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The FFSG South Asia Office

**Deadline for submitting material for the first edition of
2013 is 18th January 2013**



Freshwater Fish Specialist Group

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Impressum

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Image on front page:
Omani blind cavefish
(*Garra barreimiae*).
© Robert Gaster /
Chester Zoo

From the Chair of the Freshwater Fish Specialist Group

Professor Gordon McGregor Reid



Welcome to Saving Freshwater Fishes and Habitats ! This is the newly re-vamped newsletter of the IUCN/ Wetlands International Freshwater Fish Specialist Group. All credit for production of this 'new look' newsletter goes to our Managing Editor and FFSG Programme Officer Katalin Csatadi and I thank her very much for this. We will also be shortly launching a re-vamped website which I am sure that all of you will find useful and interesting. Of course the continuing value of the newsletter and website depends on our readers and FFSG members making contributions from all over the world. So do not forget us when you next have a moment to spare and a laptop at hand! Even small news items are very much appreciated.

*Many colleagues in the world of aquatic conservation tell me that they sometimes get dispirited by the sheer weight of negative forces against which they operate. This is not surprising, given that there are so many contemporary global issues to contend with such as overfishing, habitat destruction, pollution, damming, drought, floods and climate change. While the challenges may seem overwhelming at times, it is reassuring to know that a large and growing army of conservationists and educators are addressing these issues with commitment and zeal. In this issue we have a series of uplifting stories. There is the remarkable rescue of the Red-finned blue eye (*Scaturiginichthys vermeilipinnis*) in Australia, included in the Breaking Point Initiative for Critically Endangered species. Progress is reported on conservation of the giant Danube Salmon (*Hucho hucho*) and the equally chunky Wels catfish (*Silurus glanis*). There is also great news about a newly established FFSG Regional Office in India.*

*Last, there was the joy of the IUCN World Conservation Congress in Jeju Island, Korea, which we report on here. Kati and I found it inspiring to meet hordes of fellow conservationists in Jeju, many of them with success stories including for the aquatic environment. Jeju is temperate to subtropical and reportedly supports 100 species of freshwater fishes and 100 species of catadromous fishes ([link to report](#)). Kati and I briefly visited the Somban River with its spectacular Cheonjiyeon Waterfall [Pictured: 22 m (72 ft) high and 12 m (39 ft) wide] set in a protected nature reserve. We did see some wild barilliine cyprinids in breeding colours, cavorting in rapid water near the surface; but looked in vain for the locally threatened Mottled eel (*Anguilla marmorata*) reputed to occur in the river. The Congress marked the beginning of a new IUCN Quadrennium (2013-2016) and, accordingly, we have appointed or re-appointed FFSG Regional Chairs to carry on good work in fish conservation around the world. In moving on, we must warmly thank all of the Regional Chairs and FFSG members who have contributed to conservation successes in the previous Quadrennium (2009-2012). Among these, special mention is made of Professor Rema Devi who has retired as Chair of FFSG South Asia; and Prof Paul Skelton, continuing as Chair of FFSG Southern Africa and recently honoured by Rhodes University. In conclusion may I warmly wish all of our readers Seasons Greetings and all best wishes for the New Year!*

Gordon

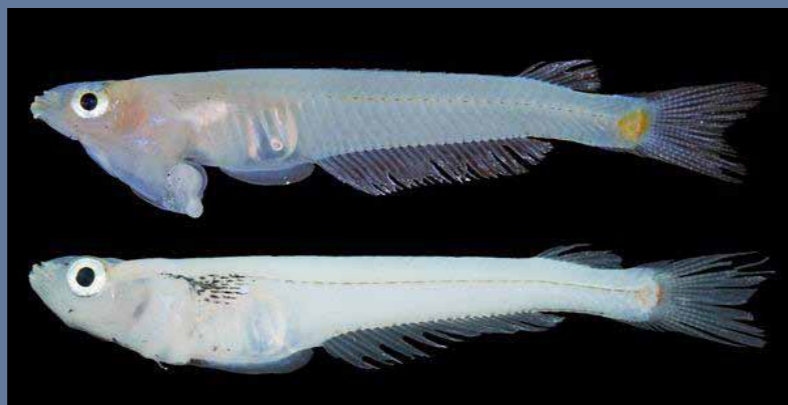
The IUCN World Conservation Congress

End of the 2009 – 2012 Quadrennium

Katalin Csatadi, Programme Officer and Gordon McGregor Reid, Chair, FFSG

To review the last four years of worldwide conservation work, the International Union for the Conservation of Nature (IUCN) organized the World Conservation Congress (WCC) in Jeju Island, South Korea. Despite the remote location more than 8000 delegates attended the meeting and the Congress facilities were very large. The IUCN/Wetlands International Freshwater Fish Specialist Group was represented by Gordon McGregor Reid, Chair and Katalin Csatadi, Programme Officer.

The WCC consisted of two main parts: the Forum and the Assembly. During the Forum, hundreds of interesting talks, workshops and meetings took place. The FFSG made its voice heard several times. Gordon gave a talk to representatives of the various Species Survival Commission (SSC) Specialist Groups. By dropping in the story of the newly discovered ‘penis-head’ fish (*Phallostethus cuulong*) he immediately created interest in freshwa-



