

Supplementary Material

Lions at the Gates: Trans-Disciplinary Design of an Early Warning System to Improve Human-Lion Coexistence.

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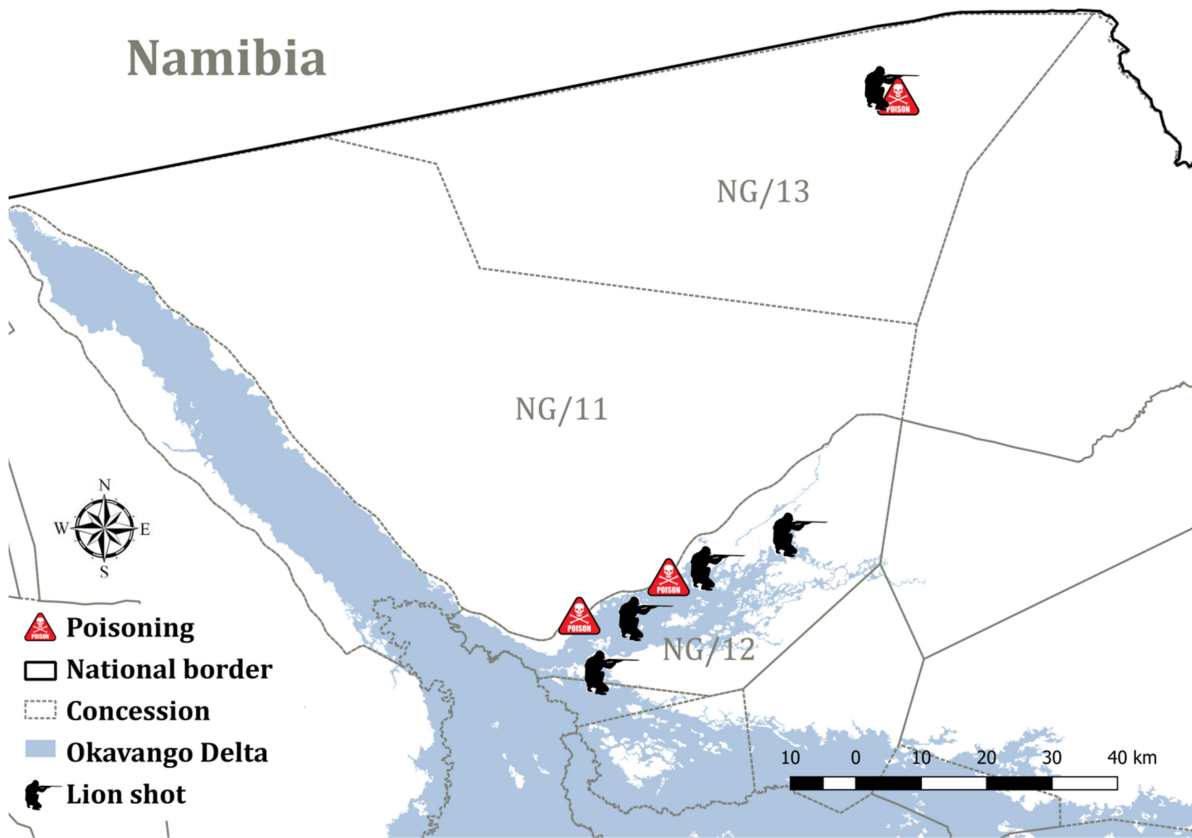
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1 Supplementary Data

