The Father of Wader Studies

Tales of C.D.T. Minton

Compiled by Roger Standen

May 2015

A reflective Clive Minton, in 'formal' attire, on the shore of Delaware Bay in 2006.
(Chung Yu Chiang)

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Preface

In 2012, Clive Minton was awarded the Eisenmann Medal for outstanding services to ornithology. When the Victorian Wader Study Group (VWSG) held a celebratory lunch for him, several people spoke about experiences with Clive and his waders. That provided the genesis for this story.

The irony of Clive's award from the Linnaean Society of New York being the impetus for this book was not lost on me when I found that the famed Swedish naturalist, Carl Linnaeus, after whom the New York society was named, was a 'hibernationist' at least for a time during the 1700s when the, as then unproven, theories of migration and hibernation were still being debated.[1] Here, 250-300 years later was a man who has spent his lifetime advancing the understanding of bird migration receiving an award for this work under the auspices of Linnaeus.

"He's writing my obituary while I'm still alive – better to get it straight from the horse's mouth" is how Clive has described my task of collecting stories and facts about his life and his impact in the world of wader studies. There is much of this book that comes from Clive's mouth and pencil, but much has also come from family, friends and peers who have walked (or should I say – run) with him on this journey.

To borrow the sentiments of Pete Collins, a long-term member of the VWSG, "when you start to examine the mines of the mind, most of what surfaces are near disasters, but few real disasters." Suffice to say, "Clive's success in collecting data and encouraging its analysis is amazing and he is rightly acclaimed as the leader of the flock."

Much of this story hangs on what Clive has achieved, but it is also about what people remember of times spent around Clive and what makes the man. The wader stories

[1] Lyle 1978

are well documented in the research papers, reports, radio programs, newspapers, and award citations. The people stories are the focus of this book.

In the Foreword to his autobiography 'The Eye of the Wind', Sir Peter Scott says, "Stories that I have been telling with great conviction, believing them to be true to the smallest detail, have proved…to be greatly garbled."[2] He subsequently suggested the application of what he called "the Scott reduction index", which simply means that the reader shouldn't expect this to be a true account of everything covered within these pages as some will prove to be exaggerated or indeed concocted unintentionally by memory and time. The material in this book has been checked as much as possible, but the bulk of the stories told to me have been accepted at face value. Please apply your own Scott reduction index to this story too!

Suzanne Ishida is a researcher from Japan who studied Little Terns and came to Australia to see where ours bred. In one of her correspondences with Clive, she said, "I sure hope our combined efforts will be beneficial to the Little Terns and …shorebirds. I would be very sad if I went to the seaside and didn't hear the sound of sandpiper peeping, or terns screeching overhead. What a sad day that would be!" Indeed it would be. It is hoped that Clive's contribution will help to avert that ever happening.

Clive has covered the globe and in doing so, has become multi-lingual. He spoke French as a young man, but that is not what I am referring to. What I need to point out is that there are different terms used for the same things across the globe. The English use the term 'ring,' for the circular metal identification marker that Australians and Americans call a 'band'. Americans call the long-legged birds that Clive has spent a lifetime studying 'shorebirds', while Aussies and the English call them 'waders'. These terms have been used interchangeably throughout this story.

In 1983 Nicholas Branson noted about Clive, that it is "impossible to describe so large a character…in a few lines of transcript." This book is an attempt to expand the story between the many lines already written by Clive and others.

[2] Scott 1961

1 Hatched

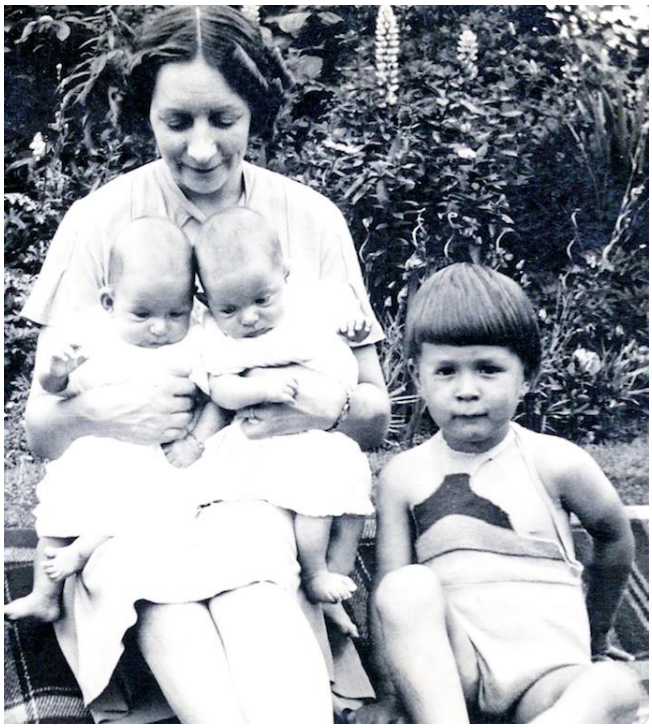
I've been interested in birds since I was hatched," has been repeated by Clive many times over the years and when his lifetime with birds is examined in its entirety, this is absolutely true.

Clive Dudley Thomas Minton was born on October 7, 1934, followed a few years later by his twin sisters, Angela and Diane. They lived on the edge of the countryside in Cheshire, northwest England with their parents, who were both born and raised near Widnes on The Wirral in Cheshire.

Capitalising on the resources around him, particularly the human kind, was something Clive learnt very early, although like young waders leaving their Arctic birthplace, there must have been something hardwired in Clive's brain that made this a natural process for him. He soon had his younger siblings trained to carefully hold the birds caught in traps in their back garden enabling Clive to ring them. Looking back now, they say that they "thought this was normal family life."

There are many stories about these early family times that provide a window to Clive's future life as he not only utilised his sisters' presence when he wanted them to help, but he let them join him on his daily foray into the woods, playing and bird-watching. He liked other people to enjoy the outdoors with him, but could also build their capabilities into his own interests. They all learnt to love the country life, identify birds and birds' eggs, fish for tadpoles in the bomb craters and enjoy the animals, both wild and farm. Clive was given the freedom to go off into the woods from a very early age though as he recalls now, those days were different and it was safe to do such things in the late 1930s. He would leave the house at eight in the morning and stay out all day, chopping down trees, building dens, throwing stones at other boys and finding bird nests, returning only for lunch and again at about six in the evening. As his sister Diane described it, "In the late afternoon, after spending

all day playing out in the woods, or going on long bike rides, our mother would stand at the edge of the woods at the end of our road and 'Cooee'. All the kids knew this meant it was time to come home, have a bath and then it would be dinner time."



Ida, with Diane, Angela and big brother Clive. The girls are not yet ready to help, but Clive is probably already planning ways to utilise his younger siblings.

(Minton family)

As a nine year-old, Clive helped the war effort by selling tin model spitfires door-to-door. In school uniform, short pants and large cap even the renowned village tightwads opened their purse strings. He was on the way to a lifetime of persuading people to do things they may not be initially keen on.

Birds became his passion from an early age. All those formative years watching what happened in the woods and the open countryside helped refine the skills of pitting his wits against the birds, watching their behaviour and letting them lead him to their nests. His egg collection grew and filled the drawers of a large desk, as he continued to learn more about identifying the birds, their eggs and their songs. Eventually Clive came to actually think like a bird and that has been one of the most telling strengths contributing to his success as a bird bander.

Clive was fortunate to have two grandfathers around when he was a child, one who would always take him for walks in the woods and show him where all the nests were in his garden and the other who was a pigeon fancier. These men provided strong family links to support his developing passion for birds.

Clive's father Tom served as a 17 year old on destroyers in the navy during the First World War. When Tom returned from the war, he gained a first class degree in

Chemistry and then joined ICI, where he stayed his entire working life, finishing as Midlands Regional Manager and a director of two or three divisions.

In an era when women weren't encouraged to extend their formal education, Clive's mother Ida was the only female to take science to higher levels at her school. Although she went no further, she maintained and extended her interest and knowledge through Tom's career both in terms of his actual work and in entertaining customers, suppliers and senior personnel.

