



Allan Baker in 2002 in his office at the Royal Ontario Museum, Toronto (photo: Oliver Haddrath).

In grateful remembrance: Allan J. Baker, 1943–2014

On 20 November 2014, suddenly and unexpectedly, our worldwide shorebird community lost one of its greatest minds. Still in his post of 42 years as Senior Curator of Ornithology at the Royal Ontario Museum (recently retired from the position of Head and Vice President of its Department of Natural History), and yet full of an unrelenting lust for life and scientific adventure, Allan lost a brief battle with an intestinal disorder. He was preparing for another expedition to the *rufa* knots' southernmost non-breeding grounds, and was on the verge of various scientific breakthroughs. All of a sudden the ones that worked with him closely are left to our own devices, without his vision, encouragement and support, without his 'grumpy frown' and his sparkling mischievous humour.

Allan was born on 9 July 1943 and grew up on a small farm in a remote part of New Zealand, near Collingwood, Golden Bay. His childhood home was near the base of Farewell Spit, the South Island's premier wader site. In this coastal setting Allan must have grown up with the sounds and sights of the various local oystercatchers. Given his lifelong fascination with evolution and shorebirds, it is quite possible that from a tender age he was actively thinking about their puzzling variation, relatedness and evolution. In any case, as a 'Wildlife Scholar for New Zealand', he chose to study the ecology and evolution of oystercatchers as his PhD project at the University of Canterbury in Christchurch, defending his thesis in 1972. During these years he also met and married his beloved wife of 44 years, Susan. They have two sons, Daniel and Benjamin. Daniel lives in Toronto with his wife Jenny, and works in marketing. Ben is an engineer and lives in Brisbane with Jean-Marie and son Jordan. They are a happy, close-knit family, with lots to share.

Allan's first ten scientific papers were on the systematics of oystercatchers. In the early 1970s such work relied on measures of phenotypic variation in the size and structure (often the bones), rather than direct measures of variation in genotype. An early user of advanced multivariate statistics, Allan became a leading 'pheneticist' at the very time that this branch of evolutionary biology peaked (and disappeared again). Almost as soon as he had moved to Canada in 1972, to become an ornithology curator at the Royal Ontario Museum in Toronto (and with his 'phenetic' work yet to be published), Allan moved on to what he thought was the much more rewarding and exact science of evolutionary genetics. He quickly became a leader in the field, pioneering several methodologies that spawned landmark publications. Just as an example, in their latest paper in *Molecular Biology and Evolution*, Allan together with his long-term research associate and head of his lab Oliver Haddrath and post-doctoral student Alison Cloutier compared genomic sequences of extinct and extant birds and confirmed that the flightless ratites surprisingly do not form a group with a single root (i.e. monophyletic). Instead, the flighted tinamous of South America turn out to be the closest relatives to the extinct moa of New Zealand and both are nested within the ratite tree! Evolution always turns out to be more varied and surprising than the first, and even the second, impression. During the time that I knew Allan, I remained amazed about his capacity to always be so bloody up to date on this expansive, fast advancing field of science, consistently speaking with expertise about the latest molecular genetic tools, applications and discoveries, always reinventing himself.

Most readers would know Allan from his frequent attendance at International Wader Study Group meetings, where he often projected a serious veneer, perhaps not showing much of his playful soul. Yet, as expressed by a colleague: "I often think of Allan as freely going between the professionals and the amateurs such that both were quite comfortable. That is not something we are all capable of doing, but the seemingly stand-offish Allan Baker had both a knack and love for doing it."

Allan came into my life in the summer of 1989, now 25 years ago, and I can honestly say that life has never been the same. One year into my own PhD, on our way to Rowley Island in the Canadian High Arctic as a junior colleague of Guy Morrison of the Canadian Wildlife Service, I spent a few days in Toronto and decided that Allan Baker was a scientist that I should try and see. I knew his publications on oystercatchers, and was intrigued by his first genetic studies on the evolution of sandpipers, a group that included my favourite study species – the Red Knot. I was dreaming about deciphering the evolutionary history of Red Knots and must have thought that Dr Baker of the Royal Ontario Museum might share that dream too.

