

South Africa Tortoises

Learn about South Africa's tortoise species.

By Karl H. Switak

No other region on earth houses a greater diversity of tortoises than the subcontinent of Africa. This area includes the countries of Namibia, Botswana, Zimbabwe, Mozambique, Swaziland and the Republic of South Africa. Found here are five genera and 14 species. Three of the genera and 12 species are endemic. The area is also home to the smallest variety of tortoise known, *Homopus signatus*, from the wide-open spaces of Namaqualand. Males of this species seldom exceed a carapace length of 3 inches and a weight of 2.5 ounces.

Included in the overall tortoise count is a species yet to be named. Branch (1998) calls it the Nama padloper, *Homopus* sp. Of course, a number of subspecies are also recognized, thus raising the tortoise diversity to even greater heights.

The term "padloper" in connection with a tortoise is an Afrikaans term. It literally translates to pathwalker, road walker or even trail walker. In other words, the forward progression of a small tortoise using one of several narrow avenues.

In southern Africa, tortoises are found from the Indian Ocean in the east, to the turbulent Atlantic in the west; from lowland jungle regions of Mozambique, to the sand-blown stretches of barren land that comprise much of the Namib and Kalahari deserts. They occur near sea level where blankets of fog often enshroud the entire countryside and in cold and montane regions, where winter freezing and snow isn't out of the question. Considering all the elevational factors and habitat variants that such a landmass represents, it isn't surprising to find one or more tortoise species in any of the aforementioned locales. They do show a preference for certain ecological niches, hence the diversity of isolated populations, demonstrated by pattern and color dimorphism.

If your desire is to encounter tortoises in their wild domain, one where elephants charge, herds of zebras thunder across the open plains, lions roar and deadly denizens slither from one driedoring bush to another, then by all means join a safari to southern Africa.

Leopard Tortoises

When speaking of African leopards, one automatically envisions a stealthy predator cat with glowing turquoise-green eyes. Although this is an apt description of one magnificent beast, to those herpetologically inclined the term "leopard" takes on a different meaning. It refers to the second largest terrestrial chelonian species on the African continent, the leopard tortoise, *Geochelone pardalis*. On the subcontinent (primarily the eastern Cape Province of South Africa) adults may reach a respectable size in excess of 24 inches, with a weight near 45 pounds. Elsewhere within its range it does not grow as large.

According to Boycott and Bourquin (1988), the largest specimen recorded in South Africa had a carapace length of 25.6 inches and an estimated weight in excess of 88 pounds. This individual was the famous "Domkrag," found in Addo Elephant National Park and named by the local rangers because of the tortoise's habit of crawling underneath vehicles in an apparent effort to lift them. Domkrag is Afrikaans for "lifted-jack," an appropriate designation for so massive and cantankerous a reptile. During one of my many visits to Addo Elephant National Park, I had the opportunity to personally inspect the shell of Domkrag and listen to stories by people who had known this stately chelonian. It appears that not only was Domkrag intent on jacking up vehicles, he also enjoyed ramming unsuspecting bystanders from behind.

Two varieties of leopard tortoises are often recognized. One is *Geochelone p. pardalis*, the other is *Geochelone p. babcocki*. The former is the larger of the two, found in restricted areas of the eastern and southern Cape Province of South Africa, and recognized by a more pronounced plastral cavity in males. The smaller *babcocki* occurs elsewhere within the extensive range of our reptilian leopard and generally boasts a more vivid color/pattern combination, plus a plastral depression that covers only the posterior third of males. However, these are merely general differences as a great variety of color/pattern/size combinations exist in any given region, especially when young and very old specimens are involved. I tend to agree with Boycott and Bourquin (1988) that the validity of *babcocki* is not at all justified by such small and often contradictory factors.

In southern Africa, leopard tortoises occupy a tremendous variety of habitats, ranging from moist and humid jungle conditions near the South Africa-Mozambique border, to endless stretches of hot and barren lands in the Kalahari and Namib deserts, plus montane regions up to nearly 4,000 feet in Mountain Zebra National Park. During summer, *pardalis*

must often endure very high daytime temperatures, with powerful thunder and lightning hailstorms thrown in. This is followed by winter months that plummet the mercury well below freezing. In a few regions, snowfall is not out of the question.