Tom had gathered his own egg collection as a boy, but while he was away at war, it was damaged when his parents moved it. Only about 30 eggs were left by the time Tom handed it on to Clive who set about rebuilding it, for while he was interested in watching birds, his particular interest at the time was egg collecting. Clive took just one egg from each nest, not a whole clutch like the professionals once did. There are still a thousand eggs in his collection in Melbourne that hasn't been added to since he was about thirteen. The collection was legally imported into Australia, but has not been looked at for over 30 years. It is stored in a large multi-drawer cabinet that was purchased from the British Trust for Ornithology (BTO) for 25 pounds.

Clive pictured with his father, Tom. Clive's love for water was evident very early.

(Minton family)

Climbing trees is a skill every egg collector worth his salt needs to become proficient at and Clive was no exception. When aged about seven or eight years old, he was already a very keen collector with a growing ability to find all sorts of bird nests. He recalls once climbing up a tree at the side of a golf course. About eight feet from the ground, at right angles from the trunk, was a broken branch and at the end he could see a hollow. Naturally, Clive climbed up and shinned out along the horizontal branch. He looked down over the end and saw "two bright yellow eyes" (said with emphasis as he retold this story) belonging to a Little Owl, which then ran up the hollow straight towards his face. Trying to back-peddle he fell off the tree, fortunately landing on grass. When retelling this tale, Clive was laughing so hard that he was almost unable to finish. He did, however, remind those listening about Eric Hosking who lost an eye from a Tawny Owl!

In his book "An Eye for a Bird", Eric described the accident that happened early in his photography career when aged 27. He had constructed a hide about 20 feet above the ground at a Tawny Owl's nest to try and get photos of the owls at the nest. When he packed up for the night, he left his equipment in the hide to avoid disturbing the birds. However, as he got back to the car, he thought he heard voices and became worried about the security of his camera and flashlight so he returned to check. Eric described what happened next, "Out of the silent darkness a swift and heavy blow struck my face. There was an agonising stab in my left eye. I could see nothing. The owl, with its night vision, had dive-bombed with deadly accuracy, sinking a claw deep into the centre of my eye."[3]

Eric subsequently photographed the owl at the same nest site the following year when the birds nested in the same hollow. His story illustrates how fortunate Clive was at that early age with his encounter with the Little Owl.

Diane noted that, "As Clive grew older, the dichotomy that was country life in England was apparent. This was a place and time where hunting, shooting and fishing co-existed happily with deep interests in the birds, animals and fish that lived around us. He was friends with all the farmers in the area and understood that crops had to be protected from pests such as pigeons and wild ducks. So while immersed in scientific studies of birds and their habits and habitats, he saw no conflict in shooting pigeons (and rabbits) off the farmers' crops." As a hunter and bird-keeper in my youth, I can understand this position.

This view remains with him today and while his hunting trips are far fewer now than they were in the early days, he has continued to hunt and has introduced his children and grandchildren to his hobby. But according to his sister, "Clive was not house trained, so he brought the sackful of dead birds to the door, and the rest of the family took it from there. By the time my sister and I were 12 years old we could pluck and gut a pigeon ready for the table or freezer in ten minutes flat!" He also once brought home a swan that had hung itself running into a telegraph wire, hidden under his duffle coat as it was illegal to take swans. It took almost a whole day to pluck, and as only Clive and Angela really liked its taste, it took several weeks to eat! Clive obviously thought that to leave it to rot was a waste, when he could eat it himself.

When in their teens, the young Mintons lived in a three storey, 18th century house in Etching Hill, Staffordshire. Clive hung mist nets out from the upper storey to catch the swallows and House Martins nesting under the eaves. The nets stretched from the house to nearby trees. To retrieve the birds, Clive and his father held a ladder up vertically and his younger sisters had to climb up to the top, free each bird and bring it back down safely for banding. "Have you ever climbed up a vertical ladder? It feels as if it is leaning backwards about 20 degrees!" recalled Diane. "Very Scary!" This

[3] Hosking 1972

same sentiment has been reflected in the stories of several people as they recounted their time with Clive in the field.

Diane also recalled helping Clive with what was to become a long-term study of Mute Swans. Her description vividly brings to life the scene as it unfolded. Catching swans on the foreshore meant creeping up on them quietly without the intent becoming known. So again the younger sisters were roped in to be 'friends' with the swans and feed them bread crusts, gradually edging closer, "with big brother crawling along behind us on hands and knees. When he judged the time was right, he swung both arms wide, catapulting each sister sideways while he rushed through and quickly collected a swan, kneeling over its back to secure the wings before they could be used as weapons against him."

Later, during the Queen's coronation in June 1953, Clive's parents went to London leaving him and the girls at home. Diane's sickness had been kept secret from their parents to avoid them missing the coronation celebration. In the house at the time, flying loose, were a few young Jays. While the young Mintons were watching the ceremonies on television, the Jays managed to fall into a bucket of water. They were then dried out in the oven, at a 'just warm' temperature. They survived wonderfully and the youngsters cleaned up the mess before their parents came home.

Clive with one of the subjects of his long-term Mute Swan study.

(Minton family)

Apparently it was great fun catching swans in lakes as it involved herding them into the muddy, reedy head waters with boats and then racing in after them in Wellington boots that were usually lost after a few strides, resulting in the pursuers getting soaked up to their shoulders. Diane admits to being foolish enough to join in one of these chases with her very new fiancé and nearly lost him forever as he thought "we were all quite, quite mad."

Later in life Diane and her husband Bob Ross lived in Swaziland and South Africa for many years before moving to Melbourne in 1987. She recalled that just before leaving Africa, they had an opportunity to combine the Minton skills. This referred to Clive and Roger, Clive's elder son, on Land Rover maintenance with the Ross skills on planning game treks. The plan was to spend two weeks in the Okavango Delta in their well-stocked Land Rover.

Diane and Bob had to gather together all the required expedition supplies, including several extra containers of petrol and water, strong tents with sown–in ground sheets to repel all wild animals, and food. When the three Mintons arrived, Clive, Pat (Clive's wife) and Roger, it surprised Diane somewhat that Clive accepted that all the vehicle and route plans were OK but insisted on checking the food supplies. He went through them can-by-can, with the main objective being to ensure there were sufficient quantities!

One problem the Ross's had with their visitors and their desire to capture some great wildlife photos, was that they took a while to fully realise that the "animals were not English game park habitués but truly wild." They lost all the first breakfast supplies to a troupe of vervet monkeys. "How cute," said the photographers, until the monkeys saw a chance and swooped on the food. The elephants did not take kindly to being herded into positions that gave the best lighting angle for photographs and when their ears flapped and their trunks went up, it was time to "get the hell out of there." The rule about leaving no food in tents should also have included Clive's well-worn socks, which resulted in "baboons tearing into his tent to find what it was that smelt so good!"

Diane became aware that Clive's need to check each item of their canned food supply, was in fact, just one example of his need to make the decision on every detail of each expedition, and there were many decisions and innumerable expeditions. To illustrate this, she noted how some years later, on a weekend banding trip, with senior directors of some of Australia's major companies (no names) and a couple of newer, younger bird enthusiasts, that the "youngsters were amazed when everyone meekly accepted being told what time meals were, what they would eat at each meal, as well as where they would be positioned for the serious work and how long they would have to stay there!" It amused her to see these same senior corporate executives hiding behind bushes so that they would not be selected for hide or

twinkling duties, as they would "not be brave enough to say no to Clive if he chose them for something they did not want to do."

After many years apart from his sister Angela, Clive's involvement with the shores of Delaware Bay to help rescue the declining Red Knot population brought them back into closer contact. For the first few years Clive went to Toronto (where Angela lived with her husband Barrie) before and after Delaware Bay, to help prepare the canon netting equipment. This was "perfect" for Angela. He stayed with her family and they all enjoyed his undivided attention. "He re-ignited my love of birds and ignited the same love of birds in my husband, daughter and her family," said Angela, who now lives on the edge of a 640 hectare park with four bird feeders and two birding experts nearby to whom she can send blurred photos for identification. Her grandchildren regularly pick up the kitchen binoculars to watch and identify the local birds.

