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THE SKELETON COAST

By Des and Jen Bartlett

First Caption:- Where desert and sea collide in a land of the unexpected, a lion feasts on a pilot whale stranded on Namibia's desolate shore.

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(For the first time ever, the January issue will be sent free to all members who have not renewed for 1992, hoping to lure them back again.)

Bracketed segments are not part of the article, but included to explain certain situations more fully.

ALL WE COULD SEE at first was a boiling cloud of dust, storming across the desert like some frightful dervish running amok. Then we realized that there was an elephant causing the dust cloud. The elephant was trying to charge us.

From the front seat of the Drifter, our ultralight aircraft, Jen spoke into the intercom. "It's Flop-Ear!" identifying an aging, normally placid bull with a folded left ear. He was actually charging the engine noise from our plane, in which we were soaring 1,000 feet above and far beyond his tantrum. We were both deeply concerned. What harassment from man could cause him to act this way? Repeated buzzing from a low-flying aircraft was our guess.

When we reported the incident to Rod Braby, the Principal Nature Conservation Official for the Skeleton Coast Park we were relieved at his reply. "Flop-Ear repeatedly charged our vehicle last week and later we watched him chasing the Hoarusib bull across the floodplain." Evidently the old fellow was again in musth, the period of sexual aggressiveness that can drive males into a frenzy.

It had taken five years of cautious flying and careful distancing to accustom these elephants to our aircraft. As a result, normally we can fly like a spy in the sky, enjoying a panorama with elephants dwarfed by the vastness of the desert - a sight seen nowhere else on earth.

Elephants in the desert? In northwest Namibia, an area known as the Kaokoveld, such apparitions are not mirages. Neither are giraffes that haunt the barren plains and black rhinoceroses that ascend steep rocky slopes. Foraging for seasonal grasses, mountain zebra and antelopes keep a wary eye out for lions, whose far-reaching tracks extend all the way to the seashore, where they kill and scavenge beached seals and other marine mammals.

Here, too, much more diminutive creatures, ingeniously adapted, live among, and even within, the seemingly sterile dunes. Some of the mounds glisten with a rose tint from garnet sand, and /some roar when a mini-avalanche of sand slowly cascades down the steep slipface. It is amazing to hear this deep roaring vibration from within the dune itself, which sounds like an aircraft flying some distance away.

In all, the Namib desert stretches 2,100 kilometers (1,300 miles) along southwest Africa's coast.* We have seen and marveled at the survival techniques of creatures great and small while filming the lesser-known northern Namib, which covers some five million hectares (19,300 square miles). Imagine an area of sand and rock nearly as big as Lake Michigan, and you can

*See "The Living Sands of the Namib," by William J. Hamilton III, NATIONAL GEOGRAPHIC, September 1983.

understand why we need two Drifter ultralights and a pair of rugged ground vehicles to find the wildlife.

Though that wildlife ranges from the coast eastward through the Kaokoveld's immense interior, the animals are fully protected only within a small strip, 500 kilometers long and 30 to 40 kilometers wide, which comprises the Skeleton Coast Park. It was named for the dozens of shipwrecks whose bones litter its shore. We have imagined the irony of those early sailors, falling to their knees on this bleak and forbidding coast in thanks for their deliverance, only later to discover the vast desolation - and slow, almost certain death - that confronted them inland.

TODAY, even amid such isolation, the northern Namib's wildlife is still at risk from poachers difficult to track down over the vast terrain. Conflicts also arise between wild animals and domestic livestock raised by many of the 50,000 indigenous people that dwell in the Kaokoveld. Understaffed rangers, known as Nature Conservators, from Namibia's Directorate of Wildlife, Conservation and Research, have their hands full. Once wildlife crosses a park boundary, it becomes vulnerable to dangers well-known elsewhere in Africa, and sadly, even here.

(New title since independence.)

The Namib is one of the world's oldest and driest deserts: its extreme aridity has persisted for perhaps 55 million years. Rain - if and when it falls - averages a

(Mary Seely asks why this figure of 30 million? See her detailed notes.)

little over half an inch a year.
What sustains this ecosystem is a
series of rivers, running east to west, + Fog
that are nearly always dry. In the distant
past, these rivers carved their way hundreds
of kilometers from the interior highlands
westward to the Skeleton Coast. Today,
only if enough rain falls in the highlands
do some rivers occasionally flow. This is
by no means an annual event, and when it
does happen, the river's largesse usually
disappears in the sand well short of the
coast.

But water remains trapped under the
sand, turning the dry riverbeds into what
scientists studying this country often call
"linear oases." We like to refer to them
as "ribbons of life." Wildlife follows these (Not numerous
life-giving channels, drinking at permanent enough to flock.)
springs - elephants often tap new sources
by digging with their trunks - and feed
on the riverine vegetation sustained by
subterranean water sources.

