation. Michigan State University. East Lansing, MI, USA.

Watts, H. E. & Holekamp, K. E. (2007) Hyena societies. *Current Biology*. 17: R657-R660.

- Wells, M.E. 1968. A comparison of the reproductive tracts of *Crocuta crocuta*, *Hyaena hyaena* and *Proteles cristatus*. *East African Wildlife Journal* 6:63-70.
- Werdelin, L. and Solounias, N. 1990. Studies of fossil hyaenids: the genus *Adcrocuta* and the interrelationships of some hyaenid taxa. *Zoological Journal of the Linnean Society* 98:363-386.
- Werdelin, L. and Solounias, N. 1991. The Hyaenidae: taxonomy, systematics and evolution. *Fossils and Strata* 30:1-104.
- Werdelin, L. and Solounias, N. in press. The evolutionary history of hyenas in Europe and western Asia during the Miocene. In: Bernor, R.L. and Fahlbusch, V (eds.) *Later neogene European biotic evolution and stratigraphic correlation*. Columbia University Press, New York.
- Werdelin, L. and Turner, A. in press. The fossil and living Hyaenidae of Africa: present status. In: Stewart, K and Seymour, K. (eds.) *The palaeoecology and palaeoenvironments of Late Cenozoic Mammals. Tributes to the career of C.S. Churcher*. Toronto University Press, Toronto.
- Whateley, A.M. 1980a. Spotted hyaena changes clans. *Lammergeyer* 28:45-45.
- Whateley, A.M. 1980b. Comparative body measurements of male and female spotted hyenas from Natal. *Lammergeyer* 28:40-43.
- Whateley, A.M. 1981 Density and home range of spotted hyenas in Umfolozi Game Reserve, Natal. *Lammergeyer* 31:15-20.
- Whateley, A.M. and Brooks, P.M. 1978. Numbers and movements of spotted hyenas in Hluhluwe Game Reserve. *Lammergeyer* 26:44-52.
- Wheeler, J.W. 1975. Insect and mammalian pheromones. *Lloydia (Cincinnati)* 38:532-532.
- Wheeler, J.W. 1976. Insect and mammalian pheromones. *Lloydia (Cincinnati)* 39:53-59.
- Wheeler, J.W., Endt, D.W., and Wemmer, C. 1975. 5-thiomethylpentane-2,3-dione. A unique natural compound from the striped hyena. *Journal of the American Chemical Society* 97:441-442.
- White, P. A. 2005. Maternal rank is not correlated with cub survival in the spotted hyena, *Crocuta crocuta*. *Behavioral Ecology*, 16, 606-613.
- White, P. A. 2006. Costs and strategies of communal den use vary by rank for spotted hyenas, *Crocuta crocuta*. *Animal Behaviour*. 73: 149-156.
- White, P. A. 2007. Maternal response to neonatal sibling conflict in the spotted hyena, *Crocuta crocuta*. *Behavioral Ecology & Sociobiology*. In press.

- Wiesner, H. 1977. Zur Narkosepraxis mit dem "Blasrohrgewehr". *Kleintierpraxis* 22:327-330.
- Wilkinson, I.S. and Skinner, J.D. 1988. Efficacy of Na-22 turnover in ecophysiological studies of carnivores. *South African Journal of Zoology* 23:32-36.
- Wilks, C. 1990. *La conservation des ecosystèmes forestiers du Gabon*. IUCN, Gland.
- Wilson, A.C., Cann, R.L., Carr, S.M., George, M., Gyllensten, U.B., Holm-Bychowski, K.M., Higuchi, R.G., Palumbi, S.R., Prager, E.M., Sage, R.D. and Stoneking, M. 1985. Mitochondrial DNA and NO perspectives on evolutionary genetics. *Biological Journal of the Linnean Society* 26:375-400.
- Wilson, E.O. 1975. *Sociobiology*. Harvard University Press, Cambridge, Massachusetts.
- Wilson, V.J. 1968. Weights of some mammals from Eastern Zambia. *Arnoldia (Rhodesia)* 3 (32):1-20.
- Wolanski, E. 1996. Save the animals, feed the people. *New Scientist* 150(2028):52-52.
- Wolhuter, H. undated. *Memories of a game-ranger*. Wild Life Protection and Conservation Society of South Africa, Johannesburg.
- Woodmansee, K.B., Zabel, C.J., Glickman, S.E., Frank, L.G., and Keppel, G. 1991. Scent marking (pasting) in a colony of immature spotted hyenas (*Crocuta crocuta*): a developmental study. *Journal of Comparative Psychology* 105:10-14.
- Wurster-Hill, D.H. 1973. Chromosomes of 8 species from 5 families of carnivora. *Journal of Mammalogy* 54:753-760.
- Wurster-Hill, D.H. and Centerwall, W.R. 1982. The interrelationships of chromosome banding patterns in canids, mustelids, hyena, and felids. *Cytogenetics and Cell Genetics* 34:178-192.
- Wurster, D.H., Benirschke, K., and Gray, C.W. 1970. Determination of sex in the spotted hyaena *Crocuta crocuta*. *International Zoo Yearbook* 10:143-144.
- Wynn, R.M., Hoschner, J.A., and Oduorokelo, D. 1990. The interhemal membrane of the spotted hyena-an immunohistochemical reappraisal. *Placenta* 11:215-221.
- Yalcinkaya, T.M., Siiteri, P.K., Vigne, J.L., Licht, P., Pavgi, S., Frank, L.G., and Glickman, S.E. 1993. A mechanism for virilization of female spotted hyenas in utero. *Science* 260:1929-1931.
- Yalden, D.W., Largen, M.J., and Kock, D. 1980. Catalogue of the mammals of Ethiopia. 4. Carnivora. *Monitore zoologico Italiano NS* 13(8)(Supplement):169-172.
- Yalden, D.W., Largen, M.J., Kock, D. Hillman, J.C. 1996. Catalogue of the mammals of Ethiopia

- and Eritrea. 7. Revised checklist, zoogeography and conservation. *Tropical Zoology* 9:73-164.
- Yoerg, S.I. 1991. Social feeding reverses learned flavor aversions in spotted hyenas (*Crocuta crocuta*). *Journal of Comparative Psychology* 105:185-189.
- Yost, R.A. 1977. Cytological sex determination in the spotted hyaena *Crocuta crocuta*. *International Zoo Yearbook* 17:212-213.
- Yost, R.A. 1980. The nocturnal behaviour of captive brown hyaenas (*Hyaena brunnea*). *Mammalia* 44:27-34.
- Zabel, C.J., Glickman, S.E., Frank, L.G., Woodmansee, K.B., and Keppel, G. 1992. Coalition formation in a colony of prepubertal spotted hyenas. In: Harcourt, A.H. and De Waal, F.B.M. (eds.) *Coalitions and alliances in humans and other animals*, 113-135. Oxford University Press, Oxford.
- Zuckerman, S. 1952. The breeding seasons of mammals in captivity. *Proceedings of the Zoological Society of London* 122:842.