Wildlife Biology

WLB-00712

Tamrat, M., Atickem, A., Tsegaye, D., Nguyen, N., Bekele, A., Evangelista, P., Fashing, P. J. and Stenseth, N. C. 2020. Human–wildlife conflict and coexistence: a case study from Senkele Swayne's Hartebeest Sanctuary in Ethiopia. – Wildlife Biology 2020: wlb.00712

Appendix 1

Audio files of gnu *Connochaetes gnou*-hyena distress, jackal, and hyena-jackal sounds that we used for call-ups


02 Calf distress.mp3


03 Gnu_hyena.mp3


04 Hyena_jackal_ALWG(bad).mp3


05 Hyena_jackal (1).mp3


05 Hyena_jackal.mp3


07 Jackal.mp3

Appendix 2

The following four questionnaire types were used to collect the human-wildlife data at Senkele Swayne's Hartebeest Sanctuary. Before developing the final questionnaire, we conducted preliminary surveys and identified three directions (northern, western and southern), 3000 m maximum distance of crop raiding, and the parameters listed in each questionnaire e.g. type of being raiding, type of species involved in raiding, carnivores species available in the area etc.

2A. Hyena-livestock predation questionaries' sheet

No	Distance and direction from boundary	Interviewee info. (husband/wife/ elder > 18 years old)	Total number of livestock they have	Type and number of livestock predated	Year of predation (2016/2017/ 2018)	Season (wet/dry) and month	Time (day/night)	Site of predation (enclosure/out of enclosure)	If out of enclosure, location from boundary	How they identified predator	Remark

NB: livestock type include cattle, goat, sheep, donkey and horse

2B .African wolf-livestock predation questionaries' sheet

No	Distance and direction from boundary	Interviewee info. (husband/wife/ elder > 18 years old)	Total number of livestock they have	Type of livestock predated	Year of predation (2016/2017/ 2018)	Season (wet/dry) and month	Time (day/night)	Site of predation (enclosure/out of enclosure)	If out of enclosure, location from boundary	How they identified predator	Remark

NB: livestock type include cattle, goat, sheep, donkey and horse

2C. Crop-raiding questionaries' sheet

No	Distance and direction from boundary	Interviewee info. (husband/wife/ elder > 18 years old)	Species involved in crop raiding	Type of crop being raided	Season (wet/dry) and month	Stages of crop when raided	Time crop raiding (day/night)	Type of deterrence used	Remark

NB: Crop types include potato/maize/finger millet/bean/cabbage and enset (false banana)

Stages of crop includes seedling/vegetative/flowering/maturation

Type deterrence used include guarding/patrolling/loud noise/firing-flashes/fence/digging trenches

2D. Locals' attitude toward crop-raiding species questionaries' sheet

No	Distance and direction from boundary	Interviewee info. (husband/wife/ elder > 18 years old)	Swayne's hartebeest				Warthog				Crested porcupine				Other species if any
			+Ve	Ne	-Ve	Reason	+Ve	Ne	-Ve	Reason	+Ve	Ne	-Ve	Reason	

NB: +Ve refers positive attitude about the crop-raiding species, whereas –Ve refers negative attitudes. Ne – refers neutral
We listed out all reasons provided about the crop-raiding species by the interviewee.

Appendix 3

Descriptions of the different types of traditional deterrence methods used by members of the local communities surrounding Senkele Swayne's Hartebeest Sanctuary

Deterrence method	**Description**
Guarding	Actively watching crops for incursions by potentially crop feeding wild animals
Patrolling	Walking the perimeters of the crop fields at regular intervals
Loud noise	Producing loud sounds by shouting, beating drums, or cracking whips to scare potential crop feeding wild animals
Fire-flashes	Setting bright fires, smoky fires, or shining flashlights to scare potential crop feeding wild animals
Fencing	Constructing simple fences out of tree branches and thorny shrubs
Trenching	Digging trenches around the periphery of the crop fields and creating embankments of soil surrounding the crops.

Appendix 4

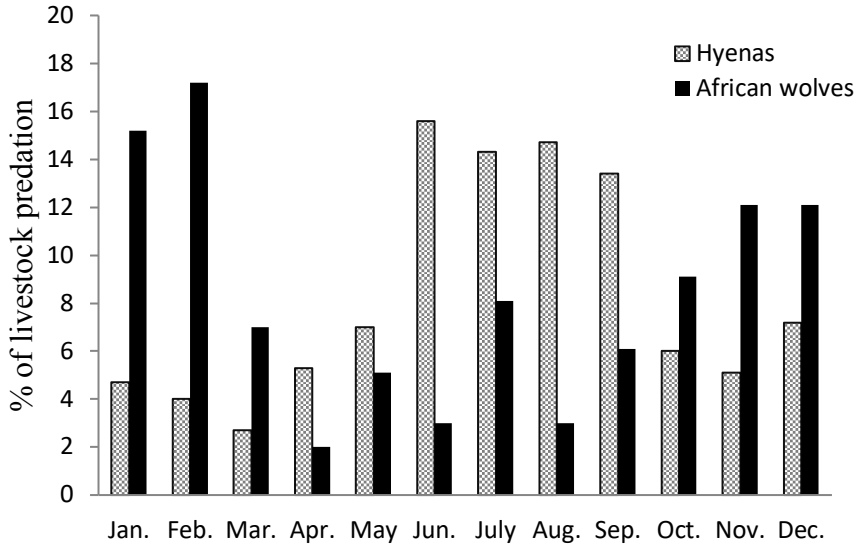

Figure A1. Percentage of total livestock predation carried out by hyenas and African wolves during each calendar month over a three-year period (2016 – 2018) in Senkele Swayne's Hartebeest Sanctuary and surrounding areas.

