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Ministry of Environment, Tourism and Forestry
Executive Director
Mr Teo Nghitila

Sir

FINAL DECISION REGARDING SITE OF UP-MARKET TENTED LODGE IN THE BIG 5
SKELETON COAST PARK CONCESSION

The site earmarked for development of "a 30 bed up-market tented lodge in the Concession area, including their associated support infrastructure such as staff housing" (EIA Site 4) do not have water. Water was transported from the Hoarusib river, a round trip of 72 km, by previous operator (Wilderness) for a much smaller camp of 12 beds. According to a 2018 study, Wilderness Hoanib Lodge uses 200 liters per person per night. Even limiting water use to 100 litres per person per night, a 30 bed lodge would still need 5 000 litres daily weighing 5 tons, and transporting it would be extremely costly and impact severely on the environment as the EIA (phase 1) for Site 4 shows.

According to point 9.3.3 in the Request for Proposals from your Ministry:

"9.3.3 A further five sites have been identified as possible alternative development areas subject to the findings of an EIA. All the sites (except False Cape Fria) are on the periphery of the concession area with easy access. These sites are:

- 9.3.3.1 Khumib/Park boundary
- 9.3.3.2 Sechumib/Park boundary
- 9.3.3.3 Munutum/Park boundary
- 9.3.3.4 Hoarusib mouth area
- 9.3.3.5 False Cape Fria"

Please find the attached EIA (Phase 1) regarding a study of proposed sites (including False Cape Fria) that had been done.

We respectfully request you to make a decision regarding an alternative location for the tented lodge with consideration of our preferences, EIA Site 1, and if not possible, then EIA Site 5 (False Cape Fria) which is in line with point 9.3.3 above.

We need the answer as soon as possible in order to continue with the EIA (Phase 2) on the site. Construction would then be able to start as soon as the EIA (Phase 2) has been approved by your Ministry.

We, the communities, urgently need this construction employment to tide us over until tourism recovers that should coincide with this lodge becoming operational.

Yours Sincerely

Purros Conservancy

Etanga Conservancy

Okonjombo Conservancy

Sanitatas Conservancy

Orupembe Conservancy

SCREENING PROCESS FOR THE BIG FIVE LODGE IN THE SKELETON COAST NATIONAL PARK CONCESSION AREA

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1. INTRODUCTION AND PROJECT DESCRIPTION

Enviro Dynamics has been appointed to conduct an environmental screening process on five alternative sites for the prospective lodge in the Big Five concession area in the Skeleton National Park as a phase 1 step to conduct an EIA on one site.

The team consisted of Norman van Zyl (EAP - Enviro Dynamics), Dr John Irish (Biodata), and Coleen Mannheimer (botanist).

The project proposal focuses on developing a small tented lodge in the concession area between the Hoarusib River and Cape Fria (Figure 1).

The five site alternatives can be identified with the following lat/long coordinates:

✓ Site 1	-18.833637°	12.387131°
✓ Site 2	-18.874267°	12.423543°
✓ Site 3	-18.846200°	12.438181°
✓ Site 4	-18.764141°	12.577008°
✓ Site 5	-18.469383°	12.021699°



Figure 1 Concession area and screening area.

The lodge will consist of

- ✓ 7 tents,
- ✓ dining area and lounge with kitchen,
- ✓ small manager's dwelling and a four room staff unit.
- ✓ two store rooms and
- ✓ four vehicle parking bays

Amenities will be

- ✓ solar electricity and
- ✓ septic tanks with separate grey water / black water systems that will be pumped and relocated to a suitable French drain system.
- ✓ Water will preferable be sourced from a small desalination plant or from existing fresh water wells.

No additional roads will be constructed and only existing parks roads will be used.

It is conservatively estimated that the physical facility footprint will be about 1500m².

2. PARK MANAGEMENT PROCESSES

The Skeleton Coast Park Management Plan identifies sections of the park as having different zonings of how the level of protection will be exercised. The zonings is defined according to IUCN park categories.

Figure 2 shows the category for the western section of the concession as IUCN Category 1a, which is for high level wilderness protection.

The Hoarusib and Khumib riverbeds and associated riverine forest belts are also considered areas that require a high level of protection as food and water sources for park fauna (see green sections indicated in Figure 2).

An important infrastructure requirement which may have a significant impact is access to water. Site alternative 4 is very remote from potable water sources (ground water or desalination). A benchmark volume for lodges in arid areas in Namibia tends to be approximately 0.5 m³/bed/night. Long distance carting of between 7 m³ and 15 m³ will have a major impact on the low key road infrastructure.



