



FINAL Version: Annual Research Report 2021

31 December 2021

Status and distribution of desert-dwelling elephants in the Hoarusib, Hoanib, and Uniab River drainages, Kunene Region, Namibia

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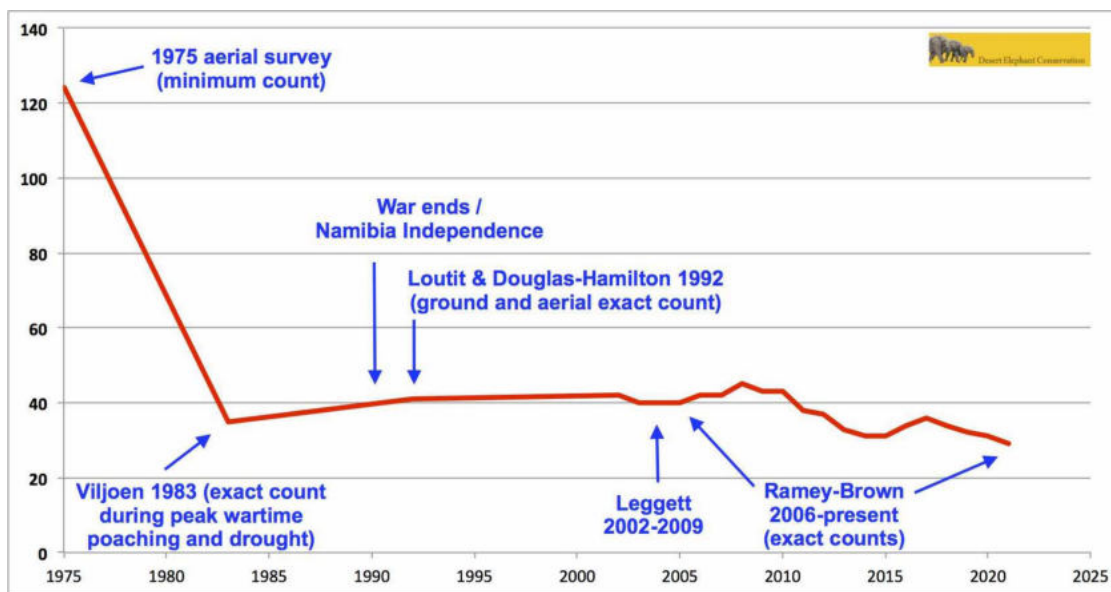


Figure 1. Elephant trends in the Hoarusib and Hoanib subpopulations: 1975-2021

Note: The following data on elephants of the Hoarusib, Hoanib, and Uniab river drainages is based on exact counts of known individuals from our photo ID database.

A) Hoarusib River elephants = 9 total.

The home range and migration routes of these elephants include: Skeleton Coast National Park, and the conservancies of Sesfontein, Puros, Okondjombo, Ombujokanguindi, Otjiu-West, and Ongongo.

Only 9 elephants remain in the Hoarusib River as of 31 December 2021. In 2018 there were 16, in 2019 there were 11 (please refer to our 2019 report for details about mortalities between 2016-2019), and in 2020 a juvenile orphan disappeared (presumed dead). On 11 December 2021 a mature bull (~29 years) was killed by MEFT in retaliation for the death of a local woman at Otjiu-West. Reports were that a woman out collecting firewood encountered the lone elephant in the bush and died of injuries sustained in the encounter. The bull was subsequently shot by MEFT. There are now only 9 elephants remaining in the entire Hoarusib drainage, as follows:

The **Upper Hoarusib Group (=7)** (range: Ongongo, Otjiu-West, and Hoarusib gorge):

3 females breeding age (11, 19, 24 years)(None has yet produced a surviving calf)

1 female juvenile (7 years)

2 male sub-adults (15, 25 years)

1 male breeding-age (~34 years)

The **Lower Hoarusib Bulls (=2)** (range: from the coast into upper Hoarusib gorge):

2 male sub-adults (21, 19 years)

In May/June 2021 the **Upper Hoarusib Group of 7** were in the mountains west of Otjiu-West and were not trackable. Some rainfall in the area had produced grass on the mountainsides and the elephants were foraging up high. By August they had returned to the valley and were observed north of Puros by Allu Jauire of IRDNC. By the end of 2021 they were in the river drainage between Otjiu-West and Ongongo.