In the wild, *Geochelone pardalis* feeds on a variety of plant material, including berries and fruit. However, I have observed this species nibbling on the remains of semi-dried elephant dung in Etosha National Park (Namibia), in Kruger National Park (South Africa) and in Hwange National Park (Zimbabwe). While on safari in the lowveld of South Africa's Transvaal in 1987, my host Mervyn Beretta pointed out that he often sees leopard tortoises feeding on the dry, whitish-colored droppings of spotted hyenas. This observation came as no surprise to me, as I'm aware of many captive *pardalis* that regularly feed on dried dog feces.

Leopard tortoise activity on the subcontinent is often associated with the arrival of the rainy season (November), but varies considerably from year to year, and from country to country. They are not good swimmers, but will enter shallow water to drink, cool off or simply wade through en route to greener pastures. I once saw a small specimen meander through a herd of black-faced impala to reach a water hole, another walked directly past a 3-foot-long Nile crocodile at the edge of a large lake in Kruger National Park.

I often see massive adults drinking out of communal water holes frequented by herds of elephants, and in Kruger National Park I've observed them sitting in and drinking out of puddles on a paved road. On one occasion, in the Kalahari Gemsbok National Park, a large leopard tortoise drank from a roadside puddle that was later visited by a mature black-maned lion. In other words, given the opportunity *Geochelone pardalis* will not hesitate to make use of whatever water is available.

Mature leopard tortoises have very few enemies in the wild, except humans and wildfires. Humans kill them for food, and fires destroy habitat and kill individuals caught out in the open. Boycott and Bourquin (1988) present some interesting facts here. They state that even today rural South African people eat tortoises, primarily angulate and leopard tortoises. In parts of the Karoo, two chelonian delicacies stand out among the rest. One is called "karrookreef" (Karoo crayfish), the other "skilpadbraai" (tortoise barbecue). On some farms, tortoise shells lie around the cottages of farm hands, sure evidence that the residents indulged in one of these. Boycott and Bourquin do not believe that *skilpadbraais* are restricted to the Karoo region, which may explain the absence of tortoises in certain parts of South Africa.

Neonate and young tortoises fall prey to a number of reptile, bird and mammal species. Among these are monitor lizards, ravens, hornbills and, very likely, spotted hyenas. The latter, in possession of vice-like jaws and bone-crushing teeth, can easily pulverize the shell of any young tortoise. Nests are dug up by both Nile and white-throated monitors, which consider the eggs a great delicacy. The trials and tribulations of leopard tortoises in the wild are many.

Hinged or Hingeback Tortoises

In southern Africa, this group of tortoises is represented by four species, two are endemic. All belong to the genus *Kinixys*. The common name of hinged, or hingeback, is derived from the prominent hinge adults have on the carapace. The hinge allows the rear of the shell to close downward, protecting both hind legs and tail effectively. Neonates hatch without this hinge; it only develops with age.

Within southern Africa, distribution of the four known species is as follows: Bell's hinged tortoise, *Kinixys b. belliana*, ranges from Zululand in the south, to eastern Zimbabwe and Mozambique in the north. Speke's hinged tortoise, *Kinixys spekii*, is found from Swaziland in the south, then north through South Africa's Transvaal, part of eastern Botswana and in much of Zimbabwe. The Lobatse hinged tortoise, *Kinixys lobatsiana*, (endemic) has a limited distribution in the north of South Africa and extreme southeast Botswana. The Natal hinged tortoise, *Kinixys natalensis* (endemic) is found in a narrow belt from Zululand in the south, then north through Swaziland and into Kruger National Park. These locations are only a guideline, and by no means absolute in a country of such geographic diversity.

Bell's hinged tortoise is the largest of the four, with adults reaching a carapace length of about 8.5 inches and a weight in excess of 3 to 4 pounds. The smallest is the Natal hinged tortoise, with females boasting a 6-inch-long carapace and a maximum weight of just below 1.5 pounds. Take these figures with a grain of salt, as exceptions in nature are everyday occurrences.

Like other tortoise species on the subcontinent, *Kinixys* frequents a great variety of habitats, ranging from hot and humid coastal bushveld, to inland savannah regions and rock outcroppings at higher and colder elevations. I've encountered several species in the wild, of which two separate incidents bear repeating.

