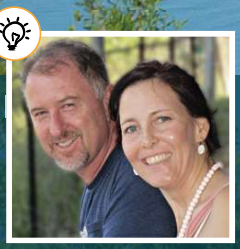
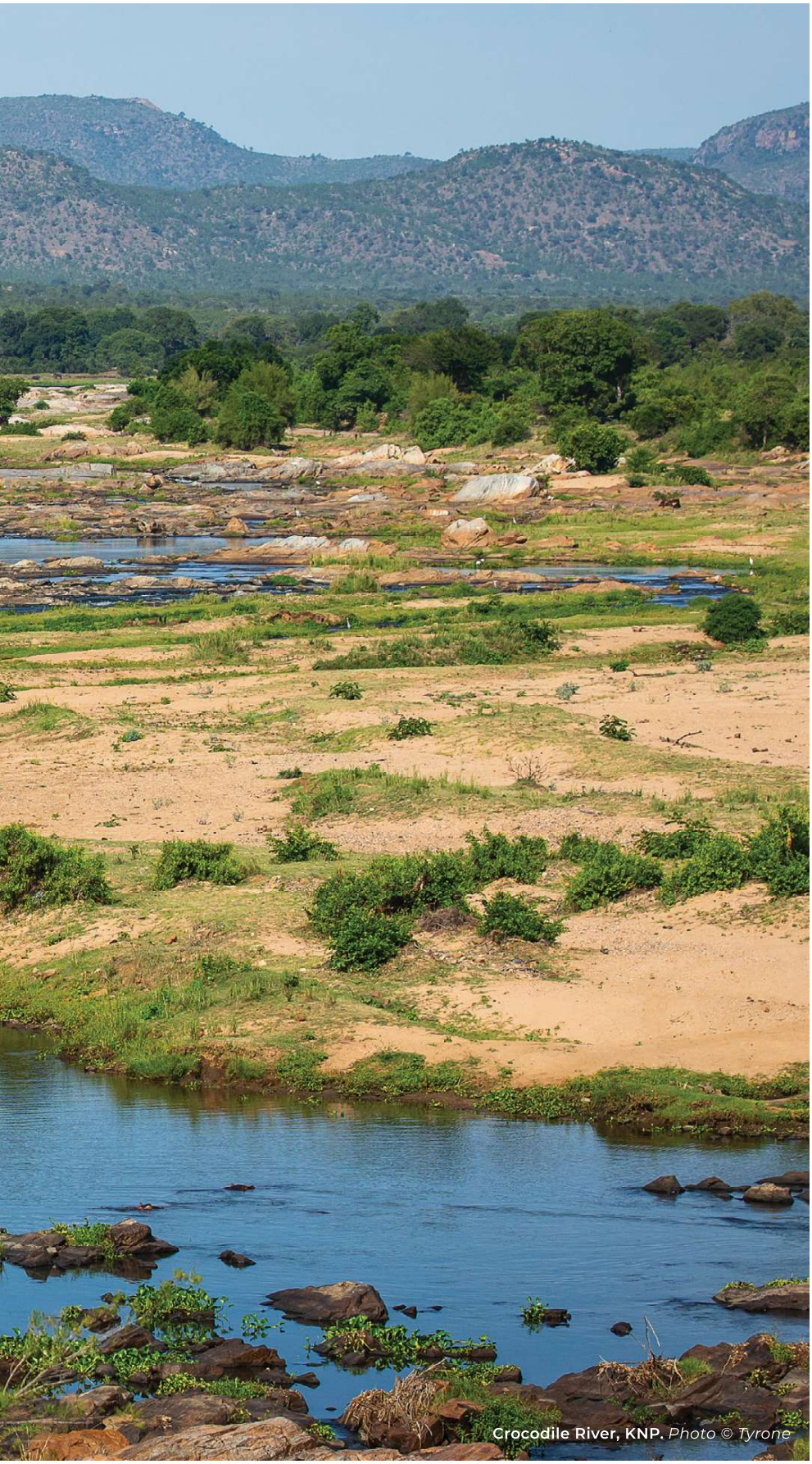
Tilapia in the Kruger's rivers

