The Maloti Minnow

By Ian Cox

Andrew Mather mentioned in his chirp (Bobbin December 2017) that specimens of the Maloti Minnow have been found in the uMzimkhulu. You can access the short note published recently in the African Journal of Aquatic Science rather misleadingly under the heading "The Maloti minnow Pseudobarbus quathlambae (Barnard, 1938) is not extinct in South Africa".

I say misleadingly for two rather big reasons:

1. First there is no compelling evidence which establishes that the Maloti Minnow occurred naturally within South Africa and can thus be said to be indigenous or native to the country. It never therefore became extinct.
2. Second while the specimens that Patrick Skhumbuzo Kubheka and his team say they found in a tributary of uMzimkhulu look like Maloti Minnow, this still needs to be independently verified and confirmed by genetic research.

While I think that it is likely that he did indeed find specimens of the Maloti Minnow in the uMzimkhulu the claim that this is a native population of naturally occurring Maloti Minnow is very unlikely. It is more likely so that that it is an alien fish introduced as other minnow species were during the 1930's, to feed trout. It could even be a later introduction undertaken as part of an attempt to preserve the Maloti Minnow by introducing it outside what is a threatened natural distribution range in Lesotho.

Skhumbuzo's discovery is an exciting one and he can justifiably take pride in it. However it was wrong of him to conflate the fact of this discovery into the conclusions he seeks to draw without proper research. I see Professors Skelton and Weyl had input into the drafting of this short note. While I think Skhumbuzo's actions can be explained as an excess of zeal from a young researcher, theirs cannot. Quite frankly they should know better. Instead of mentoring Skhumbuzo so that he can capitalise on this discovery and build his career as a scientist, they have hung him out to dry.

A short note is meant to alert scientists to a discovery. This short note would have been commendable if it stuck to that and only alerted the scientific community to the discovery of specimens of the Maloti Minnow in the uMzimkhulu. Unfortunately Skhumbuzo did not stop there. He seeks to advance as fact opinions that are not supported by facts. He consequently makes claims that have no basis in law. This very regrettable but from the point of view of protecting the integrity of scientific research but also in the context attempts by officials like Skhumbuzo to show that trout are invasive when the bulk of the evidence points the other way.

It pains me to say this because I know Skhumbuzo personally and I like him, a lot. That he has been put in the line of fire by his peers makes my blood boil.

But facts are facts and the fact is that Skhumbuzo reaches conclusions that are not supported by facts. What is worse is that it is easy to demonstrate that this is so. The following claims, for example, are easily debunked.

> "This discovery is significant, not only being the rediscovery of this species in South Africa, but also the first record of the species in the uMzimkhulu system. This confirms the assertion that the species was more widespread in the Drakensberg streams of KwaZulu-Natal at the time of its original discovery (Barnard 1938). It also supports the contention that the introduction of trout into Drakensberg streams was largely responsible for the extirpation of the species from the uMkomozana and other Drakensberg streams (Jubb 1966, 1983; Skelton 1987). This is consistent with the negative impacts of trout reported from other river systems in southern Africa (e.g. Cambray 2003; Kadye and Magadza 2008; Kadye et al. 2013; Shelton et al. 2015).
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> The rediscovery of P. quathlambae within KwaZulu-Natal creates obligations and responsibilities for all parties, especially the conservation authorities responsible for the area, to ensure the long-term survival of the species in South Africa."

No legal basis exists for protecting the Maloti Minnow in South Africa unless you can show it occurred naturally in South Africa. That is not the case at present.

The truth is that the so called discovery of the Maloti Minnow in the 1930's in KZN is highly controversial. It is based upon a single source which has been interpreted by some scientists and officials, without any conclusive evidence, to justify the claim that the Maloti Minnow was found in KZN in the uMkomozana. This is very unlikely. It is far more likely, based upon the available facts that it was found on top of Sani pass on the other side of the watershed where it still exists today. The likelihood that this is bolstered by the fact that it is still found there alongside trout which it has cohabited with for decades.

