SAVING FRESHWATER FISHES AND HABITATS

Newsletter of the IUCN SSC/WI Freshwater Fish Specialist Group

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Message from the FFSG Global Chair

Dr. Richard Sneider

Hello FFSG members. This year seems to be going past so quickly, and we have had a great deal of general administration to deal with as part of the new 2017-2020 Quadrennium. I know that some of you are still waiting to get confirmed through the IUCN SSC registration process as members of SSC and FFSG. Please do not worry – we will get you into the system, and you will stay on our internal mailing list while we are doing this. As you can imagine, IUCN's Global Species Programme staff based at IUCN headquarters in Switzerland and at the IUCN offices in England have an enormous amount of work at the start of the Quadrennium, when they have to process tens of thousands of members and deal with new strategic plans. This is a challenge when there are few staff to work on this. Claire Santer, Rachel Hoffmann, and their colleagues are dealing with this as efficiently as possible. They provide us with outstanding support and advice throughout the Quadrennium, so now is our opportunity to show our gratitude; so please join me in giving them our patience while they work with this. Ian Harrison is working closely with them to ensure you are all integrated into the system and he will keep you informed of all news (page 5).

Ian has also been working with colleagues in IUCN's Global Species Programme, IUCN Water, and WWF-US to advance the plan for an *IUCN One Programme Strategy for Freshwater Biodiversity Conservation* as discussed in the May 2017 newsletter. This will be an important platform for the FFSG and for the other IUCN Commission Specialists groups and Subcommittees with which several of us are also involved. Ian gives a report on recent developments on pages 38-39 of this newsletter.

We have some great opportunities coming up. Michael Cooperman reports on discussions on the conservation and sustainable management of inland fisheries, that involved several FFSG members at the American Fisheries Society meetings this year in Florida (page 31-32). Michael is also working with Ian Harrison and others on producing a Supplementary Issue of the journal *Aquatic Conservation: Marine and Freshwater Ecosystems*, that will be focused on the Conservation of Freshwater ecosystems in the Anthropocene. Olaf Weyl, our regional Chair for Southern Africa, will be leading on the development of a special issue of the *Journal of Fish Biology*, that will be focused on the Biology and Ecology of African Freshwater Fishes (pages 36-37). Several FFSG members also took part in a meeting earlier this month, hosted by the Leibniz-Institute for Freshwater Ecology and Inland Fisheries (IGB), in Berlin, to discuss the *Blueprint for Freshwater Life* project (pages 33-35) that we discussed at the sessions at the IUCN World Conservation Congress in Hawaii, and reported in previous issues of this newsletter (Issues 10 and 12). We have provided important feedback to the Rainforest Trust on regions that will be important for development as freshwater protected areas, including sites in Africa (page 14). We have offered collaboration to a new freshwater focused aquarium in Switzerland – the Aquatis Aquarium – by identifying FFSG members who can help provide advice on key species that they will be displaying. And our FFSG members have assisted in submitting Red List assessments for several freshwater fish species in Africa and South America.

I had a very enjoyable expedition this year to the Okavango, as part of National Geographic's Okavango Wilderness Project. Former FFSG Regional Chair Paul Skelton is the Science Director for the project, and the lead ichthyologist (see his report on pages 21-24). This was the first time I had met Paul, and had a wonderful time working with him in the field. I also attended an extremely interesting and enjoyable meeting of IUCN's Patrons of Nature, hosted by HSH Prince Albert II of Monaco. Freshwater ecosystems and biodiversity represented an important part of the discussions at that meeting, with many people there recognizing the importance of IUCN's work on freshwater biodiversity, and the need to develop this further.

There is a lot that is ongoing – and we are not even through the first year of this new Quadrennium, so I feel confident that we have many more exciting projects ahead.

Best wishes,

Richard Sneider
FFSG Global Chair

The National Geographic Okavango Wilderness Project – An adventurous trail of discovery

Paul Skelton
Science Director, NG Okavango Wilderness project

The rivers of Angola were out of bounds for scientific discovery during the years of civil conflict and war from the 1970s till after 2000. The Okavango basin in Angola includes the 'watertower' catchments embracing the Cuito-Cuanavale and Cubango mainstreams. The natural wet and dry flood pulse of this African savannah system is key to all life it supports and therefore its conservation. This is especially critical as it is an endorheic system ending in the Magadigadi pans of the Kalahari in Botswana. The Okavango Delta in Botswana is a World Heritage site of major importance bringing tourists and foreign exchange of significant proportion to the country. Any threat to the rivers in Angola and Namibia is a threat to the Delta in Botswana.

