

The Herpetofauna of the Tsitsikamma Coastal and Forest National Parks

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An annotated check list of the herpetofauna of the Tsitsikamma National Parks is given. A total of 38 species, comprising 6 chelonians (2 tortoises, 4 sea turtles), 8 lizards, 11 snakes and 13 amphibians have been collected within the parks. The diversity of the Tsitsikamma Coastal National Park is greater than that of the Tsitsikamma Forest National Park. This is due to a number of factors, including more intensive collecting, greater area and habitat diversity, and the presence of 5 marine species. The parks are important reserves for a number of species endemic to the southern coastal region, including *Bradypodion damaranum*, *Cordylus coeruleopunctatus*, *Breviceps fuscus* and *Afrivalus knysnae*. An appendix lists a number of additional species that can still be expected to occur within the parks.

Key words: Check list, herpetofauna, Tsitsikamma Coastal National Park, Tsitsikamma Forest National Park, conservation, zoogeography, fynbos, forest.

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• Introduction

Little is known of the reptiles and amphibians inhabiting the national parks of the eastern and southern Cape. As part of a general survey of the herpetofauna of the eastern Cape (Branch 1981, 1983) specific investigations of the national parks occurring in the region were also undertaken (Branch & Braack 1987). The Tsitsikamma national parks (Tsitsikamma Coastal National Park (TCNP) and the Tsitsikamma Forest National Park (TFNP)) include a mosaic of fynbos vegetation and remnants of cold Afromontane forest (White 1978). Both are important phytogeographic divisions and yet the reptiles and amphibians inhabiting these biomes are poorly known. Carruthers & Robinson (1977) published a list of amphibians recorded within the parks, but this has been superseded both by numerous subsequent taxonomic changes and additional discoveries. No inventory of the parks' reptiles has previously been published. The following annotated check list documents the reptiles and amphibians recorded within the parks, and discusses

their ecology and zoogeographic affinities. An appendix lists additional species that may be expected with further collecting.

Materials and Methods

Specimens were collected at irregular intervals by park personnel, and during five visits to the park by the senior author. They were either captured by hand or recorded on the basis of visual sightings if no doubt existed as to the species identity. Voucher specimens are deposited in the indigenous species collection at the TCNP and the herpetological collection of the Port Elizabeth Museum (PEM). No attempt was made to accurately quantify species abundance or habitat specificity. Comments are restricted to recording habitats in which species have been observed, and any assessments of their rarity or abundance are subjective.

Species Accounts

Class Reptilia
Order Chelonii
Suborder Cryptodira
Family Testudinidae

Two species of land tortoise have been recorded within the parks, but both are relatively uncommon.

Geochelone pardalis (Bell, 1828)

Leopard tortoise

It has a wide distribution in sub-Saharan Africa, but is absent from the south-western Cape. Occasional specimens (up to 43 cm carapace length) have been recorded in 'disturbed' habitat along the forest boundary of the TCNP at Nature's Valley and on the road to the rest camp at Storms River Mouth (January-April 1986).

Chersina angulata (Schweigger, 1812)

Angulate tortoise

Distributed throughout the Cape coastal region, but absent from forest and mountain fynbos. A single specimen, possibly introduced, has been observed in the vicinity of the Storms River Rest Camp (TCNP) whilst others were observed along the margins of the Tsitsikamma Forest National Park.

Family Cheloniidae

Three species of sea turtle of the Family Cheloniidae have been recorded in the waters of the TCNP, but all are marginal vagrants, breeding in northern waters and washed south in the Agulhas current.

Chelonia mydas (Linnaeus, 1758)

Green sea turtle

A juvenile specimen (38 cm carapace length) washed ashore in the TCNP, whilst larger specimens (ca. 40 cm – 50 cm carapace length) have occasionally been seen in the coastal waters. The nearest rookery is Europa Island in the Moçambique Channel.

Caretta caretta (Linnaeus, 1758)

Loggerhead sea turtle

This species breeds on the Tongaland coast, hatchlings dispersing into the southern Indian Ocean Gyral (Hughes 1974). Onshore winds in autumn and winter often result in ‘wrecks’ of young loggerheads (ca. 7 cm carapace length) on the beaches of the Tsitsikamma Coastal National Park. Larger specimens (ca. 40 cm – 50 cm carapace length) have been spotted at sea.