by Dr Piet and Bronwyn Kotze



« Dr Piet (Vis) and Bronwyn Kotze

Piet Kotze is an independent environmental consultant at Clean Stream Biological Services. His initial introduction to the aquatic biodiversity of the Kruger National Park was gained during his postgraduate studies, under the watchful eye of the then aquatic ecologist of the Park, Dr Andrew Deacon. Together, they spent many days conducting monitoring surveys along the Park's rivers, where he aptly received the nickname 'Piet Vis' (English: Piet Fish), a name that has stuck to this day. As an aquatic ecologist, he is currently involved in many freshwater monitoring and research studies and has a special interest in the overall biodiversity the Park offers. His wife, Bronwyn, shares the same interests, and after completing her Master's degree in Zoology on the Sabie River, they moved to the Lowveld and as a couple, they have shared many bush adventures together.



Crocodile River, KNP. *Photo © Tyrone*

Introduction

Bouncing one's way through the stifling hot, dusty savannas of the Kruger National Park (KNP), it is always a welcome relief to arrive at one of the refreshing, life-giving water courses that meander effortlessly through the Bushveld valleys. These ecosystems support their own unique biodiversity, offering refuge to various riparian and aquatic animal and plant species, and interesting sightings to nature enthusiasts. These rivers of the KNP play a critical role in the conservation of aquatic biodiversity and especially freshwater fish in Southern Africa as a whole.

The Kruger National Park boasts the highest diversity of freshwater fish species amongst all the national parks in South Africa, with an estimated 49 fish species naturally occurring in the Park.

The **'Life in the Rivers of the Kruger National Park'** series of articles aims to introduce and encourage readers to seek out the prolific freshwater inhabitants that contribute greatly to the biodiversity and intricate food webs of Kruger's riverine ecosystems.

The first article in this series, (KRUGER MAGAZINE, issue 31), featured the most charismatic and spectacular predator of the Kruger's rivers, namely the **tigerfish** (*Hydrocynus vittatus*). In this issue we explore one of the most commonly observed fish species in the Kruger National Park, namely the **tilapia**, also known as bream, *kurpers* in Afrikaans and *hlampfi* in Shangaan/Xitsonga.

Schools of silver fish and saucer-shaped nests
Spotting schools of tilapia in the Kruger's rivers can be quite thrilling! During the drier seasons, reduced water levels offer excellent sighting opportunities, as they feed in large schools on algae-covered rocks and other submerged substrates. Brilliant displays of teamwork can sometimes be seen as the tilapia are 'herded' by the snapping jaws of predators, such as tigerfish and crocodiles alike. These feeding frenzies intensify as observant water birds, like storks, herons, cormorants, kingfishers and egrets, congregate around the action, stabbing at and darting toward the frantic schools of tilapia.

WATCH THIS!
Scan the QR code or visit shorturl.at/AlQk2 to watch the feeding frenzy of crocodiles and water birds chasing a school of tilapia in the Crocodile River, depicting a successful tilapia hunt by a grey heron. *Video © Bronwyn Kotze*

Photo © Joseph Kiesecker

"Feeding frenzies intensify as observant water birds congregate around the action, stabbing at and darting toward the frantic schools of tilapia."

Grey heron (*Ardea cinerea*) with a Mozambique tilapia.
Photo © Bernard Du Pont

Striated heron (*Butorides striata*) with a juvenile Mozambique tilapia on the menu at the Biyamiti Weir low-water bridge crossing. *Photo © Pieter Kotze*