How much water flows down these channels
and how much it varies from year to year has
a pronounced effect on wildlife behavior.
We learned this the hard way. When we
reconnoitered the area in 1981, we didn't
realize that a prolonged drought inland had
pushed hundreds of animals toward the Skeleton
Coast, where some grazing and water sources
remained. We saw herds of 40 gemsbok, many
springbok and ostriches, and a pride of a
dozen lions concentrated at water holes and
along a narrow strip of coastal gravel plains.
With that kind of accessibility, we were sure
that our mission, filming these creatures in

detail, would be feasible,

Imagine our dismay when we returned nearly three years later, ready to film, only to find that conditions had changed radically since the drought had broken. The game was no longer trapped at the coast but had dispersed far and wide where rain had fallen extensively east of the park. This is how our short-term reconnaissance has turned into a seven-year quest.

And so here we have based, in sight of the South Atlantic Ocean at Mowe Bay in the Skeleton Coast Park, in a small wind-blasted cabin framed by granite outcrops. Seine nets that have washed ashore help block the almost constant south-westerly wind, enabling us to grow a small herb garden in the sand.

Our only neighbors are four park staff who patrol the desert, (including the deserted coastal strip which stretches 273 kilometers north to the Kunene River, the border between Namibia and Angola.) A dirt road ends at Mowe Bay, and at the other end, 445 kilometers (277 miles) south, lies the nearest town, Swakopmund, which we visit every few months for supplies and repairs. Along that road we must haul all of our petrol for vehicles and ultralights, as well as bottled gas for cooking and freezers, and countless other staples. However, we use solar panels to run a refrigerator, light the cabin, and charge batteries. Three times a day, a nature conservator uses a battery-powered radio to send out weather information and link this little outpost with the rest of the world.

(Included to help convey vastness and isolation.)

TO HOME IN on the remarkable desert-adapted elephants was our first priority. Only in West Africa, on the fringe of the Sahara, do any other

elephants in the world exist in such an environment.

Although their tracks are sometimes seen on the pinkish gravel plains, we longed to find the animals where they had never been filmed - trekking through the vast sand dunes like some lost caravan from a bygone century. (This seemed a simple enough quest, but it was five years of hard work before we would take a picture we could be proud of - Pages ..... The elephants just do not cross the sand dunes every year, and when we began filming in 1984 they had been so harrassed by man there were no babies surviving and a herd would start running whenever they heard a vehicle or a plane about a mile away. For us it was a very sad sight; how could anyone be so thoughtless as to treat them this way. Some time later we were to hear from Duncan Gilchrist, a conservator based at Sesfontein, that he found evidence of people firing off revolver bullets to chase the elephants out of bushes so that they could photograph them running off. Could a photograph of this kind be worth having?)

An aura of myth surrounds these elephants, believed by some to be a subspecies with larger feet and longer legs than others of their kind. Although scientific research has not substantiated this, these elephants do represent an ecotype, differing from other elephants in their specialized adaptations to the desert's demands for survival.

Before our sojourn to the Skeleton Coast, we had worked for six years in Namibia's Etosha National Park which lies just east of the Koakoveld. *+ We knew well the behavior of Etosha elephants,

* See "Etosha; Namibia's Kingdom of Animals," by

Douglas H. Chadwich, photos by Des and Jen Bartlett, NATIONAL GEOGRAPHIC, March 1983.
+ "Family Life of Lions," by Des and Jen Bartlett, NATIONAL GEOGRAPHIC, December 1982.

which did nothing to prepare us for the capabilities of the desert-dwellers. One of them is that these elephants need to drink only once every three or four days.

This was confirmed by P.J. Viljoen, a South African zoologist who for 5½ years studied these desert-dwelling elephants for a his doctoral thesis. (before we started our detailed work.) "Slang" (his nickname means "snake" in Afrikaans) has spent many a long day following these elephants. He told us of once following a group to a water hole. (Having kept snakes as a child.)

"It was completely dry, but it didn't faze them a bit," he recalled. "They didn't mill about or anything, but immediately headed off in a new direction. They knew where the next water was, and I followed them until they reached it - 75 kilometers (47 miles) away."

Thus, these elephants are driven into perpetual motion to find the desert's far-flung resources, making it no easy task for us to find them. Moreover, their numbers have dwindled at an alarming rate. In 1970 there were about 300, but by the time we arrived 14 years later, poaching and limited legal trophy hunting had slashed their ranks to only 70 animals in the western Kaokoveld. We have watched a slow upward climb in numbers with the addition of healthy babies. (To quote Dr. Malan Lindeque: "The Kaokoveld Elephant," ROSSING magazine, May 1991. "Some 250 elephants presently occur in the northern Namib desert and the adjacent semi-desert area collectively known as the Kaokoveld. Two hundred elephants occur in the

southern part of this area, or Damaraland, with only three relict groups remaining in the northern part, or Kaokoland.") (Hoanib, Hoarusib + Cunene.)