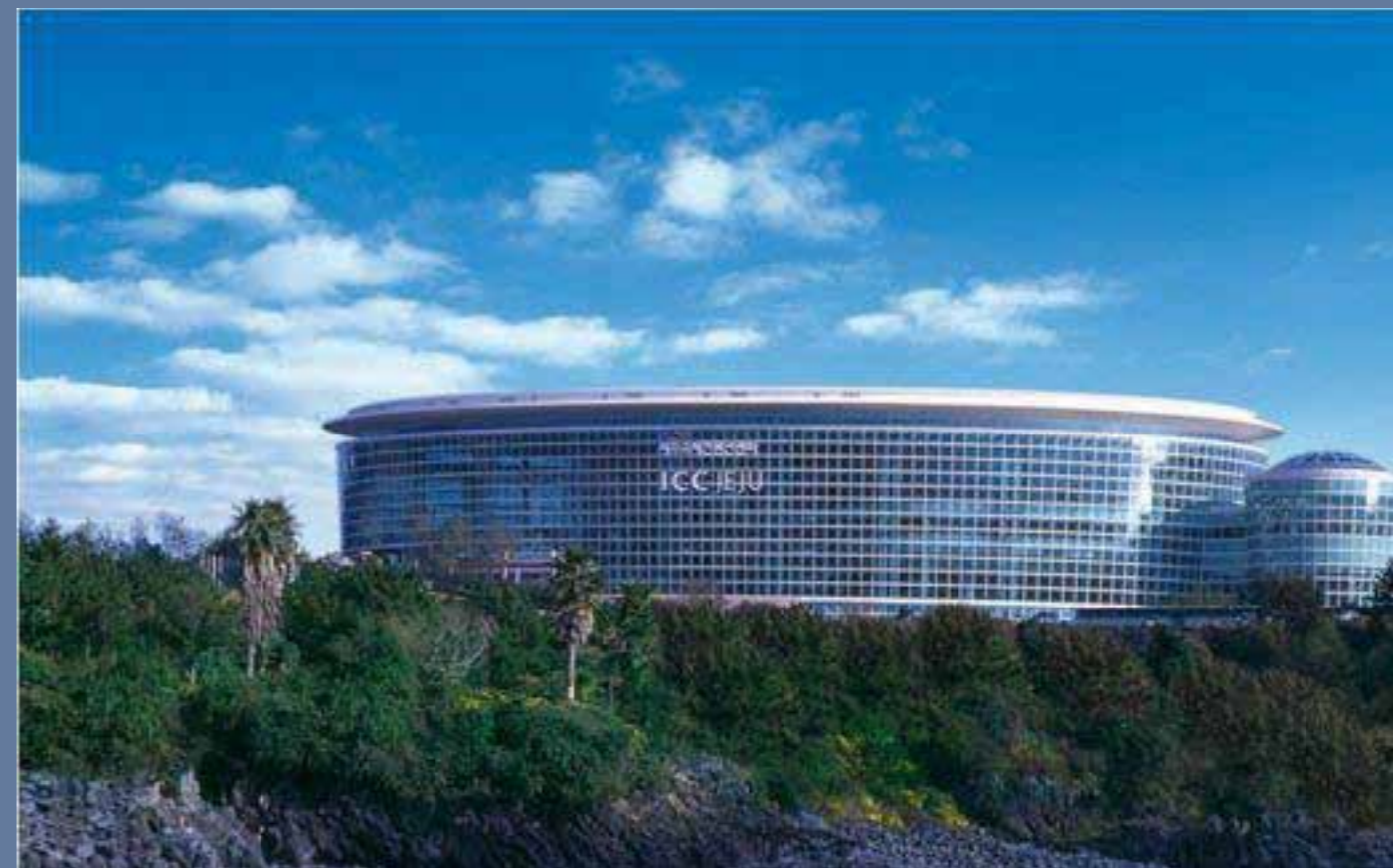
The penis head fish (*Phallostethus cuulong*)
© L.X. Tran

ter fishes and this interest didn't decrease until the end of the Congress! Gordon was also asked to present on freshwater fish conservation in relation to the Aichi 2020 Targets. This session was chaired by Jane Smart the Global Director of the SSC Biodiversity Conservation Group. Other water-related talks were given by Taej Mundkur, Programme Manager of Flyways at Wetlands International and Yvonne Sadovy, Chair of the IUCN-SSC Marine Conservation Subcommittee.

Despite the vast scale of the Congress, there was one cosy corner where friendly discussions took place no matter what time of the day one visited. This was the Species Pavilion run by colleagues of the IUCN-SSC Chair's office. Hosted by the outstanding team of Rachel Roberts, Dena Cator and Mike Hoffman, the Species Pavilion provided a varied programme for those interested in species conservation. Among the workshops was one on funding presented by coordinators of the Save Our Species and Mohamed Bin Zayed Conservation fund (who are keen to see more funding of freshwater projects). There was also a session on the importance of photography in conservation, presented by photographers of the National Geographic Society and particularly relevant for freshwater fishes rarely photographed in their natural habitats. A session on the Priceless or Worthless project took place and this was very important for FFSG

because the Red-finned blue-eye (*Scaturiginichthys vermeilipinnis*) was selected as one of the 100 most endangered species. Ellen Butcher, coordinator of the project, chose this species for introducing the programme at the official launch. More about this and the charismatic Red-finned blue-eye can be found in this issue.

Some major changes occurred in the personnel at IUCN. Mr Ashok Khosla has retired from his position as President of IUCN and was succeeded by China's Mr Zhang Xinsheng. Dr Simon Stuart, Chair of the Species Survival Commission and lower vertebrate enthusiast was re-elected in the same post. As an SSC member FFSG warmly welcomes this re-election and we are looking forward to continue our work with the SSC Chair's office.



The International Convention Centre, Jeju, which hosted 8000+ people

Beginning of New Quadrennium 2013–2016

Appointment of New Regional Chairs

The 2009-2012 Quadrennium ended with the World Conservation Congress and a new Quadrennium 2013-2016 will commence. The work of the Freshwater Fish Specialist Group is continuous but there will be a few personnel changes. FFSG has 19 regions world-wide. Each region has an appointed Chair or Co-Chairs [or Coordinator(s) in Wetlands International terms]. According to the requirements of IUCN/Wetlands International these Chairs have to be re-appointed at the beginning of each Quadrennium. Please see below the regions and the proposed Chairs, who have agreed in principle but whose status is subject to their formal acceptance.

Prof Gordon McGregor Reid	Global Chair
Dr Nina Bogustskaya	Northeastern Europe, Northern Asia
Prof Topiltzin Contreras MacBeath	Mesoamerica
Dr Mamaa Entsua-Mensah	Western Africa
Dr Jörg Freyhof	Europe
Dr Abebe Getahun Gubale	Northern Africa
Dr Fareed Krupp	Southwest Asia
Dr Mark Lintermans	Oceania
Dr Richard Mayden	North America
Dr Rajeev Raghavan	Southern Asia
Dr Roberto Reis	South America
Prof Paul Skelton	Southern Africa
Dr Jos Snoeks	Eastern and Central Africa
Prof Melanie Stiassny	Madagascar
Dr Chavalit Vidthayanon	Southeast Asia (Mekong)
Prof Vishwanath Waikhom	Southern Asia
Dr Steven Walsh	North America
Dr Katsutoshi Watanabe	Japan
Prof Junxing Yang	China



Opposite page: members of FFSG, including Regional Chairs at the Annual Meeting of the Freshwater Fish Specialist Group in May 2012

Introducing FFSG Regions

South Asia

Prof Rema Devi, previously Chair of the South Asia region, has begun her well deserved retirement beginning in 2012. From this, she decided to resign from her role at FFSG as well. Her duties have been taken over by a young and enthusiastic ichthyologist, Dr Rajeev Raghavan co-chairing with Prof Vishwanath Waikhom. Rajeev has recently founded the IUCN FFSG South Asia office with the financial and logistical assistance of ZOO, the Zoo Outreach Organisation, directed by Dr Sanjay Molur. An outline of the new Office and the Region is given below by Rajeev.

The newly founded South Asia Office of the IUCN Freshwater Fish Specialist Group (IUCN FFSG) has started functioning at the Zoo Outreach Organization (ZOO) in Coimbatore, India. The FFSG South Asia Office has been established as a result of the growing interest and increased need for awareness, capacity building and research concerning freshwater biodiversity in the South Asia region.