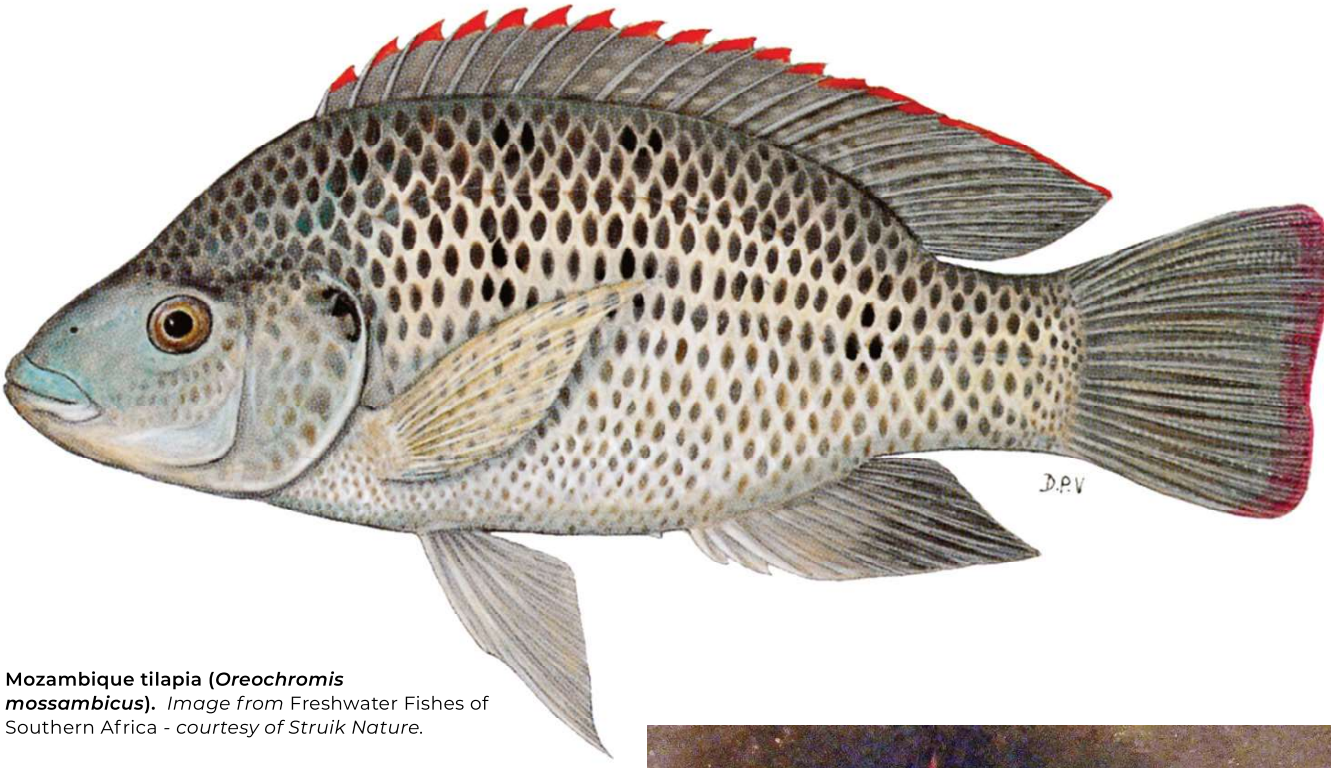
Great egret (*Ardea alba*) with juvenile Mozambique tilapia on the menu in the Crocodile River. *Photo © Bronwyn Kotze*

View of schools of Tilapia and the saucer-shaped nests in the Crocodile River. *Photo © Bronwyn Kotze*

Countless hours of patience by avid wildlife photographers are often rewarded at that very moment when a tilapia is seized and then held on display in the formidable bill of the predatory water bird before it is swallowed whole or first tenderised on a rock or tree stump.

Apart from the presence of large schools of silver fish, another distinctive clue to the presence of tilapia are the unique saucer-shaped depressions in the sandy riverbeds, often visible from the Kruger's high-water bridges. These depressions are indeed tilapia 'nests' that are patiently fashioned by male tilapia that are ready to breed. With its impressively red-edged fins and dark body colouration, the male tilapia tirelessly cleans his nest, defending it fiercely against another male tilapia and simultaneously endeavours to attract female tilapia.

Clearly, attempting to impress the ladies with their homemaking and building skills is not exclusive to weaver birds and humans!



Mozambique tilapia (*Oreochromis mossambicus*). *Image from* Freshwater Fishes of Southern Africa - *courtesy of Struik Nature.*

At home in rivers, aquariums and even Egyptian fish farms

Tilapia are part of the family *Cichlidae* and are referred to as cichlids (mostly tropical, spiny-finned fish). The cichlids are the largest fish lineage in Africa, with more than a thousand species already having been described, and many more awaiting naming. Aside from their various shapes, sizes and colours, their deep and compressed body shape, with spined dorsal and anal fins, are distinctive characteristics. These formidable dorsal spines are valuable protective gear against predators, as any fisherman that has handled one before can attest to.