To find the elephants and other wildlife, we make repeated month-long camping trips from Mowe Bay into the desert. Our eventual goal is often the dry beds of both the Hoanib and Hoarusib rivers. The Hoanib is the only river that fans into a broad floodplain east of the sand dunes; about once in ten years it breaks through the dunes to reach the sea, the last time in 1984. We also investigate the gravel plains that the elephants occasionally cross between the Hoanib and the Hoarusib, searching for sustenance. (Hoanib - Hoarusib South - North.)

On a typical trip into the desert we each climb into separate Drifters and fly for about an hour towards an area where we plan to film. Today our destination might be Ganias - a tiny permanent spring forming a shallow pool twelve feet across in the middle of a gravel plain, located just within the park, north of the Hoanib river's flood plain. We land two miles from the spring, leaving one plane there, then fly back in the other (each is a two-seater) to Mowe Bay. We then drive our pair of four-wheel drive vehicles back to the desert camp, a six-hour trip on rough tracks and through seven miles of sand dunes. If it's needed, we later fly and collect the second plane. All told, we figure we've flown the equivalent of twice around the world at the equator in our little Drifters. Overlooking Ganias waterhole we erected an elevated photographic blind made of plywood to withstand the strong desert winds. Now, three months later we arrive to begin filming, but within two hours an isolated rainstorm drops half an inch of rain on the area. It was many months before the wildlife needed to drink again at Ganias!

We were even more frustrated at another waterhole. Auses is the perfect oases, except for one important item. The desert setting could not be designed better in Hollywood, but at least they would fill it with fresh water! Elephants find this large body of water suitable for bathing, but too brackish for drinking. So they visit only occasionally, most often at night, leaving tracks showing how they sometimes go down a fifty foot slip_face with back legs bent fully at the knees and the feet leaving two deep furrows down the steep slope. The tracks alone were worth filming, but somehow we had to catch them in the act. Using ropes, we hauled sections of a plywood blind up the steep rocky ridge overlooking both the slip_face and the oasis.

Would the elephants come that way? Again and again, for 18 maddening and fruitless months, we kept checking. The desert was always there. The elephants never were.

Then one day it finally happened. We were struggling yet once more over the sand, hauling 60-pound backpacks full of camera gear up to the blind. Fifty yards above it, Jen took up her usual post just below the ridge's pinnacle, scanning the dunes beyond through binoculars. Suddenly she gave a hand signal, clambered down, and said quietly, "I think they're coming." (We avoid showing ourselves against the skyline.)

Over the shimmering horizon, two big bull elephants materialized, hurrying across the dunes in our direction. One behind the other, the two giants approached the edge of the slope. We expected an orderly descent.

"Good Lord," said Des in amazement, "they're starting to run!"

Once close to the water, all semblance of elephantine dignity evaporated. Each in turn

lumbered over the rim and plowed downslope, half-sliding with rear legs bent, skating on their front legs, sand flying everywhere. Page ..... At the bottom they charged into the water, splashing and carrying on like six-ton children. It was an incredible sight, one that still lingers late at night as we doze beneath the stars and contemplate this strange and wonderful desert. For us, it is a spiritual experience to be in tune with the desert and its wildlife, just as much as it is physical. Only true lovers of deserts can know this deep feeling.

(It is important to emphasize that noone should ever camp close to a water hole, tempting as this is after a hot, tiring day. The desert's precious water belongs to the wildlife, which often goes for days without drinking, walking great distances to find the meagre feed. With human scent close to a watering point, the shy desert game will not come in to drink, even on the darkest night. This amounts to thoughtless human interference, which stresses the game unnecessarily. Tourism has to be controlled in such a delicately sensitive area as the northern Namib. What we have photographed in seven gruelling years, others will expect to see in just a few days. This thought has troubled us in doing this article for the NATIONAL GEOGRAPHIC, with ten million members worldwide. We have discussed it with many of our conservationist friends here. The consensus is that the uniqueness of this area, and its wildlife, must be told.)

(Many people here would like to see the guts of this paragraph included in the article. Note particularly Mary Seely's comments on the impact of tourism.)

Why are these elephants here? For us, this is hardly a valid question. They are here because they want to be here, able to live out their lives without ever seeing a fence. From 1977 to 1982, few elephants died as a result of the worst drought in living memory, although it claimed up to 80 percent of other desert mammals, including kudu, mountain zebra, and even many of the true desert antelope, gemsbok and springbok. Enviromental stress, elephants can handle. The toll humans take is another matter. During that severe drought, when many subsistence farmers became desperate and turned to poaching, as many as 152 elephant carcasses were found throughout Kaokoveld, the majority having been killed by people, including military and Government officials.

(Garth and we feel "not a single elephant" is too emphatic, as old animals probably did succumb in the drought. Rhinos not affected greatly by the drought; maybe a few older animals died then, but five or six young born. This was better than the elephants. With the mountain zebra, many moved east into Etosha, but others certainly did die in the drought. Slang found 128 dead elephants and collected the lower jaws. Garth and Peter Erb found an additional 24 complete with the lower jaw.)