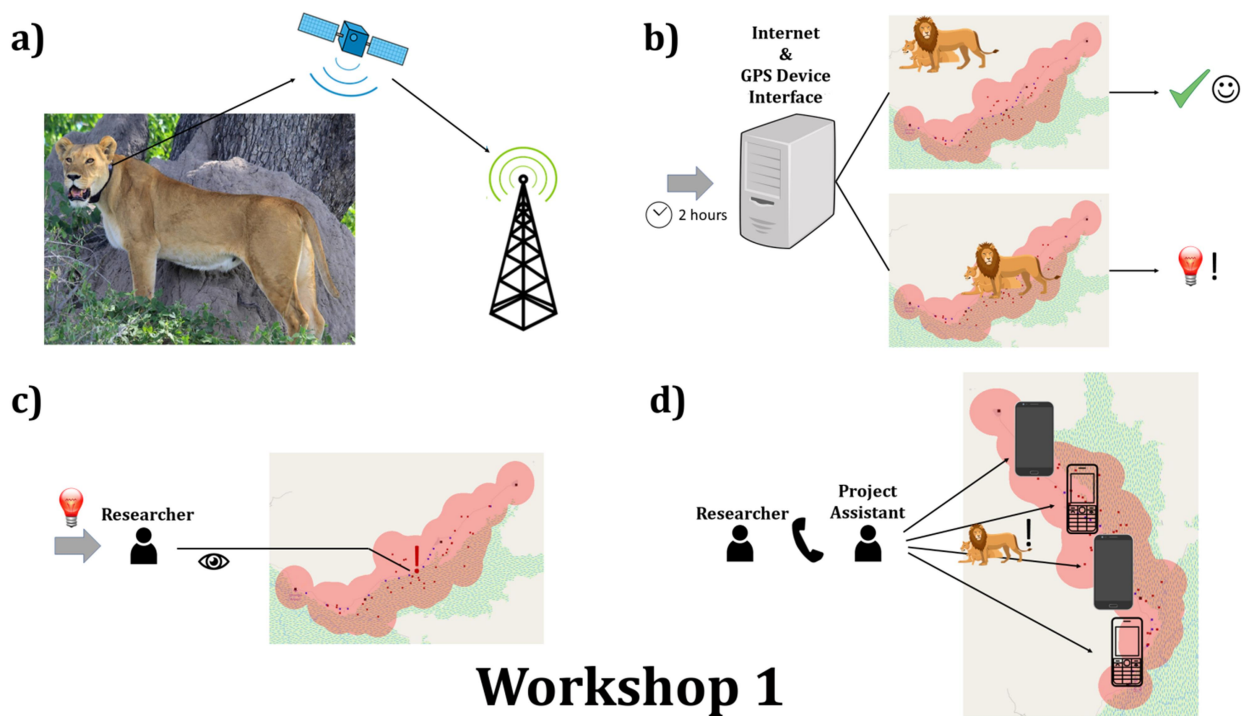
Supplementary Data 1-10 attached in Excel file format.