ZOO is a leading conservation education, research and welfare NGO, which is home to several networks and south Asia chapters of IUCN specialist groups including Conservation Breeding Specialist Group (CBSG), Reintroduction Specialist Group (RSG), Amphibian Specialist Group (ASG), Primate Specialist Group (PSG), Chiroptera-bat specialist Group (CSG) and the Invertebrate Specialist Group (ISG).

Apart from identifying and coordinating a network of ichthyologists who will work together to raise the profile for freshwater fish conservation in this region, some of the proposed activities of the FFSG South Asia office include: i) updating species pages and assessments of the conservation status of newly described species in the IUCN Red List of Threatened Species (in collaboration with the IUCN FBU, Cambridge); ii) organizing training programs and workshops in fish taxonomy and systematics as well as other topics relevant to the objectives of the IUCN FFSG; iii) publishing a half yearly newsletter 'Something fishy'; and iv) develop education and outreach materials relevant to freshwater biodiversity conservation.



Dario urops is a recently (2012) described species from the Western Ghats and the first member of this genus to be described from peninsular India. This genus until now was known to occur only in the Eastern Himalayas and Indo-Burma region. © Ralf Britz

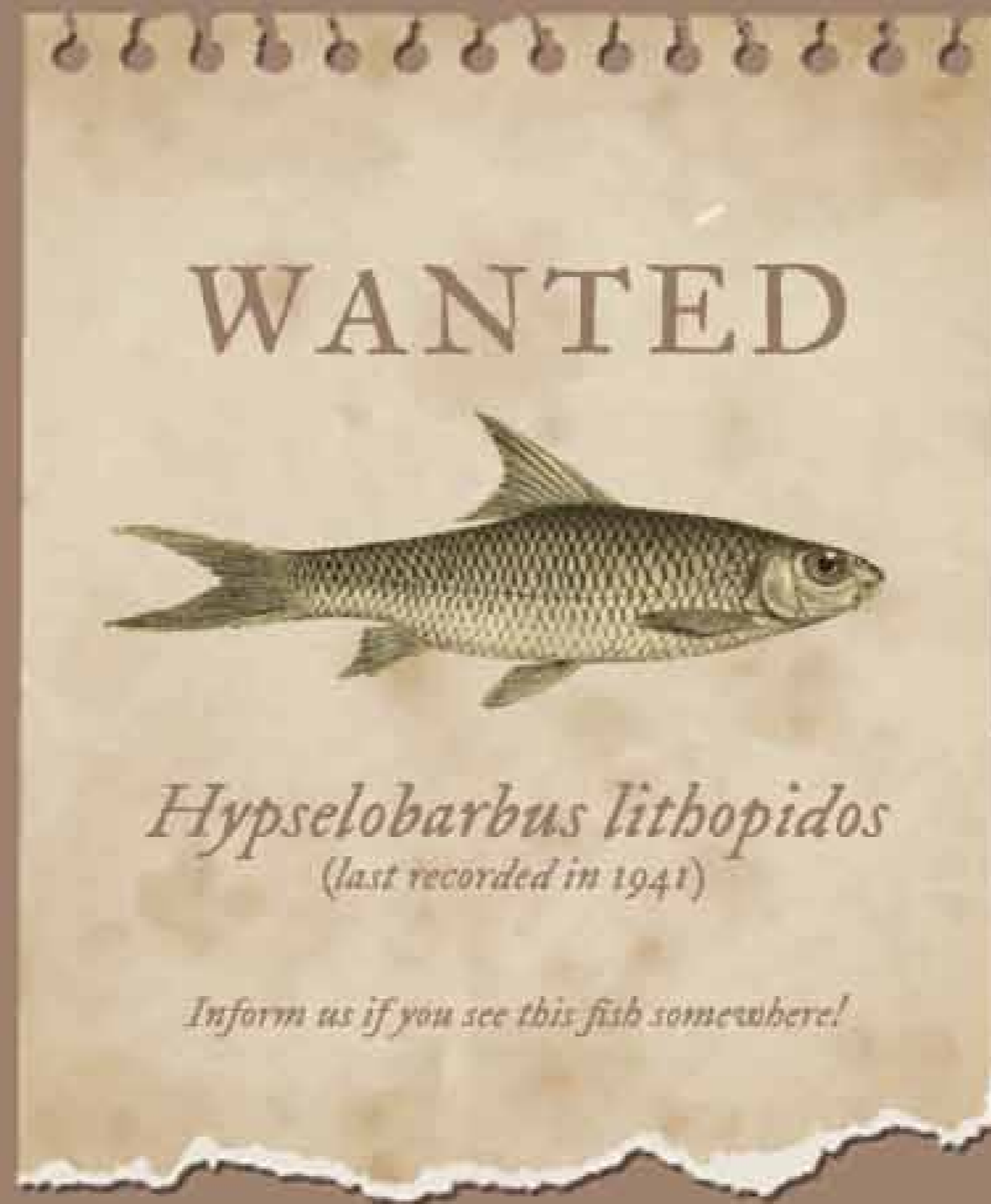
Brainstorming meeting on freshwater biodiversity policies

FFSG South Asia Office partnered with the Zoo Outreach Organization and organized a brainstorming meeting on freshwater biodiversity policies at the ZOO office from 9th to 12th August. The meeting which was attended by several freshwater biodiversity experts from the Western Ghats region discussed policy and conservation action recommendations of the IUCN Freshwater Biodiversity Assessments in this Hotspot. These included challenges for inclusion of selected freshwater taxa into the Indian Wildlife Protection Act; current effectiveness of the protected area system for freshwater biodiversity; and designing innovative education and outreach tools for freshwater biodiversity conservation.

FFSG South Asia Office to Partner in the 'Lost Fishes of the Western Ghats' Initiative

Dr Rajeev Raghavan, Steering Committee Member of IUCN FFSG has recently received a grant from the Mohammed Bin Zayed Species Conservation Fund for a project on the 'Lost fishes of the Western Ghats'. The project will focus on generating information on the current status including distribution, population and threats to eight species of freshwater fish that have not been recorded in the last few decades. Six of these species have been listed as 'Potentially Extinct' in the recent IUCN Freshwater Biodiversity Assessments. The project will involve many national and international partners including the South Asia Office of the IUCN FFSG.