The true desert-dwelling elephants of the Hoanib and Hoarusib rivers are free to move inland to join 200 of their kind living in Damaraland, mostly in the Huab and Uniab catchment areas. Some undoubtedly have moved east since June 1985 when we photographed a herd of 33 adults in the Hoanib floodplain. For almost a decade few elephant calves were born and none survived, but with better conditions - both nutritionally and less harassment from man - this changed in late 1984 with the arrival of the first calf, soon to be followed by others. Nine youngsters follow their mothers across the sand dunes in the picture on pages ....., taken in March 1989. Twelve young now survive, but the total Hoanib-Hoarusib population is under forty.

The elephant's woes are bad enough, but poaching depredations suffered by black rhinos have provoked desperate counter-measures

by wildlife officials. Like other semi-nomadic animals, the rhinos sometimes follow the dry river beds westward as far as the Skeleton Coast Park, but they are generally found well east of the park on less protected land, sometimes in association with the livestock of local pastoralists. At least 250 rhinos roamed Kaokoveld in the early 1970s. (Garth's figures.) Poachers, primed by world markets where people still believe in rhino horn as a medicinal panacea, had gone on a rampage that left only 65 rhinos standing in this vast area.

For more than a decade, dedicated conservationists from both the government and private sectors have worked together to save the rhinos, laboriously compiling a photographic identification file on 100 individuals. Formost among these workers today is Blythe Loutit, whose husband Rudi is the Chief Nature Conservator for Damaraland and the Skeleton Coast Park.

(If it wasn't for the work of many people here there wouldn't be any rhinos left in this area for Joel Berger to study. We've met and like Joel, and feel he'll do good work in Namibia - but initially he is entirely dependent on the local experts for help to even locate rhinos. We were with Joel and his family during the second rhino dehorning operation, just two weeks after Joel arrived in the country. There is no way we can mention his work without crediting others.... Blythe started the "Save The Rhino Fund" many years ago, spends weeks out on her own but now supports about fifty trained assistants, named Rhino Friends, and would gladly give her life to stop a poacher killing a rhino. It is <u>that</u> type of dedication. The whole rhino story and its conservation needs an article on its own, and it is an upbeat story!)

Now the animals literally are caught on the horns of a dilemma. To help save their lives, a controversial experiment is underway to render them valueless to poachers. In two high risk areas in Damaraland, all rhinos have been tranquilized, and their prized horns cut off and safely stored away. This radical measure stresses the animals to some degree and raises other questions, now being investigated by ecologist Joel Berger of the University of Nevada, with support from the National Geographic Society. The horns will grow back, but how quickly? Must the process be repeated? What function does the horn serve? How will de-horned rhinos fare in competition with others in adjacent territory that retain their horns? In the two years since this experiment began, it has proved 100 percent successful as none of the dehorned rhinos has been poached.

BACK AT MOWE BAY after a month camped in the desert, we try our hand at surf casting in the nutrient rich waters. To have fresh fish on the menu is a great treat - Steenbras, Galjoen or Kabeljou, which is similar to a salmon. Sometimes we barbecue the catch and accompany it with fresh salad vegetables from our tiny sand garden. Swiss chard, lettuce, tomatoes and a variety of herbs do well in the cool coastal climate and sand that we help along with compost, kelp from the beach, and cormorant guano. Some of our "super-salads" boast a dozen home grown ingredients, including a variety of sprouted seeds grown in large jars that travel the desert with us. (The garden is tiny and water scarce, so only very small amounts of fresh produce available.)

A solar cooker also accompanies us into the desert. It can roast a chicken, bake bread, or even

boil water using just the reflected heat from the sun. Firewood in the desert is a precious commodity, and should only be used sparingly.

Just offshore flows a natural source of abundance, a permanent force without which much life on the Skeleton Coast would be impossible. Sweeping northward all the way from Antarctica, the icy Benguela Current creates a constant, nutrient-rich cold-water upwelling that sustains great pastures of marine life. It also brings another vital source of water to the desert: fog.

(Mary Seely: Cold bottom waters upwelled - NOT a surface surface current from Antarctic. See the typed detailed notes.)

The Benguela, so near the coast, is colder than water farther out to sea. Above each zone, air of different temperatures meets and forms the fog, which drifts onshore for all but about 20 days a year. The fog rolls inland and keeps on rolling, sometimes for at least 50 kilometers and occasionally twice that.

(Mary: 50 km inland at 500 m. elevation common in central Namib.)

(It reaches Ganab, in the central Namib, 12 days a year, over 100 kilometers inland from the coast.)

In the dead of a desert night, on leaves, rocks, grass, even on the bodies of living things, that fog condenses. Thus, lives that may not be able to wait for storms to roll over western Etosha, and for dry river beds to heave with a lifetime flood - those lives have another chance.

(Monsoon rain from the Indian Ocean sweeps across Southern Africa, becoming almost zero at the Skeleton Coast 0,4 mm in both 1981 and 1983!)

