Appendix 1. A ground-based assessment of Fresh and Recent (Class 1 & 2) elephant carcasses in northern Botswana



A ground-based assessment of Fresh and Recent (Class 1 & 2) elephant carcasses in northern Botswana

October - December 2018

Introduction

On the 7th July 2018, Elephants Without Borders (EWB) started the 2018 wildlife aerial survey, in full partnership with the Government of Botswana (GoB) through the Department of Wildlife and National Parks (DWNP). A member of the DWNP, with extensive survey experience, actively participated in the survey as a rear seat observer counting wildlife. The 2018 survey complements successful cooperation between the two groups on wildlife research, dating back to the 2010 and 2014 aerial surveys.

During the 2018 survey, an unusually high number of elephant carcasses were seen by the crew and many of these carcasses showed obvious signs of poaching. Following standard practice at EWB, carcasses of concern were immediately reported to the GoB, in a series of reports detailing GPS locations and photos. Prior to EWB raising the alarm, local media reports had suggested an increase in wildlife poaching in Botswana.

In order to provide incontrovertible evidence, EWB chartered a helicopter (R-44), which provided the team with the ability to land at each carcass and conduct ground-based assessments of 'Fresh' and 'Recent' elephant carcasses, to determine the cause of death. The team investigated Fresh and Recent elephant carcasses of concern, which had been seen while flying the low-level wildlife aerial survey. The carcasses visited on the ground are those which our observers suspected were killed by poachers. The elephant carcasses in this report were recorded and reported during the timeframe of the aerial survey (July – October 2018).

This appendix presents the results of the carcass field assessment.



Ground assessment of poached elephant carcasses

Field assessment of poached elephant carcasses

During the 62 days of flying the survey, the team recorded 1,677 elephant carcasses of which **128** were Fresh/Recent elephant carcasses. **104 (81%)** of Fresh/Recent carcasses were of concern and suspected of being poached. Additionally, another **24** Fresh/Recent carcasses were observed off-transect and were also suspected of being poached, for a total of **128** carcasses of concern. EWB chartered a R-44 helicopter which provided the team with the ability to land and examine a sample of **33** fresh and recent carcasses that observers suspected were killed by poachers. An additional **39** fresh and recent carcasses were surveyed and photographed from low elevation with the helicopter.

From the ground-based inspections, we conclude after carefully investigating the carcasses, and finding evidence of suspicious human activity at the scenes, that **all 33** elephants sampled were killed for their tusks i.e. **poached**. Low-elevation aerial photos of the **39 additional** carcasses showed evidence of poaching. Thus, **100**% of the **72** carcasses suspected of being poached and surveyed on the ground or photographed from low elevation were confirmed as poached. Of the **72** carcasses confirmed poached, **48** were part of the **128** observed during the aerial survey, resulting in a total of **38% of fresh and recent carcasses observed on the survey confirmed poached**. Photos of a further **22** carcasses taken during the aerial survey are suspected of being poached, bringing the total to **55%** confirmed or suspected with photographs.

This report summarizes **94** ground-verified or aerially photographed elephant carcasses observed throughout the survey area (103,662 km²) - a wide geographic range - and not confined to within an 'animal sanctuary'. Our ground assessments verify that the observers were correct in their initial observations, carcass age classifications and we conclude that the elephants were killed by poachers.

All carcasses in this photographic report are aged as Fresh or Recent (Category 1 & 2) using the internationally accepted standard as established by the Monitoring of Illegal Killing of Elephants (MIKE) Programme. At each carcass a DNA skin sample was taken.

Each carcass slide provides the following information: Elephant Carcass ID plate, aerial image, photo of a severed skull, body and Carcass ID Card with GPS location, date, carcass age category, suspected cause for death. All photo's metadata information include time, date, most occur with GPS locations and were matched with survey observations.

Carcass Age

Category 1





Category 2

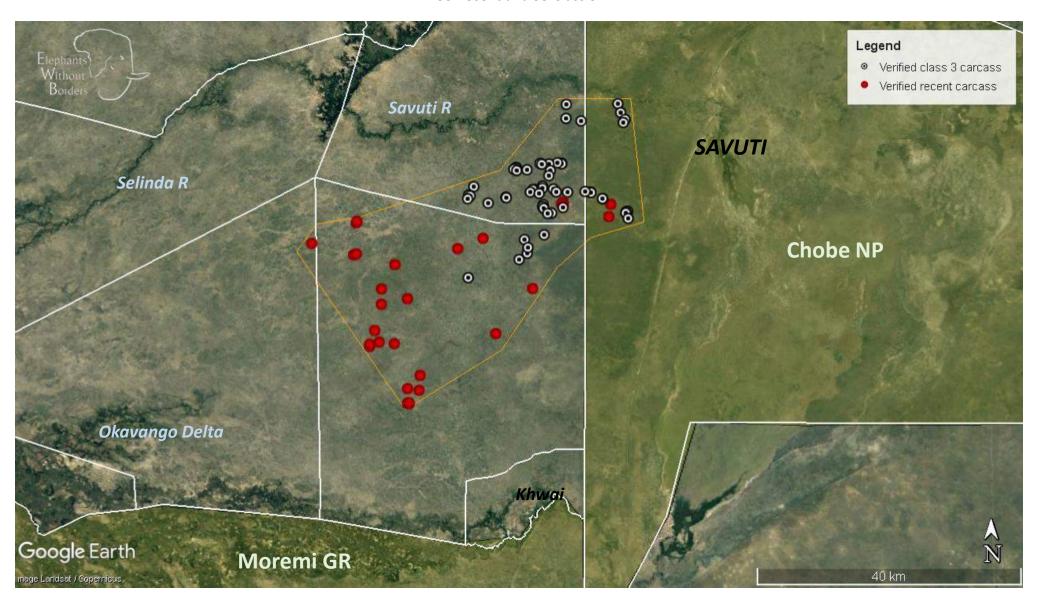




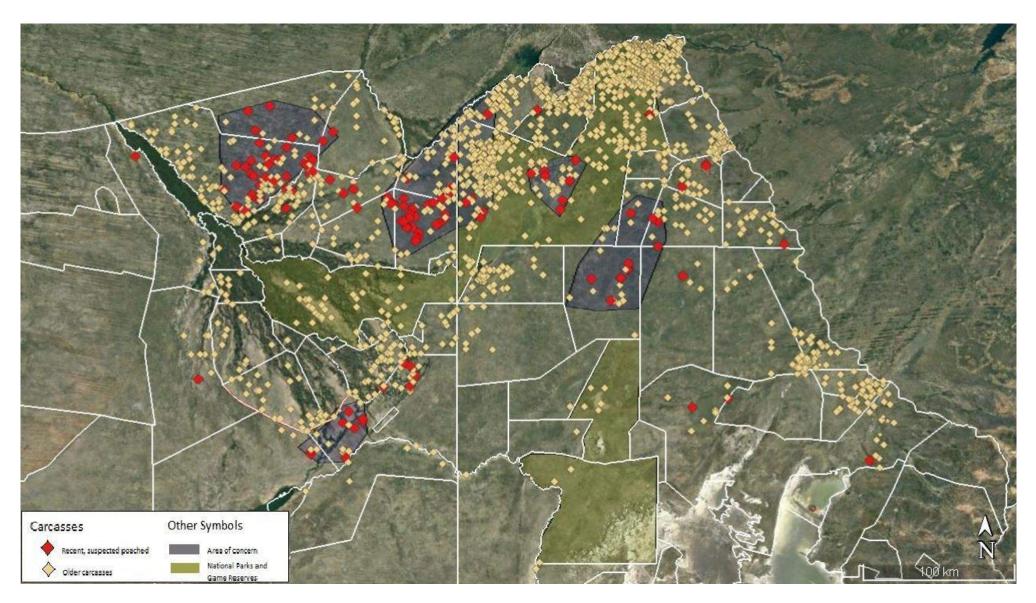
Elephant poaching "hotspot"

88 poached elephants in a ~1000 km² area. 85 (96%) of the carcasses were ground-verified.