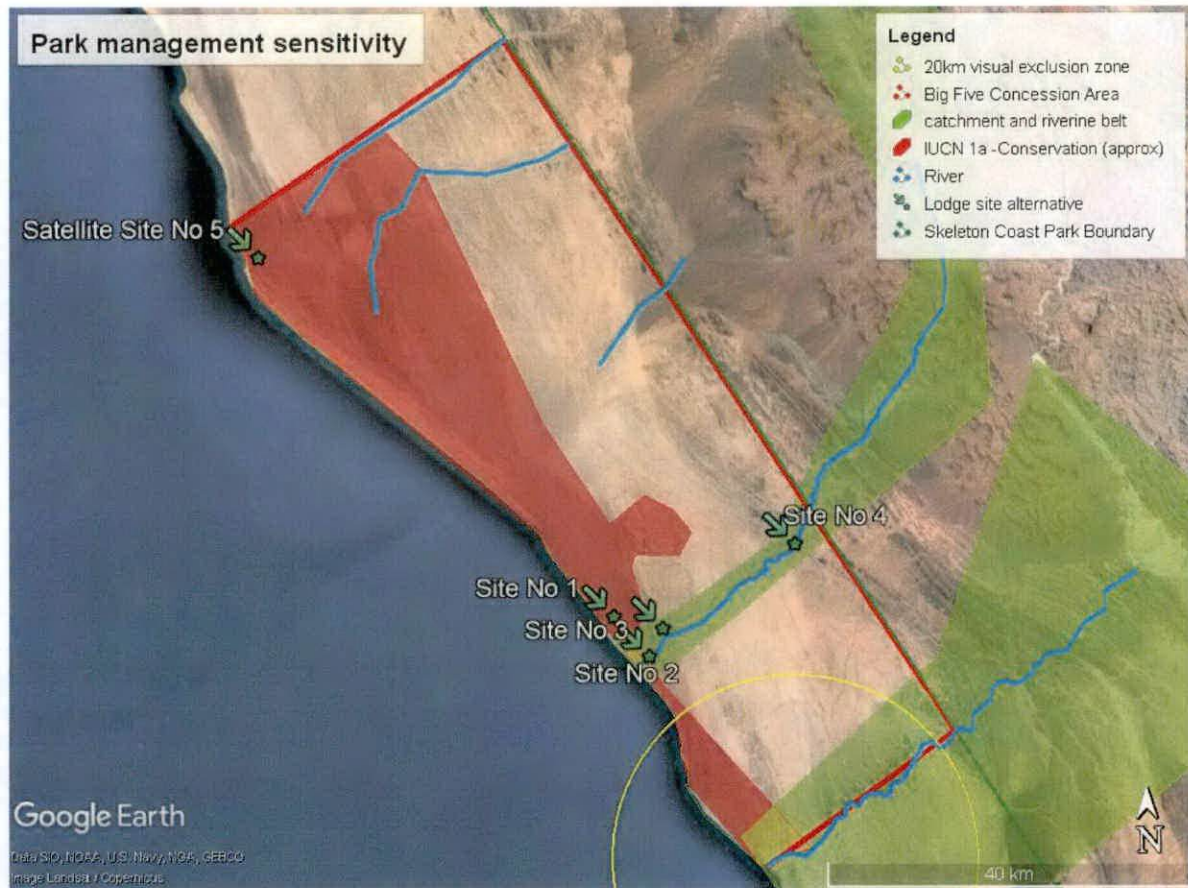


Figure 2 Park management sensitivities.

Finally, the exclusivity of other park concession lodges, for example the concession and lodge immediately south of the Hoarusib River, will require some form of protection from visual intrusion by other infrastructure. A 20 km exclusion distance from existing lodges will assure this exclusivity. The exclusion zone is shown as a yellow circle in Figure 2.

It is also impossible to see any of the new potential lodge positions from the existing lodge south of the Hoarusib River, as the terrain profile in Figure 3 indicates. This is due to a significant raise in terrain immediately north of the Hoarusib River, with a lower plain after the raise.