Nearly everything depends on fog and dew, from plants to massive mammals. A rocky slope or gravel plain, black and looking as barren as the moon, takes on a greenish tinge after a fog bank drifts over it, drenching lichens with moisture. When dry, the lichens curl up to reveal their black undersides, but when moist they open out, showing the pale green upper surfaces.

Fog also helps nurture one of the Namib's most unusual endemic species, the bizarre Welwitschia

plant. Actually a dwarf tree, a Welwitschia can survive the desert's rigors for 2,000 years, its two leathery leaves torn into a disheveled tangle of wind-blown strips. Another key endemic, the nara plant, depends less on fog but sends its long roots through the sand to seek out water far below. In late summer naras produce large spikey melons that yield food and moisture to jackals, elephants, porcupines, ostriches, brown hyaenas, gemsbok, lizards, gerbils, striped mice, beetles and crickets. The nara, a relative of the cucumber, supports a greater variety of life in the dunes where it occurs than any other plant species. Recently we were amazed to film the many red-billed francolin that were drinking droplets of water from the stems and spines of the naras on a foggy early morning.

(Mary Seely: Little or not at all for water, but humid air slows water loss.)

(A partridge sized bird.)

AT THE OTHER EXTREME, giraffes are so water-conservative that they have never been observed in the act of drinking in the northern Namib, although further inland they do drink. The desert-dwelling giraffes spend a lot of time in the lower Hoanib, where moisture from both fog and dew condenses on the Acacia tree leaves on which they feed, helping to fulfill their water needs.

(Rod, at Hunkab.)

When a searing hot spell strikes and the tongue of the land is really hanging out, the fog disappears. After the heat subsides, on the first evening of the fog's return, the desert is a busy place. On one such night we were camped in the Hoanib dunes, a hundred yards from a colony of dune ants. Taking turns, we arose several times at odd hours to see what they were up to. This species, normally most active by day and in

their holes by night, were digging furiously and carrying the sand outside. Towards dawn we found several still outside and all nearly motionless. Moisture from the fog had condensed on the ants themselves, and they were drinking the droplets from one another's bodies - one of the desert's unique rites of survival, not recorded previously.

Fog may not play a role in the mysterious lifecycle of what is possibly the Namib's most important insect, the harvester termite. These insects can be seen on those rare occasions when they emerge in swarms from their underground tunnel network to forage. Their dark pigmentation allows them to be active even in full sunlight and their voracity is astonishing. We have counted 49 active holes within a radius of 25 meters on the bare gravel plains near Ganias, all members of the one enormous underground colony. Dr. Mary Seely, director of the Desert Ecological Research Unit at Gobabeb, in the central Namib Desert, confirmed that in spite of all the large grazing animals, such as antelope, more than 80 percent of all grass on the plains in the Namib is eaten by termites.

(They are known to tunnel down a hundred feet to reach moisture.)

And the termites, in their countless millions, offer a vital food source to a host of predators. The insects are especially vulnerable when, after rain falls, the queens-to-be and their male consorts from various colonies fly off to begin a new life. On landing at a new site, they shed their wings and each pair of termites begins digging furiously in the damp soil. While still at the surface they are

(Wings are formed underground long before the rains are due.)

vulnerable to birds, lizards, scorpions, spiders, red velvet mites, hunter beetles, and ants- even mammals like meerkats and jackals. There's plenty of protein for all.

(Termites are just as vulnerable when they are out foraging.)

FOG AND WIND define so much of this country. In our Drifters, we play tag with the fog, flying through the layers of contrasting air that form it, but never in dense fog cloud itself. As we rise through the cold air below, we usually encounter a blanket of warm air above it, often at an altitude of about 1,500 feet. It's a palpable sensation: we immediately feel the warmth on our hands. Fog forms at this altitude, where warm air sits on a layer of cold air down to ground level. But in winter, from about April to August, there is sometimes much hotter air aloft, and when that air reaches the ground we do not fly.

This is the dreaded East Wind, (or Ostwind in German,) the harshest side of the desert's personality. When a high pressure system forms to the east up in the high country, that air, cool at first, begins to flow westward towards the coast. As it sinks, it heats up rapidly by compression, and quickly gains speed. By the time it reaches our camp in the desert - well, we might be enjoying a brisk morning of 4.5°C (40°F), and two hours later it can be 45°C (113°F) with a gale-force wind.

(Ostwind is not a term we ever use.)

(Max. 40,2°C
Min. 7,2°C
recorded at Mowe Bay during our years here.)

Like a cyclical blast furnace, the East Wind usually blows intermittently for a week or even ten days. Generally it lets up at night, but once we were forced to collapse our tent and pack up camp at 2.30am in a raging sandstorm. This same kind of wind also occurs in Europe, where the Germans

call it a Bergwind. Their statistics show that when it blows, the suicide rate rises. We were told that before we arrived at Mowe Bay, one of the Nature Conservators went round the bend during an East Wind, attempting to drive his pickup truck into the ocean over the rock-strewn shore, then running into the cold sea. The current carried him northwards, where he was rescued from a beach after dark.