33 Recent and 55 Class 3.



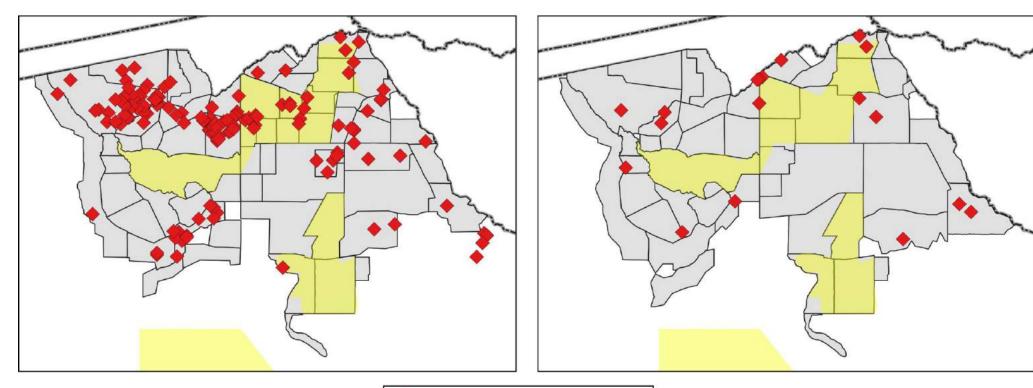
Location of suspected poached (red) and natural (yellow) elephant carcasses seen throughout the survey



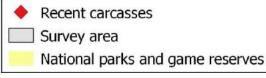
Distribution and number of 'Recent' (Class 1 & 2) elephant carcasses seen on 2018 and 2014 aerial surveys

2018

2014



2018: 133 Recent carcasses (104 poached and 29 natural mortality), 41 (31%) were Class 1. (Fresh).



2014: 18 Recent carcasses (0 poached and 18 natural mortality).

GoB/BDF, EWB and Media verification exercise

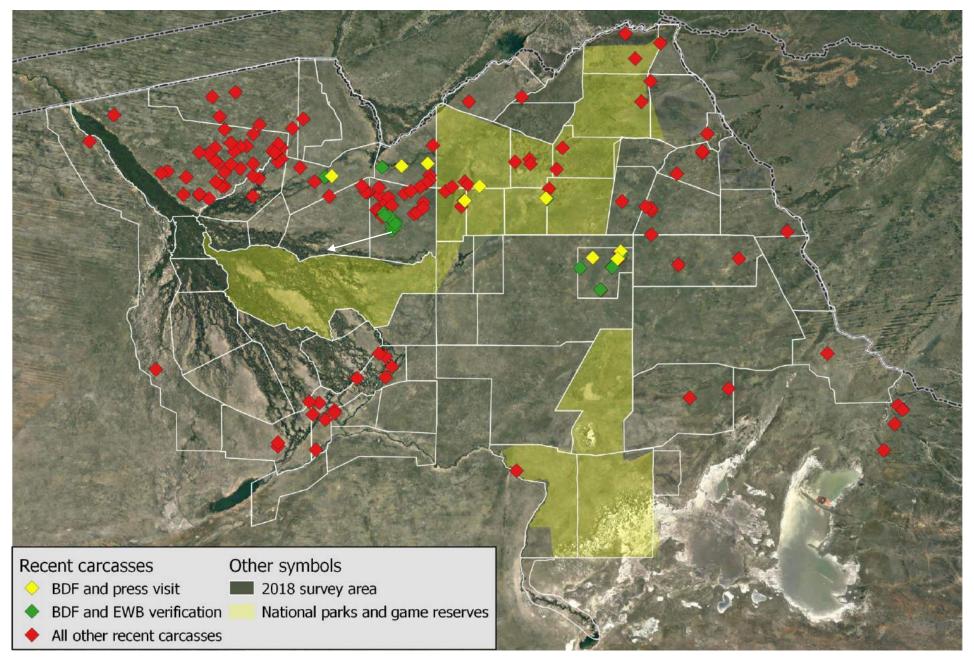
BDF & EWB Joint Verification Exercise

On 6 and 7 Sept., a GoB team led by Botswana Defence Force anti-poaching coordinator Brigadier Barwabatsile, was assembled to verify a sample of the poached carcasses seen after 201 hrs of flying on the survey. It was impossible to verify all 87 carcasses in two days, the time frame which GoB officials were given before reporting back to their superiors. Over the two days, the GoB team - primarily comprising of BDF personnel - and Dr. Chase, visited 17 carcasses - all 17 - i.e. 100 % of the carcasses visited by the joint team were **confirmed as poached**. Of the 17 carcasses visited, nine of the carcasses were inspected on the ground and eight carcasses were observed from the air, as the four large helicopters were unable to land to conduct ground assessments. In the poaching hotspot we visited just 8 carcasses.

One additional carcass that appeared to have died of natural causes was seen by officials while the exercise ensued. The team landed and collected the tusks. This carcass was not recorded by EWB on its survey. Two other carcasses in this report were also confirmed poached by GoB, totaling 19 verified by GoB. Dr Chase showed the GoB a **poachers camp** in NG42 during the carcass verification exercise.

In the subsequent pages, elephant carcasses visited during this joint verification exercise are listed as "MC/GoB verified."

GoB/BDF, EWB and Media verification exercise



Poached vs HEC/Retaliation Killing vs Natural Mortality

Poached

HEC/Retaliation

Natural death









Remote locations in WMA
Obvious signs of poaching and not
natural death ie anthrax



Often near human settlements Meat butchered by Villages. Any Carcasses seen near Villages were Presumed to be killed by HEC



Tusks intact Skull bones & cranium complete

Low-Level Aerial Survey Observations of Natural Elephant Mortality









Low-Level Aerial Survey Observations of Poached Elephants

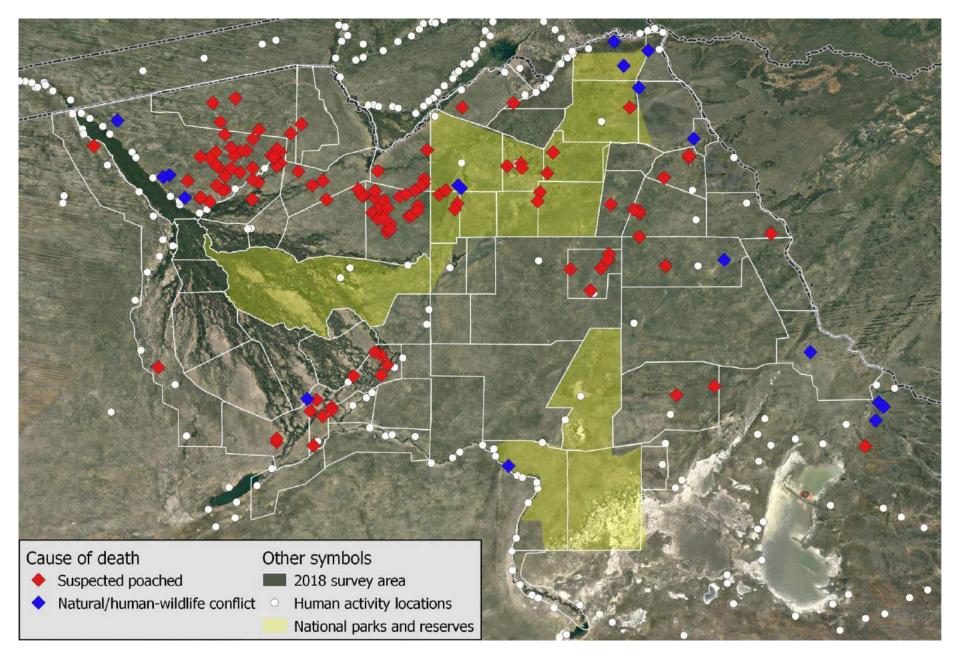








Location of poached and natural mortality fresh and resent elephant carcasses



Rate of carcass decomposition

Poached on: ~17 July 2018



53 days later: 07 Sept. 18











Parket in the second of the se

Carcass ID: Carcass ID: NG1501 (WP 67/Cat.01)

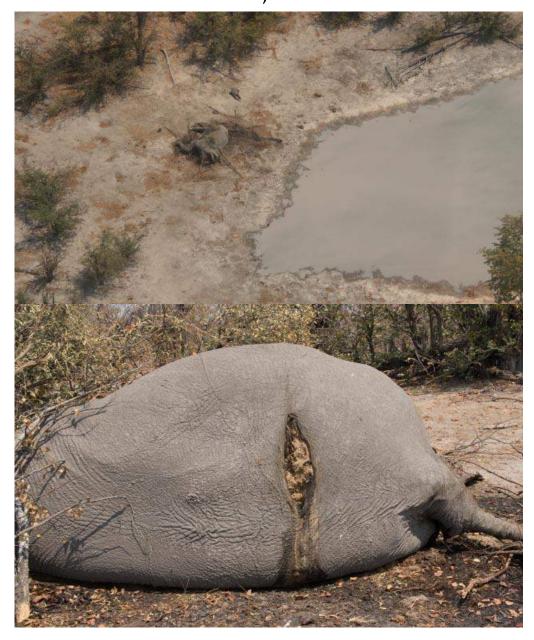
BDF/DWNP initially stated they had removed the Tusks from this poached elephant. While Dr Chase knew the time of death, GoB insisted the carcass was 9 months old on verification mission. *Voice recording 008 (07 Sept.18 - 07:06).*