This group of seven is made up primarily of young elephants and there is no matriarch leading the group. One of the seven is a breeding age male (~34 years) who may provide some protection and guidance. This **Upper Hoarusib Group of 7** mostly resides in the Ongongo and Otjiu-West area and the gorge above Puros, however they make occasional visits to the gorge below Puros.

In the lower Hoarusib River there is not a single breeding-age female remaining. With the death of the last two adult females WKF-16 (Left Fang/Skewetand) in 2018 (shot), and WKF-7 (Franny) in 2019 (possibly illness), the entire breeding herd is gone, leaving only bulls in this group. All 3 of the **Lower Hoarusib Bulls** were observed near the mouth of the upper gorge north of Puros in May 2021, but one was then implicated in a human death at Otjiu-West in December and was subsequently killed by MEFT.

The orphan four-year-old female (WKF-16/a6) went missing in 2020 and is presumed dead. She was last seen by us in November 2019, and no one in the area has knowledge of exactly when or where she went missing. This is the orphan that accompanied her older brother WKM-9 (currently age 21 years) after their mother died in April 2018 from being shot (slugs were found in the carcass and reported to MEFT). We documented WKF-16/a6 and WKM-9 spending a year and a half together, with the two being inseparable, including at least two long-distance migrations to and from the Hoanib

floodplain. The last observation of WKF-16/a6 was of her alone in the lower Hoarusib River, after flooding in the early 2020 wet season (observation by Allu Jauire).

Of the three breeding-age females in the **Upper Hoarusib Group of 7**, none has produced a living calf. Two of the females had calves that died soon after birth, while the oldest female (24 years) has never had a calf, and we believe she may be sterile. This sub-population is in effect, reproductively extinct. The only practical means by which to reverse this situation will be to capture and translocate several small family groups from nearby (e.g. Kamanjab area) for release along the lower Hoarusib River to augment the reproductive base of the population. We are currently preparing a translocation feasibility study for MEFT's consideration.

B) Hoanib River (west of Sesfontein) = 19 elephants total.

The home range and migration routes of these elephants include: Skeleton Coast National Park, Sesfontein Conservancy, and northern edge of Palmwag Concession Area.

The 19 elephants in the Hoanib sub-population are:

- 7 females of breeding age (11, 15, 17, 21, 22, 26, 34 years)
- 3 female sub-adults (9, 10, 11 years)
- 2 male juveniles (8, 10 years)
- 5 calves (2, 2, 2, 4, 5 years)
- 2 males of breeding-age (29, 36 years)

In the Hoanib River, 19 elephants remain, which is down from 21 elephants at the end of 2019. The oldest matriarch in the population, WKF-3 (Duchess), died in May 2021 of unknown cause, possibly of old age, as she was close to 50 years. We last observed her in poor condition, with her family group, at the East President's borehole on 21 May 2021. On 29 May we observed her family without her, and searched extensively but could not locate her carcass. In July her carcass was found by Allu Jauire between the East President's borehole (Gunamib) and Elephant Song at Dubis.

On 10 July 2021 a male calf age 2.5 years (WKF-23/a2) was found dead of unknown cause near the East President's borehole. We note that in June 2021 we observed the East President's borehole in a state of eutrophication with thick matted algae growth covering half of its surface and a thick layer of degraded, black algae covering the bottom of the drinker pool. The state of this drinker pool raises the question as to whether toxic blue-green algae poisoning, either there or at Dubis, may have played a role in the deaths of WKF-23/a2 and WKF-3, as both died in close proximity to the dirty water.