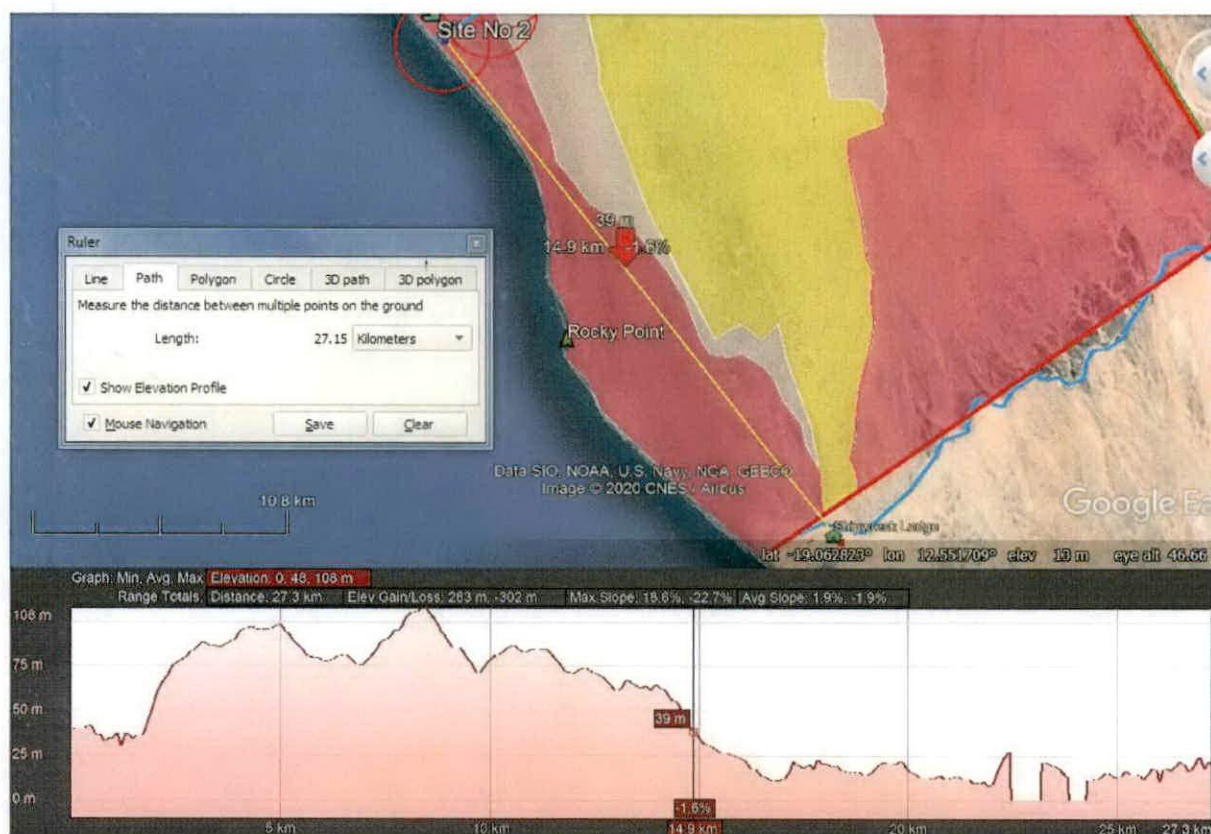


Figure 3 Terrain profile.

The site alternatives all trigger one sensitivity in terms of the Park Management Plan, either by being located in a park IUCN Category 1a area, or by being located in the essential riverine green belt of the Khumib River.

Table 1 summarises the sensitivity comparison according to the Park Management Plan.

Table 1 Park management sensitivity ratings.

SITE ALTERNATIVE	1	2	3	4	5
SENSITIVITY TYPE – PARK MANAGEMENT					
Located in the IUCN Category 1a park section.	1	0	0	0	1
Located in the riverine green belts.	0	1	1	1	0
Visible to other lodges in adjacent concessions.	0	0	0	0	0
Excessive impact of carting water on road infrastructure.	0	0	0	1	0
TOTAL	1	1	1	2	1



3. VEGETATION ECOLOGICAL PROCESSES

3.1. Background to vegetation ecology of the park.

The Namib Desert harbours numerous endemic and near endemic plant species, of which many are of restricted distribution or habitat. This makes them extremely vulnerable to disturbance.

While approximately 17% of the Namibian flora as a whole is thought to consist of endemic species (Barnard 1998), over 30% of plants that occur in the Namib Desert in Namibia are believed to be endemic to that area. This is a remarkably high figure, and it is important to note that the areas of highest plant endemism in the Namib are the Kaokoveld and the southern Namib, both regarded as major centres of endemism in Namibia (Maggs et al, 1998).