While traveling through Kruger National Park for the first time in December 1969, my partner Chris Banis and I were

relaxing in one of the camps and discussing why we hadn't seen a single tortoise. A local worker overheard our conversation and volunteered to share his knowledge in regard to tortoise activity. "It must rain, then you find plenty. I think it will rain tomorrow." He was right. The following day it rained, and with it came the arrival of hinged and leopard tortoises-by the dozens! Most of these were young or sub-adults, not a giant among them. During subsequent visits to Kruger, I recorded this rain-tortoise activity cycle numerous times, although I did find adult specimens on the move in completely dry periods also.

While photographing white (square-lipped) rhinos in Zululand's Hluhluwe Game Reserve during February 1989, I ran across a very large Bell's hinged tortoise crossing a dirt road not far from where the rhinos grazed. It had rained hard the previous days, with all streams running at full speed. For a fraction of a second I entertained the idea of getting out to have a closer look at this fine beast, when several snorting buffaloes came around the bend. I backed up quickly, the tortoise took cover in dense vegetation, and the buffaloes just kept on coming.

Tent and Geometric Tortoises

This group of high-domed and colorful tortoises is comprised of one genus containing three species, plus a number of subspecies. All are endemic to southern Africa. The most common and widespread of these is *Psammobates oculifer*, ranging throughout much of Botswana's Kalahari Desert and adjacent regions. The rarest is *Psammobates geometricus*, now restricted to a miniscule area in the extreme southwestern Cape Province of South Africa. Ninety-six percent of its natural habitat has been destroyed by humans. The remaining three varieties, *Psammobates tentorius tentorius*, *P.t. verroxii* and *P.t. trimeni*, have limited distribution within South Africa and parts of adjacent Namibia.

The scientific term *psammobates* means "sand-loving," a good description for tortoises that prefer to live in a dry, arid environment. Within the Kalahari Desert they are relatively common throughout much of the red dune system. Southeast of Etosha National Park, Namibia, I found them in a habitat of spinose bushveld. It has been said that rain is the primary catalyst that prompts these reptiles to move, a statement I do not necessarily agree with. If it were true, then in some regions during excessive droughts they would lie dormant until doomsday.

Yes, some are likely to be encountered just prior to, within and shortly after a rainstorm in spring or summer, but my own experiences have shown them to be more active during non-rainy periods. The very first tent tortoise I found in the wild, namely *Psammobates oculifer*, was crossing a paved road just outside the city limits of Tsumeb, Namibia, in early October 1975. There was no rain in sight, none predicted for the next few weeks, and judging from the absolutely parched countryside, not a drop had fallen in the past several months. Shortly before entering Etosha National Park I found another tortoise of the same species crossing a dirt road, and again in a region completely devoid of rain--just sandy, rocky and spinose bushveld covered with gigantic termite mounds. In later years, starting in April 1983, I often traveled the dusty and corrugated road between Askham and Hotazel (pronounced hot-as-hell) in the Cape Province of South Africa. There, I ran across *Psammobates oculifer* and *Geochelone pardalis* on the move in the early morning hours with no rain. On several occasions there was a promise of moisture in the clouds, but none forthcoming. One time, a slight drizzle did appear, but it did not increase tortoise activity. Within the confines of the Kalahari Gemsbok National Park (extreme northwest corner of the Cape Province) my colleague Rod Patterson and I never found *P. oculifer* on the move during a drizzle, light rain or torrential downpour. As a matter of fact, the very first one we encountered in this superb park was in March 1985, when it was absolutely dry. When first spotted, the tortoise was walking along a sandy verge, then shortly thereafter took refuge in the meager shade of a driedoring bush.

However, in October 1996, my cohort Dave "Redbush" Hewett and I did find two tent tortoises, *Psammobates tentorius verroxii*, dead on the road during a slight drizzle. One was found at 11:30 am some 70 kilometers east of Pofadder, Cape Province, the other at 2:10 pm and 33 kilometers west of Pofadder. Both were females and both were hit within minutes of our arrival. The largest specimen carried two fully formed eggs in the oviduct of her crushed body cavity.