Back in the 60s, on one trip when Clive visited Angela in Toronto, they were sightseeing around Niagara Falls and along the Niagara Gorge. Suddenly he yelled, "Stop!" Barrie slammed on the brakes. They all went flying around inside the car and asked, "What's wrong?" Clive simply said, "I have to go and see that bird down the hill," as he jumped out of the car! There is always a birding opportunity for Clive.

Diane's grandchildren learnt about Clive's attitude to food when she took them on their first wader catch at Yallock Creek, in Westernport Bay. While they were waiting in the hide for the birds to gather close to the nets, the children ate their sandwiches, surreptitiously dropping the crusts onto the sand. Clive, seemingly having a sixth sense for food, quickly identified that the children were wasting their crusts. From then on the crusts were handed to him to eat, after which he also ate the crusts that had been dropped, sand and all. The children's faces were a picture! But this was nothing to the wonder on their faces when the birds, ready to be released with their new jewellery, sat calmly on the children's hands preening and looking around with no fear before flying off. One of the children "…counted up to 85 before the bird flew away!"

Clive believes that one of the reasons for his deafness resulted from a slight misjudgement in his teens, when back with the family at the large family home in Staffordshire. It was around 1948 and he had already accumulated an armoury of an airgun, a 4-10 (small gauge shotgun) and a full-bore, 12-gauge shotgun.

There were about four acres of land around the house but, unfortunately the Starlings and other birds also liked the place and nested under the eaves, creating a considerable noise and mess. Clive was often reducing the numbers using the air gun when they were close, the 4-10 at a medium distance and the 12-gauge when they were well away.

Very early one morning, before the rest of the family had woken Clive went to an upstairs room which had the curtains drawn to a narrow slit through which he could see a Starling that he wanted to dispose of. He pushed the sash window open and lined up the bird with the gun. The next thing there was the most enormous noise he has experienced before or since, because he mistakenly believed the opening to be at the top and not the bottom of the window. So then there were two holes in the window, one through the closer pane about the size of an orange while the other pane was totally smashed. The rest of the house was awake in unison at the noise! Like all other awkward situations Clive ever found himself in, he must have talked his way through this mess too.

Interestingly, Clive and his two siblings were living on three different continents for a time, with Clive in Australia, Angela in Canada and Diane in South Africa. After the death of Clive's father in 1980, his mother migrated to Australia (at the tender age of 80) to live with Clive and Pat in Beaumaris. Subsequently, Diane and Bob also moved to Australia and now reside in Melbourne.

With a son living in Australia and a daughter in New Zealand Angela now makes frequent visits, while during Clive's annual 'migration' to Delaware Bay they usually spend a couple of weeks together, so the family has now become much closer.

2 Oundle

Oundle, one of the more prestigious private schools in England, became Clive's home from just before he was 13 years old in 1947. The school year started in September and Clive wasn't 13 until the next month. He was a boarder there until 1953. His parents had sought some advice about which school might be best and this well regarded school was considered to provide a very good all-round education. While proving to be excellent academically and always in the top echelon of schools for university entrance scores in the UK, what the family didn't know at the time was that it also had a strong tradition in natural history. Clive sat an entrance exam to the all-boys school and performed very well, receiving a scholarship as a result. "Not a major one, a minor one" he says, but it did provide some financial help to his parents.

The history of Oundle is interesting, some of which was told by Charles Allen, who was Clive's best man when he and Pat were married. Charles was also at Oundle but, being 18 months younger than Clive, it was Charles' older brother Hugh who was the initial connection between the two. Hugh also had a strong interest in birds and shared Clive's class. Charles became a man of great influence himself and also later resided in Australia (coming one year after Clive) following many years working around the globe in the oil industry. He was CEO of Woodside and Chairman of CSIRO and National Australia Bank as well as being a director for a suite of other companies and not-for-profit organisations. Charles has earned many accolades, including an Honorary Doctorate from Melbourne University in 2013, adding to one he had already achieved at Monash University. This is told simply to reflect the calibre of many of Clive's peers, something that was to become invaluable later in life when they were often called upon to help the good cause of wader studies.

Charles' recounted the school's history as dating back to the 19th century, but it had its origins even earlier in some ways. The point Charles talked about was when it was recognised that there was a need for a lot more educated people in Britain and a lot of additional schools were established. This didn't happen everywhere, but it

certainly applied to Oundle, in Northamptonshire, a small town that was in existence at the time of the Domesday Book, which documented the first 'survey' of much of England and Wales in 1086. Here there was an existing school, Laxton Grammar. William Laxton founded this in the 16th Century. Laxton, a former student of the original school, was Master of the Worshipful Company of Grocers (referred to as the Grocers' Company) and incidentally, Lord Mayor of London, when he rejuvenated the old school with an injection of funds. Then the Grocers' Company donated more money in the late 1870s to split Laxton Grammar into Laxton Grammar School for the locals and Oundle School for students from further afield who could board there. Both schools ran in parallel until they were amalgamated in about 2000. Part of the earlier process was to name one of the houses that the boys lived in at the boarding school Laxton House, and this was where Clive was to reside when he was at the school.

Around the time of the First World War, Headmaster Sanderson said, "Everyone will do science," which apparently was revolutionary for the time as most schools did more of the arts and Latin. Oundle retained Latin, but it created a serious focus on science. What also became evident to Clive after he started there was the strength of the natural history side of the science focus, something which he and his family were unaware of when initially choosing the school. This turned out to be one of a number of fortuitous events in Clive's life that fostered his growing interest in birds and bird research.

In terms of tradition, there were two people related to Oundle whom Clive describes with great admiration and is proud to have had some association with. As it was just prior to Clive's attendance, the first was a little tenuous, but indicates the strength of leadership in the school regarding his interest in birds. One of the school's famous headmasters for the period 1922-45 was Kenneth 'Bud' Fisher, who was a keen ornithologist. 'Bud' was also James Fisher's father and it was in about 1940 that James, who attended Oundle and then Eton, became the first person to write a bird guide for Britain and who also had radio and television programs. He was possibly the first of those who popularised natural history and birds in particular. One version of his book is called 'Bird Recognition, Volume One, Sea-birds and Waders'.[4] This book contains the usual sections of recognition, breeding, distribution and movements, along with references for further reading. However, it also contains a masterly diagram for each species that shows in which periods they migrated, when they were laying eggs and having young, so at a glance you can see all this on a wagon-wheel type of diagram. This must have been a very valuable book for the budding birder.

The other was Peter Scott, later to become Sir Peter, who was the son of Captain Scott of Antarctic fame, but who became extremely well known in his own right as

[4] Fisher 1947

an ornithologist and painter. His life was obviously very full as he also spent much time sailing, becoming an Olympian and gliding champion. Peter and Clive in many ways were quite similar, Peter conducted valuable studies on geese while Clive's life work became focussed on a single group of birds too, the migratory waders, even though he studied a range of birds in his earlier years. Peter developed rocket netting for the catching of geese, which he devised from what he had learnt in the navy during the war. From this, Clive then became heavily involved in the development of cannon netting for catching waders that is still used around the world today. Clive says that there was a statue of Peter as a boy, nude, on a pedestal on the lawns outside the Oundle school chapel. Unfortunately every time it rained it looked like the boy was having a pee. The statue was created by Scott's mother but Peter denied this was modelled on him.[5] He says instead it was modelled on the son of the Italian man who cast Scott's mother's bronze works for many years. This illustrates one of the many difficulties with relying on personal memories for research. Peter was also instrumental in setting up the World Wildlife Fund for Nature and his 'own' Wildfowl and Wetlands Trust (WWT) at Slimbridge, Gloucestershire, where he kept every swan species from around the globe, including Australia's Black Swan.