I wrote him a letter, and in early June 1989 I was welcomed at the ROM. That first meeting was as fascinating as it was challenging. Clearly, Dr Baker was a man with impressive expertise and vision, but I did not have the impression that he was easily won over. However, when I asked him to join a Wader Study Group workshop devoted to review the migration biology of Red Knots, a little later in the year in Ribe, Denmark, he took this seriously. He came to Denmark, presented his work on genetic relatedness within Red Knots and other sandpipers, and contributed in important ways to the meeting and its proceedings. It was the beginning of our shared journey of research and we became lifelong friends then and there.

Next, it was Allan who challenged me. It was August 1994 and we were in Vienna, Austria, at the International Ornithological Conference. He wanted to get his hands on the Red Knots wintering in Tierra del Fuego, and he knew about a site near the town of Río Grande where we could catch them, and wanted me to come. I felt I was too busy, but his words "Are you serious about knots, or aren't you?" keeled me over. A few months later, in February 1995, an international crew under his leadership had taken over Hotel Isla del Mar in Río Grande, Tierra del Fuego, and made a catch of no fewer than 850 Red Knots. This catch, and the fact that Patricia González had joined us from San Antonio Oeste with critical banding supplies and a fountain of inspiration, changed both our lives. It became the start of an impressive portfolio of still ongoing studies on what soon would be a truly endangered subspecies of Red Knot, the *rufa* knots.

A much more recent turning point in my life was the foundation in 2006 of the Global Flyway Network. An event at which again Allan was my brother-in-arms. The new director of the Dutch chapter of BirdLife, Adrie de Gelder, had indicated a willingness to help continue our flyway studies on Red Knots and other shorebirds, work that was rapidly becoming a global effort. This financial backing provided a way to secure the work by Patricia González in Argentina and indeed elsewhere along the flyway, and the means to set up complementary work along the beleaguered East Asian-Australasian Flyway. This latter flyway connects Allan's homeland New Zealand with the Russian Far East, through densely human-populated East Asia. Our shared societal, conservation-related concerns and our shared scientific interests came together in the Global Flyway Network. I am still not able to think of any scientist in the world with whom I could have started this but Allan.



Allan Baker, the field man: scanning Red Knots at Quarry Island in the Mingan Archipelago National Park Reserve, Quebec, 12 August 2012 (photo: Patricia M. González).

But let me backtrack to the late 1990s. During the northward migration in 1997, Allan organized an expedition to explore the various staging sites used by *rufa* knots. A group of enthusiasts from around the world caught Red Knots and other waterbirds along much of the Atlantic coast of South America while discovering the delights of asado in Argentina and caipirinha in Brazil. In 1998, again under Allan's guidance, we focused on the northward staging of Red Knots at San Antonio Oeste. This site, home to Patricia González, who became our foremost Argentinian research collaborator, was of great importance for Red Knots. Birds seemed to move up San Antonio Oeste from Tierra del Fuego, before launching themselves on what are now known to be nonstop long-haul flights to north-eastern coastal USA. The international expedition, with much local participation, spent a full five weeks on the shores of San Matias Gulf, with successful Red Knot catches every week. Not only did we have a great time together, much was learned about the moulting and fuelling of the knots in what was then still very much 'Terra Incognita'. In all of this, Allan was not only the organizer, bird-catcher, cook, entertainer on the dance floor and senior scientist, he also did all the shopping. His absolutely hands-on approach ensured that a new generation of young Argentinian biologists received as much research experience, and had as much fun, as possible.