Yet some scientists continue to insist, based on this interpretation of a single and unreliable source that the Maloti Minnow is indigenous to South Africa. This is despite the fact that the Maloti Minnow has never been found in uMkomozana since this first disputed discovery, despite diligent search. Those self-same scientists claim, again without any evidence (and in fact despite the evidence to the contrary), that this means that trout must have killed off (extirpated) all the Maloti Minnow in the uMkomozana. They go on to say this is evidence of trout being invasive in KZN. They do so despite the fact that trout and Maloti Minnow cohabit on top of Sani Pass in Lesotho on the other side of the watershed and without regard to the legal definition of invasive.

This is the "quality" of the science we have to contend with when defending trout against false claims that trout are invasive as the term is defined in law in South Africa.

Hence the claim that the Maloti Minnow has been rediscovered when it is far more likely that this is a first discovery.

This short note assumes that the Maloti Minnow must occur naturally in the uMzimkhulu merely because specimens have been found there. This ignores obvious questions as to how the Maloti Minnow came to be there in the first place. Did it get into the uMzimkhulu naturally or was it put there?

The Maloti Minnow originates in Lesotho which means it has to have got over the escarpment for it to occur naturally in KZN. This sometimes happens when a watershed shifts over time trapping fish on what is now the other side of the watershed. The presence of the Southern Kneria in the Crocodile system in Mpumalanga is an example of this.

Skelton is correct in surmising that if that was to happen then the most likely place would be on top of Sani Pass where the watershed that divides west flowing rivers from the uMkomozana that flows east into KZN is on the escarpment edge. But as I have already pointed out, no one has been able to find the Maloti Minnow in the uMkomozana despite diligent search by a number of field biologists.

The uMzimkhulu and the uMkomozana are completely separate river systems. This means that the Maloti Minnow could not migrate naturally from the one to the other even if you accept that the Maloti Minnow did once occur naturally in the uMkomozana.

There are no rivers on the Lesotho side of the watershed close to the escarpment edge near the Rhino where uMzimkhulu has its source that could easily shift, thus putting the Maloti Minnow in KZN and within the uMzimkhulu system. A shift in the watershed in that part of the Drakensberg would have required a cataclysmic event. But there is no evidence of such an event that would have displaced the Maloti Minnow.

The evidence in fact points in a different direction. Wolf Avni tells me that archaeological studies of middens in the uMzimkhulu area show no signs of fish bones in the area suggesting that there were no fish in the upper reaches of the uMzimkhulu. This supports research done by Dr Crass that there were no fish in the upper reaches of the uMzimkhulu prior to the introduction of trout. This is supported by attempts in the earlier part of the 20th century to introduce minnows into the uMzimkhulu as food for trout. I am told by Wolf Avni, who has researched this, that person who "discovered" the Maloti Minnow on top of Sani pass in the 1930's was involved in translocating minnows into the uMzimkhulu for this purpose.

Clearly a great deal of further research is needed but the idea that the available evidence supports the claim that the Maloti Minnow is native to South Africa and that this proves that trout are invasive in KZN is presently an outlandish one.

1. The source of these fish needs to be independently verified.
2. It needs to be established by detailed genetic analysis if they are indeed maloti Minnow.
3. Fish, especially minnows, evolve fairly rapidly. It is this possible to determine genetically how long a population of minnows has been separated from its parent population. This work still needs to be done.
4. The search on the ground needs to be expanded. Is this finding an isolated one or can the maloti Minnow be found elsewhere in KZN?
5. If this is the case, searching questions that take into account the full range of possibilities need to be asked as to how they got there.

This is only a subset of list of what has to be done before Skhumbuzo can confidently make the claims he has made.

Scientific opinion is worthless unless it speaks to proven facts and what we have here is a whole lot of opinion and no facts apart from at best may that specimens of Maloti Minnow have been found in the uMzimkhulu . Worse still these opinions are far from independent.

Battle lines have been drawn in the War on Trout. Officials and the scientists they fund have shown themselves more than willing to bend the rules to support attempts by environmental authorities to list trout as invasive regardless of what facts or law there is that suggests they are not.

This looks like another attempt in what has been a long line of attempts to pervert science in pursuit of this base and unlawful cause.

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