LOST FISHES OF WESTERN GHATS



Help us to find eight missing fish species from the Western Ghats
www.lostfishes.in



Vishwanath Waikhom

Co - Chair of the
South Asia
Region



Professor Vishwanath was born on March 8, 1954 at Imphal, Manipur, India. He passed M.Sc. Zoology from Banaras Hindu University in 1975. He obtained Ph.D. degree from Manipur University in 1984 working on the Fish and Fisheries of Manipur. He has been teaching General Zoology and Fish and Fisheries special paper in the Department of Life Sciences of the University since 1984. He has been actively engaged in the taxonomy and systematics of the freshwater fishes of the Eastern Himalaya with financial assistance from different funding agencies of India. He organized Fish Taxonomy Training workshop of north-eastern India in Manipur University in 2001. He delivered lectures on the freshwater fish resources of the region in different parts of the country. He has discovered 56 new species of fishes so far; produced 23 Ph.D.'s, published more than 120 research papers and 4 books on fish taxonomy. He participated in the assessment and evaluation of freshwater fishes of the Eastern Himalaya for IUCN red listing in 2009-10 and co-authored the chapter on the freshwater fishes in the IUCN Red list of Eastern Himalaya, 2010. He is now a member of the Research Advisory Committee of the Central Inland Fisheries Research Institute (an institute of the Indian Council of Agricultural Research), Barrackpore, India. Prof. Vishwanath was conferred 'Prof. M.C. Dash Medal' by the Zoological Society of India in 2008 and 'AEB Honour' by the Academy of Environmental Biology, India in 2010 in recognition of his contribution to Environmental Biology.



Myersglanis jayarami - A species discovered by Prof Vishwanath and colleagues (Vishwanath & Kosygin 1999)

Rajeev Raghavan

Co - Chair of the
South Asia
Region



Dr Rajeev Raghavan is a Senior Researcher and Associate Director at the Conservation Research Group (CRG), St. Albert's College, Kochi, India. After completing his first university degrees in Fisheries Science and Aquaculture in India, Rajeev completed a PhD in Biodiversity Management at the University of Kent, UK. During his academic career, Rajeev has also been trained at universities and institutes in Austria, Czech Republic, Belgium and China. Rajeev's research is focused on issues that relate to the connectivity between freshwater biodiversity, conservation and livelihoods in the Western Ghats Hotspot, India. Together with national and international partners, his research aims to develop local, regional and international policy recommendations and practical actions for the conservation and sustainable use of freshwater biodiversity in the South Asia region. Rajeev also collaborates with the IUCN Freshwater Biodiversity Unit and has assessed and evaluated the conservation status of more than 150 species of freshwater fishes from the South Asia region for the IUCN Red List of Threatened Species. He is also a steering committee member of the IUCN Freshwater Fish Specialist Group.



Eel loach (*Pangio ammophila*) a new species of the Western Ghats discovered by Rajeev Raghavan and colleagues. © Ralf Britz

An Award for a Distinguished FFSG Member: Prof Paul Skelton

Nonceba Mhlauli, Communications Intern, SAIAB

Prof Paul Skelton was one of five distinguished Old Rhodians who received awards from Rhodes University on Saturday 25th August. “The ceremony on Saturday was a warm and pleasant occasion and a chance to catch up with some old friends and colleagues. It was also a chance to reflect on Rhodes and the people and events that make it special for me,” - Professor Paul Skelton said after the ceremony.

Prof Skelton arrived at Rhodes University in 1967 for his Bachelors of Sciences (BSc) and then completed his Honours year and then Doctoral degree.

Paul recalls: “My interest in Ichthyology is rooted in two individuals - Professor Brian Allanson and Dr Rex Jubb. Prof Allanson was the first of my lecturers when I arrived at Rhodes (he delivered the ‘cell biology 101’ course in those days). What I remember above everything else was the lexicon of biology, something I had never before experienced and it left me feeling rather ‘naked and cold’ (understand: uncomfortable in the extreme!). This was exacerbated by the fact that my hearing was so bad I did not actually have a clue what all those big words were, never mind how they were spelt! It was catch-up all the way from there.”

Paul shares memories of his experiences with Prof Allanson: “I recall a mix of experiences like going to Lake Sibaya on more than one occasion - and having some typical student mishaps en route (like leaving researchers stranded in the lake when piloting the boat Sibaya that was towing them on diving surveys of the inshore habitats!. I always felt the wind of support from Prof Allanson at my back - and for this I am deeply grateful and appreciative. I do believe that his own strong sense of values including courage (to face tough issues and situations), vision to know where one is going and what it will take to get there, and belief in doing what is right for the right reasons is what Institutional leadership is all about.”

Dr Rex Jubb, who was awarded an Honorary Doctorate by Rhodes in 1970, was the one who introduced Paul to systematic Ichthyology: “Although Rex Jubb was the one who mentored me, there were other individuals who also had a considerable impact in my life - my lecturers and supervisors, Drs Tom Fraser and Rick Winterbottom and Professor Mike Bruton who was a great thinker and an inspiration for what can be done.”

Prof Skelton took over from Prof Mike Bruton as Director of the Institute when it was still the JLB Institute of Ichthyology in 1994 and continued as Managing Director in 1999 when it became a National Research Facility under the National Research Foundation (NRF) as the South African Institute for Aquatic Biodiversity (SAIAB). Paul retired in 2011: “I spent my whole professional life at this Institute, from when it was the JLB Institute of Ichthyology to it becoming a National Facility. Being part of the process of growth and organising from the very beginning”. Prof Skelton is also one of the founding members of the Freshwater Fish Specialist Group and is currently the regional Chair for Southern Africa. Paul has also worked very closely with the IUCN Species Survival Commission over the last 5-6 years to lead the freshwater biodiversity assessment of Southern Africa ([click here for the report](#)).

The Distinguished Old Rhodian Award recognises Old Rhodians who, through their individual actions

and achievements, have enhanced the reputation of the University.

Professor Alan Whitfield together with Penny Haworth from SAIAB nominated Prof Skelton for the award. According to Prof Whitfield: “Prof Skelton has guided and grown the Institute through its transition from a Declared Cultural Institution under the Department of National Education into a National Facility in the Department of Science & Technology. Indeed, I think it is safe to say that without Paul’s dynamic leadership during the turbulent transition period for National Museums between 1994 and 1999, it is a distinct possibility that the Institute would not exist today and that Rhodes University would be considerably poorer as a result. The Award is also intended to acknowledge Old Rhodians as role models and in Prof Paul Skelton’s case he has been an exemplary role model to staff and students at both SAIAB and Rhodes, and is also a highly respected member of the wider Grahamstown community.” Dr

William Darwall, Manager of the Freshwater

Unit of IUCN’s Global Species Programme who was one of the nominators for the award said he considers Prof Skelton to be: “One of the most dedicated and effective campaigners for conservation of freshwater fishes.” In congratulating one of his former students, Prof Brian Allanson sent his warmest wishes to Prof Skelton and congratulated him on the Distinguished Rhodian award: “Greatly deserved and really a singular honour for the University as well,” he said.