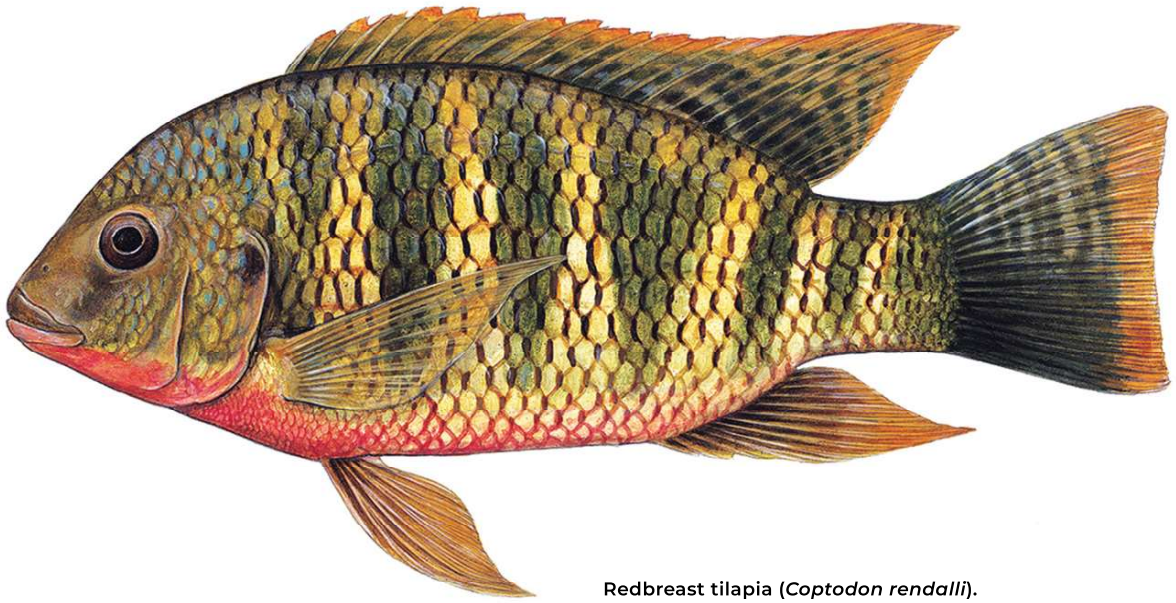
Renowned for their striking colour variations, tilapia are a preferred aquarium species and this family of fish has undergone extensive scientific research around the world.

Tilapia are one of the oldest cultivated fish families and it is believed that ancient Egyptians already farmed tilapia in the Nile River dating back 4 000 years!

Tilapia are ideally suited for commercial and subsistence fish farming due to their fast growth rate, adaptability and omnivorous diet. They contribute significantly as a dependable food resource globally. Although this characteristic of tilapia has favoured humans, it unfortunately also resulted in some negative environmental impacts, but we'll get to that a bit later on.

Mozambique tilapia male in breeding colours viewed from the Letaba River high-water bridge. *Photo © Pieter Kotze*

A tilapia hieroglyph appears above and to the right of the central figure's head in the Tomb of Nakht, dating to around 1500 BC.



Redbreast tilapia (*Coptodon rendalli*). *Image from* Freshwater Fishes of Southern Africa – *courtesy of Struik Nature.*

Redbreast tilapia viewed from the Crocodile River high-water bridge. *Photo © Bronwyn Kotze*

Redbreast tilapia from the Luvuvhu River, exhibiting the red breast, black bands and 'tilapia spot'. *Photo © Andrew Deacon*

