

Keurbooms River, Southern Cape - home to centuries old brown trout and the biggest redfin population in the fynbos biome?

Dean Impson, CapeNature and Ernst Swartz, SAIAB

The Keurbooms is a well known river to anglers living in the Knysna - Plettenberg Bay area as it is one of the very few rivers in the southern Cape that provide fly fishing for trout. It is better known for its excellent angling in its estuary, including very good saltwater fly fishing for leervis, skipjack, mullet and, when in the mood, grunter.

The fly fishing for trout is centred around the farm Outeniqua Trout Lodge on the upper reaches of the Keurbooms River, where its tributary the Kwaai joins it. The trout farm has been in operation since the mid 1980's, focusing on the farming of trout for stocking of nearby dams, the Keurbooms River at the farm and for the table market. Recently, due to damage from severe flooding, its owner, Dr Ingo Vennemann, has downscaled the trout farming operation significantly and is increasingly focusing on ecotourism (see www.outeniquatroutrout.co.za) and fly fishing for rainbow and brown trout in the rivers on his property.

The Kwaai River is notable in being a gem of a stream flowing through a near-pristine catchment and holding decent numbers of small but beautifully marked brown trout. Catching these fishes is not easy – it is the realm of fit and adventurous flyfishers that love fishing small streams.

There has been considerable debate around the origin of these browns, and the editor requested that we investigate this for *Piscator*. We consulted Harrison (1951), Hey (1926, 1927) and De Moor and Bruton (1988), who have dealt with trout introductions into South African and Western Cape waters in some detail, but there is no reference to the actual stocking of brown or rainbow trout into the Keurbooms.

Dr Vennemann was consulted about the origin of the brown trout, and he came up with a very interesting story. Apparently, Thomas Bain, the master road builder, was a keen fly fisher and spent some of his later years living next to the upper Keurbooms River after completing the 70km Prince Alfred Pass, part of which passes through the Keurbooms valley. Wikipedia reveals that Thomas and his father Andrew left a remarkable and lasting road building legacy in South Africa, having completed 22 of the 23 mountain roads and passes built in the 1800s. We still use many of these passes today. While working in the Keurbooms area, Thomas Bain apparently saw the potential of the rivers for trout fishing and recommended stockings of brown trout, which according to Ingo took place between 1895 and 1905. Thomas Bain died in 1893, with the first successful brown trout stockings in the Cape taking place in 1890, so it is unlikely that he ever caught a Keurbooms brown trout. However, if Ingo's information is correct, then the Kwaai has some of the oldest brown trout in South Africa. Maybe readers can shed further information on this story.



The upper section of the Kwaai tributary to the Keurbooms River. Although the water is clear, the banks are infested with wattle.

The first owner of Plett Mountain trout, according to Dr Vennemann, introduced rainbow trout to the Keurbooms River for the first time (mid 1980s).

More recently, the second author completed a PhD on the redfin group, focusing on phylogenetic relationships between its seven species in the genus *Pseudobarbus*. This work looked in detail at genetic diversity within the group, including the existence of new species, or lineages with strikingly different variation (also called Evolutionary Significant Units or ESUs). This work highlighted that the fynbos region is home to a much greater diversity of redfin species than previously recognised (Swartz 2005; Swartz et al. 2009) and these are in the process of being described at the South African Institute of Aquatic Biodiversity (SAIAB). This work included the two redfin species in the Keurbooms River System,



A stonefly nymph on the Kwaai – always an indicator of water purity. Photo by Gary Glen-Young.



A brown trout caught on the Kwaai. Photo by Billy de Jong.

namely the slender redfin *Pseudobarbus tenuis* and the Eastern Cape redfin *P. afer*. The research revealed that the slender redfin from the Keurbooms River system, which only occurs in a few small tributaries, is different genetic lineage (ESU) to the populations in the Gourits River system. The slender redfin lineage in the Gourits River system is much more widespread than its Keurbooms cousin, which makes the latter lineage of conservation concern (Swartz 2005). While a new lineage was also discovered in the Eastern Cape redfin, called the forest redfin, it is much more widespread than the Keurbooms lineage of the slender redfin, because it occurs in the main stem Keurbooms and several of its tributaries, including the Kwaai. The forest redfin also occurs from the Klein Brak to Tsitsikamma River systems across the Garden route, making this the most widespread redfin lineage in terms of river systems, and therefore not of high conservation concern at this stage (Swartz et al. 2007).

In the Kwaai, there appears to be a healthy balance between the browns and the forest



Billy de Jong fishing the kwaai tributary of the Keurbooms River. Photo by Leonard Flemming.

redfins. This appears to be due to the browns being small and low in number. The browns are also mainly found in the cooler upper reaches of the river in summer, while redfins breed in the warmer lower reaches. All of these factors substantially reduce the predation pressure of the brown trout on the redfins.

Unfortunately, until recently this healthy situation was not repeated in the mainstem, where regular stockings of adult rainbow trout by the trout lodge, decimated the Forest redfin population in the vicinity of the farm. Surveys showed that the Forest redfin recovered strongly further downstream, as stocked trout numbers dropped off and the water quality of the river improved. Redfin numbers are so large in this section of the river, that the Keurbooms likely has the largest population of any redfin species in the fynbos biome.

CapeNature obviously would like to secure the future of the indigenous fishes in the Keurbooms system. Reducing the impact of the brown trout population in the Kwaai is not seen as a conservation priority and these fishes will therefore continue to provide joy to the anglers that seek them. The issue of the “put and take” fishery in the Keurbooms River needs careful appraisal as this is the only such permitted “put and take” river fishery for trout in the Western Cape Province. Dr Vennemann has advised that he has substantially reduced trout stockings into the Keurbooms River since the 2007 floods, and now only stocks small numbers of adult fish when conditions permit. Dr Ingo Vennemann, who is also chairman of the middle Keurbooms Conservancy (30 000ha), has stressed his willingness to work closely with CapeNature in the interests of river and catchment conservation in the Keurbooms valley.

References are available upon request.