What does the award mean to Prof Skelton? “I think the award recognises those who have done something worthwhile with the education they’ve received because education goes far beyond what you learn in the lecture room, it’s the whole experience. The university’s motto is ‘Where Leaders Learn’ - which is very inspiring because you are putting emphasis on leadership development which is something I’ve sought to do in my years as the MD of SAIAB. Leadership development is something I’ve always held close to my heart - you can make a difference”.

Where to from here? Paul feels: “You reach points in your life where you make major changes and retirement from employment has been one of those changes. For me, this has been an interesting change because it’s an end of formal employment and this choice of what to do with your own time is not always easy to decide! You ask yourself, how can I contribute constructively in a manner that gives me fulfilment? That requires much hard work. The challenge is to become constructive and worthwhile. I find fulfilment through giving back to young people and to the University without any expectation of having to do so. In order to be meaningful, you make conscious decisions. Nothing worthwhile is achieved through giving up - sometimes you’ve got to just knuckle down and do it,” Prof Paul Skelton, Distinguished Old Rhodian, still lectures and supervises students at SAIAB and at the University. “One of the things I’ve always wanted to achieve was to make SAIAB a place people enjoyed working at. In effect, to make SAIAB an extended family and since retiring I haven’t left the family. SAIAB has been very welcoming and I have enjoyed interacting with staff, not as the boss but as a part of the family,” Paul says with a smile.



Prof Skelton accepting his award

News From Around the World

Priceless or Worthless Includes Five Freshwater Fish!

Ellen Butcher, Conservation Programmes Support Officer, Zoological Society of London

Conservation paradigms are becoming increasingly utilitarian and may unintentionally undermine efforts to protect some of the most threatened species on the planet. Animals such as Edwards's pheasant and the Hainan gibbon provide us with few, if any, valuable ecosystem services. But does this mean that they are worthless? Do they have a right to exist, or does their lack of utilitarian value mean we have a right to drive them to extinction? 'Priceless or Worthless?', released in September at the IUCN World Conservation Congress by the Zoological Society of London and the IUCN Species Survival Commission, poses these questions.

For the first time, the 8,000 scientists that comprise the IUCN Species Specialist Groups came together to identify the 100 species that they believed would be the next to go extinct unless the level of conservation attention that they receive is significantly increased. 'Priceless or Worthless?' describes these 100 species and provides concrete suggestions for how they could be saved. In addition, the book reminds us that we have the capacity to rescue species from the brink of extinction and provides examples of species, such as the Chatham Islands black robin, which bounced back from what seemed a hopeless situation. The list's creation and publication has received the backing of HRH the Duke of Cambridge KG KT who said: "This book does not merely tell us which species are most endangered; it shows us how we can save them. It challenges us to commit to safeguarding our priceless natural heritage for future generations".

The 100 species, from 48 different countries, include the Critically Endangered pygmy three-toed sloth (*Bradypus pygmaeus*) from Escudo Island, 17km off the coast of Panama. Similarly, the Saola (*Pseudoryx nghetinhensis*) is one of the most threatened mammals in Southeast Asia. Referred to as the Asian unicorn due to its rarity, the population of this species may be down to few tens of individuals today.

Fish species such as *Aphanius transgrediens* found only in Lake Aci in Turkey, *Pangasius sanitwongsei* from the Mekong basin, *Trigonostigma somphongsi* from Central Thailand and *Valencia letourneuxi* from certain parts of Albania and Greece are all Critically Endangered and can be found amongst the 100 most endangered species. The Red-finned blue-eye (*Scaturiginichthys vermeilipinnis*), a tiny Australian species was also featured in the report and a brief article about conservation work on this species can be found on pages 20-21, written by the lead scientist in this work, Adam Kerezsy.



Scaturiginichthys vermeilipinnis © Bush Heritage Australia



Aphanius transgrediens © Barbara Nicca



Pangasius sanitwongsei © Oliver Lucanus

'Priceless or Worthless' focuses on raising the profile of these 100 most threatened species and challenging the global conservation community to consider if, and why, they value the full range of life on our planet. If

we value these species then we need to ensure their protection, committing sufficient funds and resources to doing so. All the species listed are unique and irreplaceable and if they vanish, no amount of money can bring them back. However, if we take immediate action we can give them a fighting chance for survival. But this requires society to support the moral and ethical position that all species have an inherent right to exist. As the Chair of the IUCN Species Survival Commission, Dr Simon Stuart, stated "All species have a value to nature and thus in turn to humans".

We must also remember that, although their current situation may be dire, none of the 100 species listed in 'Priceless or Worthless' are a lost cause. As Dr Don Merton, head of the black robin recovery programme, said "if the rarest bird in the world can be saved then, given human determination and effort, no species need become extinct".



Cover of the Priceless or Worthless report

Tiny Fish, Big Trouble: Australia's Red-finned Blue-eye Battles for Survival

Adam Kerezszy, Bush Heritage Australia

At Edgbaston (a property owned by the not-for-profit conservation company Bush Heritage Australia) ancient water from a massive aquifer called the Great Artesian Basin seeps to the surface and then settles in a group of unique springs.

Edgbaston is in the 'middle of nowhere' in central western Queensland, Australia - so it's mostly hot and dry, and very occasionally hot and wet. But then there are the springs: no two are the same - they can be as big an Olympic swimming pool or as small as bathtub - but they all share fundamental similarities. In general, the water is shallow (less than 5cm deep), slightly brackish, and emerges from primeval home in the bowels of the Earth at a constant 24 degrees Celsius. When it reaches the surface things change. On a cold winters' morning the water in the springs can be close to freezing, whereas at the height of summer it can be up around 40 degrees Celsius.

Despite the unusual environmental conditions, the aquatic and terrestrial flora and fauna of Edgbaston is perfectly adapted and remarkably diverse. The vast majority of species are endemic. They have evolved at Edgbaston and are found nowhere else. As examples, there are at least four species of endemic terrestrial plants, some of which - the *Eriocaulon* species - resemble miniscule versions of aloe vera (to which they are related). There are up to 14 species of snails (some aquatic) each one identified by slightly different whorls in their shell or the direction in which their shell opens; and there is an endemic flatworm that resembles a small piece of soft, shiny, black plastic. When a flatworm breaks in half it doesn't die - two new flatworms emerge from the 'wreckage'.

And then there are the fishes! Two species of fish have evolved within the springs at Edgbaston. There is a small bottom-dwelling Edgbaston goby, *Chlamydogobius squamigenus*, that reaches about five centimetres standard length when mature. More remarkably there is a smaller open-water fish called a Red-finned blue-eye, *Scaturiginichthys vermeilipinnis*. This only reaches three centimetres standard length when mature. As their name suggests, Red-finned blue-eyes are attractive little beasts, formerly flourishing in a highly unusual habitat and with a preference for extremely shallow water. The Red-finned blue-eye is the only member of the pseudomugilid (blue-eye) family known from inland Australia. Nobody knows for sure, but it's suspected that they're a relict species from about 5000 - 10 000 years BP, when the interior of Australia was much wetter. The springs have been

their lifeline to survival through the millennia - but it's important to note that this persistence is now under serious threat.