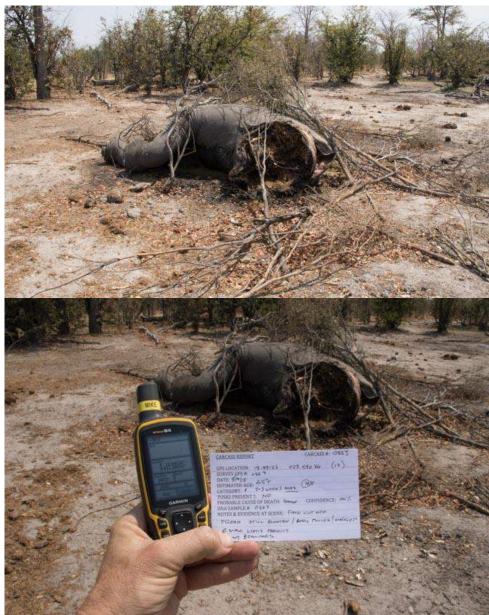
33 recent poached carcasses ground verified

Carcass ID: WP192, card EC0873, NG18 (MC/GoB verified 6 Sep18, Fig.5a)

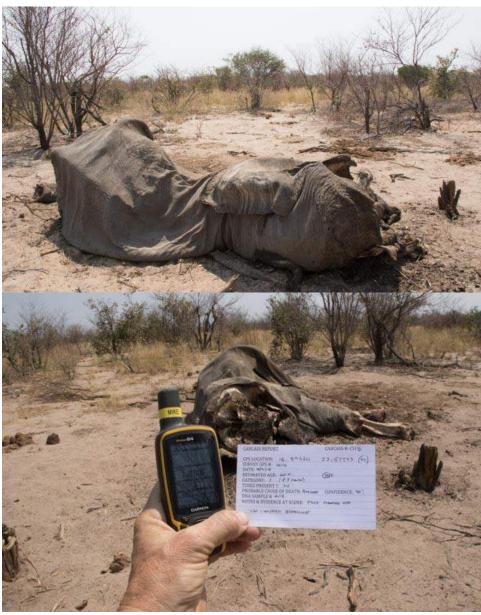






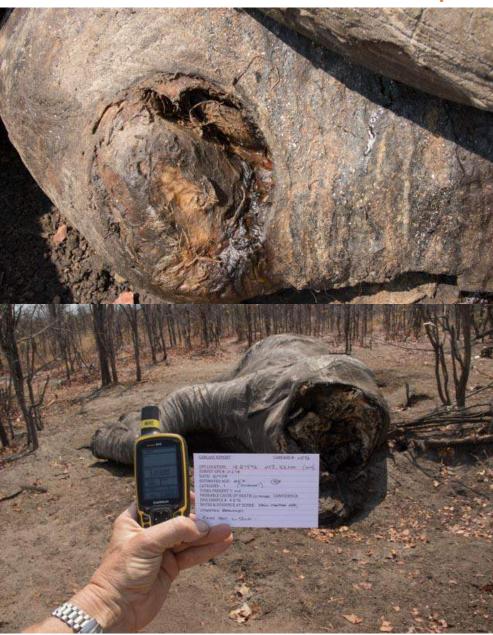




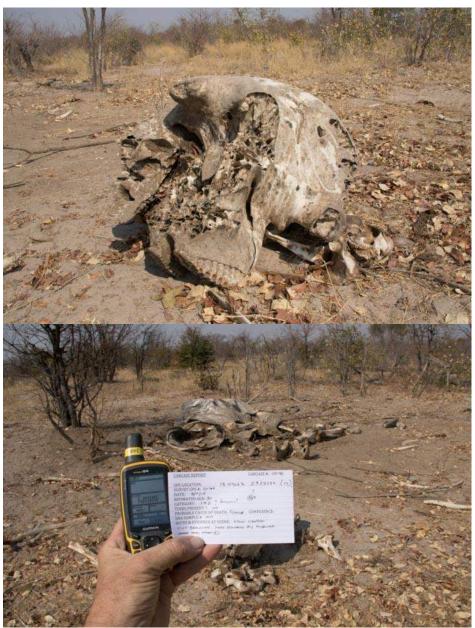




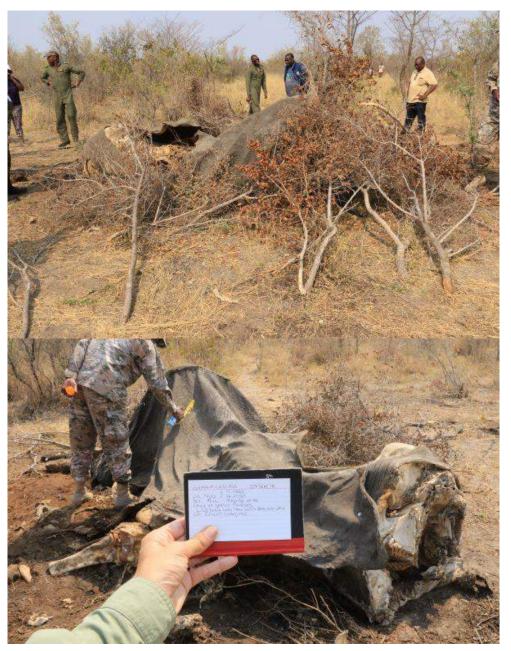








Carcass ID: 01b, NG42 (MC/GoB verified 7 Sep18, Fig.1b)

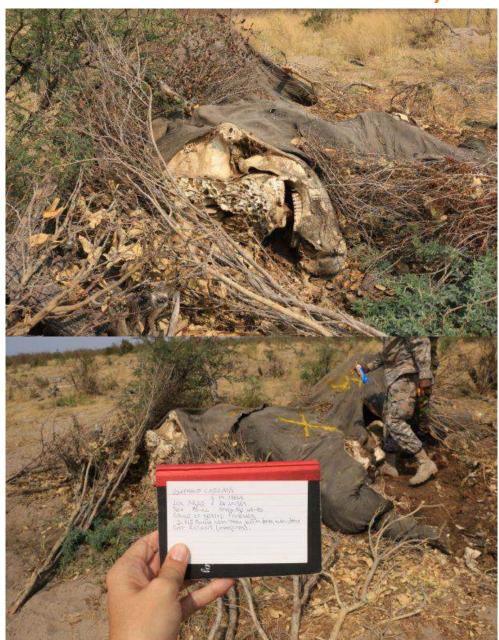










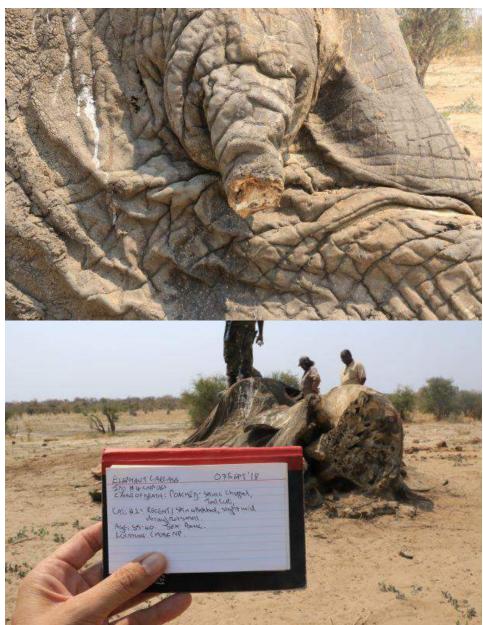




Poachers Camp (NG 42) found on verification mission (MC/GoB Verified, 7 Sep2018, Fig.5b)











Poached on: 17 July 2018







Poached Elephant Report Linyanti NG15

20 July 2018

Compiled by Kai Collins, Honorary Wildlife Officer DWNP ID NO: WP/PER 4/3 /I XI(65)

On the morning of the 20th July one of the guides from Savuti Camp saw vultures and approached and identified a poached elephant carcass with the face cut off, the trunk lying need to the head, the tusks missing and cut marks in the spine indicating it did not die from the shots and they severed its spike to prevent it from moving while they hacked out the tusks. Initially we thought they had seen an axe but they had said that an axe was used on the back of the animal.