Sir Peter's eldest daughter, Nicola Starks said of her father, that as well as being a workaholic, Scott was obviously charismatic. "Nobody could say no to anything Pa wanted them to do," recalled Starks.[6] This could equally have been said about Clive.

The school had a Natural History Society, one of many such societies there, where the boys were encouraged to hold positions as office bearers. Clive recalls two biology Masters who were closely involved during his time there and one or both, was a licenced bird ringer. These gentlemen really encouraged the boys with bird ringing. This practice involves applying a metal ring, which has a unique identifying number on it to the leg of a bird so that it can be identified if the bird is caught again, shot, or found dead at some later stage. Collection of plants and butterflies was also encouraged. While Clive didn't get involved with collecting the butterflies, one of his fellow students, David Hollands did and he wrote a book with Clive about migratory waders some 65 years later in Australia. David described in that book how they first met. David was walking around a small lake in the East Midlands of England, when he "heard crashing sounds emanating from the fringing reed-bed, too loud it seemed, to be made by any wild animal found in England." Soon after, Clive appeared revealing the source of the commotion. He had been ringing nestling Reed Warblers.[7] The masters encouraged the boys to bring things in, write them up and publish what they had found in a little newsletter. This stimulated understanding,

[5] Scott 1961
[6] Jowit 2011
[7] Hollands & Minton 2012

interest and field work in natural history as well as demonstrating the importance of documentation and publication.

Having already developed a very strong interest in birds through his prodigious egg collecting skills, when Clive went to Oundle, he gravitated quickly toward the bird society. There he started ringing. He recalls this process as going out with the master within two weeks of arriving and being taught how to ring birds, many of which had rings applied as nestlings. Clive was an expert at finding nests so could find plenty of nestlings to ring. He quickly became hooked on that aspect of the study of birds at this early age and within two weeks of starting, could catch and ring birds on his own. Compare this to the process of getting a ringing license in Britain today as described to me by Edward Jackson, another former Oundle student whom I met when showing him around the Western Treatment Plant at Werribee, just outside of Melbourne in Victoria.

Anyone 14 or over can apply to the BTO Licensing Officer for a 'T' or Trainee permit, so Clive wouldn't have been able to start so young these days. Furthermore, the trainee, working with a qualified ringer, normally spends one to two years developing their skills and knowledge of safe handling, species ageing and sexing and plumage changes through the seasons. Year one is to learn and year two is to consolidate those skills. Clive learnt and consolidated those understandings in days, not years. The next stage is to be recommended for a 'C' or Conditional permit. This allows ringing to occur unsupervised, but must still be under the authority of their trainer, who remains responsible for them. One can imagine this is what Clive did for a while at Oundle. An 'A' class licence is awarded to a fully independent ringer and requires other qualified ringers to assess the C Class applicant. Clive must have mentored and recommended hundreds of others to obtain their own licences in the 65 years since he became a ringer.

It was also interesting that Edward said that his "passion for birds was 'fired up' at Oundle …by an inspirational biology teacher called Ioan Thomas and to a large extent he is responsible for the career I've had in environmental education!" Oundle claims another credit for life-changing inspiration.

When he was back at Oundle, Clive was known to be out finding nests very early in the morning and would return to the house for breakfast as the other boys were stirring for the day. This practice of early rising had been going on for a long time as Clive's mother didn't know that he had homework at primary school as she never saw him completing any. She didn't realise that Clive would wake up very early, do his homework before breakfast and that way he could spend all his time after school looking for bird nests or generally studying birds and their behaviour.

When others at Oundle found out about his skills in finding nests, they joined him the next spring as he led them to nests. One of his early record-breaking feats was finding 50 nests within the school grounds in one spring. The school grounds in this

case effectively meant much of the town as school buildings were spread out among the town buildings. Importantly, he was then introduced to the nest record scheme, as he happened to be in the same boarding house as the head of the Natural History Society, who showed Clive how to fill in the nest record cards. This involved recording every nest found, what was in the nest on each visit, when eggs were laid, hatched and fledged so incubation periods and time to fledging could be worked out, as well as nest success rates and what type of habitat the birds nested in. But you could also ring the chicks in the nest before they flew.

A critical day in Clive's life, one of a handful that he can state were influential in the direction his life took, was when he found the nest of a Black Cap, a small warbler that visits the UK in the summer. These small birds are migratory and build an almost invisible nest in the middle of a nettle or bramble and are very difficult to find but he found it early in its stage of building. He could still see right through the nest. So he started filling in daily nest record cards for the first egg, then the second until the sixth day when there were still five eggs and he knew the bird had completed its clutch. He did not have a Black Cap's egg in his collection. Should he take an egg for his collection, ruin the nest record card and have one less chick to ring near fledging, or should he leave it?

He left it, changing him "from a small boy egg collector to a young budding ornithologist", brought about by the education from others at that school. This was a monumental day in his life and set him on his course of banding hundreds of thousands of birds over the next 65 years or so.

Clive and the other boys also looked after birds that had fallen out of nests, or were picked up by others and needed care. Birds like Jays, Magpies, crows and owls and more famously, a Grey Heron with a slightly droopy wing. A measure of his persuasive powers was that he could get the House Master on side enough to take over a whole bathroom, one of only three in the boarding house to allow the heron to recuperate. The whole school went fishing to catch fish for it to eat. The heron became a well-known character performing on important school days, feeding on live fish, picking them out one at a time, and allowing people to watch the fish go down its throat.

Grey Herons are large birds that stand close to a metre tall when fully grown and can weigh two kilograms. With their long beak they could be a formidable bird. Fortunately, they have the predisposition to become used to people and have become quite urbanised in some European cities. So it wasn't surprising then that eventually this bird became quite tame with Clive and one other student, though it was aggressive with others. When it got bigger, Clive wrapped hessian around the handlebars of his bike and it would stand there as he rode through the town down to a gravel pit, where it could freely feed itself before being returned to its cage at the boarding house. This wasn't the first bird to be kept at the school as Peter Scott had

kept owls, the boys trapping mice and other small mammals for them to eat. They used their trap lines that were set to add to their skin collections. Scott also had kept bats and the students would help by catching insects for them. Having kept a range of owls, Scott ranked them in terms of behaviour with Little Owls being the 'fiercest' and Tawny Owls being the 'nicest'.[8] So Clive's encounter with the Little Owl as a child can be considered very lucky indeed. Given that the 'nice' Tawny took out Eric Hosking's eye, what could a 'fierce' Little Owl do?

The birding group at Oundle included some interested masters, but Clive was the driving force behind it according to Charles. When he told me this, I clarified it by asking, "So once Clive got interested in it, he took charge?" Charles, amid much laughter, said, "Yes, can you believe that?" He continued on, noting that Clive's sense of inclusiveness was immediately evident. "Anyone who was the slightest bit interested in birds, got roped in."

Charles also mentioned Clive's early mastery of the spoken word. After a school visit from Oundle to one of the factories such as ICI or Dulux, for an industrial visit, the Master said, "We need somebody to give words of thanks." He said to Clive, "You've got the gift of the gab, you do it." That ability to wheedle his way in with anyone and under any circumstance, to get things happening has been a life-long skill. He just explains in his unique way that "this is really important, it just has to be done, and so it does get done."

The boarding houses were set all over the small town and, without the confines of a boundary fence the school was really part of the town. Charles and Hugh's boarding house was a mile from the chapel and Clive's was beyond that, but it was still a small town. Classrooms were all in the middle of the town and the workshops were apart. The headmaster's residence was a beautiful old house from Cromwell's time (1652). The science block was on the edge of town between all the residential houses. Bird traps, mostly just drop down cages, were set up everywhere. When Clive's class moved rooms between lessons there might be a five minute walk, so they would dash out and get any birds out of the traps and reset them with a bit of bread. They caught Chaffinches and other finches that would flock up and, because there was no time to ring them, the birds would be stuffed into their pockets. When they got to the next class they would ring the birds, pass them along the row of desks and then the boy nearest the window would flick them out of there when the master wasn't looking.