Given the limited distribution of the fish, snails, worms and plants at Edgbaston, the whole place is listed as 'an endangered ecological community' under Australia's endangered species legislation (the EPBC Act), but Red-finned blue-eye - unfortunately - have far bigger problems than their limited distribution. Sometime in the last few decades, the springs have also been invaded by *Gambusia* or mosquitofish. These are live-bearing fishes from the south-eastern United States, originally introduced to control mosquitoes (but with no evidence that they are effective in this regard). The problem is that once *Gambusia* infest a spring, the population of Red-finned blue-eyes crashes and can become extinct.

Consequently, Bush Heritage's biggest goal at Edgbaston is to conserve the remaining populations of Red-finned blue-eye, establish more, and try and control the spread of *Gambusia*.

The project, to-date, has involved trial of the piscicide rotenone to control *Gambusia* as well as relocations of small numbers of Red-finned blue-eye to fish-free springs. It has also involved a genetic study of the remaining naturally-occurring populations of Red-finned blue-eye and adherence to relevant management legislation that pertains to endangered species in Australia.

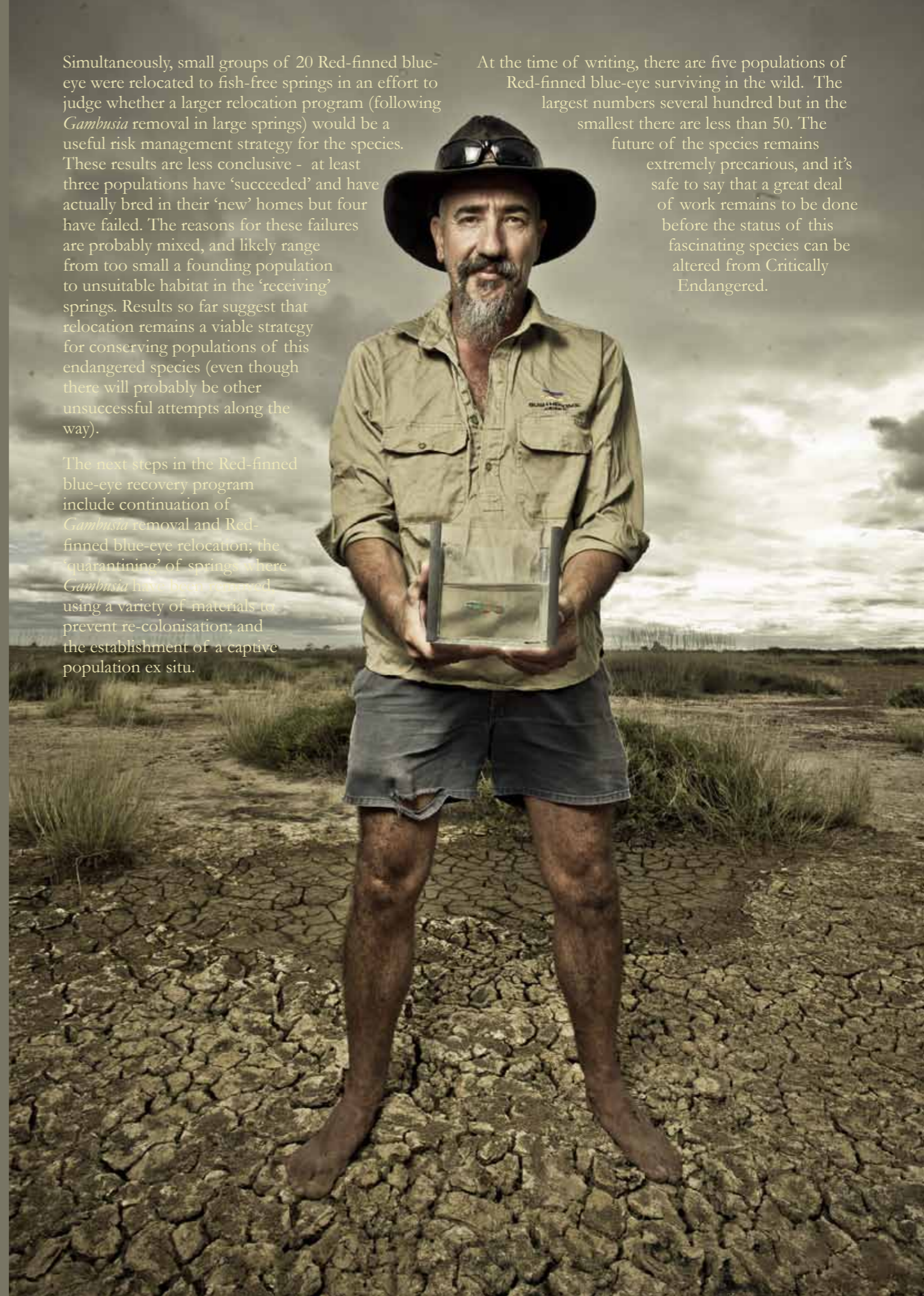
In order to avoid harming any non-target organisms (invertebrates), physical removal of *Gambusia* was trialed in the first instance using netting techniques. However, this proved to be a very labour-intensive and time-consuming task. It was concluded that it could only ever be successful in very small springs (with a surface area of <3m²).

Permission to trial the use of rotenone was granted by both the Australian (federal) and Queensland (state) governments by February 2011 and the treatment of a spring commenced shortly afterwards. The amount of spring vegetation and the fact that the water flows constantly from the spring vents meant that the rotenone had to be applied on several occasions. However, by September 2011 no *Gambusia* were present, and 'before and after' monitoring of aquatic invertebrates demonstrated that the indigenous invertebrate and plant species assemblages had not been adversely impacted.

Simultaneously, small groups of 20 Red-finned blue-eye were relocated to fish-free springs in an effort to judge whether a larger relocation program (following *Gambusia* removal in large springs) would be a useful risk management strategy for the species. These results are less conclusive - at least three populations have 'succeeded' and have actually bred in their 'new' homes but four have failed. The reasons for these failures are probably mixed, and likely range from too small a founding population to unsuitable habitat in the 'receiving' springs. Results so far suggest that relocation remains a viable strategy for conserving populations of this endangered species (even though there will probably be other unsuccessful attempts along the way).

The next steps in the Red-finned blue-eye recovery program include continuation of *Gambusia* removal and Red-finned blue-eye relocation; the 'quarantining' of springs where *Gambusia* have been removed using a variety of materials to prevent re-colonisation; and the establishment of a captive population ex situ.

At the time of writing, there are five populations of Red-finned blue-eye surviving in the wild. The largest numbers several hundred but in the smallest there are less than 50. The future of the species remains extremely precarious, and it's safe to say that a great deal of work remains to be done before the status of this fascinating species can be altered from Critically Endangered.