The carcass looked to be about 2-3 days old so probably poached on the 17^{th} July 2018. It is about 50m from one of the game drive roads on the southern bank of the Savuti channel.

The tusks were collected at GPS coordinate 18°36'53.24"S and 23°35'20.78"E

07 September 2018







53

Botswana Elephant Poaching Report

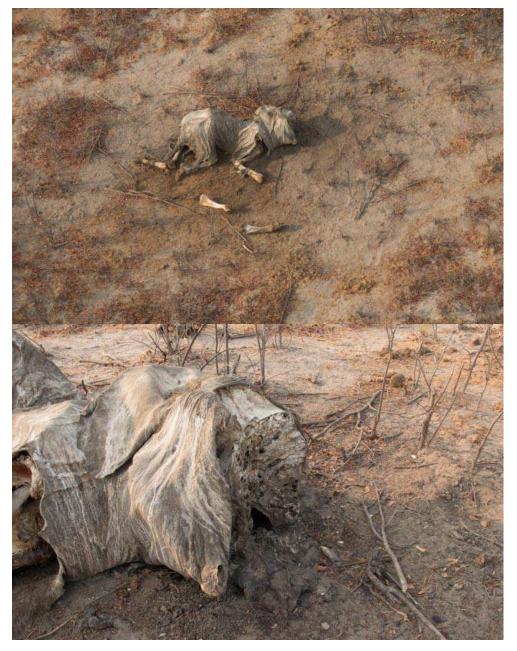
01 August 2018

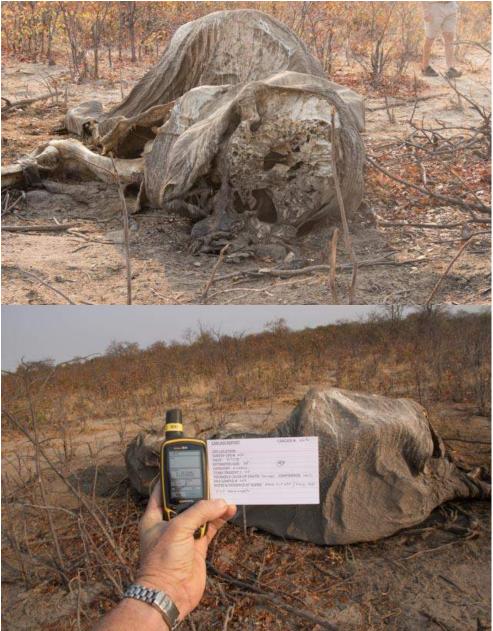
Elephant Poaching Incident Report Reference: 53 Compiled by: Michael Chase

On the 05 July, Elephants Without Borders and the Department of Wildlife and National Parks started the 2018 wildlife aerial census of northern Botswana.

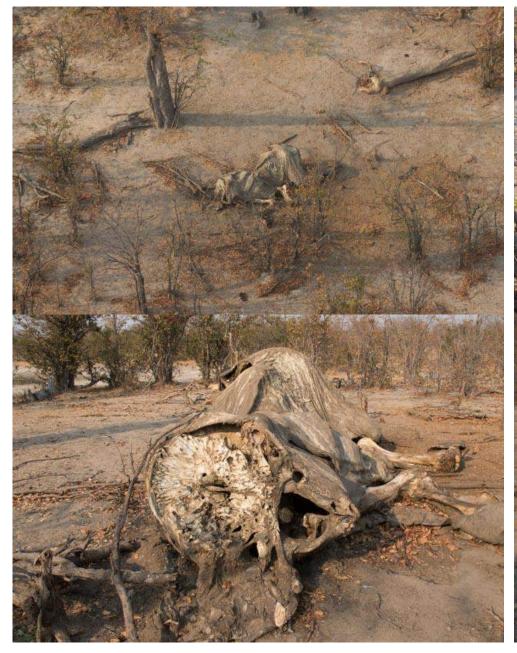
Today - 01 August - we recorded a fresh, poached elephant carcass in the heart of NG-16; we suspect this large elephant bull was killed under the full moon two days ago.

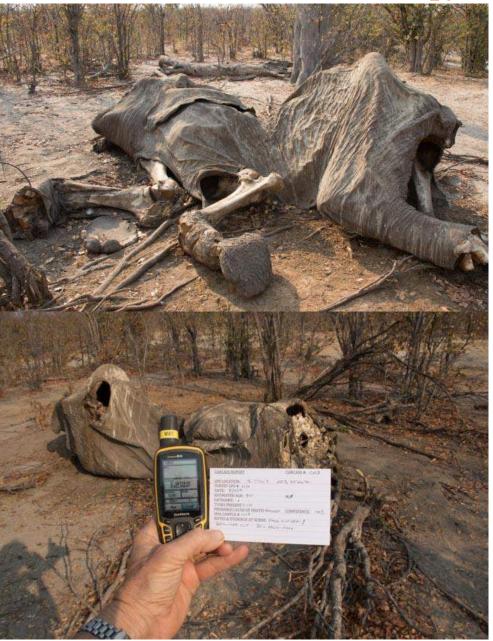






Carcass ID: card EC003, NG18



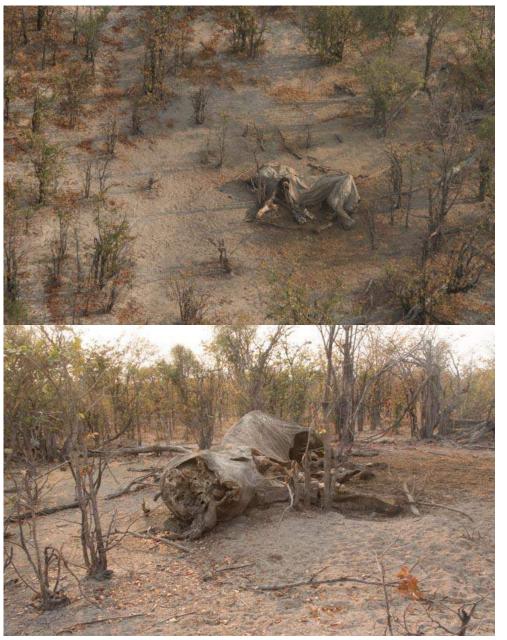


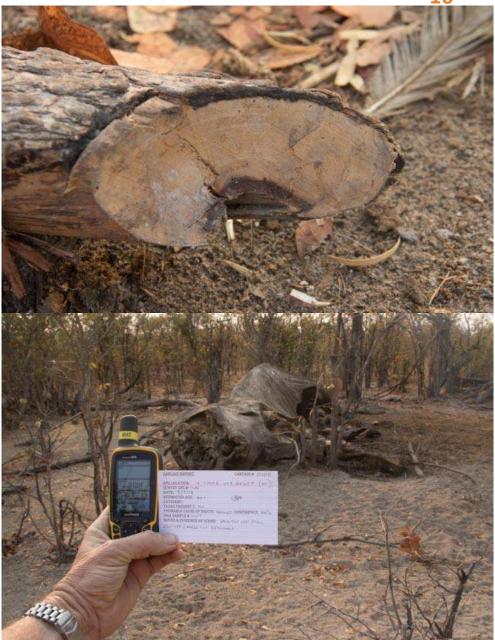
Carcass ID: WP127, card EC096, NG18 & 19





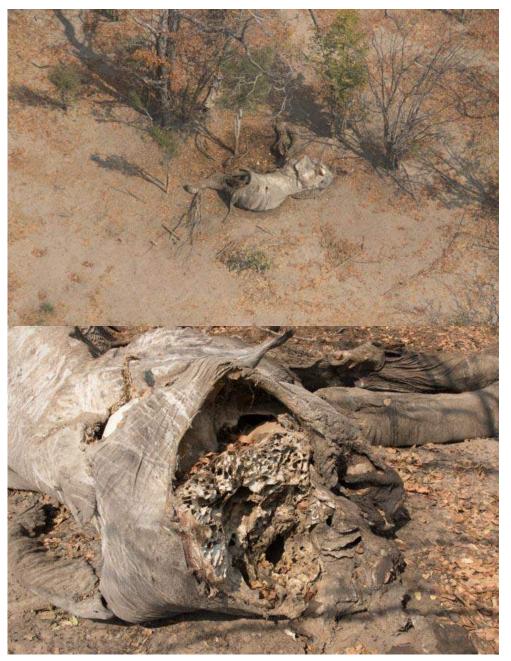
Carcass ID: WP130, card EC0106, NG18 & 19