From 1997 on, these international research efforts on Red Knots included a visit to Delaware Bay, USA, a traditional refuelling stop for the species that had become an ecological trap. This site had a unique and highly abundant local food source for the Red Knots (horseshoe crab eggs), but was suffering from human overharvesting of the spawning horseshoe crabs (especially the big fat females). With hindsight, the Red Knot workers from across the globe arrived just in time to assess the situation and cry 'wolf'. Patricia González, who quickly developed the skills to be a

capable avian demographer, collaborated with Allan and others on a paper looking at the fitness consequences of decreased refuelling rates and late arrival of Red Knots in Delaware Bay, published in the *Proceedings of the Royal Society B*; for now it is his best cited paper among the almost 200 that he published (scientifically referred to over 160 times since 2004). The Delaware Bay shorebird conservation fight that ensued became a celebrated case. One of the first Red Knots captured in Tierra del Fuego in 1995, a bird later re-banded as 'B95' and christened 'Moonbird' in a popular book titled after the bird, became the oldest known *rufa* bird and a true celebrity. B95 may have survived Allan: he was last seen in Delaware Bay and photographed by Allan at Reeds Beach on 25 May 2014.

In addition to the monitoring of Red Knots in Tierra del Fuego, Patagonia and Delaware Bay, with Yves Aubry of Environment Canada and Parks Canada, Allan kept up a programme of observations to assess annual Arctic breeding success at a southward staging site from 2007 to 2013. At the Mingan Archipelago in the Gulf of St Lawrence, Canada, migrating Red Knots come through in 'waves' composed of different sexes and ages. As males take care of their precocial chicks, in good years there would be a small wave of birds of both sexes (successful females and unsuccessful females and males), followed by a wave of successful males that overlaps or precedes a third wave of juveniles. In bad years the first wave would be big (all the unsuccessful adults) followed by a few successful males and some juveniles. This work has generated a rich picture of inter-annual differences that now needs publication.

When I try to look back, there was all that *joie de vivre*, a great joy of life, and lots of laughter. Many would remember their hilarious moments with Allan. There was also the excitement about pushing the boundaries of our knowledge. He opened many worlds for me, and did so for



Moonbird, Red Knot B95, photographed by Allan Baker at Reeds Beach, New Jersey, on 25 May 2014, and seen again in January 2015 at Río Grande, Tierra del Fuego by Guy Morrison and Luis Benegas.



Allan Baker with a happy field crew at Bahía Lomas, Tierra del Fuego, Chile, in December 2011 (photo: Matías Suárez).

many colleagues. In fact it was Allan, the geneticist, who first tried to convince me that the migration strategies of Red Knots and other coastal shorebirds might be driven much more by learning than by hard-wired genetic instruction.

There was also his sense of urgency about humankind's foul play with the world, the fact that so many fantastic natural history phenomena are on the brink of disappearance. As we have seen, during his many years of action along the *rufa* flyway, along with other conservation efforts he was involved in such as the Kiwi of New Zealand, Allan showed total hands-on commitment. His commitment and ability to share becomes abundantly clear in a moving six-minute video tribute to Allan compiled by high school kids of 'Eco Huellas' group in General Roca, Rio Negro, central Argentina, who participated in the shorebird fieldwork at San Antonio Oeste in recent years (see https://www.youtube.com/watch?v=_Wg-QyetGqo&list=UUD6OR0ax1KJ5X_5jEJ6a9ww).

To me Allan lived in the spirit of Kairos, son of Zeus and god of the opportune moment. Unlike his adversary Chronos, the god of the relentless clock, Kairos embodied an emphasis on sudden chances, on making the most of the indeterminate time in which everything happens. During our catching adventures I have seen how Allan could wait so well, and then grab his moment of luck. In doing his science, he was no different, waiting (i.e. working!) until it all clicked. In December 2013 on the windswept tidal flats of Bahía Lomas in southern Chile, despite his somewhat frail constitution, he would always be the last to give up following Red Knot flocks to read rings and flags: very persistently inviting Kairos to contribute. Perhaps this is also the reason why some exciting and important pieces of work are left unfinished. But as much as we will miss him, we will carry on, encouraged by his fantastic inspiration. Thanks Allan.

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Allan Baker during a Red Knot expedition to Campechá Island, Maranhão, Brazil, on 25 November 2006. It shows the camp where the team slept and ate under a fishermen's cabin on the beach (photo: Patricia M. González).