Historic Meeting Held on the Danube Salmon (*Hucho bucho*): The Largest Salmon in the World in the World

Pete Rand, Senior Conservation Biologist, The Wild Salmon Centre

'Glowacica' is the Polish name for a very special freshwater fish whose natural range is limited to the Danube drainage, Europe's second largest river basin. The root of the Polish word means "head". Although these fish have an unusually large head, the meaning refers to the position of the fish in the aquatic food web, what ecologists normally refer to as an apex, or top predator. The common name for these fish is huchen ("HOO-kin") or Danube salmon and their scientific name is *Hucho bucho*. Fishes in this genus are recognized as the largest salmonids in the world, reaching lengths greater than 2 meters.



Figure 1. Attendees of the Second International Hucho Symposium held in Łopuszna, Poland during 19-22 September 2012. Dr. Andrzej Witkowski appears in the back row with a 'Polish Highlander' hat.

commented that it has been over 20 years since the first meeting was held on their biology and status. He recounted some history, and provided some background on the key historical figures in the study of Danube salmon (he referred to them as the 4 musketeers!). One of these individuals, Dr. Juraj Holcik, was the author of the seminal book published on the species in 1988 "The Eurasian Huchen, *Hucho bucho*: Largest Salmon in the World". This publication helped raise the international profile of the species and included an impassioned plea to reverse the extinction trend. Unfortunately, Dr. Holcik passed away in 2010, but he left a very important research and conservation legacy. Two days were devoted to presentations on our emerging understanding of the biology and current threatened status of this important fish.

In September, over 50 specialists from 20 different countries converged in the small town of Łopuszna, Poland in the foothills of the Carpathian Mountains near the Slovakian border. The meeting was the brain child of Dr. Andrzej Witkowski, a professor at the University of Wrocław, Poland, and a well-respected huchen researcher. Dr. Witkowski called the meeting to order, claimed the species as the "greatest representative of salmonid fishes", and

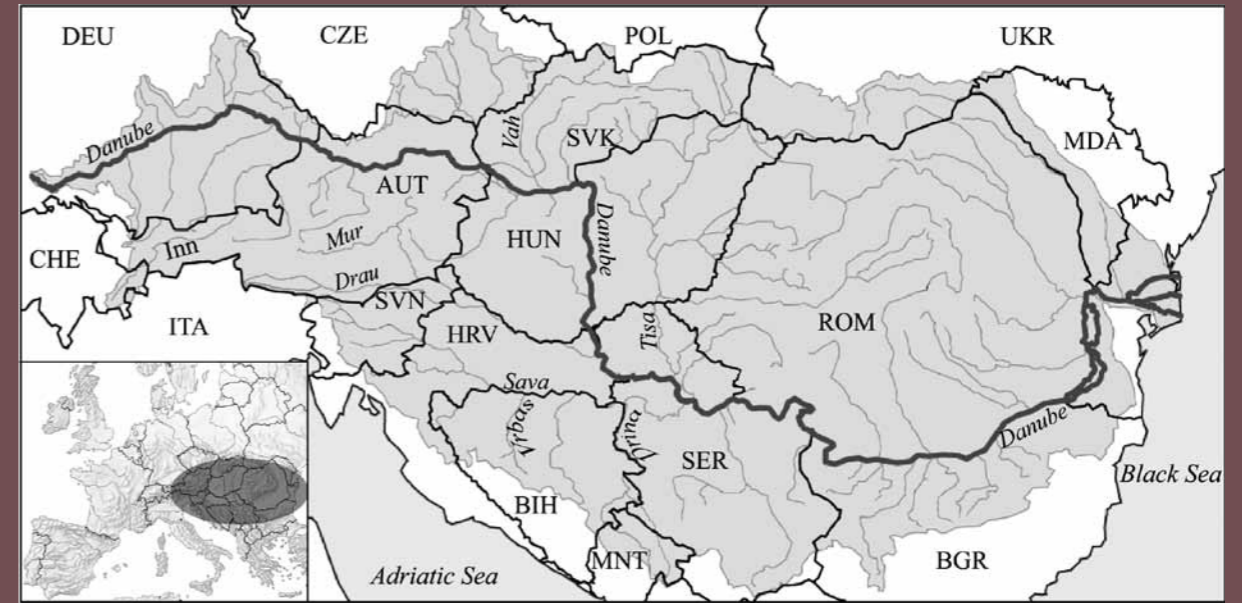


Figure 2. The natural range of *Hucho bucho* is limited to the upper drainage of the Danube River system in Central and Eastern Europe. It is thought that less than 15 wild populations of the species remain in the drainage. Map produced by Sasa Maric.

Unfortunately, the status of the species has continued to deteriorate since the publication of Holcik's book. The species was last assessed as Endangered by IUCN in 2008. The species range has become reduced and has become increasingly fragmented. Abundance has declined steadily owing to numerous factors. A series of presentations were given on the status of the species in different countries, including Hungary, Croatia, Serbia, Slovenia, Slovakia, Germany, Austria, and Poland. Other presentations focused on the biology and status of other species in the genera *Hucho* and *Parahucho*, with presentations by researchers from the USA, Japan, China and Russia. Dr. Manu Esteve, of the National Museum of Natural Science in Madrid, presented on the reproductive behavior of salmonids, focusing on huchen. Dr. Esteve won the Best Presentation Award for his engaging presentation, taking home the coveted Polish Highlander hat as a prize.



Figure 3. A male (top, left) and a female (bottom, right) Danube salmon spawn in a free flowing reach in the Pielach River, Austria. This is a sight that is becoming increasingly rare. © Clemens Ratschan.

While impacts from overharvest and pollution have been reduced in recent decades, many presentations focused on the increasing threat from hydropower development. The current distribution of the species is extremely fragmented as a result of construction of impassible dams, and many of the remaining wild huchen populations (thought to number less than 14) are increasingly under threat. The habitat for these fish is now restricted to ~10 km river reaches between impassible dams, and the quality of the habitat is declining in their impoundments. Dam projects planned or underway represent a serious risk to this species in the future, since the few free flowing rivers with reproducing populations are often also the ones with the biggest share of the remaining potential for further energy exploitation.

Concern was also raised about too much emphasis on hatchery technology and supplementation as a way to reverse declines in huchen. There is growing evidence here, and in many other case studies around the world, that salmonid hatcheries do not provide an effective “demographic boost” to the wild populations, and in fact can pose a real risk to wild fish by way of ecological and genetic factors.

Workshop attendees enjoyed a scenic raft trip down the Dunajec River (headwaters of the Baltic Sea) that flows through Poland’s Pieniny National Park. The river supported a population of sea run brown trout *Salmo trutta* and Atlantic salmon *Salmo salar*, but these populations were extirpated following dam construction, reminding us all that hydropower development has had profound biodiversity and ecosystem impacts in this region.