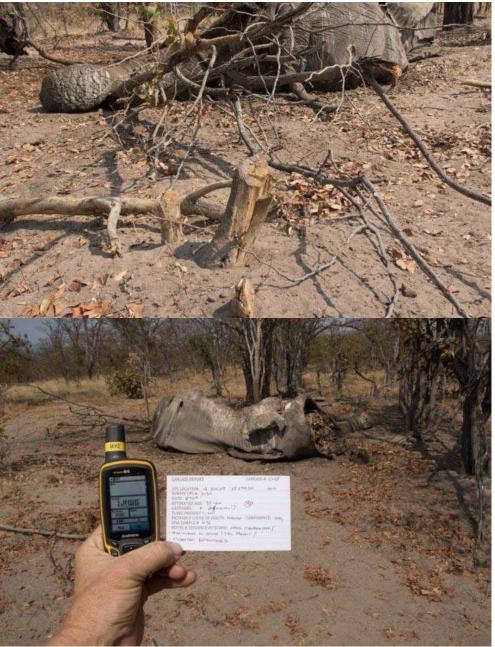


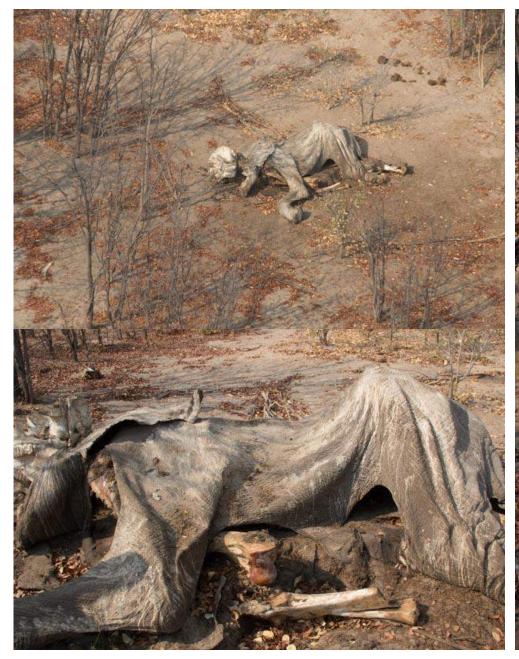










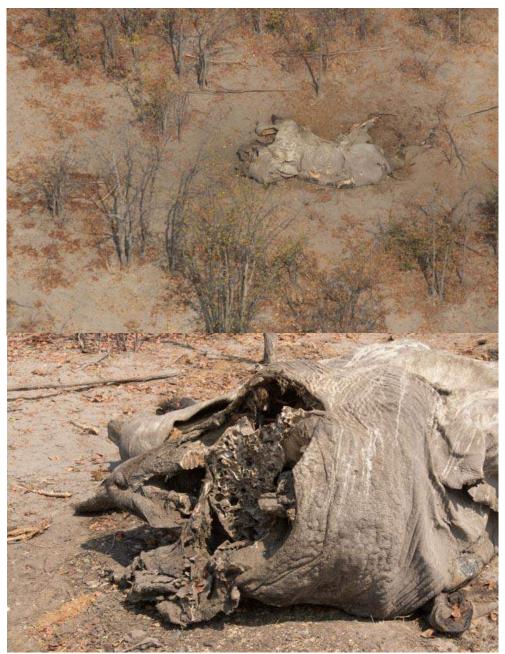










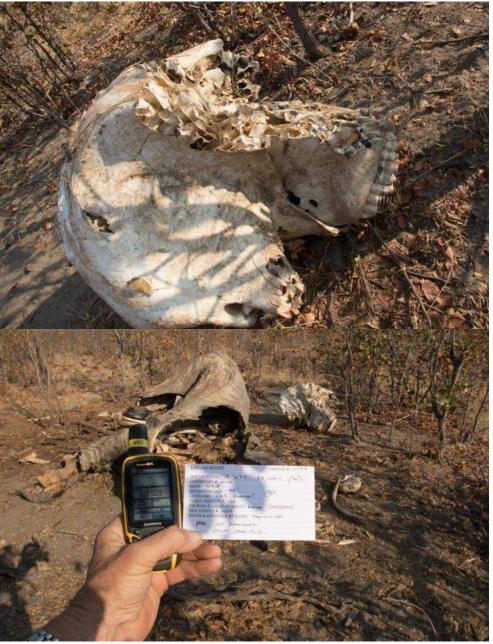




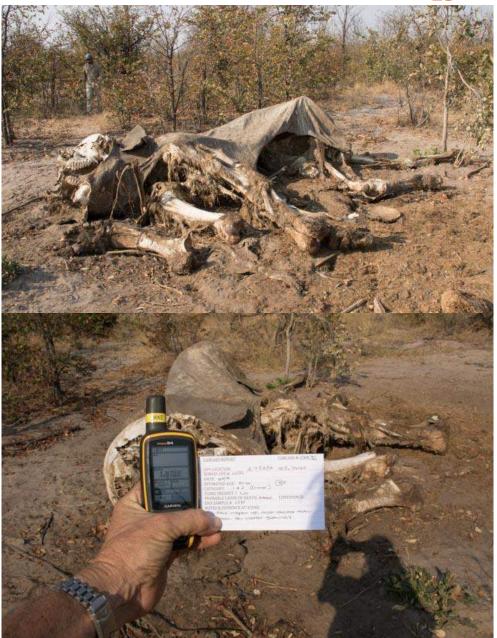




















Carcass ID: MH107, NG20 (2 carcasses together)

28 & 29

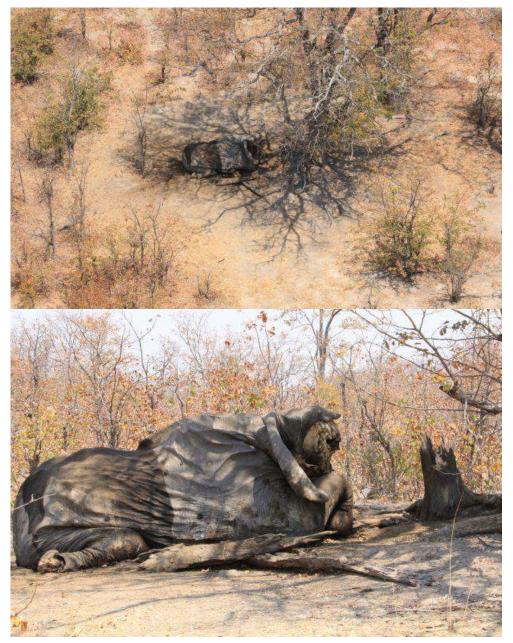










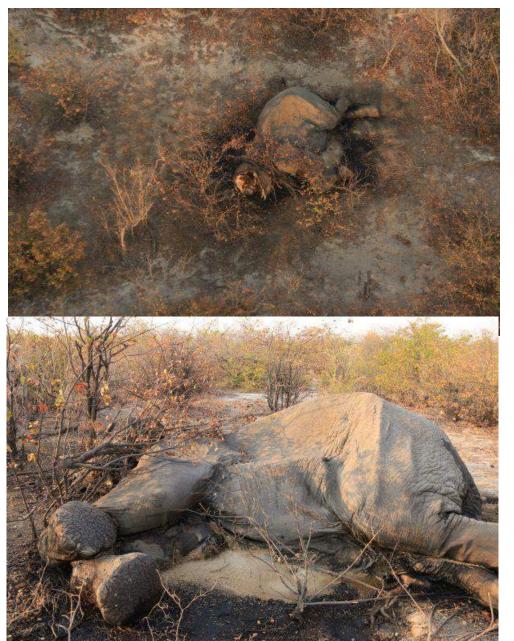


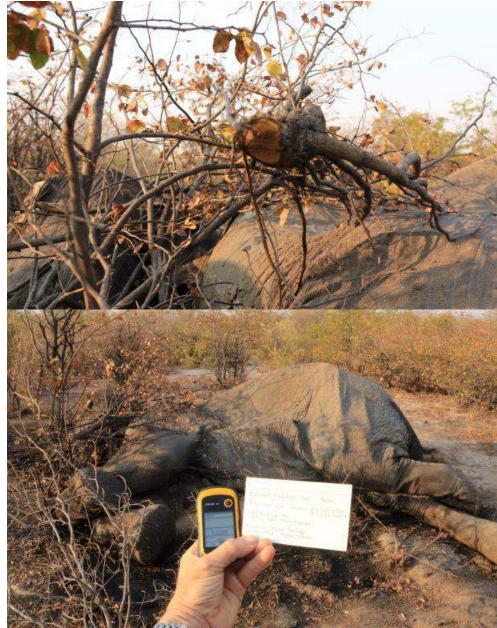






Carcass ID: Maun X1 (GoB verified)