And yet, while we suffer the phenomenon as if it were a biblical visitation, there are creatures out in the dunes that can't wait for strong winds to blow. The prevailing south-west winds have formed these dune fields over countless centuries. Near the top of each dune, on the leeward side, there is a steep area of cascading sand called the slip-face. These slopes, accounting for less than one percent of the dunefield's surface, are where the dunes' life concentrates. Lizards, beetles, and other insects dive in and out of the sun-broiled sand to regulate their body temperatures and seek food. Their diet requires wind because they feed on detritus - a grass seed, a dead fly's leg, a dried leaf - desert leftovers that the wind picks up and redistributes. Always, it eddies on dunes' slip-faces, accumulating at their bases.

The creatures that recycle this debris are called detritivores. During a strong wind, with plastic garbage bags taped over our cameras for protection from blowing sand, we have watched the denizens of the slip-face in action. As the mid-morning sun warms the dune, a large vegetarian sand-diving lizard - Angolosaurus skoogi, - buried in the sand overnight, cautiously pokes only its head out and waits, wary of predators such as

(Angolosaurus is only found in the northern Namib and in southern Angola No common name for this unusual lizard.)

chanting goshawks. Then it emerges in full, soaks up the sun, and moves away to search for detritus and nara shoots. At any hint of danger, the reptile streaks back to its slipface haven and dives into the soft sand with a curious figure-eight-like movement.

(Mary Seely: The diet of adult Angolosaurus is about 80 percent nara shoots. The young eat a bit more detritus.)

TO INVESTIGATE such intriguing sand dwellers requires specialized desert-driving techniques. First, we learned to avoid certain types of soil which contain a layer of gypsum, easily compacted by a vehicle's weight. Permanent tracks that scar the desert can result. On parts of the gravel plains, a strange double-track from a Leyland truck remains as an ugly artifact from 1964. Rule No. 1, always stay on existing tracks.

Driving in sandy riverbeds and on the dunes avoids leaving permanent tracks, as strong wind can blow them over within the hour. Soft sand driving, especially carrying the heavy loads that we do, is a constant challenge. We've had our share of exasperation and we've learned a few tricks. First and foremost, let the air out of the tires until they are well and truly bulging. In each vehicle we always carry an electric air pump that plugs into the cigarette lighter, to re-inflate the tires once on firmer ground.

(Visitors are not allowed to drive on their own in the Skeleton Coast Park, but must be accompanied by a Nature Conservator.)

We also carry two planks from ship's hatch covers that we beachcombed to shove under our wheels when we get stuck. This is important when driving on the beach at low tide as there can be patches of quicksand. The next high

tide comes in all too quickly, claiming many a vehicle still bogged on the low beach. (Some are recovered after a high tide or two - at great expense!)

Sooner or later, though, the desert persuades even the most skilled drivers to relax and stay awhile. We heard that it happened quite emphatically to one chap who was bringing a two-wheel-drive truck through the dunes. His tire pressure was properly low, he did everything else right, and finally he went down the last slip-face to the gravel plains. He was so relieved after this long ordeal that he stopped and looked back up the way he had come, just in time to see a Niagara of sand still coming down the slip-face to partially bury the back of his truck. He spent three days digging it out. (Ernst Karlowa's story: Mary finds it hard to believe.)

On the dunes' slip-faces, the residents that receive the scientific spotlight are the tenebrionid beetles. (None of the dune tenebrionids are tok-tokkies, Mary says.)

Some are black, some mainly white, inviting much study about their thermoregulating abilities. By night, some tenebrionids stand on their heads in the fog, allowing water to condense on their bodies and trickle into their mouths. By day, their specially-adapted legs help them swim through the sand, carrying them down to escape excessive heat and up to the surface to find detritus on windy days. (Or cold at night. (Mid-norning onwards to feed.)

It was that kind of an afternoon that almost did in one of our precious Drifters. These little aerial chariots weigh only 350 pounds when empty. If they're parked on the ground not tied down and a sudden wind springs up, the aircraft can almost become airborne even with the engine off. (Jen in no danger.)

That's what nearly happened to Jen.

She had landed alone on a gravel strip on a windy afternoon, but no sooner has she switched off the engine and stepped out than the gusting wind increased and the plane started blowing backwards. Jen, who might weigh 120 pounds after a full meal, hung on for dear life - for an hour and a half, waiting for Des, who was stuck in the sand in the Ford far away.

The 30 mile an hour wind twice forced the plane over onto one wing tip, and Jen was petrified that the aircraft would cartwheel and be destroyed. It was getting late. Where was Des? At last, the wind blew plane and pilot backwards into softer ground where she could dig small holes for the wheels, stop the Drifter, turn it tail into wind, and tie it down using canvas bags filled with gravel and sand.

"Boy, do I need a drink of water," she thought at that point. We recycle half-gallon cardboard wine packs by filling them with drinking water to carry on board the Drifters. She found one of the containers, and, with a desert-dry mouth, held a plastic cup under the spigot.