Both geometric and tent tortoises are relatively small chelonians, ranging between 3 and 4.5 inches in length, with a maximum length near 6 inches. However, Boycott and Bourquin (1988) write that "exceptional specimens with carapace lengths of 200 millimeters (7.87 inches) have been recorded." Regardless of the species in question, females grow larger than males. A certain amount of color/pattern variation exists within the tent tortoise clan, and there are regions of intergradation. One in particular, the Kalahari tent tortoise, *Psammobates oculifer*, is aptly described by Branch (1998) as: "a small tortoise that comes in a bewildering range of shapes and colours. This single species has at times been divided into no fewer than six species with 22 races."

Angulate Tortoises

Endemic to the tip of southern Africa, barely reaching the extreme southwest region of Namibia, *Chersina angulata* comprises a monotypic genus with but a single species. Males grow larger than females, attaining a maximum size of 10 to 11 inches with a weight approaching 4.4 pounds. Average size is, of course, much less. Specimens from the west

coast and Dassen Island tend to grow larger than those farther east.

Angulate tortoises have adapted well to a great variety of climatic and vegetation zones, ranging from semi-desert regions in Little Namaqualand, to high rainfall areas in southwestern and southern Cape Province. They are also found in the coastal fynbos, thornveld and bushveld regions of the Great Karoo. Within this complex realm, Chersina encounters extremely hot summer temperatures, cold to freezing winter months, torrential rains and fog often thicker than pea soup. It is, without doubt, one of South Africa's hardiest tortoises. Individuals have been known to survive captivity longer than 30 years.

Better than 15 years have passed since I found my first angulate tortoise in the wild, and quite a surprise it was. After road hunting for South African coral snakes, *Aspidelaps lubricus*, I spent the night in a motel in the quaint community of Kamieskroon, deep in the heart of barren Namaqualand. The following morning, less than 50 yards from the motel, a sub-adult angulata crossed my path. It moved along with surprising agility, a trait that this species is well known for. In later years, I also found them farther south at Lamberts Bay and slightly east of Saldanha, not too far north of Cape Town. The sightings of *Chersina* that impressed me the most were in Addo Elephant National Park, northeast of Port Elizabeth and not too far inland from the Indian Ocean. One in particular stands out among the rest. I had just finished photographing a small herd of elephants crossing the dirt road in front of me when, immediately behind them, an adult angulate tortoise also decided to cross. It did move along with great concern, quickly disappearing from sight into almost impenetrable ground cover. Elephants are very common here, and I wonder how many neonate and young tortoises are accidentally crushed beneath the weight of these massive pachyderms. During all of my visits to this excellent reserve I encountered less than half a dozen angulate tortoises, but plenty of leopard tortoises. I am certain that *Chersina* is common here, but considering how fast they walk, and how thick the bush is, any sighting comes and goes in a matter of seconds.

Male angulate tortoises often engage in serious combat, using their elongated gular shield with calculated efficiency to overturn the rival. These sparring bouts continue for 15 minutes or longer, until one of the participants is flipped over or simply heads for cover "in one hell of a hurry." However, once on its back the loser vibrates all legs and head in such a fashion that rocks the shell back and forth until a foothold is gained and the animal rights itself. Occasionally, the loser just lies there, waiting for the victor to leave before attempting to assume the upright position.

Pygmy Tortoises or Padlopers

Finally we arrive at the last group of terrestrial chelonians, all of which thrive in the extreme south and southwest of the subcontinent, all are endemic and all belong to the genus *Homopus*. One in particular, *Homopus signatus*, is the smallest tortoise known on earth.

Four species are currently recognized. These are *Homopus areolatus*, *H. boulengeri*, *H. femoralis* and *H. signatus*. A fifth, yet to be officially described, is referred to by Branch (1998) as *Homopus* sp. or Nama padloper. In 1988, Branch called this tortoise the Nama or Berger's padloper, *Homopus bergeri*. It is a good example of how present day taxonomic upheaval merely complicates and confuses the issue, rather than simplifying it.

In any case, the largest of these pygmy tortoises is the greater padloper, *H. femoralis*, with females reaching a maximum carapace length of 6.6 inches and a mass weight of approximately 21 ounces; most are much smaller, of course. The distinction of smallest tortoise on earth goes to the speckled padloper, *H. signatus*. Mature males attain the miniscule size of only 3 inches and a feather-weight of 3 ounces!