Dr. Witkowski closed the meeting with a plea that we must reverse current trends or we face a future where the only way to see Danube salmon will be in a museum. Proceedings of the conference are planned for the Archive of Polish Fisheries.



A large Siberian Taimen in Mongolia. © Clemens Ratschan.

Pete Rand (prand@wildsalmoncenter.org) if you are interested in more information on these assessments. We would like to acknowledge the funders that supported this initiative, including especially the Chester Zoo, Mohammed bin Zayed Species Conservation Fund and Ocean Park Conservation Foundation, Hong Kong.

Postscript: The IUCN Salmonid Specialist Group announced the completion of IUCN status assessments for all species in the genera Hucho and Parahucho on 18 October 2012. A total of five species are extant in Eurasia. Four of them are now considered threatened by IUCN criteria, and one is Data Deficient. The assessments were highlighted by a number of different media outlets, including the [New York Times Green Blog](#). Please contact the Chair of the IUCN SSG,

Restocking of the European catfish (*Silurus glanis*)

Emma Nygren and Jimmy Helgesson, Nordens Ark

The European catfish (*Silurus glanis*) is one of the world’s largest freshwater fishes. It has an elongated body with a smooth skin. The head is flat and it has two long barbells on the upper jaw and four short ones on the mandible. The catfish is slow growing in Sweden because of the relatively cold climate, so it does not get as large as its southern conspecifics. The record in Sweden is a catfish that measured 3.6 meters standard length and weighed about 180 kg. The species is considered to be nocturnal and an opportunistic predator eating both fish and other freshwater organisms.

The European catfish is found from Germany in the west to the threatened Aral Sea in the east and from Sweden in the north to Turkey and northern Iran in the south. In Sweden the European catfish is considered to be a post-glacial relic migrating to these northern areas during the Boreal age, about 10 000 years ago. During this era the temperature was higher than today, which was ideal for this species since it prefers warm water temperatures. However, when the temperature decreased so did the species distribution. Over the last 100 years regulation of rivers, coupled with other anthropogenic impacts on the environment, has led to a large decrease in the Swedish catfish population. This freshwater giant is now listed as Endangered on the Swedish red list and today only four natural populations exist. These are located in the south of Sweden, in the water systems Båven, Emån, Helgeå and Möckeln. In Helgeå the species was restocked in 1999. Recent studies have also shown that the remaining Swedish population is genetically unique.



Catfish fry

The main reason for the decline is the lack of suitable habitat, such as large lowland rivers with a natural river environment. These habitats have been severely affected by human interference such as drainage of wetlands, water regulation, diversion of water, physical impact on the beach and bottom habitats and pollution. The action plan for the conservation of the European catfish was determined by the Board of Fisheries and the Swedish Environmental Protection Agency (SEPA) jointly 1998. However, the current programme is under revision.

Nordens Ark (Director Dr Lena M Lindén) is a non-profit foundation aiming to provide self-sustainable viable populations of threatened species in the wild through conservation breeding and restocking programs. Nordens Ark was founded in 1989 and is situated at Åby Manor on the Swed-



ish west coast. The property of Åby Manor comprises a total of 400 ha, where 60 ha have been adapted to visitors. However, the large-scale breeding of our restocking species is carried out in specialized breeding facilities in an off-exhibit section. Nordens Ark has successfully taken part in breeding and restocking programmes for, among others, the white-backed woodpecker *Dendrocopos leucotos*, the Peregrine falcon *Falco peregrinus* and the green toad *Bufo viridis*.

Nordens Ark started keeping the European catfish in 2008 and the main goal was to inform our visitors about the species and the problems the population is facing in the wild in Sweden. We also wanted to see if we could find a way to make them reproduce under semi-natural conditions in captivity - something that has never been done before in Sweden. We constructed a large pond and received two adult individuals from the Board of Fisheries. The catfish is kept in the pond all year around and they lay dormant during the winter months as they do in the wild.

In the beginning of August in 2009, the animal keepers found catfish fry swimming around in the pond. We immediately started collecting the fry and placed them in aquariums in our breeding facility, to be able to ensure the best possible care. This was the first time the European catfish spawned “naturally” in captivity in Sweden; and probably the first time in a zoological garden, as far as we know.

In the wild the European catfish requires a water temperature between 18-22°C to spawn. The spawning often takes place in the beginning of July and it is the male catfish that will start to prepare a nest. The nesting site is generally in the shallow parts of the river to maximize the spawn’s exposure to sunlight. If the female finds the nest site appropriate the couple will mate and the spawn will be attached to roots and water plants. After the spawning the male protects the eggs until they are hatched. The hatched catfish fry will stay in the nest for a couple of days

before dispersing along the river. In cold summers in Sweden the catfish might not reproduce because the water temperature will never reach the required level. Females often don’t reproduce every year because of this environmental restriction.



The average growth rate during the catfish first year in the wild is approximately 5 cm. But when kept in aquariums with an average water temperature between 20-23°C during the whole year the catfish will grow twice as fast. When keeping the young catfish together it is important to keep a close eye on the growth rate of the individual catfish. Since the catfish is a predatory fish that basically eats all the fleshy food that it can fit into its mouth, it doesn’t hesitate to eat its smaller siblings. In 2010 and 2011 the adult catfish spawned again. This time we were more prepared keeping a close eye on the water temperature and managed to find the nest and collected the spawn. The spawn was then hatched in aquariums and cared for the same way as in 2009.

Release into the wild

Opposite image: the River Helgeå

This unexpected breeding success started a discussion between Nordens Ark, the Board of Fishery, Kristianstads Biosphere area and the County Administrative Board in Skåne about the possibility of a restocking programme. It was decided that a restocking trial should be made in Helgeå to strengthen the small population that is present in the river. Helgeå is one of Sweden's most species rich water systems, and the river holds freshwater species such as the Critically Endangered thick shelled river mussel (*Unio crassus*) and the European river lamprey (*Lampetra fluviatilis*). Kristianstads Biosphere area has restored some of the catfish natural spawning and nursery areas and made other improvements around the riverbanks to make optimal catfish habitats. During 2011 and 2012 Nordens Ark therefore released a total of 93 catfishes raised in our facilities. Prior to the release the young catfishes were injected with PIT-tags (Personal Identity Transponders) in their abdomen, making it possible to use mark-recapture samplings to estimate survival success. A small tissue sample was also taken from the pelvic fins for future DNA analysis.

Kristianstads Biosphere area and the County Administrative Board in Skåne are currently doing more extensive monitoring of the catfish population to measure the effect of the restocking and to see if the species has managed to establish in its former habitats in Helgeå. The restocking programme now awaits the final revision of the action plan before further restocking will be made.



Release into the wild

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