

Fynbos Fish Trust Survey in 2021/22 of the Doring River tributaries.

The Fynbos Fish Trust has been assisting the Freshwater Research Centre with the Saving Sandfish project for the last couple of years and in the past six months the FFT assisted in two sandfish surveys.

The first survey (October 2021) covered 10 sites on the Doring River mainstem from Mount Cedar to Trawal. The sites were sampled with a large fyke net that was left overnight at each site. A fair number of adult sandfish were caught in the upper Doring River up to Doringbos but the concerning fact was the lack of young sandfish. The largest specimen measured 60 cm and were caught above Elandsvlei. More concerning was the fact that no Clanwilliam yellowfish or Clanwilliam sawfin were caught at any of the 10 sites. The only Clanwilliam yellowfish (8 kg) was caught with a rod by Dean Impson at Bruinkrans, using a live bluegill as bait. The survey also recorded the first scientific records of invasive alien common carp and Mozambique tilapia in the Doring River mainstem. The fish community at all the sites were mostly dominated by black bass and bluegill sunfish. The results from this survey confirmed the importance of the rescue efforts in the Biedouw River where young sandfish are removed and placed into dedicated refuge dams. The sandfish are released back into the Doring River once they have reached a size that makes them alien fish proof.

The second survey focused on the Doring river tributaries with historical sandfish records

The four tributaries surveyed were the Gif River, Kransgat River, Tra Tra River, and the Matjies River. The only other ODR tributary with a known sandfish population is the Oorlogskloof River, and this river was recently surveyed by field rangers of the Oorlogskloof Nature Reserve with the assistance of the Endangered Wildlife Trust.

Each tributary was surveyed with fyke nets that were set late in the afternoon and removed the next morning. The fish (native and non-native) were identified, counted, measured, and inspected for external parasites. Fin clips and water samples were also collected as part of an environmental DNA study by Mohammed Kajee.

1) Gif River: 14-15 March 2022

The Gif River is a seasonal tributary of the Doring River that rises in the Gifberg Mountain east of Klaver at a maximum elevation of 794 m. It flows in a southern direction and enters the Doring River at an altitude of 62 m. The main land-use in the catchment is livestock farming, dry land rooibos cultivation, citrus farming and eco-tourism. The channel morphology consists of small mountain streams with step pools and cascades. The lower reaches are dominated by long, shallow cobble pools and riffles.

Three pools were sampled overnight. The bottom pool is located below the natural black bass barrier and yielded only one adult sandfish, with alien fish represented by banded tilapia and smallmouth bass. The middle pool yielded 48 young sandfish, banded tilapia, and hundreds of mostly young Clanwilliam sawfin. The top pool yielded only Clanwilliam sawfin and banded tilapia. The sandfish numbers in the Gif River seem to be similar to the last survey in 2014, and the river seems to be in good health, although sandfish habitat is limited to one or two pools in this river, limiting sandfish numbers.

2) Kransgat River, March 15–16 2022

The Kransgat River is a seasonal tributary of the Doring River with a catchment size of 576 km². The headwaters are located in the Hantam Mountains at a maximum altitude of 1075 m and the river enters the Doring River at an altitude of 150 m. Land-use is dominated by livestock and rooibos farming. The channel morphology consists of small mountain streams with step pools and cascades.

Previous surveys have indicated that sandfish are limited to two medium sized bedrock pools in the middle section of the Kransgat River, east of Moedverloor. The two pools were sampled overnight and combined yielded 240, mostly 1- to 2-year-old sandfish. The other fish sampled were the ODR chubbyhead barb and extra limital banded tilapia. Very low dissolved oxygen levels were measured in the morning and hundreds of sandfish were observed gulping air on the surface indicating a survival method in this limited and crowded habitat during summer. These sandfish most likely spawn in the riffles directly above these pools in spring when the river is flowing. Habitat degradation due to sedimentation of the two pools with an increase in bullrush (*Typha capensis*) growth has also decreased the available habitat for the sandfish in the Kransgat River. It was very pleasing to see that these sandfish survived the drought between 2016 and 2019.

