



NATIVE OR NOT?

THE EVOLVING STORY OF THE MYSTERIOUS MALOTI MINNOW

By Ian Cox and Andrew Mather

THE short note recently published by PS Kubheka, A Chakona and DN Mazungule in the *African Journal of Aquatic Science* regarding the “rediscovery” of the Maloti minnow (*Pseudobarbus quathlambae*) in the Ingeli Hills near Kokstad has reignited the controversy surrounding the original discovery of the fish and whether it is indeed indigenous to South Africa.

Kubheka et al claim that their discovery confirms that the species was more widespread in the Drakensberg streams of KwaZulu-Natal and that “the introduction of trout into Drakensberg streams was largely responsible for the extirpation of the species from the uMkhomazana and other Drakensberg streams”. They assert that this rediscovery creates an obligation “to ensure the long-term survival of the species in South Africa”.



Ivor Vaughan. Photo courtesy of Himeville Museum.



McVey Brown. Photo courtesy of Himeville Museum.

This of course assumes that the Maloti minnow is indigenous to South Africa and that trout are indeed the problem. Both claims are highly speculative. The mere fact that one finds a fish in a river does not mean that it is native to that river; it could have been introduced. This is often the case with minnows which were introduced into a number of rivers in South Africa to provide food for trout. There is also no evidence proving trout have caused the extirpation of any species in South Africa or indeed that they pose an ecological threat in KwaZulu-Natal.

The authenticity of Khubeka's find still needs to be confirmed by genetic analysis. That analysis will also reveal whether these specimens are an introduction from one of the genetically distinct populations in Lesotho or the distinct genetic group one would expect if they are indeed native to KwaZulu-Natal. However, these are all questions for another day.

This article looks back at the original discovery of the Maloti minnow by Ivor Vaughan, Leonard Hardingham and McVey Brown (Vaughan et al.) in the uMkhomazana some 80 years ago.

According to Bob Crass who interviewed Ivor Vaughan just before his death in 1966, a single specimen of what we now call the Maloti minnow was netted in a pool situated in the upper reaches of the uMkhomazana a short distance below the busy trading outpost situated at the start of what was then a bridal path up Sani Pass. Crass also wrote that Vaughan remembers that a 2 lb 4 oz brown trout was netted in the same pool but was returned to the river.

Apparently Vaughan confirmed the location of the find in a letter written in the same year to R. A. Jubb of the Albany Museum. According to Vaughan's daughter Mary, who spoke to Wolf Avni years later, it was not unusual for her father to disappear into the mountains on fish collecting trips for two or three days at a time. She said that he was normally accompanied by Anthony (Tom) Copland, though they later fell out.

We do not know if this fall out had anything to do with it, but Copland was not part of the original collecting party or the party that collected the second specimen. Vaughan later wrote in his letter to Jubb that, "Copland had nothing to do with catching these minnows. He neither took or sent the specimens to P. M. Burg."

All four were residents in the Underberg Himeville District and Vaughan, Hardingham and Brown were stalwarts in the local flyfishing community. Vaughan was a farmer while Hardingham and Brown were both qualified engineers with distinguished careers behind them. Copland was a professional golfer who married the owner of what is today the Himeville hotel. He later rebuilt the Underberg hotel in 1934 which he ran until 1948.

According to Dr K. H. Barnard of the South African Museum, Vaughan sent the original specimen off to Cherringham Sutton in Howick for identification. Sutton in turn sent this "gilliminkie", as he called it, to Dr R.F Lawrence of the Natal Museum saying that this little fish used to be common in the Drakensberg streams until the introduction of trout, since when it had become almost extinct.

Dr Lawrence asked for more specimens to which Vaughan responded with a further single specimen, but this was still not enough. Vaughan did not provide any more specimens, but Copland did, sending another 50 specimens to Lawrence directly. This enlarged collection was then sent to Barnard who in 1938 identified it as a new species which he called *quatblambae*.

And there the matter sat until interest in the species was renewed in the mid 1960s by Bob Crass of the Natal Parks Board and Rex Jubb of the Albany Museum. The renewed interest arose both because the fish was believed to be extinct on account of trout predation and because Barnard may have misidentified the species as being part of the *Labeo* (sic moggel) genus.



Two of the Maloti minnows found by Skhumbuzo Kubheka and his associates.



The proper classification of the Maloti minnow as a relative of the redbfin minnows of the Western Cape was only resolved by Dr P. H. Skelton in 1988 who renamed it *Pseudobarbus quathlambae*. The idea that trout caused the extirpation of the Maloti minnow in the uMkhomazana continues to enjoy widespread support amongst scientists despite the discovery in the 1970s of healthy populations of Maloti minnow living alongside trout in rivers in Lesotho.

Dr S. R. Gephard noted that Maloti minnows are very susceptible to being affected by siltation and wondered if the deterioration of the uMkomazana catchment could be one of the reasons for their disappearance. Dr J. A. Cambray wondered if the disappearance was due to a combination of trout depredation and siltation. Skelton stuck with Jubb's original hypothesis that trout are to blame for the disappearance of the Maloti minnow.

Crass is the odd man out. He concluded that since the Maloti minnow lives alongside trout in Lesotho, trout cannot be the reason for their disappearance and that, accordingly, Vaughan and the others were confused and that they in fact found the original Maloti minnow on top of Sani Pass in the west-flowing Sani River.