And out came a stream of warm red wine. We're still not quite sure how the transfiguration of water into wine occurred, but there was nothing spiritually uplifting about the result. Jen heaved the stuff as far as she could.

TO LAY A BEDROLL under the stars in the Namib, knowing that the desert's seeming emptiness is so full of life, can truly bring peace of mind. It can also bring a rude awakening.

One chilly May night we made camp among the dunes, three miles from a waterhole known as The

sleeping bags next to the Land Rover, using it as a windbreak. The fog crept in around eight o'clock and cleared by midnight. A half-moon's light bathed the desert as we fell asleep.

A little after 5 a.m., Des awakened. "Listen," he said softly, and from the direction of The Oasis, the roaring of a lion shattered the night. It sounded like a male; he kept it up intermittently for more than half an hour, but received no answering roars. Silence fell. We both dozed.

"What's that?" Jen sat bolt upright. The moon had set: it was pitch dark. Instantly, a menacing growl came in reply, and there was quick movement close to our bedrolls. "Lion!" we shouted in unison. Des found a flashlight and shone it on a big male lion regarding us coolly a very short stone's throw away. Jen offered a wise suggestion: "Let's get into the Ford." With low grunts, the lion watched our retreat and finally sauntered off to the northeast, roaring defiantly.

When daylight broke, we found the lion's tracks exactly one metre from the feet of our sleeping bags. We were lucky. A few months later, conservationist Garth Owen-Smith, told us he had had a nearly-identical experience with the same lion in another area where we have often camped. Except this time the lion had bitten through Garth's bedroll and bloodied his heel. Garth saved himself by firing a shotgun over the lion's head.

Incidents like these, though perhaps dramatic, are misleading. They are small skirmishes in a long-standing conflict between man and lion, and in the Skeleton Coast Park,

the lions are losing badly.
In 1981 a pride of a dozen lions lived there.

Now there are none!

COEXISTENCE between lions and Africans trying to make a living from the arid land is still uneasy at best. Sandwiched between the two parks, Skeleton Coast and Etosha, east of the desert where a bit more rain falls, indigenous peoples such as the Herero, Himba and Damara, herd their cattle and goats. They keep their livestock mainly along dry river beds near/springs east of the Skeleton Coast Park, but well-known and well-used by wildlife.

And so when food near the coast becomes scarce, lions head up the river beds and meet pastoralists coming down. Sometimes a cow dies. Sometimes lions die. The law of the land says that outside the park, if a lion or other predator threatens people or their domestic animals, that predator may be killed. Here, a man's only wealth is his livestock. We understand that. We are also heartsick at seeing lions that we've known for years fall victim one after another.

(No European owned farms in this area, but if there were no lions would be tolerated.)

We knew the male lion that invited himself to our bedside on May 17, 1986. We had first sighted him on February 9 south of the Hoanib River's mouth, although we had been seeing his tracks since mid-1985.

This male's predecessor, formerly the only male in the park, can be seen on Page....., guarding a stranded pilot whale. After several days, a high spring tide carried the whale carcass out to sea and the Benguela Current moved it north. The lion evidently headed south down the coast, passing out of the Park at the mouth of

the Ugab River. (Concerned Nature Conservators lost his tracks in a rocky area, but expected him to return to the park.) He ended up south of the Cape Cross seal colony, in a Recreational Area frequented by many fishermen. (On hearing about this unusual event on the local radio, people flocked to see this big male lion eating a seal on the beach.) Any lion guarding a kill reacts aggressively to people approaching too closely. Unfortunately, Nature Conservation officials in Windhoek decided that the risk to human life was too great, and ordered the lion shot on March 14, 1985.

So we rejoiced in February, 1986, when we spied /the newcomer within sight of the sea. "It's a lion! Right by the side of the road!" Des exclaimed excited/ly as he stopped the Ford. With the usual strong south-westerly wind blowing, the lion had not heard the vehicle approaching. He was so shy when he saw us, he didn't know what to do, and finally slunk away down towards the beach. (Not to frighten him unduly, we did not try to follow, although we would dearly love to have pictures of him with the sea behind. For our first meeting this was enough.)

Equally exciting, a few days earlier in the same area we had seen signs of a lioness. We knew her well; she had been born at the mouth of the Hoanib. She had killed a seal on the beach and dragged it a prodigious 3.7 kilometers inland to feed in peace, away from coastal jackals, leaving a long track behind. (Page ....) We hoped that the Hoanib lioness and the new potential mate would pair up.

By June 1987 they were a team. The lioness had already been radio-collared by a Nature

Conservation team. Patrolling in our ultralights on June 4, we picked up her signal and found both lions together on an ostrich they had killed far out in the dunes, 20 kilometers from the coast. Two days later, Philip Stander, a research assistant who had been working with Etosha's lions, immobilized the male with a tranquilizing dart and fitted him with a radio collar like that of the lioness.

(Two instances were combined, so the specifics didn't work. Philip was with me in the Drifter when we first found the lions, also again two days later when we tracked the lioness near Auses waterhole. So we checked at the site of the ostrich kill and the male lio was still guarding it.