There was also a calf born to WKF-21 on 25 October 2021 in the Hoanib. This calf was abandoned by the mother and died the next day. It is not known why the mother abandoned the calf, possibly the mother is suffering food-stress and cannot produce enough milk, or possibly there was something wrong with the calf that was not visible.

During the course of our 16-year study, elephants from the upper Hoanib catchment (upstream of Khowarib Schlucht), or from the mountains north of Warmquelle (Otjomatempa area), have not been documented to overlap in range with the Hoanib elephants west of Sesfontein. While there may have been historic movements between these areas, our observations and data indicate that these are now separate subpopulations. The loss of older female and male elephants with long-acquired knowledge of the landscape and migration routes, is likely to have contributed to this

isolation, along with the increase in human presence which may hinder elephant movement. The decline in the number of breeding-aged bulls in the Hoarusib, Hoanib, and Uniab subpopulations is of immediate concern due to the potential for inbreeding.

The two orphaned Hoarusib and Hoanib elephant calves, captured by MEFT and transferred to Okutala Etosha Lodge for captive-rearing by the resident veterinarian, remain in good health. The two are: WKF-7/a7 (Frida) orphaned at two-years of age (now 4 years of age), and WKF-11/a4 (Goliath) orphaned at seven months (now 2 years of age).

C) Uniab River Catchment minimum count = 44 elephants.

This subpopulation primarily inhabits the Palmwag and Etendeka Concession Areas and immediate surroundings during the dry season. The home range and migration routes of these elephants includes: Skeleton Coast National Park, Palmwag Concession, Etendeka Concession, Torra Conservancy, and #Khoadi//Hôas Conservancy.

Since 2019, the Uniab elephants have ranged outside out of the Palmwag concession due to the extreme drought conditions and lack of forage.

The elephants of the Uniab subpopulation comprise two main groups: the **Kawaxab Group** that have left the Palmwag concession area to inhabit the mountains above Etendeka, and the **Achab Group** that have typically been found during the drought in mountains and valleys from Palm south to the Huab River.

In May 2021 we documented 25 individual elephants of the Kawaxab Group in the area of Okavariona Spring, in eastern Etendeka concession, after following up on recent observations by Dr. John Heydinger and the Lion Rangers who were working in the area at the time. Recent rain had fallen in this area and the elephants were browsing atop mesas, on hillsides, and frequenting the three springs of Okavariona, Otjiapa, and Otjatjekupe.

In June 2021, we documented 19 individual elephants of the **Achab Group** in the area of Arikana/Nigeria borehole in Torra Conservancy. This group included PM-1 "Jimbo" (a.k.a. Pool Bar Bull) who frequents the Palmwag Lodge. In November a young bull, known to us as PM-5, began frequenting Wereldsend at night in search of water. He had been seen earlier in the year at Arikana/Nigeria borehole with other elephants, but was visiting Wereldsend alone.

While we may have missed some of the **Kawaxab Group** in the Okivariona Spring area because the terrain is quite high and visibility on top of the mesas is not always possible, we did get a very accurate count of the **Achab Group** in the Nigeria/Arikana area. These two counts combined provides a minimum count of 44 elephants in the Uniab subpopulation. This has been the most complete count since 2016 when we counted a minimum of 48 elephants.

One notable aspect of our 2021 observations is that in the Uniab we found only two mature bulls of breeding age, one with the Kawaxab Group, and PM-1 with the Achab Group. (This does not include WKM-20 of the Hoanib who routinely visits the Uniab area during wet season, but was observed by us in the Hoanib in May and June.) In the Achab Group at Arikana/Nigeria borehole was the well-known and very calm PM-1 Jimbo who frequents the Palmwag Lodge campsite, pool bar, and surrounding reeds. (Posted signs warn tourists to be aware of the elephant's presence and avoid potential accidents. We observed calm and respectful behavior by both humans and the bull

elephant during our visit). The other mature bull was observed among the Kawaxab group near Okavariona Spring. The fact that these bulls, plus WKM-20, roam more widely outside the concessions and into nearby conservancies means that they may be at risk of being hunted, either as trophies or as problem animals in the future. This would have serious consequences for future reproduction in the Uniab subpopulation.