2 Supplementary Figures and Tables

2.1 Supplementary Figures

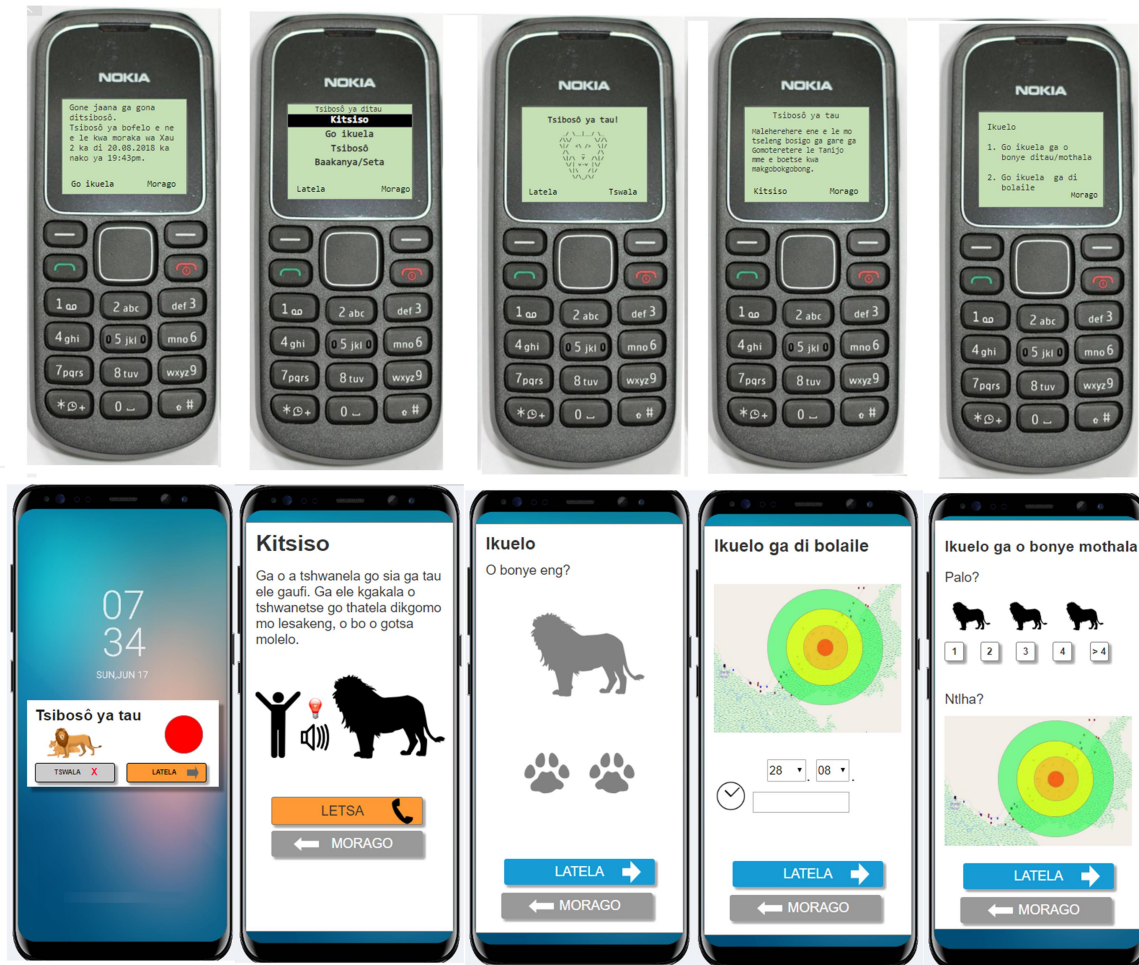


Supplementary Figure 1 - Confirmed lion persecution in northern Botswana between 2013 and 2018. Six lions were confirmed killed by shooting while poisoning indicates poisoned livestock carcasses aimed at lion persecution.



Workshop 1

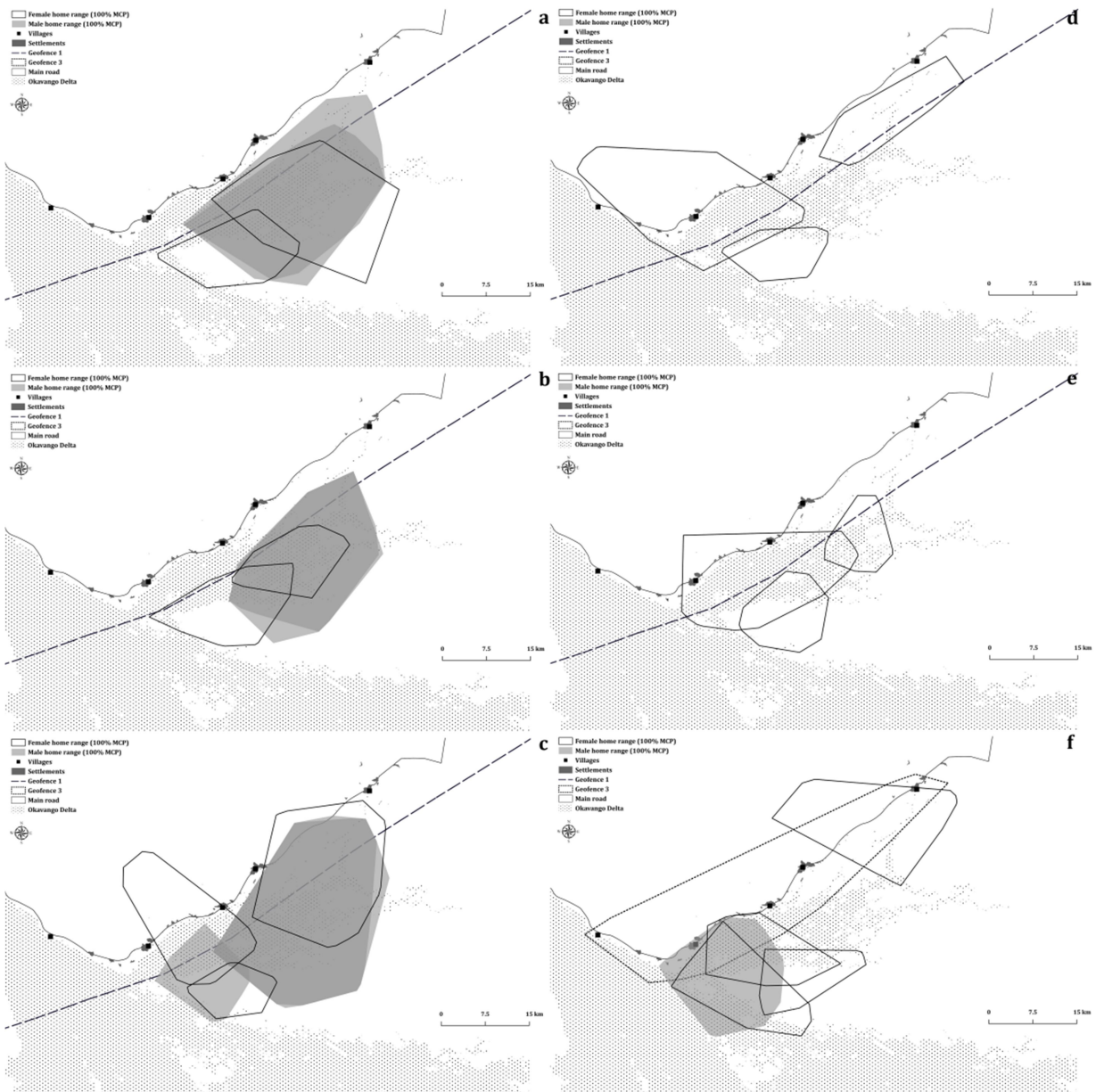
Supplementary Figure 2 - - Illustration of the lion alert process during the pilot study (2016-2018) used in community co-design workshops, showing a) data acquisition and transmission, b) data retrieval from GPS device interface via the internet and manual evaluation of location, c) decision to alert communities in case geofences were breached, and d) the manual alert distribution sequence.