Before the large current chapel was built, the original one was made of corrugated iron and was called the Tin Tabernacle. This term was used for a range of prefabricated buildings (generally religious buildings) from the mid-19th Century. Clive's boarding house was very close by and behind the chapel was a hut. Somehow the birding group, which Clive was then leading, and a fellow boarding mate of

[8] Scott 1961

Clive's called John Taylor, plus a few others including Charles and Hugh, managed to get to use the hut as a base for all the rings and other birding gear.

The boys were also shooting and the hut had a useful false wall, behind which a Pheasant or hare was often hung to mature before being taken back to be cooked at their respective houses. Hunting was an activity common to many famous naturalists going right back to Darwin who described it as "an inherent delight in man, a relic of an instinctive passion."[9] The great John James Audubon was a hunter, as was Sir Peter Scott, who converted his hunting passion to catching live birds but never gave up the hunt completely. Hunting was a way many people learnt about their study subjects.

A youthful Clive (taken at home) prepared for his military training while at Oundle.

(Minton family)

Trapping and banding became the main birding activity and the boys kept all the records. At the end of the year, after the exams, there was what was called a Conversasione where the school would put on a science show and the bird group always reported on their project of banding birds. Clive of course, was the main one presenting. They would show all their bird recoveries, many from across the English Channel in places like Denmark and Holland. Charles remembered one day when they had a thrush, which had been shot in France and on the card that noted when and where it was shot, the writer had scrawled "Viva La Chasse!" Charles laughed when re-telling this as the translation is "long live the hunt!"

[9] Keynes 2001

When they were about 15, Charles remembers visiting a heronry a few miles from Oundle. In the school workshop, they made climbing irons in order to scale the nest trees there. He said, “It was crazy when you think about it,” because the nests were quite high in the tops of Alder trees, whose straight trunks soared up 50-60 feet in the air. They’d put their arms around the trees and “put on these dreadful irons, which cut like hell into your insteps” and climb up to count the eggs. According to Charles, they would only be able to climb a couple of trees in an afternoon as “nerves overcame you after that,” said with a nervous chuckle as he conjured up that feeling again. He couldn’t remember if they banded the herons or not, but it is difficult to think that Clive wouldn’t band something that was so close. It was, however, very difficult to manoeuvre yourself once you got up there as the nest was quite large and there wasn’t much to stand on. You then needed to get back to the trunk and wrap your arms around the tree again to descend.

Whenever they were together or with other people, Charles, Hugh and Clive would either be watching birds, catching and ringing birds or they would be wildfowling, i.e. shooting wild birds to eat. They learnt a great deal about birds and bird behaviour while developing their hunting skills. The boys would go to each other’s homes and at that stage Clive’s parents had moved from Cheshire to the town of Rugeley in Staffordshire. There they lived in a large Eighteenth Century house (‘1784’ was recalled being embedded in the wall above the front door), with a paddock to one side and a decent sized garden. Clive’s father enjoyed his time in the garden and greenhouse but was also a keen fisherman.

Charles’s father worked for much of his time in West Africa. Once when Clive went to stay with the Allens, their father arrived home and couldn’t believe “this tornado” that had come to stay, as Clive had arranged traps everywhere. As they lived on the outskirts of London, like most of their neighbours, they had about two acres of garden with a decent number of birds. What more could a fanatical bird ringer want? Clive had set up long strings running from clap nets across to the dining room window so that they could keep watch and catch whenever the opportunity arose.

Another time when they were staying at Clive’s, they went to Cannock Chase, an area of mixed countryside that is now classed as an Area of Natural Beauty. It was quite unremarkable land, sandstone based and not very arable, but it had deer on it. This day they were going there to see pipits and the like but it must have been a warm, sunny day around Easter time because Clive suddenly stopped and retreated a little. It turned out that he was just about to put his foot on an adder, a venomous snake, but one that doesn’t normally attack unless trodden on. Fortunately he had avoided that, but it gave him a start. Another version of this incident, which it is tempting to believe as the mental picture is far more interesting, came as hearsay and had Charles pushing Clive out of the way of the snake, resulting in Clive “coming up swinging”, until Charles pointed out the snake. It seems unlikely that Clive would react with such aggression so Charles’ more sedate tale is probably more accurate.

On another occasion, there was a big reservoir near Rugeley that Clive and Charles wanted to check out, so they borrowed Clive's mother's little Triumph. Sometime later, a red light came on, so they stopped at a garage where they were told that there was no oil in the car! On fixing that issue, they proceeded on the journey. They had a gun with them and were pleased to spot some ducks they could get to after a long crawl through ditches. Charles hadn't been brought up a shooter, but he had taken a liking to it through Clive, particularly for wildfowling and because it took him into places he'd never otherwise go. They crawled in through the ditches and finally popped one of the ducks off. As they were coming back through the woods, they bumped into an old blind gamekeeper who had obviously heard the shots. Although blind, he knew the woods well enough to get around. He asked a few awkward questions and the pair "mumbled a bit about this and that" but managed to avoid any repercussions.

Another shooting tale had Clive out on the marshes on the Welland Estuary, one of the rivers entering the Wash. In this instance, Hugh Playfair, a Scot who was also at Oundle, accompanied him. When the hunters misjudged the tide and couldn't get back, they were trapped there until the tide reached its peak and receded enough to allow them to get off the marshes. It was very dangerous really, but in order to anchor themselves against the tide, they pushed their guns into the mud so they had a firm basis to hold onto. Hugh was using his father's Purdey gun and Charles said, "You don't really want to push a Purdey into mud." These guns, are "…arguably some of the finest shotguns made anywhere in the world."[10] They are apparently "…favoured by the British Royal Family and assorted American and Russian presidents." The guns are built to last with each part being handcrafted with extreme precision and can take two years to make. Salt water is not good for them so one wonders about the condition of Hugh's gun after being partly submerged and buried in mud and salt water.

Clive, according to Charles, was always very enthusiastic, very keen on the sciences, and a "really clever guy." He spoke about how Clive could remember "all these bloomin' numbers", a recognition of the memory skills that he may well have inherited from Tom, who was known to have remembered the name of every boy in the school. There was a document called the Blue Book, which listed all the boys' names, which he probably read once and remembered them all! They both had that photographic memory. At one stage, as an older man, Clive could recall every game of cricket he had been to, runs scored, wickets taken and by whom. He would amaze people when out on a catch and someone would call out a number from the band on a retrapped bird and he'd say, "Oh yes that was a Sanderling we banded at…" and would give the location and date.

[10] Guntrader 2014

A favourite week each term at Oundle was the one all the boys spent in the workshop, except for the first lesson on the Monday morning when they were in class. They had homework as well but essentially the week was 'hands on'. There the boys would receive basic training in a range of trades, as there was a metal shop, a pattern shop, a foundry, and a carpentry shop. Professionals ran these, probably similar to the modern day Australian TAFE trade training. These times in the workshops helped build more rounded and skilled people, from which both Charles and Clive would have benefited.

Oundle also had other attributes, including that it was extremely good for some sports, particularly rugby union. Clive thinks it was one of the best in the UK because it had a brilliant master who fostered skills in this sport. Clive played for the first 15 as a wing forward in rugby and Charles can still visualise him "charging around like a tank, bulldozing all over the place." How else would his sporting skills be exhibited? Charles said that Clive was always heavily built, though not as "stocky as he is now." This must be his best mate kindly describing the rotund frame of Clive in his later years.

Clive's talents, however, were not limited to the intellectual and physical, as he also sang in the school choir and would regularly practice playing the piano when at his boarding house. The master had the room next to Clive's and, at the end of year presentation said that he had "heard 100 renditions of The Skaters' Waltz" played by Clive.

The next highly significant change to Clive's life came in 1951 when he was about 16 and he was invited to stay with his school friend John Taylor. His family lived at Newcastle but also owned a cottage on the seashore at Bamburgh, about 80km north of Newcastle, in Northumberland on the east coast of England. It was here that John initiated Clive's interest in shorebirds. This was the last group of birds he learnt about as he hadn't grown up near the coast and due to the war people didn't travel much at that time.