The discussion very quickly degenerated into an argument characterised by various camps taking sides rather than critically examining the facts. This has sadly resulted in the adoption of two possibly flawed competing narratives, with scientists claiming that trout killed off the Maloti minnow in KwaZulu-Natal, and fishermen saying that the Maloti minnow never occurred naturally in KwaZulu-Natal in the first place.

Today we are fortunate to have more information and it is clear that important facts are being overlooked. For example, a team from the environmental consultancy GroundTruth spent four days during 2008/2009 surveying the uMkomazana and its tributaries from the waterfall (alt. 5 020ft) just below the Sani Pass Hotel all the way up the pass (alt. 9 300 ft) as part of the environmental impact assessment for the new Sani Pass road. The primary objective of this survey was to determine the presence of the Maloti minnow.

This was the first time a thorough investigation of the whole river had been undertaken; prior investigations concentrated on the area where the Maloti minnow had originally been found. GroundTruth confirmed that the waterfall (alt. 5 020ft) below the hotel was a fish barrier and that, consequently, none of the species that occurred naturally below this barrier occurred above it. They only found brown trout above the waterfall but in surprisingly small numbers. The

brown trout GroundTruth found were range bound to the area between the waterfall (alt. 5 020ft) and a previously undiscovered small waterfall (alt. 6 486ft) which is situated just upstream of the South African border post.

GroundTruth found no Maloti minnows between the two waterfalls. Importantly, they found no fish of any kind, not even Maloti minnow, anywhere above the upper waterfall. This is interesting given that all tributaries of the uMkomazana flowing out of the Sani Pass catchment join the river upstream of the upper waterfall (alt. 6 486 ft). One would, therefore, expect to find Maloti minnow upstream of the waterfall if they occur naturally in the uMkomazana. This would be especially so if, as claimed, the introduction of brown trout caused the extirpation of the Maloti minnow in the uMkomazana.

This fact highlights another possibility that has never been considered in the literature, namely that the Maloti minnow was found by Vaughan et al. exactly where he claims because this is where they were introduced into the river after being collected in the Sani River and brought down the pass.

After all, it was not unusual for fishermen at that time to introduce minnows as trout fodder into rivers above waterfalls. Vaughan himself was involved in such expeditions. That is how *Barbus anapolus* and other minnow species got into the upper reaches of the uMzimkhulu. Given that brown trout had been introduced above the lower waterfall situated below the Sani Pass Hotel between 11- and 28 years earlier, it could also be how the Maloti minnow was once found in the uMkomazana.

Closer examination of the facts and the counter arguments lends considerable weight to the attractiveness of this particular hypothesis.

Crass's argument that Vaughan, Hardingham and McVey Brown were mistaken and that the minnows were all found on top of the pass doesn't stand up to close scrutiny. It is hardly likely that Vaughan et al. could or would confuse a steep-sided valley at the bottom of the pass (5 300ft) and situated near a busy trading outpost, for the blasted heath that is on top of Sani Pass (9 445ft). Hardingham and Brown, being engineers, would both have ascertained the altitude at which they collected these specimens; they would have known where they were. Moreover, Vaughan confirmed the location both in conversation with Crass and in a letter to Jubb just before he died.

However the counter argument that they must have occurred naturally in the uMkomazana because that is where

Right: The uMkomazana alongside the old trading post just upstream of where the type specimen was found in 1937. Photo by Ian Cox.

Centre: The upper waterfall (alt. 6486ft) near the South African border post. Photo by Ian Cox.

Bottom: The lower waterfall (alt. 5020ft) preventing the migration of fish into the headwaters of the uMkomazana. Photo by Ian Cox

Vaughan et al. found them does not stand up to scrutiny either. If they occurred naturally in the uMkomazana then one would expect to find them above the waterfall at the police post where trout do not occur.

The mere fact that one argument is wrong does not make the competing argument right by default. They can both be wrong which we suggest may well be the case here.

There is also the intriguing "loose end" that is Copland's third collection of a further 50 specimens. Everyone has assumed that he found these fish in the same place as Vaughan et al. found theirs, but he made his collection independently of them and there is also no evidence to support the assumption that he found them in the same place as the two earlier collections. Indeed, this now seems unlikely.

If Vaughan's party could only collect a further single specimen, how was Copland able to collect 50? We suggest that the obvious explanation is that Copland did his collecting on top of the pass in the Sani River where the fish can be found in those sort of numbers even to this day.

The truth is we do not know with absolute certainty how the Maloti minnow got into the uMkomazana. It is not impossible that it crossed the watershed and/or that river capture allowed the minnow to enter the uMkomazana. However, these theories are becoming increasingly unlikely given present knowledge of the discovery of no fish at all above the upper waterfall. Further research is required, including a genetic comparison of the original collections and the Maloti minnow found in the Sani River.

Then again, maybe Khubeka's discovery will turn everything we thought we knew about the Maloti minnow on its head. This all remains pure conjecture until the work is done to discover further facts that can shine a light on the origins and history of this mysterious fish. This is a work in progress and the authors are continuing with their investigations.

It is clear that as matters presently stand, the claim that the Maloti minnow is native to KwaZulu-Natal remains unproven. 