17.10.2018 Selinda

Motswiri









39 recent poached carcasses aerial verified

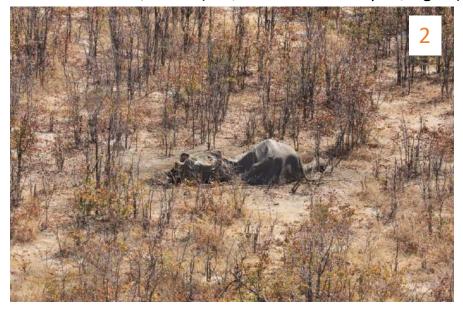
Carcass ID: 02a, NG18 (MC/GoB verified 6Sep18, Fig.2a)



Carcass ID: 03a, NG18 (MC/GoB verified 6Sep18, Fig.3a)



Carcass ID: 04a, NG18 (MC/GoB verified 6Sep18, Fig.4a)



Carcass ID: WP13, MaunX2



Carcass ID: WP130, MaunX4



Carcass ID: WP74, MaunX5



Carcass ID: WP294, MaunX6



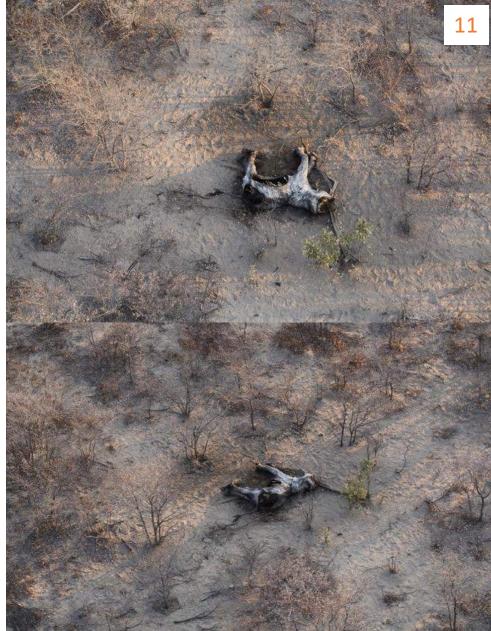
Carcass ID: WP295, MaunX7 (2 carcasses together)



Carcass ID: AS 1, NG11



Carcass ID: AS 2, NG11



Carcass ID: WP2, NG11



Carcass ID: WP43, NG11



Carcass ID: NG15A, NG15, 0804am



Carcass ID: NG15B, NG15



Carcass ID: NG15C, NG15



Carcass ID: NG15D, NG15



Carcass ID: WP27, NG20



Carcass ID: WP124, NG18 & 19



Carcass ID: WP6, NG42



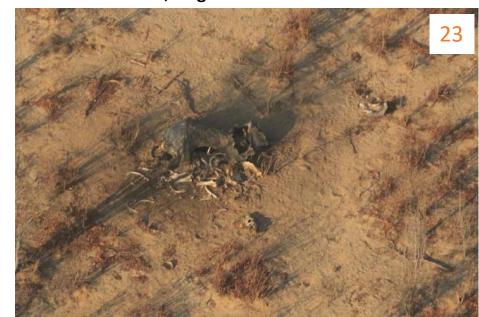
Carcass ID: WP9, NG42



Carcass ID: WP10, NG42



Carcass ID: WP53, Nogatsaa CH 7 & 8



Carcass ID: WP230, CH 11



Carcass ID: WP154, CH 13



Carcass ID: MH109, NG18/20



Carcass ID: WP28, Nogatsaa CH 7 & 8



Carcass ID: WP158, Nata





Carcass ID: 04b, NG42 (MC/GoB Verified, 7Sep2018, Fig.6b)





Carcass ID: WP215, CH12



Carcass ID: WP42, CT 1 & 2



Carcass ID: WP40, Gweta



Carcass ID: WP294, Gweta



Carcass ID: WP60, NG11



Carcass ID: WP198, CH12



Carcass ID: WP51, NG15



Carcass ID: WP242, NG18 & 19



"We have recovered over a ton of ivory from Botswana in six months" (Confidential source)







Carcass ID: WP93, CH 4 & 5



Carcass ID: WP230, NG18 & 19



The following 22 elephant carcasses, were suspected of being poached showing signs of poaching and that were photographed and seen on the survey. Due to logistical and financial constraints we were unable to ground verify these carcasses.

Carcass ID: WP30, South Savuti



Carcass ID: WP118, Savuti North



Carcass ID: WP87, Savuti North



Carcass ID: WP46, Nogatsaa



Carcass ID: WP219, Nogatsaa CH 7 & 8



Carcass ID: WP57, 3West Okavango



Carcass ID: WP108, NG11



Carcass ID: WP75, NG13



Carcass ID: WP113, NG13



Carcass ID: WP12, NG12



Left: carcass farther from plane, definitely fresh Class 1, could be 2 carcasses (difficult to tell from photo)
Below: fresh carcass closer to plane, fresh, no tusks

Carcass ID: WP83, NG11 (2 carcasses close together)



Carcass ID: WP81, NG15



Carcass ID: WP62, NG11



Carcass ID: WP91, Maun



Carcass ID: WP343, Maun



Carcass ID: WP20, South Savuti



Carcass ID: WP105, NG15



Carcass ID: WP54, NG15



Carcass ID: WP191, NG18 & 19



Nine Rhinos Poached in Botswana in 2018











Rhinos poached in Botswana 2018

- 2 Limpopo-Lipadi (Tuli)
- 4 Tholo Ranch, &
- 1 Moremi GR, Mombo Chiefs Island
- 2 Okavango Delta
- TOTAL: Nine

Appendix 2. A ground-based assessment of Old (Class 3) elephant carcasses in northern Botswana



A Field Assessment of Old (Class 3) Elephant Carcasses in northern Botswana

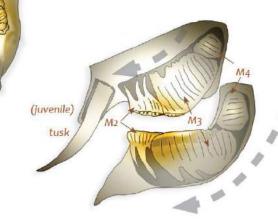
30 October 2018

A three day (26 - 28 Oct. 2018) field assessment of elephant carcasses, categorized as Class 3 (IUCN, MIKE CITES) was undertaken by Michael Chase.

The aim of this ground-based assessment was to determine the cause of death for elephants. A Robinson R44 helicopter was chartered to fly and search (10 hrs) for carcasses, using GPS locations of elephant carcasses seen on the 2018 Aerial Survey. The team consisted of a front seat data recorder and two (left and right) rear seat observers who searched for Age Class 3 Carcasses. When a carcass was located, the pilot was instructed to land, so the team could walk to the location to conduct their assessments.

At each carcass inspection the following information was recorded:

- 1. Cause and means of death natural, conflict or poached
- 2. Carcass covered in branches, or human presence/involvement
- 3. GPS location
- 4. Photo of the scene, carcass, and evidence of human activity
- 5. Measurements were taken of the skull
- 6. Skull status, intact or chopped
- 7. Sex and age of the elephant following lower jaw molar eruption
- 8. Tusk status, present or absent. If tusks present, measurements taken
- 9. Frontal and side photos of the lower jaw, and skull
- 10. Each carcasses marked with a unique number, and
- 11. General notes, and distinguishing characteristics.



Adapted from Laws 1969, & Jackmann 1984 Imagery: Northern Rangelands Trust

Methods

DNA skin/hair sample collected



Ground based assessment of carcasses



Age and sex determination



Each carcass numbered & marked



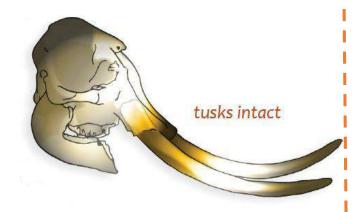
Human intervention at scene



Skull measurements



Tusk Status

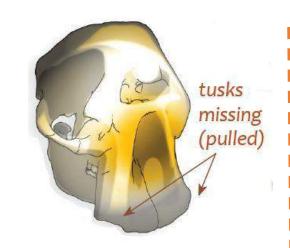




Head bone, skull & tusks intact

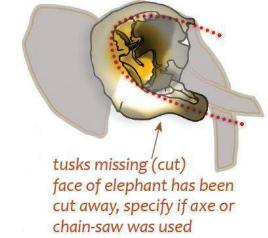
– natural death

All carcasses with tusks were reported to the BDF





Head bone, skull and tusk sockets intact
– natural death (Tusks recovered)





Head bone, skull & tusk sockets chopped Tusks missing – poached

Adapted from Laws 1969, & Jackmann 1984 Imagery: Northern Rangelands Trust

Carcass Age

Class 1 = 'FRESH': (< 3 wks old)