Five days later, around their next ostrich kill 70 kilometers from the coast and well outside the park, the lions' tracks revealed their strategic teamwork. The female had hidden behind a small hummock where she lay in wait. The male circled around and suddenly appeared on the other side of the ostrich, which fled in the opposite direction, straight at the lioness. With a few bounds she caught it and made the kill.

Once more, just inside the park, we picked up the lioness's signal. Then we lost their sign for=ever. A little over a month later, both lions were dead. (Shot on July 17.)

They were traveling far from the park east up the Hoanib, probably farther than the lioness had ever been. But we think the male lion knew this country, knew of a water hole up the Hoanib called Dubis, where they were heading. Meanwhile, a Herero herdsman had moved his livestock, women, and children a little way downstream from Dubis to a narrow point on the river bed, and had dug a well nearby.

(The narrow point is called The Poort. The well was one kilometer upstream.)

And that was where, on July 17, 1987, the owner of the livestock shot the male,

killing it instantly, and severely wounded the female. She lingered until Nature Conservators Steve Braine and John Paterson tracked her radio signal and ended her suffering five days later. A field autopsy showed that the lioness was pregnant and would have delivered four cubs within a few weeks. (Gestation period only 3½ months.)

We had known the Hoanib lioness since she was a cub, back in April of 1981. She had had her first litter three years later. We knew her favorite routes through the desert, where she hunted, where she rested. (She would often pass at night within ten feet of our Mowe Bay cabin.) And the tragic litany continues. A third male that we first saw in the park August 7, 1988, was shot more than a hundred kilometers inland on July 4, 1990, again close to Dubis. Four months later, the Uniab lioness we had often seen was killed, along with her 2½-year-old daughter. The two male lions, her sons, have not returned to the Skeleton Coast Park and could easily be dead. (We've learnt from Rod that one of the sons was wounded when the mother and sister were killed.)

Saddened by the loss of the lions, we feel this tragedy must lead to something positive for the future, both for the local inhabitants and the wildlife. Our photographs stand as a pictorial memorial to the lions and dramatize the threat to these desert-dwelling elephants, as well as the unique wilderness area in which they all live. The recently independent nation of Namibia needs financial help from the rest of the world to ensure its protection: its uniqueness is a world heritage. Now, for our part, we feel compelled to use our photographs and films to alert the world to what is here. Tourism could become this country's top earner

of foreign currency, of this we are sure.

A PIONEERING ATTEMPT at ecotourism is already underway up the Hoarusib River beyond the park, at a tiny cluster of huts called Purros. There, Garth Owen-Smith and his colleague, anthropologist Margaret Jacobsohn, have started a project to involve the local Himba and Herero people in protecting the area'a natural resources. A handful of tourists previously came here to photograph only the Himba and their lifestyle. Now, the Himba are told that people come to photograph the wildlife that they are helping to protect, and the Himba share a tourism tax monthly. Two years ago, ten giraffes were transferred from Etosha to Purros, where poachers had wiped them out 20 years ago. These giraffes are doing well, so recently a further ten were brought in from Etosha.

In 1983 Garth, working closely with Nature Conservator Chris Eyre, helped to institute a home-grown boost to conservation in the Kaokoveld, the auxiliary game guard system. Himba, Herero and Damara leaders chose local tribesmen as game guards paid to notify Nature Conservation and other authorities of illegal hunting. Earlier, under their own laws, tribal leaders banned hunting in the region. Such efforts may help species such as elephants and black rhinos to hold their own. Poachers remain a menace, but no longer can they operate with impunity.

(He was instrumental in forming the auxiliary game guard system, now run in conjunction with the Directorate of Wildlife, Conservation and Research, but funded privately.)

In 1907, the German Colonial Government proclaimed almost all of the Kaokoveld as a game reserve, from Etosha to the coast. Then in 1970, the South African government (which controlled Namibia, then known as

South West Africa), eliminated much of the reserve status to create ethnic homelands, largely out of barren desert. The Skeleton Coast's wildlife was cut off, its protection limited to essentially a symbolic shoreline strip at the lower ends of the life-sustaining rivers. Lines on a map alone won't save wildlife, but it would be ideal if a safe corridor for wildlife could be reinstated between the Skeleton Coast and Etosha, incorporating the Hoanib River. This is a linear oasis connecting the two: rain falling in western Etosha flows down to the Hoanib and its flood plain, and ultimately the sea.

(No chance of a people-free corridor, but Garth feels the locals could be involved in the protection of 'their' wildlife.)

In January of 1989 we flew over the mouth of the Hoarusib River, no longer dry but swollen with high-country rain that had fallen far to the northeast. Like the elephants that had smelled the water, the giddy river raced through the coastal dunes, and its silt-laden chocolate-colored torrent contrasting with the deep dark blue of the Atlantic. Desert, rain, and sea were one.

A portent of survival for the embattled creatures of Namibia's Skeleton Coast? We could only hope so.