They went up there for a holiday in April and Clive learnt to recognise Dunlin, Purple Sandpiper and Turnstone, as well as Ringed Plover and Redshank, birds that are fairly common but were relatively new to Clive. For beginners, waders are difficult to identify as they are seen over a short period of time before they are off again and identification secrets fade. It can take years to consolidate knowledge of these birds, as most readers who have done any wader watching will attest to. Surprisingly to Clive, he was invited back again in August. Why would that be so unexpected? Well on the first night at the dinner table, Clive upset the jam jar and spilt it over the table creating quite a mess. But more troubles were to follow. On the second day it snowed, which was unusual for April, so the boys rolled up some snowballs on the lawn and climbed onto the house with them. They found that one snowball just fitted into the top of the chimney, so they dropped it down! The snowball had

started off white but by the time it travelled down the soot-lined chimney and hit the fireplace, it was a black, icy, wet ball which burst everywhere across the lounge-room. The jam episode paled in comparison. Clive and John must have been good mates because it seems he was forgiven. Years later, when Pat reflects on this incident with the snow ball, she just cannot understand how Clive was given such a reprieve, as it took her about eight hours to clean up her own lounge-room after a bird came down her chimney and spread soot all around the room.

On the return visit, they got on their bicycles and went looking for birds, which they found tended to concentrate around patches of rock on the shore. The boys had been cycling along the beach from one patch to another when they came across a little wader running around on the sandy shore, and seemed very tame indeed. They managed to get quite close but still couldn't identify it. Eventually, while he was still pedalling along, Clive edged close enough to actually throw his coat over the bird and caught it. The poor bird was probably as much exhausted as tame.

However, even though they had the bird in their hand, they still couldn't identify it until John thought to take it to a Dr Eric Ennion, who was setting up a bird observatory about a mile up the coast at Monks' House. He was an expert on waders so John knew he was the person to identify it. Eric said it was a juvenile Sanderling that had probably left Greenland two nights before. It just arrived in the civilised world when someone, "probably the first human it had seen close up rides a bicycle up and drops a coat over it!" This event was written into Eric's report in British Birds Reports from Observatories in 1951, as Eric immediately banded the bird after identifying it for these young schoolboys.[11]

"That Sanderling and the resultant meeting up with Dr Ennion was probably the most critical thing that ever happened to me in my whole life," Clive recalled as he gave his acceptance speech for the Eisenmann Medal to the Linnean Society in New York. Watching the video of this talk, Clive can be seen checking himself as he says these words, which indicates not only the emotion associated with this recollection but also the significance of that day, even after all this time. In Clive's words, "Eric was a most marvellous person," and apart from Clive's parents, Eric has had more influence on Clive than anyone else throughout his 80 years. Clive fondly remembers that it was Eric who really fostered his interest in shorebirds and that he was very much the one who always encouraged him. Rather than thinking that ideas couldn't work, Eric was one of those people who said to any suggestion, "Yes! Let's give it a go." Or "Try that."

This admiration for Dr Ennion was shared by Bill Oddie, who I am sure much to Clive's sense of pride, joined both these men when he described his ringing

[11] Ennion 1951

apprenticeship at Monk's House during the 1950s as being "instructed by two legendary figures in Dr Eric Ennion and Dr Clive Minton".[12]

Eric told Clive and John that he had been trying to catch and band waders for about a year using drop traps and walk-in traps, but all he had caught was a Snipe, a Common Sandpiper, a Redshank, a Turnstone and a Dunlin, about five birds in all. During the discussion, Eric learnt not only that the Oundle school had the fourth largest bird banding organisation in the British Isles in 1950, but also that these boys were skilled in catching birds. They had particular expertise in using clap nets, which were like a mini hand-powered cannon net.

A clap net in action, trapping waders on the mudflats of the Yellow Sea in 2014. Birds are enticed down by a few decoys and skilled calls by the trapper. First used to catch birds for meat, they are now used for banding and release. (Kejia Zhang)

However, the net they were using was about the size of a kitchen table and he quickly recognised the potential for catching shorebirds, both on the shore and around inland ponds and lagoons. There was a pool across the road, in the bottom of a farmer's field where there were lovely waders. They quickly gathered materials, built some clap nets and set them up on this little pool. Later on, they also set nets on the shore and, within about ten days, their teamwork resulted in 30 waders being caught and banded. Included in these were the first Grey Plover, Ruff, Dunlin and Ringed Plover ever banded in Britain, marking the birth of wader banding there.

[12] Oddie 2014

They built bigger and better clap nets as Clive returned there for many years. Whilst still a teenager, he ran the observatory when Eric was away doing radio programs, lectures or art exhibitions. Like Peter Scott with his focus on geese, Clive then began to focus on waders. Peter's experience led him to believe that he had a "fair idea of what it was like to be a goose," and Clive eventually could think like a wader.

Eric had been a medical doctor and was also a world famous artist. He shared certain characteristics with Clive, such as his preference to work with a committee of one and his ability to train people. It seems he also had a strong personality. This latter point was illustrated by Pat, who first met Eric at Monk's House when she was about 16. She recalls a time when Clive wanted to go out catching all night after a long and busy day but Eric decided, "No we don't do that," and they didn't! This is one aspect of Eric's advice that Clive chose to completely ignore, as he got older.

Monks' House Bird Observatory was right on the beach between Bamburgh and Seahouses on the northeast coast of England, in Northumberland. Charles described the area around Monks' House as being very barren, Moorish type country. It was farming land but relatively poor quality, with big views, but the birds were great. In earlier days, the site of Monks House belonged to Lindisfarne Priory. The observatory was used as a storehouse and a landing place by monks going to and from their retreat on Inner Farne, which was one of the Farne Isles just a few kilometres off shore from Seahouses. It also had been an inn at some stage of its life. When Eric Ennion wrote his book about it, Monk's House was referred to as the House on the Shore as the water literally comes up to the back windows while the other side of the house is the main road.[13] When purchased by Eric, it was four old houses that Eric combined into one.

Charles, Hugh and Clive would go up there in the Easter holidays, which fortuitously coincided with the migration. Eric had a huge Heligoland trap set up there. These traps, named after the first one built on the island of Heligoland, a small German archipelago in the North Sea, were permanent traps, large enough for people to walk into and which funnelled birds down to the end where the trap could be set off and the birds extracted. The Monks' House Heligoland trap was set up in the only bit of shrubbery. The birds would come and settle in the bushes and then be driven down the trap. "The heligo would get a run every morning," Charles recalled, adding that they once caught a Bluethroat there, which created great excitement. Bluethroats are mainly an autumn passage migrant and, according to Peter Hayman they had been scarce in Britain.[14] Ennion's Monks' House website refers to a painting of a "… male White-spotted Bluethroat – a bird to set the pulse racing on the east coast of Britain, even today …" and that was in 1957.[15]