3) Tra Tra River, 16-17 March 2022

The Tra River is a third order tributary of the Doring River with a catchment size of 522 km² that rises in the Cederberg Mountains at a maximum altitude of 1626 m. The headwaters are dominated by cascades and falls with plunge pools. At the town of Wuppertal, the river enters a wide valley and the channel morphology changes to shallow pools and riffles. The Tra Tra River joins the Doring River at Elandsvlei at an altitude of 263 m. Various communal settlements are located along the river, with rooibos, vegetables, and livestock farming being the main farming activities.

The largest remaining pool in the mid-low Tra Tra River was sampled overnight with four fyke nets. The nets yielded high numbers of invasive alien spotted black bass and bluegill sunfish, while only two adult sandfish were caught. More than 98% of the Tra Tra River is invaded by black bass (see map), bluegill sunfish, and therefore the low sandfish numbers were not surprising. We also interviewed some of the local community members, and according to them, they have observed a sharp decrease in sandfish numbers over the last few decades. Sandfish are also very vulnerable when they spawn in the shallow riffles in the spring, and the locals indicated that sandfish are taken for food during the annual spawning. The Fynbos Fish Trust is committed to promoting environmental fish awareness among the local communities in the future. The Tra Tra River below Wuppertal is also heavily infested with invasive alien vegetation (black wattle and sesbania) and the eradication of this invasive alien vegetation can provide ample job opportunities for the Wuppertal community.

4) Matjies River, 17-18 March 2022

The Matjies River starts at the confluence of the Krom and Driehoeks Rivers in the Cederberg at an altitude of 725 m and has a catchment size of 395 km². It joins the Groot River as a third order stream at an altitude of 413 m. Bedrock steps, falls, chutes, and cascades dominate the upper section, while lower down the river is more of a pool-riffle system with sandy bottomed pools in the lower gradient areas. Land-use consists of conservation areas in the form of the Matjies River Provincial Nature Reserve and other private nature reserves.

We sampled three pools in the middle section of the Matjies River in the Matjies River Nature Reserve where sandfish were located in 2014. All three pools yielded healthy sandfish (61 in total) from different age classes. These three pools are located 2 km above the natural bass barrier (2 km downstream), and the only invasive fish sampled was a few bluegill sunfish that were historically introduced into farm dams in the upper catchment. The most positive aspect of the sampling at these three pools was the presence of all five native fish species in the nets. The species are: Clanwilliam yellowfish, Clanwilliam sandfish, Clanwilliam sawfin, Clanwilliam rock catfish, and Clanwilliam redfins. The Olifants- Doring River system is 81.5% invaded by black bass, and this section of the Matjies River is still black bass free. It is therefore vital that awareness should focus on preventing the introduction of smallmouth and spotted bass into the upper catchment (Krom and Driehoeks Rivers).

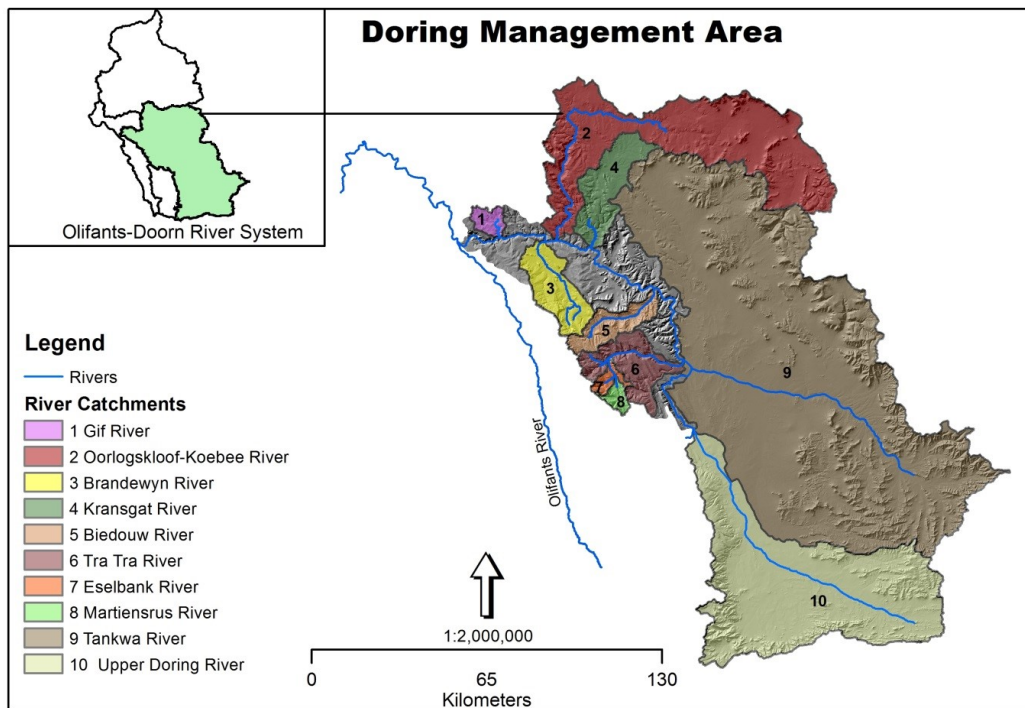
Riaan van der Walt – April 2022.