Concerns about the future water to the Delta have long been raised by conservationists in Botswana and a tri-national transboundary commission has been engaged with these concerns for decades. Recently the Okavango Wilderness Project, managed by the Wildbird Trust and sponsored by the National Geographic Society and other groups has explored the poorly studied and little understood wilderness areas of the Okavango catchment in Angola. Scientific knowledge is a key element in devising an appropriate conservation strategy and action plan for the system. In 2015 I was engaged to investigate the freshwater fishes from the Project, having already a good knowledge of the fauna downstream from studies made since the early 1980s.

The Core study area of the project is a vast tract embracing the headwaters of the Cuito-Cuanavale as well as the upper reaches of the Cuando and the Zambezi systems (Figure 1). In 2017 we visited the upper Cubango River in order to provide fresh collections and understanding of that major branch of the system as previous studies including historical explorations indicated a very different fauna there due to both ecological and biogeographical reasons.

Figure 1. The outlet from Lake Cuito. (Photo credit: Paul Skelton)

NGOWP expeditions are interesting affairs as they combine the very latest technologies with fundamentally basic riverine logistics – namely travel along the river by mekorras or dugout canoes. In this way, entire transects of the major tributaries have been explored – and the first transect in 2015 travelled from the source of the Cuito to the very terminal point Lake Xau in the Magadigadi pans! Land based support parties are also involved and, with the remoteness of the areas being explored, helicopters are used to connect with the party for re-supply and change or evacuation of party members.

We discovered that the source zone of the core study area was a fairly unique and very different environment from what we had previously encountered in the system. Based on deep Kalahari sands and dense Miombo forests, the grassy drainages are in fact rivers arising in peat bogs that, when blocked by bank slumps become lakes with peat bog margins. The waters are crystal clear but poor in nutrients and the fish fauna is very different to that of the rivers and floodplains lower down in the system and in the Delta. This fauna is also different to the species encountered in the western Cubango branch of the system. Not surprisingly several undescribed species are present, and deciphering their status has been both difficult, as there is little known from the immediate interconnected drainages of the Congo, and exciting because that is what drives systematic discovery. Some of the fishes, like an elongate clariid without pelvic fins, are peat-bog specialists with locomotory adaptations and air-breathing abilities. Other newly discovered species betray geographical connections with adjacent catchments e.g. the striking *Enteromius chicapaensis* (Figure 2) with the Congo, and *Clypeobarbus bellcrossi* with the Zambezi. These records are the first to my knowledge of these species beyond there type localities! Such discoveries naturally raise the conservation profile of the area.

Figure 2. Enteromius chicapaensis – a pretty minnow discovered in the Okavango system for the first time. (Photo credit: Paul Skelton)

The explorations have become increasingly sophisticated with the team using SCUBA and underwater video photography to explore the lakes for the first time in 2017 (Figure 3). These investigations have shown a largely undisturbed and almost eerie environment, possibly due to the absence of megafaunal elements like elephants, buffalo and hippo that normally and naturally would keep the bogs open and unsettle the sediments. Crocodiles are present but do not seem to be very large. Restoration of natural elements may well restore a more natural environment? Indigenous fishing is present but completely sustainable as, so far, we have not seen modern gear being employed in these most remote areas. Elsewhere, lower down in the system, the destructive use of monofilament gillnets is rapidly depleting the fish resources.

Each new locality brings with it new discoveries and the area proves to be a scientific treasure chest. The Okavango Wilderness Project is also bringing together scientists from a range of disciplines from fungi and plants to higher vertebrates, hydrologists and landscape ecologists. The creative mix of minds is raising interdisciplinary potentials and creative opportunities, especially when new technology is added.

Figure 3. Richard Sneider diving the Okavango source lakes in Angola (Photo credit: Rainer Von Brandis.)

Finally, on a more personal note, we were joined on the Core area phase of the 2017 expedition by the FFSG Global Chair, Richard Sneider (Figure 3), one of the NG funders of the project. It was our first meeting, and made the expedition a special one for me, seeing Richard clearly in his dynamic element, exploring both underwater and above, and enjoying it tremendously.