Eretmochelys imbricata (Linnaeus, 1766)

Hawksbill sea turtle

A single subadult specimen (36 cm carapace length) of this attractive sea turtle was discovered (28 April 1983) in the TCNP, being eaten by a large common octopus in an underwater gully at Storms River Mouth (Buxton & Branch 1983).

Family Dermochelyidae

Dermochelys coriacea (Linnaeus, 1766)

Leatherback sea turtle

This, the largest sea turtle, is represented in the TCNP by occasional ‘wrecks’ of young specimens (Nature’s Valley) in association with onshore winds in autumn. Like the loggerhead turtle it breeds on the Tongaland coast (Hughes 1974).

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Order Squamata
Suborder Sauria
Family Gekkonidae

Phyllodactylus porphyreus (Daudin, 1802)

Marbled leaf-toed gecko

Common in the Storms River Rest Camp area, this commensal species often enters houses and chalets. Elsewhere, a single adult was collected in the TCNP under exfoliating bark on a dead tree in the forest above the Storms River Rest Camp (20 September 1966, TNP/B/1966/2). Five gecko eggs containing advanced embryos of *P. porphyreus* were unearthed inside a rotting tree stump beside the Otter Trail at Nature’s Valley (24 February 1982).

Knysna specimens were referred to as the subspecies *P. p. cronwrighti* Hewitt 1937, but this subspecies has been questioned by Loveridge (1947). The TCNP specimens represent the most easterly record for the species. The reference in Loveridge (1947)

to a specimen from East London (MCZ 11930) is so far out of the known range of the species that it must represent a mislabelled specimen or a human translocation, possibly in association with sea traffic. Craye (1976) noted that it was common under exfoliating bark in the Rietvlei region near Cape Town, whilst on Robbeberg, Plettenberg Bay, it inhabits cracks in the calcrete cliffs.

Family Agamidae

Agama atra atra Daudin, 1802

Common rock agama

Widely distributed throughout the Cape Province, inhabiting rock outcrops from the coast to the mountain peaks. It has been collected in the TCNP on rocks beside the Otter Trail at Nature's Valley (28 February 1982) and the western cliffs of the Bloukrans Gorge (December 1984), and in the TFNP on the rock faces of the Storms River Gorge.

Family Chamaeleonidae

Bradypodion damaranum (Boulenger, 1887)

Knysna dwarf chamaeleon

Endemic to the southern coastal forests, this attractive chamaeleon extends to George in the west and reaches the eastern limit of its range in the Tsitsikamma Coastal National Park. It is widely distributed in the two parks. Three juveniles and one subadult were collected in the evening (22 February 1982) at 'Big Tree' (TFNP) sleeping in the understorey (1,5 m – 2 m). A large adult was collected sleeping in a *Chrysanthymoides* bush (Compositae) near the main entrance to the TCNP (21h00, 24 February 1982).

Family Scincidae

Mabuya homalocephala smithii (Gray, 1845)

Smith's skink

This diurnal, terrestrial skink favours rocky terraces and walls of the river gorges. It has been collected at Storms River Mouth (6 January 1977) and three hatchlings were observed on logs beside the Otter Trail at Nature's Valley (24 February 1982). The species is oviparous and the males develop red flanks in the breeding season (October – December).

Acontias meleagris meleagris (Linnaeus, 1758)

Golden sand skink

A burrowing, legless skink, inhabiting sandy soils in open clearings. Collected in the TCNP at Oakhurst (27 October 1965) and Storms River Mouth (8 August 1967).

Family Lacertidae

Tropidosaura gularis (Gray, 1831) Yellow-striped mountain lizard

An old preserved specimen of this secretive lacertid is preserved in the Port Elizabeth Museum collection (PEM R 641), labelled 'Witch's Cave', Tsitsikamma. Robinson (1977) has discussed the probable identity of FitzSimon's 'Tsitsikamma Cave' (with respect to its archaeological contents) and equated it with the 'Coldstream Cave' at the mouth of the Lottering River (TCNP), which was discovered by C.J. Whitcher Sr., founder of the small community at Coldstream. It is probable that this lizard was collected at this site and that the label is a corruption of the cave Whitcher found. *Tropidosaura gularis* is widely distributed in fynbos situations throughout the Cape fold mountains, but is very rarely seen due to its cryptic colouration and preference for thick vegetation.

Family Cordylidae

Tetradactylus seps seps (Linnaeus, 1758) Short-legged seps

A shy, diurnal terrestrial cordylid that favours well-vegetated, damp areas. An adult, basking on a pile of humic soil and rotting logs at the base of a tree on the Blue Duiker Trail, was collected in the TCNP (11h00, 26 February 1982, PEM R 3309).