Appendix 5

The estimated densities of different herbivores and omnivores in Senkele Swayne's Hartebeest Sanctuary

Species	Population size	Density (ind. km^{-2})
Swayne's hartebeest *Alcelaphus buselaphus swaynei*	522	9.32
Warthog *Phacochoerus africanus*	183	3.27
Oribi *Ourebia ourebi*	147	2.63
Bohor reedbuck *Redunca redunca*	6	0.11
Crested porcupine *Hystrix cristata*	NA	NA
Vervet monkey *Chlorocebus pygerythrus*	14	0.25
Anubis baboon *Papio anubis*	17	0.30

NA = undetected during censuses due to their secretive nature

Appendix 6

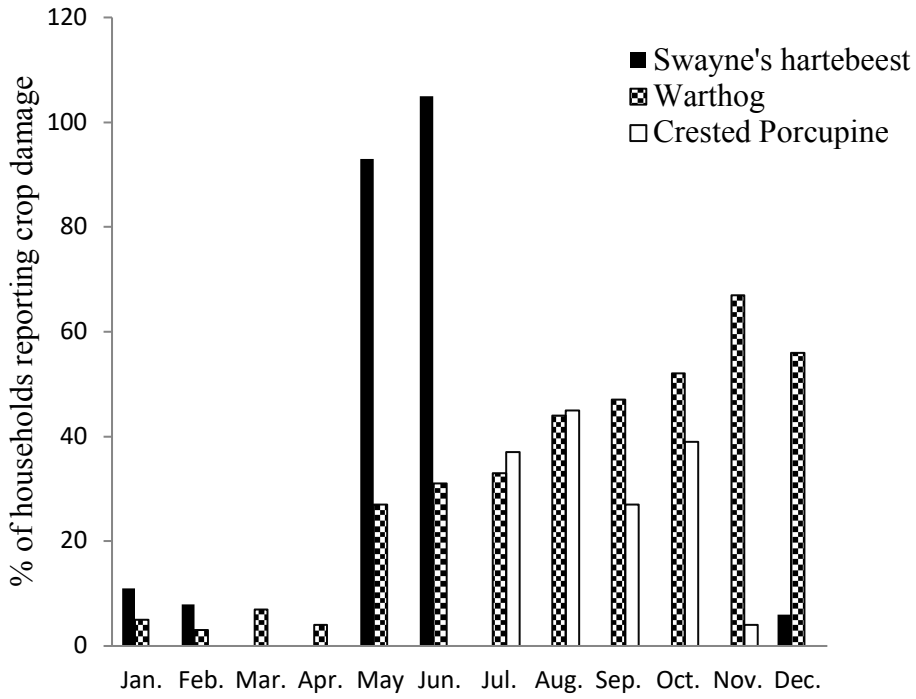

Figure A2. Percentage of households surrounding Senkele Swayne's Hartebeest Sanctuary reporting crop damage by each raiding species during each month of 2018.

Appendix 7

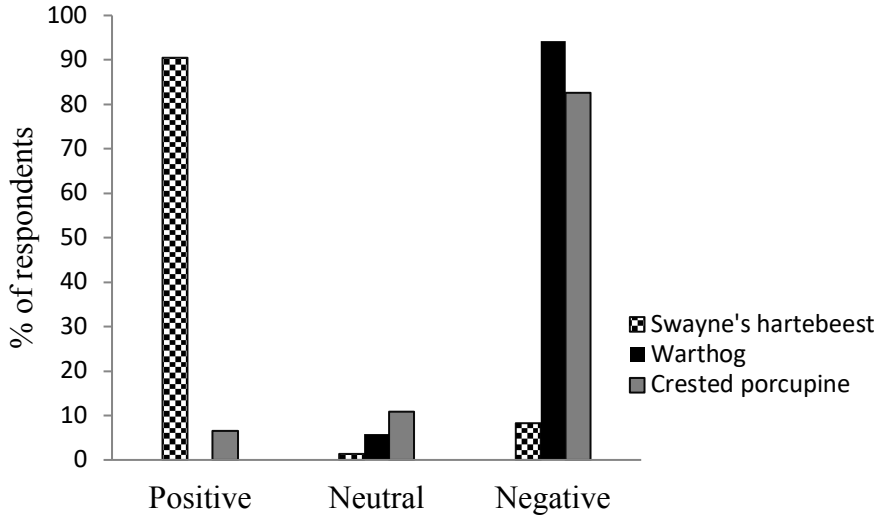

Figure A3. Attitudes of respondents (n = 378) in the community around Senkele Swayne's Hartebeest Sanctuary towards the three crop raiding wild animal species there.