[13] Ennion 1959
[14] Hayman 1979
[15] Walthew 2014

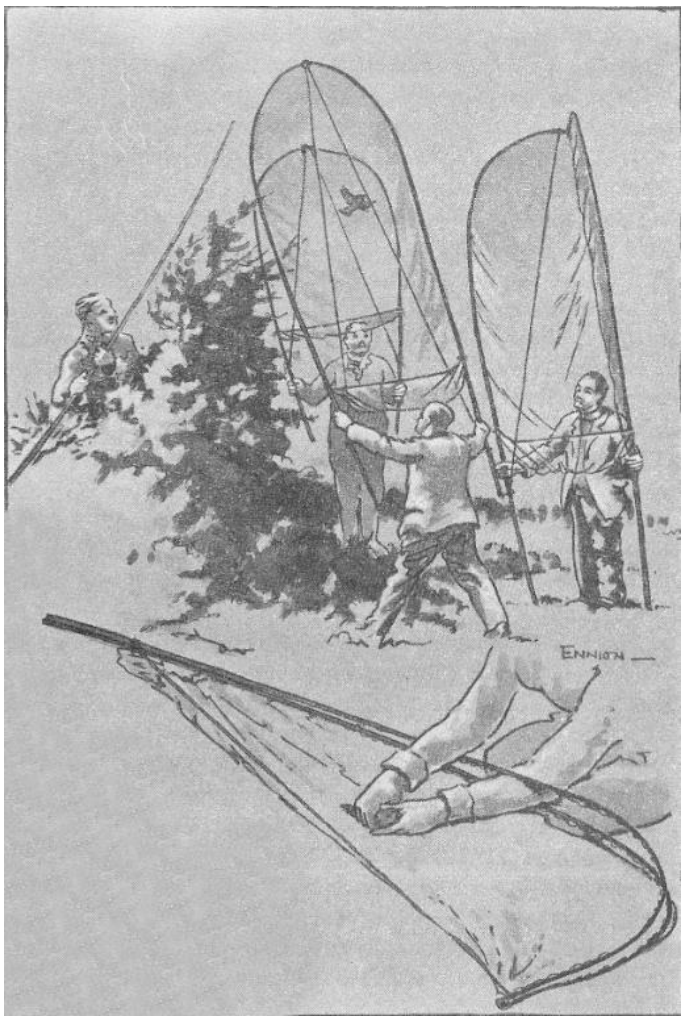
Eric would pile as many people as he could get into his van to go off birding. With little regard to safety, which was typical of the times, he would drive along looking every which way at the sights. There would be an "Oops" and the vehicle would lurch, as he either tracked it back onto the road or pulled up, much to the discomfort of the passengers.

On one such outing, Clive and Eric were out bird watching for the day with a small group that included three visiting nuns wearing their habits. As they were driving along, Clive said, "Remember there is a Tawny Owl's nest in this tree beside the road here." They decided to stop and band the bird, which they could then show the group. Clive clamboured up on the stone wall and very, very quietly climbed up the tree and put a net over the hole. Out came the Tawny Owl and it was quickly caught in the net. Clive climbed down and it was banded with everyone standing around in a circle watching. When Clive let it go, the Tawny Owl didn't fly away from the group as he expected. Instead it flew right around the circle and "did the most enormous 'squit', right across the three nuns," whose robes were absolutely covered in Tawny Owl poo! Revenge?

Another place the boys visited regularly in that region of England was Bamburgh Castle, which was built on a rocky plateau high above the Northumberland coastline. There is a slope up one side and then a sharp drop-off, known as 'a crag and tail.' The site was no doubt a strategic place to build this huge castle. It was also a great place to catch Starlings. They used a pair of three metre tall nets, hinged at the top and middle, and held at arm's-length at the bottom, because along the base of the castle there was a huge wall of ivy where the birds roosted overnight. They were quite heavy to manipulate. Using a process known as batfowling, the vegetation was beaten causing the birds to fly out and into the nets, which would then be clapped shut. Bill Oddy has a view of batfowling that may explain why it dropped out of favour. He thought it was, "the most bizarre, the most precarious and the least successful catching method he was exposed to as a youth. He recalls that they were hard to manipulate. "We flailed at the ivy, scared all the Starlings, keeled over, got soaked and caught nothing[16]".

In about 1953, Peter Scott's WWT at Slimbridge lost their entire drake Eider Duck collection, and they were keen to have some replacements. Jeffrey Percy, a zoologist from Slimbridge probably in his thirties, was also a member of the WWT council and asked Eric to help. Jeffrey was a descendent of Lord William Percy who had started to band Woodcocks in 1890.[17] A boat was hired to go out to the Farne Islands for the catch and it was run by an old boatman named Shiel, whose family business exists to this day. He knew Jeffrey quite well and loaded everything up on the boat including a bottle of whisky for him due to his apparent liking of the spirit.

[16] Oddie 2014
[17] Landsborough Thompson 1943



A group of men batfowling (above), with the extraction of a bird from the net (below).

Drawn by Dr Eric Ennion and reproduced from 'The House on the Shore' (1959) with permission from The Estate of E.A.R. Ennion.

Charles, Hugh and Clive were staying at Monks' House and were to help catch the ducks. Charles and Clive went on the first trip. Everyone camped at the old Priory, a stone bothy. Throughout the Lakes District and various other parts of the country there was a great tradition of building houses with a dry stone exterior. The inside of the walls would be set in lime or cement mortar, but the outside had a very appealing dry stone face. These were referred to as stone bothys and were quite small. The building on the Farne Islands was more like a tower of rock and built back in the 12th or 13th century. It had floors but was very primitive for occupation.

Charles remembers the scene on the island being "absolutely unbelievable," such were the masses of birds including Puffins, Razorbills and auks. The Eider Ducks were breeding so the team set about trying to trap some. However, they didn't get one on that first day. By all accounts, setting a clap net on the rocks wasn't very easy even though they knew as much about it, or at least Clive did, as anyone at that time. The next day Shiel had to make another trip to the island with a bottle of whisky to

keep 'old Percy' going. Charles returned to the mainland with this boat that his brother Hugh had come out in.

Some male eiders were ultimately caught, but the water between the Farnes and the shore became quite stormy and rough and Shiel wouldn't go out to collect them at the allotted time so they had to stay extra days. There were many rabbits on the island (the Puffins nest down their burrows), so catching rabbits was said to be as easy as, "putting your hand down the burrow and pulling one out," but it was likely a bit more difficult than that. After a couple of meals of rabbit they tired of that.

Besides Jeffrey Percy, Hugh and Clive, there were two other people doing PhDs on seabirds who were staying in the bothy at that time. One was Mike Cullin and the other was Esther Sager, a Swiss researcher. Mike was doing his PhD research on Arctic Terns while Esther was studying Kittiwakes. They had both gone to the Inner Farnes from Oxford. Subsequently, these two married and ultimately they migrated to Australia in 1976, just before Clive, when Mike became a professor at Monash University. One morning on Inner Farne, in response to Clive's complaints about the lack of variety in his meals, Mike obviously took pity on them and quietly headed off with a great coil of rope over his shoulder. He used this to lower himself down a couple of one to two hundred foot cliffs to raid the Shag's nests and brought the eggs back half an hour later for breakfast. The white of the egg was like Indian rubber and the taste very fishy, but despite this, the yolks were very orange and the eggs were "absolutely terrific to eat and a great change from rabbit" recalled Clive. Later that day they went ashore. This act from Mike seems to have been typical of his style as an obituary in 2002 stated, that he was a scientist "who put the interests of others and science ahead of his own throughout his career," a selfless person it seems.[18]

Not many people can claim they have spent a few nights on the Farne Islands in the old Priory as it is now a National Trust property, but Clive and his mates have many tales about such experiences that not many others have had.

Eventually, Clive's shooting days at Oundle were reduced as he became increasingly aware of the risks of getting caught. There was a fellow student called Nicholson, who was a keen shot and who was one of the groups using the hut behind the Tin Tabernacle to hang their game. One day he was out in a local wood called Blackform Cowpasture, where he shot a Pheasant, which he hid planning to collect it later. He had a cigarette, then pulled his gun apart, slid the barrel down his trouser leg and tried to walk out nonchalantly. However the gamekeeper had heard the shot and came to investigate. He could see the suspicious bulge down the boy's trouser leg and hit it saying, "What's that?" The landowner reported Nicholson to the headmaster but on the condition that he wasn't to be expelled, instead getting "12 of the best" with the cane. If Clive had not already recently ceased shooting in that wood he did then!

[18] Dann 2002

3 Cambridge

Clive left Oundle to continue his studies at the University of Cambridge where he gained a degree in Natural Sciences and a PhD degree in Metallurgy over the years 1953-1960. His obsession with birding almost derailed his scholastic achievements, but after a small initial hiccup, he did very well. Well enough to be offered a generous scholarship to undertake his Doctorate.

It was there that he became interested in the migratory waders in the Wash, becoming the founding chairman of the Wash Wader Ringing Group (WWRG), which is probably still the largest wader-banding group in the world.