- Rounded / bloated appearance
- Pool of blood/body fluids (rot patch)
- · Strong Acrid smell
- Meat still left on bones
- Signs of vultures or predators



- No blood or fluid seen dry or moist
- Less meat on bones not quite white
- Light acrid smell
- Meat still left on bones
- Bare ground around carcass



- No blood or fluid seen dry
- · Primarily bones, clumped and white
- No acrid smell
- Little dry skin and meat
- Bare ground around carcass



Head bone cut away by poachers



Head bone and tusks in tact - natural



Sternal, skull & bushes cut - poached

CITES & MIKE, and IUCN AfESG

Deliberate Human Involvement e.g. Poaching

Aerial view - suspicious elephant carcass



Bull elephant poached in a pan



Additional Signs of poaching









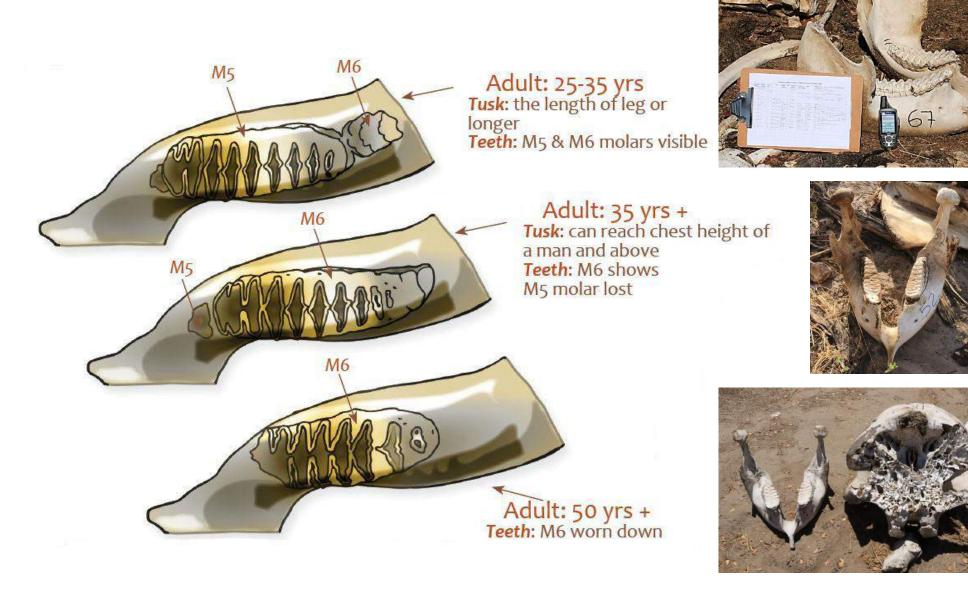
Ground examination - skull chopped by axe



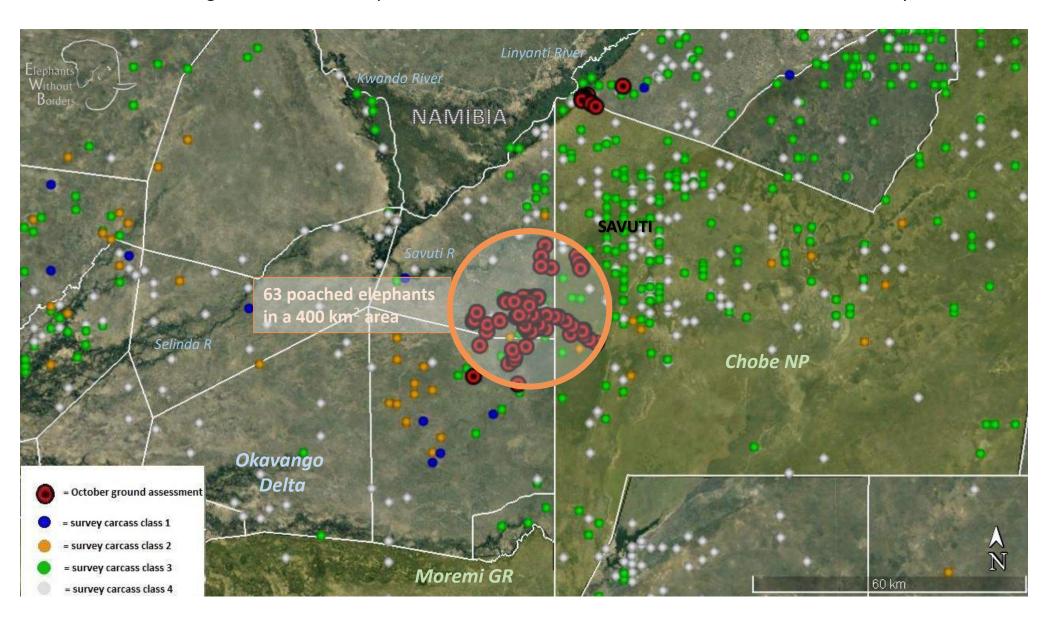
Carcass covered with branches



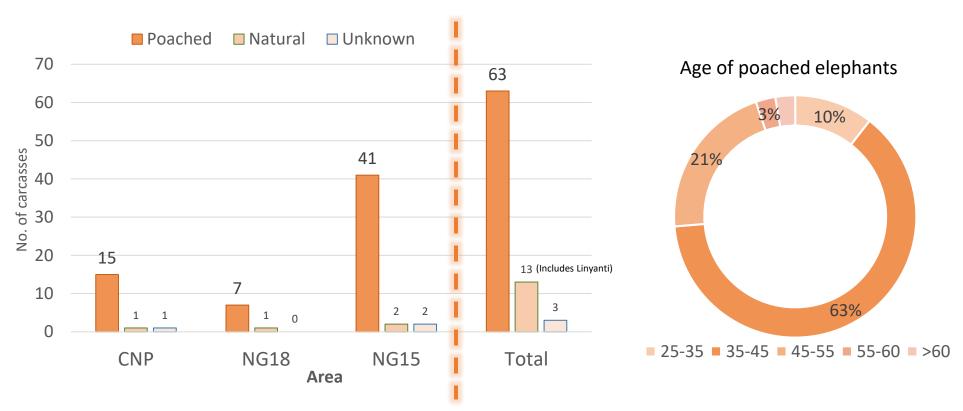
Sex and Age of Elephant



Location of ground-assessed elephant carcasses relative to those seen on the 2018 aerial survey



Results



- Of the 79 carcasses visited on the verification exercise we were able to access 66 for detailed examination from the ground.
- 63 of the 79 carcasses were determined as being poached, showing evidence of human intervention e.g. cut bushes and skulls.
- All poached elephants were bulls, presumably carrying heavy ivory. Three carcasses (35,40,41) had a GoB red paint marker.
- Most (63%) poached elephants, that we were able to age from their lower jaws were aged between 35-45.
- 63 poached elephants occurred within an area of ~400 km², often near seasonal pans (waterholes).
- Poachers typically killed two or three elephants in close proximity (av. 600 m) to each other, before moving onto the next site.
- The age of the carcasses {Fresh (Cat2. n=8) to Old (Cat.3, >1yr)}, suggests poachers have been active in the area for two years.
- In 2016, EWB documented 41 poached carcasses along the Linyanti floodplains.
- Elephants are now being poached well within Botswana and in proximity to lodges and tourist routes.

Discussion

The Poachers Strategy

Upon inspection of the carcasses and plotting their locations, there is a clear pattern the poachers are using to kill elephants. The poachers are given an ivory quota, which determines the size of the poaching group (porters). They will find an area that is remote, with seasonal pans (waterholes) which are frequented by large elephant bulls. These areas are typically not used by safari operators, and are off the flight path of many plane charter companies, who typically fly at high altitude.

These 'bull areas' are near seasonally rain filled pans, which the bulls depend on for drinking water. The poachers will make their camp near these pans, where they will watch and wait for a large bull. When the bulls come down to drink they shoot the elephant with the largest tusks. 77 % of bulls killed, died on the edge of a pan or within 1.5 km of these waterholes. The Poachers appear to be using a heavy caliber rifle (.375 or .458), the marksman is well experienced in killing elephants. Most elephants died from bullet wounds to the head (brain) dying on their knees (sternal) or lungs (bullet hole in ribs). Once the elephant is shot, the group of poachers (range 8-16) act quickly to conceal the carcass with bushes. If the elephant is wounded, one person in the group, - the 'axe-man' - is tasked with severing the elephant's spinal cord with an axe, rendering it paralyzed and defenseless. A person can then proceed to remove the tusks from the elephant's skull with an axe, presumably while it is still alive. This is done for three reasons - it renders the elephant defenseless, as it cannot use its trunk to fend off poachers, to save ammunition and avoid detection by firing off another gun shot. The poachers remove the tusks quickly and professionally from the top of the skull with a very sharp axe, often with one swing the 'axe-man' will cut right through the upper jaw bone.