The lichen fields and biological soil crust of the Namib are also very vulnerable to destruction. Recovery in this extremely arid zone is slow, and often damage may be regarded as permanent.

3.2. Vegetation sensitive habitat screening.

High level screening of this concession area indicates that, in terms of vegetation, four main habitats are of concern:

- ✓ Spring areas/Water Points
- ✓ River Beds and River banks
- ✓ Hilly, mountainous and rocky areas, including marble outcrops, river terraces and canyons
- ✓ Coastal Hummock Belt (an extremely limited habitat in Namibia)

Plant species of concern, including classification such as Red Data, Endemic, Near Endemic, Restricted Range and Protected species are concentrated in those habitats.

Several marble outcrop areas appear to be present. Such areas are also known to harbour species of concern in the Namib. They are included in the assessment for Rocky habitats.

In addition, any gravel plains present would be of concern regarding vehicle impacts, both on the surface crust and on possible lichen fields, so any new tracks would be a negative impact.

Figure 4 shows the vegetation based habitats of relevance to the screening process in the concession area.



Figure 4 Vegetation related habitat

3.3. Vegetation habitat sensitivity screening.

Habitats are listed in order of vegetation sensitivity, from high to low, below:

- ✓ Hilly, mountainous and rocky areas, including marble outcrops, river terraces and canyons
- ✓ Coastal Hummock Belt (an extremely limited habitat in Namibia)
- ✓ Spring areas/Water Points
- ✓ River Beds and River banks



Habitats with high lichen sensitivity are:

- ✓ Hilly, mountainous and rocky areas, including marble outcrops, river terraces and canyons
- ✓ Gravel plains, both flat and undulating.

Table 2 evaluates each site in terms of the sensitivity of the vegetation related habitat.

Table 2 Vegetation habitat sensitivity at each site alternative.

LOCALITY	SENSITIVITY OF THE HABITAT
SITE 1	Avoid hummocks to the North.
SITE 5 (SATELLITE SITE)	Avoid hummock vegetation.
SITE 4	Providing old camp site is used, and no infrastructure/track is placed on rocky slopes/river terraces. Minimise spreading of existing footprint where possible.
SITES 2 AND 3	Not recommended. Close to water points and hummock vegetation, as well as Site 2 being in mouth of Khumib River.

Although most of the vegetation habitat is sensitive, the evaluation shows that the coastal hummock belt and the hilly, mountainous and rocky areas, including marble outcrops are of higher significance.

Table 3 summarises the sensitivity comparison according to the sensitivity of the vegetation habitat.

Table 3 Vegetation habitat sensitivity ratings

SITE ALTERNATIVE	1	2	3	4	5
SENSITIVITY TYPE – VEGETATION HABITAT					
Located in hilly, mountainous and rocky areas, including marble outcrops, river terraces and canyons	0	0	0	1	0
Located in the Coastal Hummock Belt.	0	0	0	0	1
Located at spring areas or water points.	0	1	1	0	0
Located at river beds and banks.	0	1	1	1	

Located in gravel plains	1	0	0	0	1
TOTAL	1	2	2	2	2

4. FAUNA ECOLOGICAL PROCESSES

4.1. Fauna habitat background and discussion.

The study area was classified into broad habitat types of importance for fauna, based on available data and personal experience of the specialist, Dr John Irish, in the area. Seven functional habitats were identified.

These can be described as barchan dunes, an isolated dune patch near lodge alternative 4, coastal dune hummocks, saline flats, rocky and hill areas, plains and flatland, as well as natural water points or springs. A short discussion of each follows.

4.2. Habitat review and screening.

Barchan dunefields, including isolated groups of moving barchan dunes in other habitats, are habitat for endemic invertebrates that are found only in the dunes and only in the Skeleton Coast Park. The habitat has high ecosystem importance as a driver for the evolution of endemic taxa in the northern Namib. Although the habitat is resilient (self-repairing) to substrate disruption, the mobility of the sand renders infrastructure development ill-advised.

Isolated dune patch. This was identified on aerial photos but no other information is available. Similar dune patches elsewhere in the Namib tend to have very high endemism rates, often with invertebrate species that are only found on those single dune patches and nowhere else. Until such time as this particular patch can be studied to determine its status, it should be a **NO GO AREA** as a precautionary measure.

Coastal dune hummocks have the highest endemism rate per surface area of any habitat in Namibia. The substrate is relatively resilient (self-repairing) as long as hummock vegetation is not damaged. The habitat has high ecosystem importance as a climatic refugium. Infrastructure development in the habitat is possible but care is needed to keep footprints to a minimum and leave vegetation intact. The habitat

also occurs along the coast further south of where it is mapped on Figure 5, but is too narrow to be visible on the map there.