D) Summary and Conclusions

We compiled data from our research (2006-2021) along with published accounts dating back to 1975 on the desert-dwelling elephant population in our study area of Skeleton Coast National Park and western Kunene region. This includes the Hoarusib, Hoanib, and Uniab subpopulations. Our analysis of the data reveal the profound influence that human-caused elephant mortality has had on the population over 15 years. An initial precipitous decline occurred due to wartime poaching in the 1980s. That was followed by four decades of low-level but demographically significant human-caused mortality of adult elephants, which in addition to natural mortality and a low reproductive rate, has prevented recovery of these subpopulations to pre-war levels (Figure 1). In fact, there are now fewer elephants in the study area than during the war in the 1980s.

The 2021 total is ~72 elephants for these three study areas.

By comparison, Viljoen (1987) documented 86 individuals in the same area in 1981, during the height of drought and poaching. Temporary population gains made during the mid-late 2000s have been lost, primarily due to the additive effects of human-caused mortality, which account for over half of the adult mortality, and poor recruitment where more than half of the calves that are born die within the first year. More recently, prolonged drought, which is common in the history of the northern Namib Desert, has also food-stressed the elephants, especially in the Hoarusib and Hoanib. Many are now gaunt and in poor condition for much of the year. In the long-term, it is doubtful that the desert-dwelling elephant population will be sustainable if there is continued human-caused mortality, on top of the already difficult and uncontrollable drought.

The low number of breeding age bulls remaining is a significant conservation concern for the following reasons:

First, reproduction will cease if these last few bulls are killed or die prematurely.

Second, with so few bulls remaining, the danger of inbreeding is increased.

Third, there has been zero immigration of male elephants from the highlands or Etosha National Park into the Hoarusib and Hoanib since 2009.

It is important to emphasize that boreholes are critical for desert elephant survival in the Hoanib River. Both boreholes at the two lodges - Natural Selection's Hoanib Valley Camp and Wilderness Safaris Hoanib Skeleton Coast Camp - provide valuable drinking opportunities for the resident breeding herd and supplement the two Presidential Boreholes that were built in the 1990s. Tourism at these camps and others nearby (e.g. Fort Sesfontein and Khowarib Lodge) lead to increased protection for these elephants and other wildlife because of the additional "eyes on the ground" that tour operators provide in monitoring the elephants wellbeing. In addition, tourist lodges and operators provide jobs and income for people in the local communities, adding value to wildlife. It is imperative that drinker pools be periodically cleaned to ensure that concentrated use during the drought does not lead to fouling of the water or harmful blue-green algal blooms.

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Acknowledgements

We are grateful for the information and assistance we have received from the following: Ministry of Environment, Forestry and Tourism; people, staff, and game guards of the Puros, Sesfontein, Torra, Anabeb, Ongongo, and Otjiu-West Conservancies; Desert Lion Project; Wilderness Safaris (especially staff at Hoanib Camp and Rhino Camp); Natural Selections Hoanib Valley Camp guides and staff; Okahirongo Lodge staff and guides; Kunene Conservancies Safaris; Ondjamba Safaris; Gondwana/Palmwag Lodge; Khowarib Lodge; Fort Sesfontein guides; Etendeka Lodge and Concession; Rhino Rangers; Lion Rangers; Into Nature Productions; Rivendell Lodge; W.W. Automotive; Off Road Centre; Land Cruiser Club of South Africa; and Integrated Rural Development and Nature Conservation (IRDNC). We especially thank Wilderness Wildlife Trust and TOSCO for continued support, and Okutala Etosha Lodge and Dr. Simone Herzog for their dedication and commitment to raising orphan elephants.