Cordylus coeruleopunctatus Blue-spotted girdled lizard
(Methuen and Hewitt, 1913)

A common, diurnal rupicolous lizard in both parks, inhabiting the coastal rocks and walls of the river gorges. It is viviparous and has two babies in late summer (January – March). It is endemic to the southern coastal region from George to Witelsbos, and seems to competitively exclude the common girdled lizard *Cordylus cordylus*, which occurs on coastal rocks to the east and west of its range.

Suborder Serpentes
Family Colubridae

Lycodonomorphus rufulus (Lichtenstein, 1823) Olive water snake

A common frog-eating snake of damp situations, particularly around the Storms River Mouth in the TCNP (10 February 1977, December 1981).

Lamprophis inornatus Duméril and Bibron, 1854 Olive house snake

Distributed throughout the southern and eastern regions of South Africa, this

nocturnal, terrestrial snake is relatively common in disturbed forest, and has been collected around the rest camp at Storms River Mouth (TCNP).

Duberria lutrix lutrix (Linnaeus, 1758) Southern slug-eater

As its name implies this snake specialises in eating slugs, and it is therefore restricted to damp situations. It has been collected at the Storms River Bridge (TFNP) and Oakhurst and Storms River Mouth (TCNP), and observed regularly in the Paul Sauer Hoek area (TCNP).

Pseudaspis cana (Linnaeus, 1754) Mole snake

Although widely-distributed throughout southern Africa, this large, burrowing snake is rare in the parks as it prefers open veld with deep soil. Only a single specimen has been collected near Lottering (TCNP).

Philothamnus natalensis occidentalis Western Natal green snake
Broadley, 1966

This diurnal, frog-eating water snake is relatively common in the TCNP, particularly around Storms River Mouth (December 1981, 31 March 1983). It is often mis-identified as a baby boomslang or green mamba. Specimens can also be confused with the common green water snake *Philothamnus hoplogaster*, the two species being very similar in appearance.

Broadley (1983) diagnoses the two species on the temporal formula, which is usually 2+2 in *P. natalensis* and 1+2 in *P. hoplogaster*. Although typical *P. n. natalensis* has keeled subcaudal scales, this is hardly present in the western race *P. n. occidentalis*. Four *Philothamnus* from TCNP have high subcaudal counts (125–130), typical for *P. n. occidentalis* (73–106, rarely exceeding 100, in southern African *P. hoplogaster*). However, two have aberrant temporal scalation (1+2 on both sides of head in one, 2+2 and 1+2 on right and left side of head in another). All specimens are referred to *P. n. occidentalis*. *Philothamnus hoplogaster* has not been positively identified in the parks, although Broadley (1983) records it as far west as Knysna.

Crotaphopeltis hotamboeia Red-lipped or Herald snake
(Laurenti, 1768)

A harmless, back-fanged, nocturnal snake, that feeds on frogs and is thus common in damp situations. It has been collected in the TCNP around Storms River Mouth (13 June 1965, 11 August 1968, 27 June 1975, February 1982), and has been observed in the Paul Sauer Hoek area. It is also known from Coldstream and thus probably occurs in the TFNP as well.

Dasypeltis scabra (Linnaeus, 1758)

Common eggeater

The eggeater is widely-distributed in southern Africa, but it has only been collected once in the TCNP, in fynbos vegetation next to the trail at Nature's Valley.

Dispholidus typus typus (A. Smith, 1829)

Boomslang

A common, diurnal snake that inhabits open forest and feeds mainly on birds and chameleons. It has been collected in the TCNP at Storms River Mouth (6 October 1965), and observed beside the Marine Drive at Bloukrans (March 1982, Sept 1986) and twice at Olienboomkop (11 February 1982, one eating an unidentified frog). A small grey mongoose *Galerella pulverulenta* (Wagner, 1839) was observed killing a boomslang on the road pass to the Storms River Rest Camp. It has also been observed in the Paul Sauer Hoek area.

Family Elapidae
Subfamily Hydrophiinae

Pelamis platurus (Linnaeus, 1766)

Yellow-bellied sea snake

A pelagic sea snake, distributed throughout the Indo-Pacific. Occasionally they wash into southern African waters with the Agulhas current and are stranded on the beaches with onshore winds. A single specimen found in the TCNP at Nature's Valley (27 August 1970).

