

Odonates in (slow) motion: a tribute to Georg Rüppell

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On 20 April 2015 we celebrate Georg's 75th birthday.

Georg was born in 1940 in Berlin and studied biology from 1961 to 1967 at the universities of Freiburg, Hamburg and Kiel, Germany. Having already started photography of nature and especially of birds as a teenager, he worked in the Institut für Wissenschaftlichen Film, an institute for scientific filming in Göttingen, and specialised in slow-motion filming. He was the first to film free-flying birds and analyse their flight manoeuvres, succeeded in producing education films, and wrote a widely recognised book on bird flight published in three languages.

In 1976 Georg became professor for behaviour and ecology at the University of Braunschweig where he built up a multifarious working group with several sub-units on fish ecology, pesticide effects in freshwaters, and ecosystem management of wetlands, and one especially lively section directed to dragonfly research. Until his retirement Georg was (and still is) also a very successful and inspiring teacher. His ecology lectures were famous – not only because he did not hesitate to destroy university equipment if it was somehow blocking the sight of individuals in the auditorium during film or slide shows. Georg's student excursions were unsurpassed as experiences for young students. He was also an excellent supervisor. His method was simple. First, ask the student what he/she aims to investigate, then tell them that the plan will likely not work out, and finally say: but, well, try and prove me wrong! He always allowed, not forced, his students to go new ways and to be creative.

In the early 1980s Georg started to film flight and behaviour of *Calopteryx* in slow motion. As a pioneer in this field his research led him to countries all over the world, filming the giant *Megaloprepus coerulatus* in Panama as well as the small *Perithemis tenera* in Texas, the most beautiful species, such as *Rhyothemis fuliginosa* in Japan, *Neurobasis chinensis* in Thailand, and *Trithemis arteriosa* in Namibia. Field research and slow-motion technique are guiding concepts of his studies. Sit and wait for behaviour and capture it just in time with a flying camera is his unique combination to reveal flight manoeuvres and behaviours which cannot be seen by the naked eye. Georg published several scientific films, prize-winning wildlife movies for television, and was in demand as scientific advisor for the BBC. He wrote several publications about

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dragonfly flight and gave countless contributions to international symposia all of which had one effect in common: reawakening the audience. Many of his talks illustrated with film material and scientific drawings were milestones in content, technique, and appearance. Behind the scene Georg took care of securing financial support of Philipp Corbet's 1999 seminal book *Dragonflies – Behaviour and Ecology of Odonata*.

His background in animal behaviour, his outstanding filming skill, and his quick reaction time has led to film material never captured before. Together with new digital camera technology and a worldwide renaissance of aerodynamic and bionic research with the aim of creating intelligent flying robots and micro air vehicles based on the model of flying insects, Georg has his finger on the pulse. Through his studies he has created vital new insights into the variability of flight performance of Odonata. He published a scientific book on European *Calopteryx* together with colleagues, and a photo book, *Juwelenschwingen – Gossamer Wings*, together with his wife.

Georg's research is continuously on the move, considering modern biological questions and drawing an overall picture which touches aspects of the origin and evolution of these ancient and fascinating insects. It is therefore not surprising that Georg produced quite a few "odonatological offspring". About 40 students graduated, having studied aspects of dragonfly flight, behaviour and ecology, and many of these are still active in odonatology; 10 students wrote their dissertation theses on various aspects of dragonfly ecology under Georg's supervision. Many of us are now in the position of supervising our own students. And we hope that we are living and transporting what we learned from Georg: find your own way, be creative, be open-minded, do not believe in everything, even when it is "proved" by statistics – but surely believe what has been filmed (this must particularly be true).

This issue of IJO is dedicated to Georg Ruppell. It includes a number of contributions by some of his scientific offspring and by close colleagues. We are confident that the collection of topics, with a strong focus on behaviour and ecology, please Georg. We hope he and all its readers have fun reading it.