The tilapia family, the in-laws and the out-laws

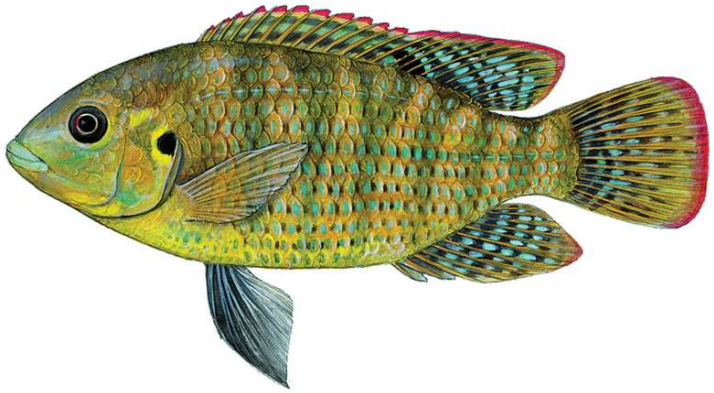
The Kruger's two most common and most observed tilapia species are the Mozambique tilapia (*Oreochromis mossambicus*, Afrikaans name *bloukurper*) and redbreast tilapia (*Coptodon rendalli*, Afrikaans name *rooiborskurper*). When viewed from above, Mozambique tilapia are distinguished by their silvery colour and red margins on fins (in breeding males). Mozambique tilapia are tolerant of fresh, brackish and even marine waters and their hardiness extends to dry-season survival, buried in the sub-surface pools in sandy beds of intermittent tropical savanna rivers.

"The Kruger's two most common and most observed tilapia species are the Mozambique tilapia and redbreast tilapia."

The redbreast tilapia generally exhibit more yellowish colour tones with thick, vertical black bands on the body. The 'tilapia spot', present at the base of the soft dorsal fin or the red breast, is however not generally visible when viewing redbreast tilapia in their natural habitat.

Apart from the Mozambique and redbreast tilapias, the Kruger's rivers are also home to a few other *Tilapia* species, that aren't as easily observed due to their smaller size or shy nature.

The banded tilapia (*Tilapia sparrmanii*), or *vleikurper*, is a small omnivorous species and although it has a widespread distribution throughout Southern Africa it is quite scarce in the Lowveld rivers. Interestingly enough, the genus name *Tilapia* was first given to this particular species in 1941, derived from the Setswana word *thlapi*, meaning fish. Often appearing a rich deep yellow with wide, dark brown bands and red or orange fin margins, mature adult banded tilapia are dark with prominent black stripes and a patch of scarlet scales behind the head.



Banded tilapia (*Tilapia sparrmanii*), or vleikurper. *Image from* Freshwater Fishes of Southern Africa – *courtesy of Struik Nature.*

Banded tilapia exhibiting the dark bands where it got its name from and the typical 'tilapia spot'. *Photo © Andrew Deacon*

Southern mouthbrooder (*Pseudocrenilabrus philander*). *Image from* Freshwater Fishes of Southern Africa – *courtesy of Struik Nature*.

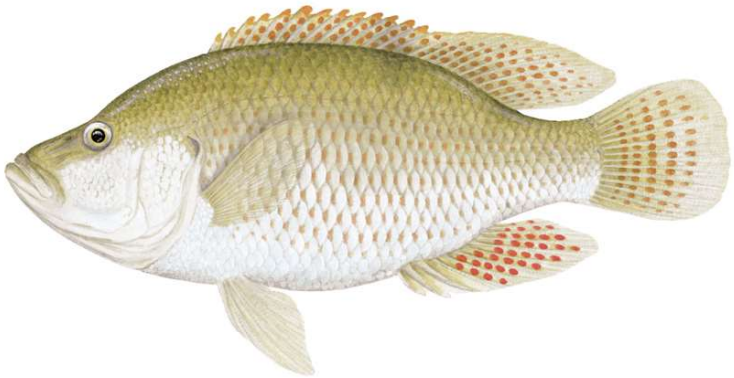
Southern mouthbrooder showing spectacular colouration. *Photo © Andrew Deacon*

"Male southern mouthbrooders are renowned for their spectacular colouration in hues of vivid blue, red or yellow."

Another small tilapia species found in the Kruger's rivers is the common, and relatively tolerant southern mouthbrooder (*Pseudocrenilabrus philander*) – a species in which the female collects her eggs almost immediately after laying a batch and incubates them in her mouth, as the name suggests. Once the fry hatch, she releases them and continues to protect them for several days.