Family Viperidae
Subfamily Viperinae

Causus rhombeatus (Lichtenstein, 1823)

Common night adder

A nocturnal, terrestrial adder, that eats toads and is relatively common in the parks. It has been collected on a number of occasions in the TCNP, particularly around the Storms River Rest Camp (20 October 1974, 6 January 1981, December 1981), but also on the Otter Trail (Mooibaai, 14 February 1982, and Skilderkrans March 1981), and east of Storms River at Grootbaai (February 1981). Specimens have also been observed in the Paul Sauer Hoek area and dead on the main road near the Storms River Bridge (TFNP).

Bitis arietans arietans (Merrem, 1820)

Puff adder

A large, sluggish and dangerous adder, that has been observed on a number of occasions in the TCNP, usually in fynbos vegetation (e.g. two specimens at Robbehoek, November 1983; Mostert se Krans, 15 April 1981) and in disturbed

forest or pine plantation bordering TCNP (e.g. Marine Drive at Bloukrans; Steelpkop, September 1985).

Class Amphibia
Order Anura

The amphibians of the Tsitsikamma National Parks have been documented by Carruthers & Robinson (1977). The following notes give additional information and update the taxonomy of the species discussed by Carruthers *et al.* (1977). Two additional species are added to the check list. The higher taxonomic groupings follow those in the recent check list of world amphibians (Frost 1985).

Family Pipidae
Subfamily Xenopodinae

Xenopus laevis laevis (Daudin, 1802) Common platanna

Wide-spread throughout southern Africa, and common in most situations in both parks. Collected at Blaubaai Oos (19 November 1976).

Family Heleophryinae

Heleophryne regis Hewitt, 1909 Eastern ghost frog

Tadpoles of a ghost frog were collected (22 February 1982, PEM A 525) in a small stream draining into the east bank of Storms River in the Tsitsikamma Forest National Park. They are referable to *Heleophryne regis*, which has recently been elevated to a full species (Boycott 1982). A new addition to the amphibian check list of the Tsitsikamma Forest National Park.

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Family Bufonidae

Bufo rangeri Hewitt, 1935 Raucous toad

Common throughout both parks, even breeding in seepage ponds around seaside chalets at Storms River Mouth. Collected in soil pit near Storms River Bridge (TFNP).

Family Microhylidae
Subfamily Brevicipitinae

Breviceps fuscus Hewitt 1925 Black rain frog

Common throughout indigenous forest, but absent from fynbos. Calling in

February 1982 at Big Tree and behind service area (TFNP), and at Storms River Mouth, blue Duiker Trail and Otter Trail at Nature's Valley (TCNP.) Very large female (body 57,5 mm) collected 21 October 1964 at Oakhurst (TCNP). Newly metamorphosed juvenile collected under rotting log beside Otter Trail at Nature's Valley (24 February 1982, PEM A 556).

Family Ranidae
Subfamily Raninae

Rana fuscigula Duméril and Bibron, 1841 Cape river frog

Common throughout both parks. Juveniles around dam behind main gate (TCNP), and adult in margin of old saw pit in forest behind service area (TFNP). Collected in TCNP at Storms River Mouth (8 November 1976), Petrusville (17 June 1977), Kerr's Dam (18 November 1976), and Covie Depot (18 November 1976, CN 233-4), and in TFNP at Big Tree (15 November 1976).

Strongylopus grayii grayii (A. Smith 1849) Clicking stream frog

Common throughout both parks. Juveniles around dam behind main gate (TCNP), and adult in margin of old saw pit in forest behind service area (TFNP). Calling in seepage areas around seaside chalets at Storms River Mouth (23 February 1982; 19 November 1976, CN 238-9).

Strongylopus fasciata fasciata (A. Smith, 1849) Striped stream frog

Recorded around chalets at Storms River Mouth (15 November 1976, CN 223), and metamorphosing froglets collected at Covie Depot (17 November 1976, CN 216-7).

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Strongylopus bonaspei (Dubois, 1980) Cape stream frog

Previously treated as a subspecies of *S. fasciatus* (as *S. f. montanus*), but now known to be specifically distinct (Greig, Boycott & De Villiers 1979). *S. bonaspei* is a replacement name as *montana* is preoccupied. Collected in seepage areas in fynbos vegetation along the upper boundary of the Tsitsikamma Forest National Park. A new addition to the amphibian check list.

Subfamily Petropedetinae

Cacosternum nanum nanum Boulenger, 1887 Bronze caco

Calling in seepage areas in fynbos vegetation along the upper boundary of the

TFNP (23 February 1982). Collected at Storms River Mouth (15 November 1976, CN 227–8).