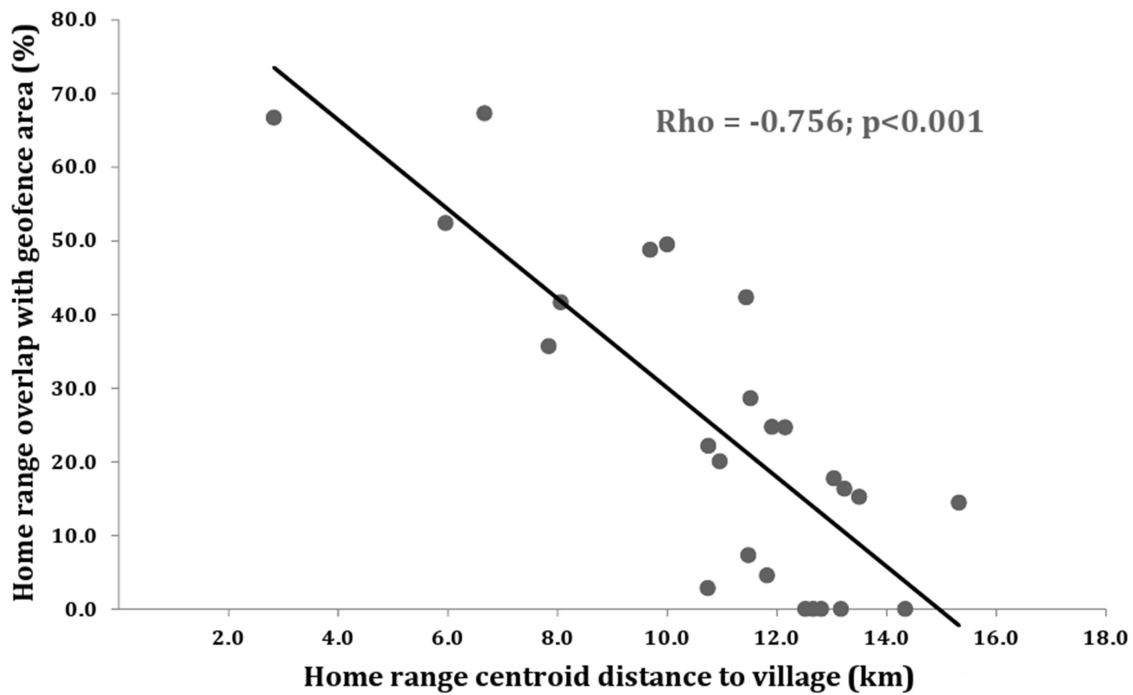
Supplementary Figure 3 – Illustrated draft designs of possible lion alert formats and other functions as deliverable for different phone types and literacy levels using an autonomous system platform. *Note that the graph shows prototype examples as demonstrated during the community co-design workshops.*



Supplementary Figure 4 – Illustrated draft designs of the lion alert community portal interfaces, showing a) the user registration menu, b) the main menu with core functions: last alert, lion observation report, cattle predation report, lion information, geofence visualization, settings, c) the geofence sub-menu with risk proximities, and d) the lion observation report sub-menu.



Supplementary Figure 5 – Seasonal lion home range (100% MCP) overlap with geofenced community areas during the pilot study. *Panel a) shows the early dry season 2016, panel b) the late dry season 2016, panel c) the wet season 2017, panel d) the early dry season 2017, panel e) the late dry season 2017 and panel f) the wet season 2018.*



Supplementary Figure 6 – Relationship between centroid distance of seasonal lion home ranges (100% MCPs) to the nearest settlement and percentage home range overlap with the community geofence area. *Data represent 25 seasonal lion home ranges (18 female, 7 male) from nine adults recorded between May 2016 and May 2018. Home range overlap with geofenced areas decreased significantly with increasing centroid distance from the nearest village.*