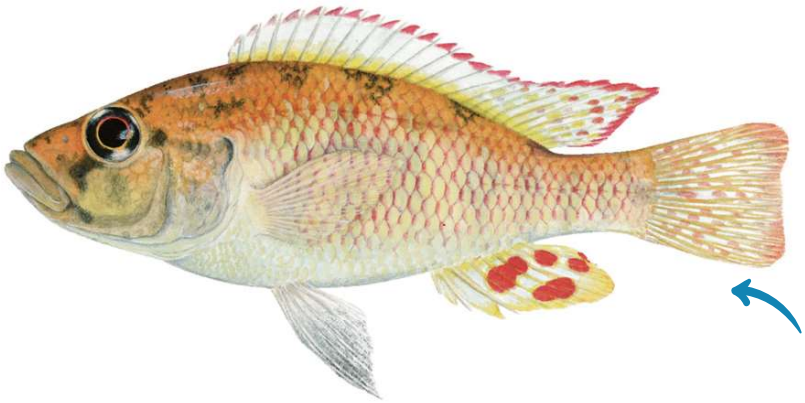
Male southern mouthbrooders, in turn, are renowned particularly for their spectacular colouration in hues of vivid blue, red or yellow.

Possibly one of the most elusive and rare tilapia species (even for scientists employing specialised sampling protocols), is the Lowveld largemouth (*Serranochromis meridianus*), which only occurs in the Lowveld reaches of the Sabie-Sand River catchment. As a result of its limited distribution, this species is also classified by the IUCN as Endangered and it is negatively affected by habitat degradation from catchment development, including plantation forestry, depleted water supplies, sedimentation, pollution and invasive plants. One of the conservation strategies for this rare species has included its translocation to some dams in the KNP to create a safe haven by buffering them from impacts originating outside the border of the Park.



Lowveld largemouth (*Serranochromis meridianus*). *Image from* Freshwater Fishes of Southern Africa – *courtesy of Struik Nature.*

Lowveld largemouth from the Sabie River. *Photo © Andrew Deacon*



Orange-fringed river bream (*Chetia brevis*), also known as the orange-fringed largemouth. *Image from* Freshwater Fishes of Southern Africa – *courtesy of Struik Nature*

Orange-fringed river bream from the Stolsnek Dam in the Mlambane River. *Photo © Andrew Deacon*

This same strategy was applied to another tilapia species that did not occur naturally within the Kruger's rivers, namely the IUCN Endangered, orange-fringed river bream (*Chetia brevis*). The natural distribution range of this species is the Komati and Lomati River outside the Park's boundaries, but it was introduced successfully within impoundments in the southern section of the Park, which forms part of the greater Komati River catchment.

Recent conservation efforts driven by the South African Institute of Aquatic Biodiversity (SAIAB) have been successful in breeding and releasing the orange-fringed river bream back into their natural distribution range.

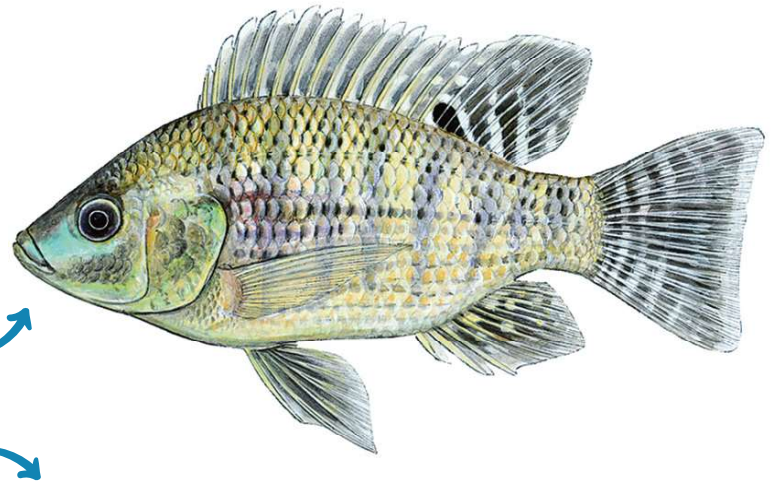
The conservation effort of the latter two species is another example of the critically important role that the KNP plays in the conservation efforts of the greater biodiversity of Southern Africa as a whole.

Threatened and threatening!