The removal process implies that they do not want to damage the tusks. The tusks appear to be removed with the bone sockets, which are then later neatly and cleanly cut from the socket bone without damaging the tusks with axe markings. The poachers are given a specific quota expressed in weight of ivory from the 'syndicate boss', and this will determine the size of the poaching party, which comprises of several people assigned with various tasks. It is suspected the marksman is the group leader, and he will be accompanied by, several porters who carry the tusks. The group stay in an area until they have filled their quota, and if not detected return to the same area months later. Repeated killing in a region is apparent as evidenced by the different age classes of carcasses; ranging from fresh, recent and old.

Natural

Carcass 001 Carcass 002 Carcass 003





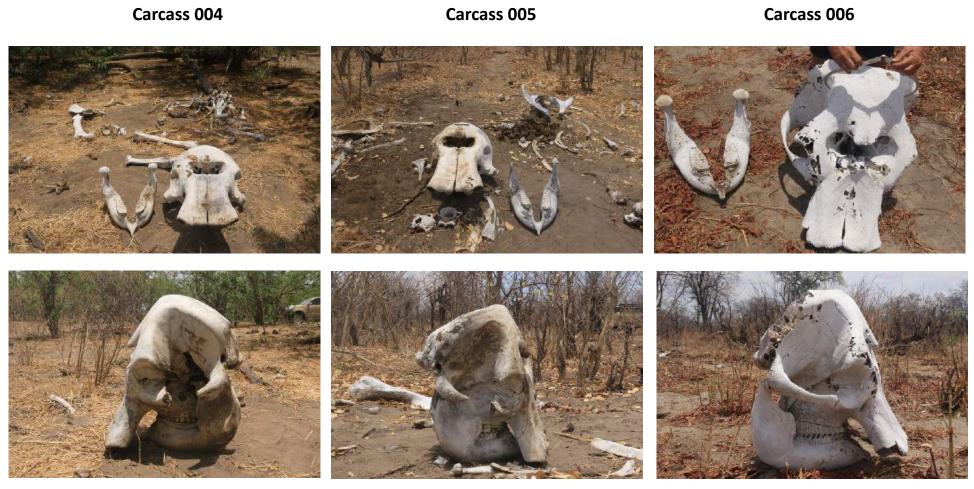






Natural mortality – skull bone, cranium intact

Natural



Natural mortality – skull bone, cranium intact

Carcass 007 Poached 01

















Carcass 009 Poached 03









Carcass 010 Poached 04



Carcass 011 Poached 05

























Carcass 014 Poached 09





































Poached 14, 15 & 16

Carcass 021







Carcass 022





































Carcass 028 Poached 22



Carcass 029 Poached 23



Carcass 030

Natural

Carcass 031

Poached 24



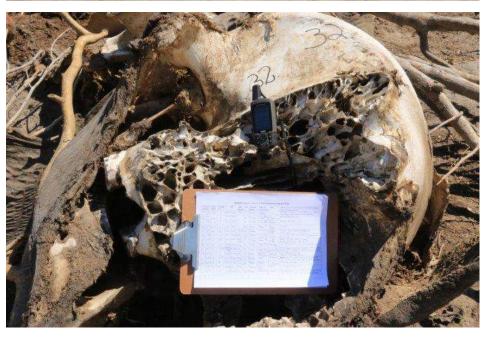




Carcass 032 Poached 25

























Carcass 035

Carcass 037 Poached 28 & 29







Carcass 036 Natural

















Carcass 039 Carcass 051













Carcass 042 Poached 35









Unknown









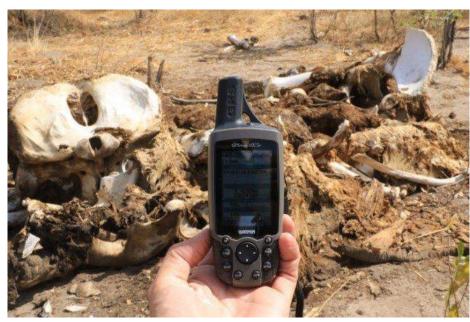
Poached 36

Carcass 044









Carcass 045 Poached 37









Carcass 046 Poached 38









Poached 39

Carcass 047

































Carcass 052 Poached 43

















Poached 45

Carcass 054









Poached 46

Carcass 055









Carcass 059 Poached 47 & 48 Carcass 058





















Carcass 063 Poached 52









Carcass 064 Poached 53

























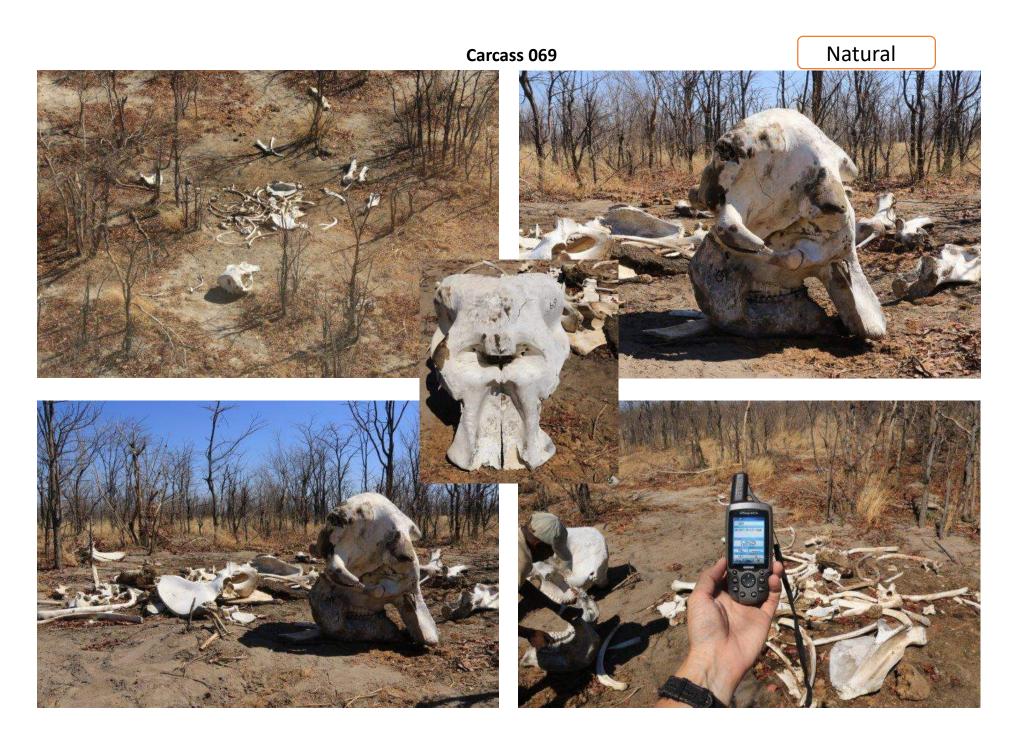












Carcass 070



Carcass 071

Poached 58 & 59





















Carcass 074 Natural







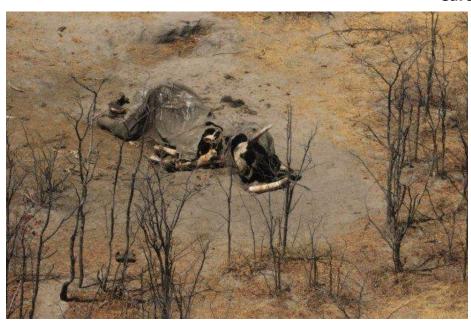






Natural mortality – skull bone, cranium intact

Carcass 075 Natural









Poached 62

Carcass 078

Carcass 076









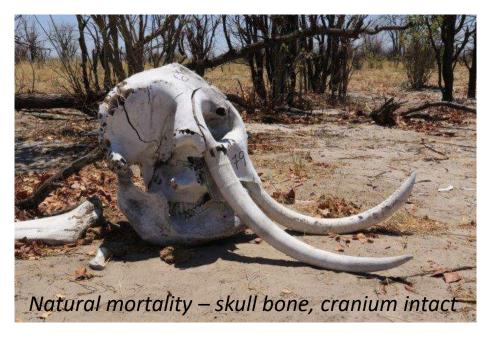




Carcass 079 Natural









Carcass 080 Natural