Common names associated with these tortoises are as diverse as the animals themselves. I've already alluded to the term padloper, an Afrikaans saying not universally recognizable in reference to a tortoise. The word does have a gentle ring to it, but it isn't appropriate to correctly identify members of the genus *Homopus*. Here is but one example of how confusing the issue really is. *Homopus areolatus* has been called: beaked cape tortoise, areolate padloper, areolated tortoise, common padloper and parrot-beaked tortoise. My suggestion for standardizing the common names of *Homopus* species is as follows: parrot-beaked tortoise, *H. areolatus*, Boulenger's tortoise, *H. boulengeri*, Karoo tortoise, *H. femoralis*, northern speckled tortoise, *H. s. signatus*, southern speckled tortoise, *H. s. cafer*, and Nama tortoise, *H. bergeri* (or whatever they finally decide on). It's straight-forward, everybody can understand it, and cross-referencing a particular species with a common name would not be a nightmare.

We've already established that the largest variety of these pygmy tortoises is *H. femoralis*, and the smallest *H. signatus*. Of course, there must also be one with the most vivid coloration and/or pattern arrangement. This distinction, as far as I am concerned, belongs to *H. areolatus*, endemic primarily to the southern Cape Province of South Africa. One of its common names, areolated tortoise, refers to the somewhat flattened carapacial shields with large areolae. The term areola means colored ring or small open space. More fitting is parrot-beaked tortoise, due to the reptile's somewhat elongated head and strongly hooked beak. Average length for this species is 3 to 4 inches. Females are larger than males. Males can be

distinguished from females by a chunkier head, a more pronounced beak and a longer tail, but they do not possess a plastral concavity. During the mating ritual, trying to fit this "flat" plastron against the female's rounded carapace makes actual contact a most precarious situation. Once he mounts the female his body is almost perpendicular to her. If she's receptive, then mating takes place. If not, and she starts walking forward, he is forced to follow in a manner that can only be described as pathetic. Eventually, two or three eggs are deposited (rarely four), and hatch anywhere from 150 to 320 days later. The young are quite large, measuring in excess of 1 inch in length, about one-fourth the maximum size for adults. However, they weigh only 6 to 8 grams. Adults have been known to survive in captivity in excess of 28 years.

If I had to make a decision as to my favorite of the pygmy tortoise clan, I would have to emphatically answer the speckled tortoise, *Homopus signatus*. Their tiny size, friendly disposition and the scenic country they live in have endeared me to the species. In some parts of their known range they are quite common, sharing the habitat with such well-known denizens as puff adders, *Bitis arietans*, many-horned adders, *Bitis cornuta*, and the gaudy-colored South African coral snake, *Aspidelaps lubricus*, just to mention a few.

Speckled tortoises (two races) are found in the western regions of South Africa's Cape Province, extending north into the extreme southwestern tip of adjacent Namibia (across the Orange River). They occur from sea level to an elevation of about 1,300 feet, showing a preference for rocky terrain. My own sightings have taken place in lovely Namaqualand, but for obvious reasons I must exclude the specific locales. The country in which they survive produces some of the harshest elements on earth. Summer temperatures reach hellish proportions, and winter months are extremely cold. In mid-October 1998, my partner Dave "Redbush" Hewett and I found both adults and young specimens under objects with a wind chill factor of no more than 40 degrees Fahrenheit. The ground on which they rested was wet from the previous night's thunderstorm, and ice-cold to the touch; likewise for the tortoises' shells. Yet, when picked up they began moving without hesitation.

Conclusion

The keeping of tortoises in captivity, both for private enjoyment and commercial gain, has taken its toll on wild-roaming populations. Add to this humankind's selfish greed in transforming natural habitat into concrete jungles, and I give you a formula that spells doomsday for many species. Of course, our tortoise clan of southern Africa figures prominently in so bleak a picture. I once visited a dealer in Florida who kept dozens of angulate tortoises in a coffin-shaped box big enough for a single adult specimen. On a separate occasion I heard that some 35 parrot-beaked tortoises had been imported into the New York State, most of which, I am willing to bet, died shortly thereafter. The keeping of *Homopus* and *Psammobates* species is difficult at best and should not even be attempted by beginners. The chances are that any *Homopus* or *Psammobates* species on the market today were obtained illegally and suffered greatly during smuggling. Unless you are absolutely certain the animal in question was obtained legally, don't buy it. If you do, you are only contributing to the continuance of those flesh-dealers who see nothing but dollar signs in these beautiful creatures.