Saline flats, including salt pans, are biologically understudied in Namibia but diversity is expected to be low. The habitat is relatively insensitive (self-repairing) to substrate disruption, and has low ecosystem importance, but the unstable substrate renders infrastructure development ill-advised.

Rocky and hilly areas have high endemism rates and are highly sensitive (absolutely unrepairable) to habitat disruption. They are also of high ecosystem importance for their niche diversity and topographical function. No infrastructure development should be allowed in this habitat.

Plains and flatlands have moderate endemism rates and ecosystem importance, but extremely sensitive (unrepairable) substrates. Infrastructure development in the habitat is possible but care is needed to keep footprints to a minimum and not create new tracks.

Natural water points have poorly studied aquatic fauna and endemism is unknown. They are extremely sensitive to substrate disruption, and their ecosystem importance as drinking spots for large game is very high. Infrastructure development should not be allowed within a 2 km radius of any water point. This is because nearby human presence can disrupt game drinking patterns, which can be disastrous in an area where there are limited other options; also, permanent human presence near water increases the potential for human-wildlife conflict. Water points can still be used for game viewing and game drive purposes.

Figure 5 indicates the relevant identifies fauna related habitat delineation.

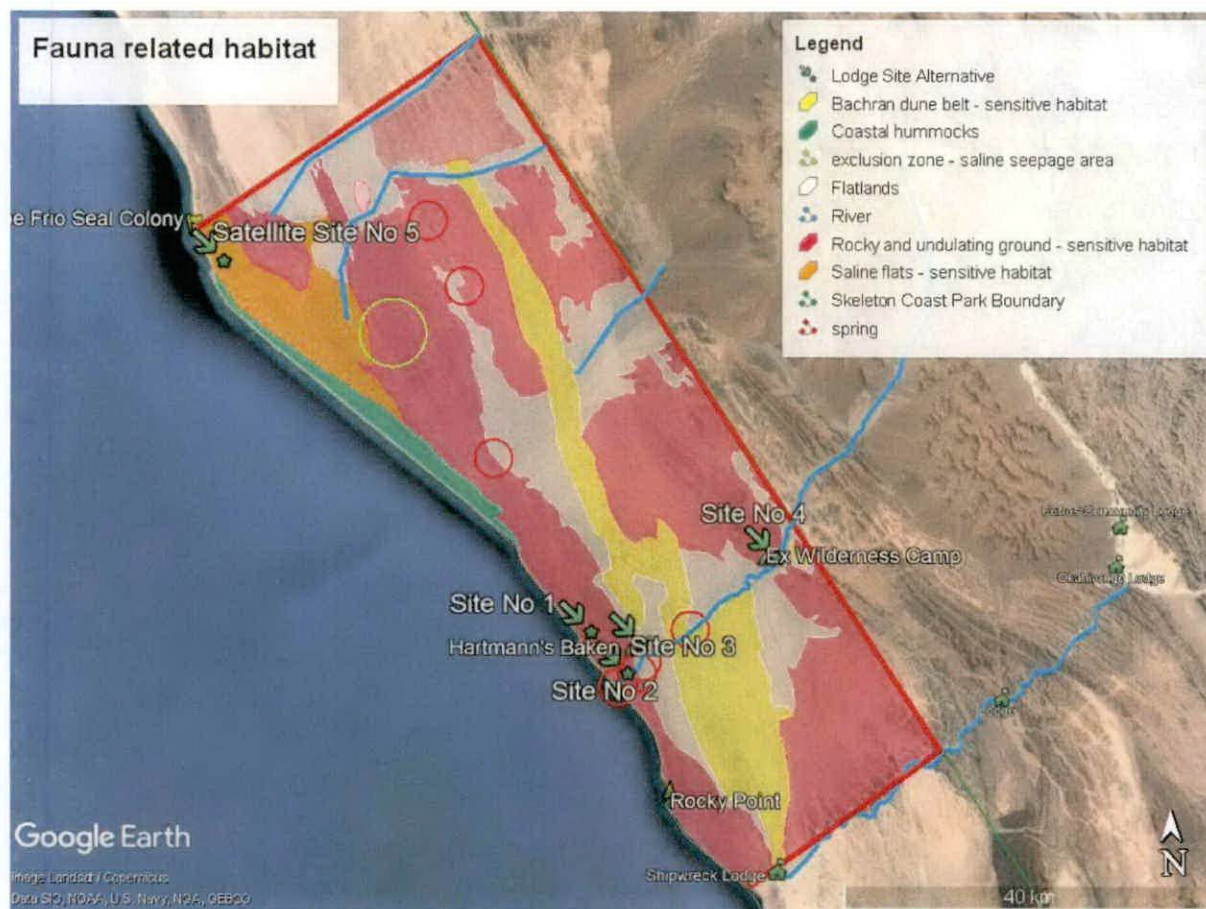


Figure 5 Fauna related habitat

Habitat of particular importance for fauna are springs, the bachran dune field, isolated dune field, and rocky / undulating terrain.

4.3. Fauna habitat sensitivity screening

Table 4 give a summary of endemism and ecosystem importance, together with the sensitivity of the substrate to disturbance.

It is clear that rocky, undulating terrain, and natural springs should be avoided. The most tolerant terrain for the development is the coastal hummock and the sandy / gravel plains and flatlands, which includes lodge site alternatives 1 and 5.

Table 4 Fauna habitat sensitivity comparison

Habitat	Relative per-habitat endemism rates	Substrate sensitivity to disruption	Ecosystem service importance	Infrastructure development
Rocky and undulating ground	Very high	Very high	High	Not acceptable
Natural water points	Unknown	Very high	Very high	Not acceptable
Isolated dune patch	Potentially very high	Medium	Potentially high	Not acceptable
Barchan dunefield	High	Low	Very high	Not advisable