A major threat to the Mozambique tilapia (*Oreochromis mossambicus*) is 'genetic pollution' resulting from hybridisation with the invasive Nile tilapia (*Oreochromis niloticus*). The future existence of 'pure' Mozambique tilapia is therefore under threat, the major reason for it currently being classified by IUCN as Vulnerable.

Unfortunately, the presence of the alien Nile tilapia has already been confirmed in the Luvuvhu River inside the KNP, with some of the other river systems potentially also having been invaded. Once invasive species have established themselves, there is little that can be done to resolve this environmental hazard.

The Mozambique tilapia is however also an invasive species in some areas where it was not previously found, such as the southwestern Cape, lower Orange River and various tropical and warm temperate localities throughout the world. When introduced by farmers or fishermen, these tilapia compete for habitat and food with the native species and pose a threat due to possible hybridisation.



Nile tilapia (*Oreochromis niloticus*). *Image from* Freshwater Fishes of Southern Africa – *courtesy of Struik Nature*

The alien Nile tilapia is the main reason why the Mozambique tilapia is now a threatened species. *Photo © Andrew Deacon*

Nile tilapia surface to breathe and feed in a fish farm pond.

Widely cultivated in global aquaculture for its fast growth, Nile tilapia thrive in systems ranging from basic ponds to advanced recirculating aquaculture. Their invasive potential threatens indigenous species like Mozambique tilapia through hybridisation and competition.

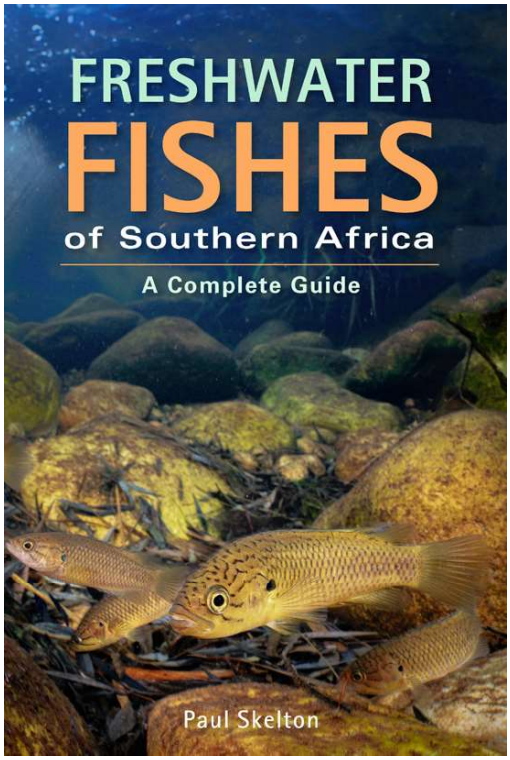
The Tilapia family, as a whole, is on the IUCN's '**100 of the World's Worst Alien Invasive Species'** list. It is therefore never a good idea to move fish around or release any fish species, not even your goldfish, back into the natural ecosystem.

Giant kingfisher (*Megaceryle maxima*) with tilapia. *Photo © Phototrip*

Sabie River, KNP. *Photo © Paco Como*

"Once invasive species have established themselves, there is little that can be done to resolve this environmental hazard."

So, next time you get an opportunity to stare down into the waters of one of the Kruger's rivers, be sure to be on the lookout for these fascinating fish or their saucer shaped nests. ■



Here are the five lucky readers in our subscriber competition!

In celebration of the launch of our Life in the Rivers of KNP series, KRUGER MAGAZINE invited new subscribers to join our growing community of conservation-minded readers – with the added incentive of a remarkable giveaway. We're pleased to announce the winners of our Winter 2025 subscriber competition:

1. Jan Heydenrych
2. Beverley van der Walt
3. Tanja Pretorius
4. Eric Aspeling
5. Lana de Vink

Congratulations! As one of five new print subscribers selected, you will receive a complimentary copy of the authoritative *Freshwater Fishes of Southern Africa: A Complete Guide* (3rd edition) by Dr Paul Skelton (RRP: R470). This comprehensive reference is a cornerstone for anyone with an interest in the aquatic biodiversity of our region.

Our thanks to all who subscribed and supported this initiative. To subscribe and stand a chance to win future prizes, email: subs@mlpmedia.co.za