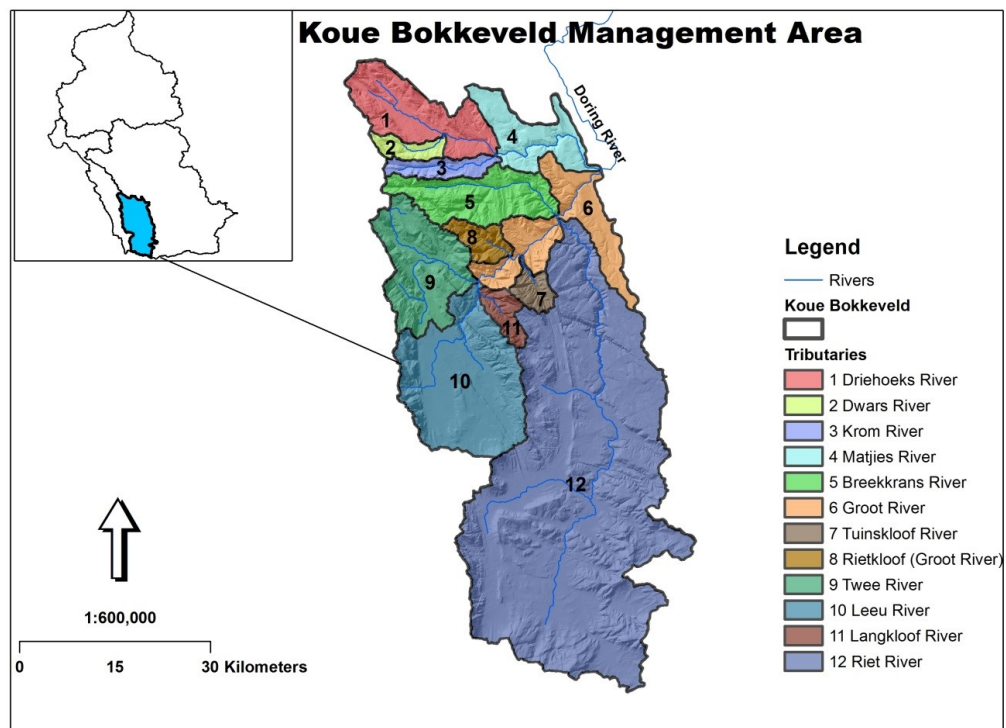
Measuring sandfish.