Family Hyperoliidae
Subfamily Kassiniinae

Kassina wealii (Boulenger, 1882) Rattling kassina

Collected in TCNP at Storms River Mouth (10 August 1975) and Covie Depot (17 November 1976, CN 219). Placed in new monotypic genus by Drewes (1985).

Subfamily Hyperoliinae

Afrixalus knysnae Loveridge, 1954 Knysna spiny reed frog

Previously considered a subspecies of *A. brachycnemis*, but now treated as a full species (Poynton, *in* Frost 1985). Restricted within the TCNP to a single small pan at Covie (CN 214–5). Metamorphosing froglets were common on *Restio* stems in flooded margin of small pan in fynbos vegetation in De Vasselot Nature Reserve at the east end of the old Groot River Pass (24 February 1982).

Hyperolius horstockii (Schlegel, 1837) Arum lily frog

Previously known from the TCNP only from the small dam at Covie (CN 213), it has also been observed in gardens in the Paul Sauer Hoek area.

Hyperolius mamoratus verrucosus A Smith, 1849 Painted reed frog

In *Phragmites* beds at Kerr's Dam (18 November 1976, CN 229–30).

Discussion

As could be expected from their close proximity, the Tsitsikamma Coastal and Forest national parks have very similar herpetofaunas. However, very few reptiles have been recorded in the Tsitsikamma Forest National Park. The presence of a public rest camp, popular hiking trails and wardens cottages at the TCNP all increase the likelihood that rare or secretive reptiles will be collected. The lack of many of these reptiles in the TFNP is thus, in part, an artifact of collecting, and it is likely that quite a number of these species will eventually be collected in the Tsitsikamma Forest National Park. Despite this, however, the relatively wet and cool conditions prevailing in the thick indigenous forest are unsuitable for most reptiles. In addition, the TCNP is considerably larger in surface area and also has a wider spectrum of habitats. Included in the latter is the marine

environment, and five reptiles (one snake and four sea turtles) occur, albeit as infrequent vagrants, in the Tsitsikamma coastal waters. Obviously these will not occur in the TFNP, but it is also unlikely that the hyperoliid frogs *Afrixalus knysnae* and *Hyperolius horstockii* will be found as suitable dams or vleis do not exist in the Tsitsikamma Forest National Park. Two amphibians, *Heleophryne regis* and *Strongylopus bonaspei*, have been observed in the TFNP but not in the Tsitsikamma Coastal National Park. Both are endemic to fynbos situations in the Cape fold mountain, and may yet be found in the TCNP, although the ghost frog prefers torrent streams for reproduction and no suitable habitat has been located within the coastal region.

Many of the species occurring in the parks, particularly amongst the amphibians, are representatives of the Cape Temperate Fauna (*sensu* Broadley & Poynton 1978) and endemic to the southern Cape coastal region (e.g. *Bradypodion damaranum*, *Cordylus coeruleopunctatus*, *Breviceps fuscus*, *Heleophryne regis*, *Strongylopus bonaspei*, *Afrixalus knysnae* and *Hyperolius horstockii*). The parks thus represent important reserves for the conservation of these species. For some species the populations existing within the parks are also at the limits of the species range (e.g. western limit *Hyperolius marmoratus verrucosus*; eastern limit *Phyllodactylus porphyreus*, *Bradypodion damaranum* and *Hyperolius horstockii*). They are important future indicators of possible range contractions or expansions.

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Appendix

The following species have not yet been collected within the boundaries of the TCNP or TFNP, but are likely to be found in suitable habitats. None of the species are primary forest dwellers, but are more likely to be found in the open fynbos or secondary forest.

SPECIES	FOREST	COASTAL
Lizards		
<i>Pachydactylus maculatus</i>	*	*
<i>Tropidosaura gularis</i>	*	
<i>T. montana</i>	*	*
<i>Mabuya capensis</i>	*	*
<i>Pseudocordylus microlepidotus</i>	*	
Snakes		
<i>Typhlops lalandei</i>	*	*
<i>Leptotyphlops nigricans</i>	*	*
<i>Lamprophis fuliginosus</i>	*	*
<i>Amplorhinus multimaculatus</i>	*	*
<i>Psammodon rhombeatus</i>	*	*
<i>Homoroselaps lacteus</i>	*	*
<i>Philothamnus hoplogaster</i>	*	*
<i>Bitis atropos</i>	*	