Saline flats	Unknown	Low	Low	Not advisable
Coastal dune hummocks	Very high	Medium	High	Conditionally acceptable
Sandy /gravel plains and flatlands	Medium	Very high	Medium	Conditionally acceptable

Table 5 summarises the sensitivity comparison according to the sensitivity of the fauna habitat.

Table 5 Fauna habitat sensitivity ratings

SITE ALTERNATIVE	1	2	3	4	5
SENSITIVITY TYPE – FAUNA HABITAT					
Rocky and undulating ground	1	1	1	1	0
Natural water points	0	1	1	0	0
Isolated dune patch	0	0	0	0	0
Barchan dunefield	0	0	0	0	0
Saline flats	0	0	0	0	1
TOTAL	1	2	2	1	1

5. OVERALL EVALUATION AND RECOMMENDATIONS

5.1. Lodge Site alternative considerations and preference

The joint sensitivity ratings are shown in Table 6.

Table 6 Grouped sensitivity rating

SITE ALTERNATIVE	1	2	3	4	5
GROUPED SENSITIVITY RATING					
Sensitivity type – Park Management	1	1	1	2	1
Sensitivity type – Vegetation habitat	1	2	2	2	2
Sensitivity type – Fauna habitat	1	2	2	1	1
TOTAL	3	5	5	5	4

The rating is based on a cumulative environmental risk and complexity of risk.

The grouped rating indicates that the site preference is as follows:

- ✓ Site 1 is the site with the least environmental risk.
- ✓ Site 5 has a manageable environmental risk.
- ✓ Sites 2, 3, and 4 have unacceptably high environmental risk levels.

From a qualitative review of the sites from a fauna and flora perspective it is also clear that site 1 is the least sensitive site, followed by site 5. Both specialists agree that sites 2, 3 and 4 are not suitable for development.

Our recommendation is therefore that **lodge site alternative 1** is the most suitable due to having the least complex environmental combination.

The high number of potential rating (15) and narrow range of ratings indicate that the concession area is very complex from an ecosystem perspective and therefore strict activity and footprint management will be essential.

6. REFERENCES

- Grobler, J. J. (2018). *Water management in the wildlife lodge industry: A multiple case study in South Africa, Namibia and Botswana*. Pretoria: University of South Africa.
- Irish, J. (2020). *High level environmental screening (fauna) for proposed alternative camp/lodge development sites in the Skeleton Coast Park*. Windhoek: Enviro Dynamics.
- Mannheimer, C. (2020). *Screening of potential lodge sites for the Skeleton Coast Big Five Area*. Windhoek: Enviro Dynamics.
- Ministry of Environment, T. a. (2013). *Skeleton Coast Park Management Plan*. Windhoek: Ministry of Environment, Tourism and Forestry.
- Seely, Mary; Pallet, John;. (2008). *Namib - Secrets of a desert uncovered*. Windhoek: John Meinert Printing.