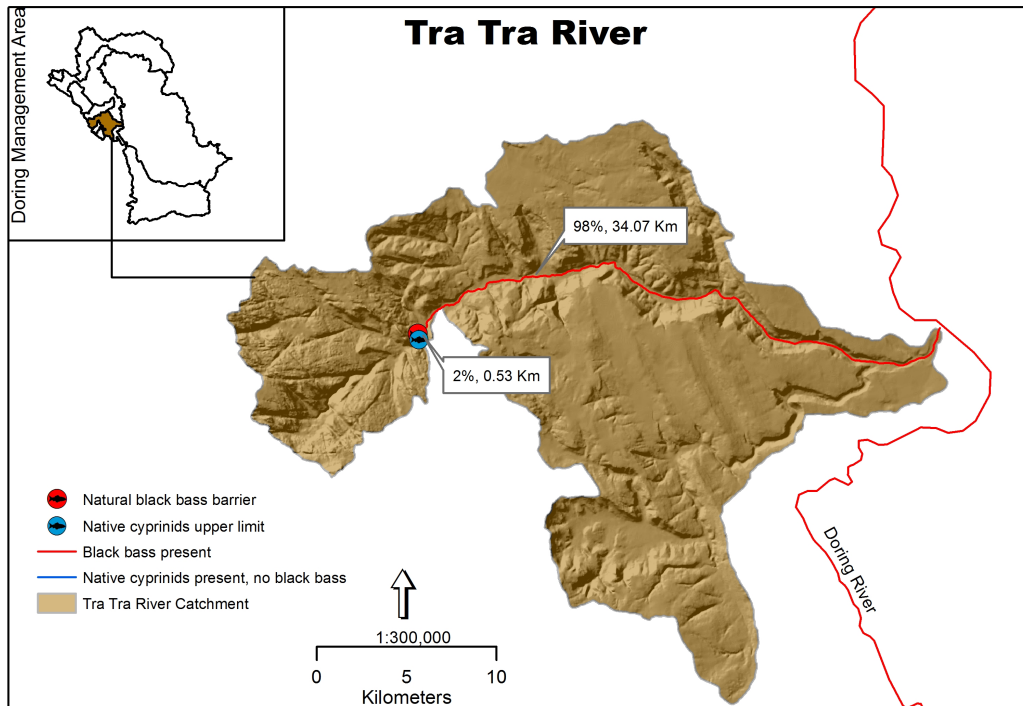
Dean Impson with his Clanwilliam yellowfish



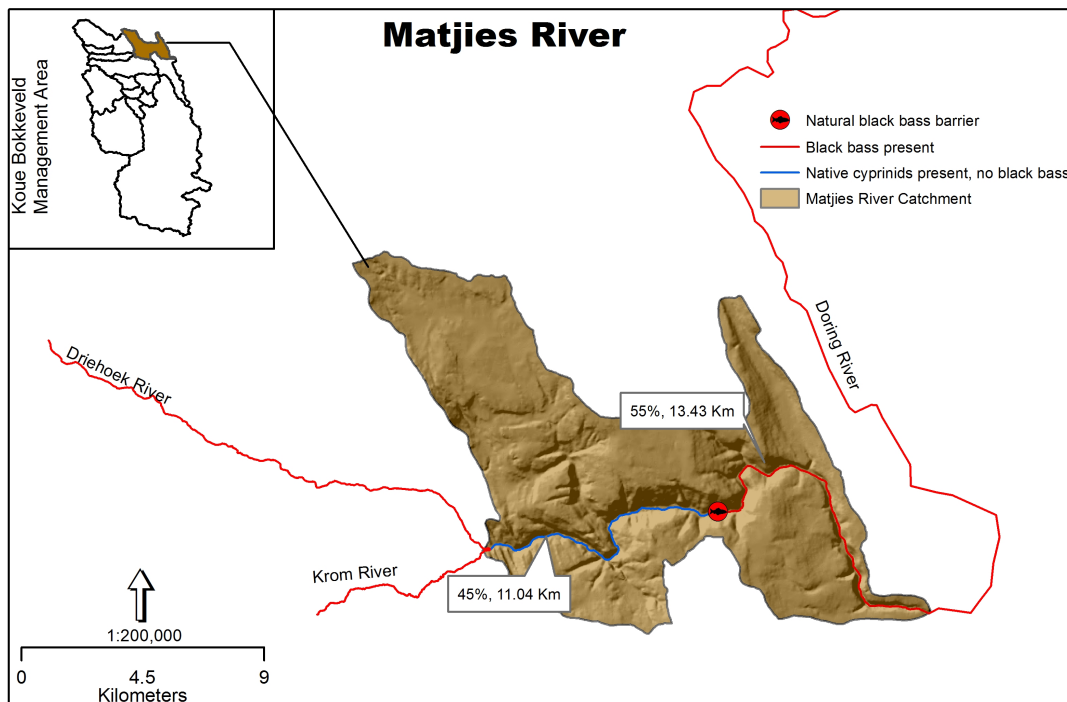
Doring River tributaries



Koue Bokkeveld tributaries



Tra Tra River



Matjes River.