While Clive went straight to university from Oundle, his best mate Charles and his brother Hugh both spent time in the army after school. By the time Charles left the army, Clive was virtually finished his undergraduate studies and was well into the waders at the Wash. So as soon as Charles returned, they were off there for a week, staying in a caravan. In desperation for food one day, they shot a curlew to eat, but found it to be virtually inedible until curry was added. Today we are aghast at someone shooting a curlew, or a goose in the case of Peter Scott, but attitudes were different in those days. Indeed it was only earlier that century that the hunting of birds like the Eskimo Curlew was determined to be the chief cause of their demise, following the extinction of the Passenger Pigeon.[19] Yet despite changes in attitude in the west, many waders are still shot along the East Asia-Australasia Flyway (EAAF) today.

[19] Cocker & Tipling 2013

Clive's skills at wildfowling and hunting were renewed at Cambridge. He had an atavistic streak, and took pride in being able to pay for his cartridges by shooting Wood Pigeons and selling them to the hotels in Cambridge. He made friends with a farmer at Six Mile Bottom, which is chalk country where grain is grown in paddocks with hedges, making it ideal country for shooting pigeons. As Clive and the others walked along in the cover of the hedges, a pigeon would emerge and they could get a really fast shot at it. He also devised a technique to improve his efficiency, by putting down corn in a straight line and hiding at one end. When the pigeons were busy eating with their heads down, he would shoot several with one shot.

There were also large clouds of pigeons moving around, supposedly coming out of Scandinavia. Charles questioned that notion about their movement many years later, because the existence of large-scale Wood Pigeon migration to and from the continent was apparently hotly contested. To get these though, Clive would go out into a paddock, make a hide and then lure them down with decoys. Clive had been making hides since he could remember and continues to the present, though today they are for netting waders. The hotels bought the pigeons for a dish such as game pie. Clive needed to average about one pigeon per shot, to pay for his shooting costs.

Another example of fortuitous timing on Clive's behalf related to duck hunting on the River Cam, which is right behind many of the Cambridge colleges including Queens, where Clive was in residence. There were huge numbers of ducks and the boys decided to hang mist nets under the bridges to catch some for the pot. On Guy Fawkes Night, they made use of their guns as they successfully determined that the fireworks would camouflage the noise of their shots. Only about a week later however, some others were caught catching the ducks with nets. That group claimed to be banding them but it was obvious that it was time to leave those ducks alone.

Hunting didn't cease though and many more meals occurred, including one particular feast recalled by Charles. In the college kitchen, Clive had cooked two geese and a duck with a large range of accompaniments for himself, Charles and a fellow Queens' student. The task of eating it all seemed daunting, but perhaps as a sign of Clive's future capacity to consume, all three of them ended up lying on the floor, stuffed with food, having virtually pushed the last bits in. It wasn't so bad for Clive and the other student, as they were already in their own college, but Charles had to walk back to his college. While it wasn't too far away, Charles described it as "almost painful to have to move."

Wildfowling in Norfolk provided a further tale of Clive's charm working along with his hunting. He, Charles and his cousin Michael spotted some geese on a field eating the grass growing up among the stubble. They worked out that they could probably get to the geese by following a ditch to stalk them. Michael was wearing some very smart fur-lined flying boots, but being a little on the heavy side, he kept getting stuck in the mud, while the others seemed to be walking like a Jacana across the top. Clive

headed off to try and get permission to hunt these geese. It was a week before the opening of the Pheasant season and there had been no shooting over that land for some time, but somehow Clive charmed the head gamekeeper into letting them in. They crept in and Charles thinks they got three geese. Michael took one home for his mother to cook but he described it as "the toughest old thing you'd ever come across," told with more laughter from Charles as he recalled this tale.

When reminiscing about the geese in England Charles spoke on behalf of many of his peers when he said, "I've never seen anything like the clouds of geese, they are absolutely wonderful." His wife Jocelyn chimed in with a story of when they were up at the Wash a couple of years ago and literally skeins and skeins of geese were flying by. They recalled how unbelievable they were with that lovely sound in the morning when it is frosty and calm and then you hear this noise coming, their cackling calls – "it is absolutely magic." The attraction of birds transcends time and space.

Memories of Cambridge brought back Mike Pienkowski's story that showed how Clive had adopted Eric Ennion's approach to life of always encouraging people and their ideas. Mike, as an undergraduate at Cambridge, approached Clive with the then; revolutionary idea of organising the first of what became a series of wader-study expeditions to North Africa (referring to the University of East Anglia Expedition to Morocco) in 1971. They had also slipped in, at short notice, the first Iceland expedition in 1970. Mike said, "Clive's support was whole hearted, even though (as he noted at the time), he had never had the opportunity to do something like that."

What he did do quite often it would seem, was break though the floating marsh grass when they were mist netting birds like Common and Jack Snipe at the Stafford Water Meadows. Andy Whittaker, who was later to name a bird of prey after Clive, told me about how he and a group of fellow ringers had to help Clive out one day after he went in up to his waist. Clive had taken Andy under his wing from a very early age and he almost became like the Minton's third son. Clive trained Andy to become a licensed ringer and every weekend and holiday Andy was ringing with Clive around the Midlands or off to the Wash, wader ringing. There, he recalls that for some of the large legged waders such as curlews and godwits, they initially had major problems with cramp. Development of good sized keeping cages helped overcome this problem. But Andy will never forget "sitting in a hide keeping the 300 plus Bar-tailed Godwits we caught from sitting down." He was "a major twinkler" and everyone who has been involved in wader catching using cannon nets would be able to imagine the kilometres Andy must have walked and the conditions he would have been asked to be out in.

Falling through the floating marsh grass was a fairly regular occurrence and something Clive accepted as part of the catching process. However, there must have

been something about Jack Snipe and Clive falling through coverings into the water beneath, as a more memorable event resulted from another Jack Snipe encounter.

Clive was keen on ice-skating and, in the depths of winter there were many options with the majority of rivers and other water bodies freezing. This included the ponds at the sewage plant about three miles out of Cambridge. At some places where the fresh effluent enters the pond, it prevents the pond from freezing at that point, so care must be taken to avoid these. While skating one day, Clive went over to the bank of the sewage pond. As he was crawling over the bank, he came face to face with a Jack Snipe about three feet in front of him. Naturally, Clive watched this bird for a while but when some fellow skaters headed towards him, he waved them off so that he could continue to watch the bird. After a while, the bird flew off so Clive skated back, intending to thank the others for not coming over and disturbing the bird. Clive had really only learnt a limited version of the skills required to skate so he could only go in one direction and couldn't turn corners. Without concentrating, he continued to skate past these people, only to find he was heading for a section of pond that was open water. As he glided toward the edge, he could hear the ice cracking and he knew he was in strife. Being unable to stop or turn, he found himself waist deep in the poo! Not only was he freezing cold, but of course, incredibly smelly. Once he had managed to wade over to the bank and crawl out, he discovered that his trousers froze hard very quickly.

Although he obviously wanted to get back to Cambridge without delay, Clive then had to walk back to his bike but before he could begin to pedal, he had to 'break' the ice on his trouser legs. Along the way back to Cambridge, he spotted an elderly lady about to walk out onto the road into his path. He started to ring his bell, but continued on, expecting the lady to see him and stop at any moment. When she didn't, he veered out towards the centre of the road both to avoid her and to continue his journey, but she continued on and ultimately they had a collision. Neither Clive nor the woman was hurt but an ambulance was called as she was shaken. The police then came and interviewed Clive, a process that presumably was hastened due to the smell. They allowed him go and he was finally able to ride back to Cambridge where he could get out of the putrid, frozen clothes, have a shower and recover.

Diane recalled that, because Clive was the biggest and strongest, when the kids went skating he would be the anchorman on a rope. A number of friends would hang on to the middle while she and Angela were on the outer end as they were the smallest. If Clive stopped, the line would continue around in a circle getting faster and faster on the outer edge until sometimes, the sisters would end up somersaulting across the grass on the edge of the pond, unable to hang on any longer. With the ice being very thin there, they would sometimes end up getting very wet.

In 1960, around the end of his time at Cambridge, Clive initiated a long-term banding program of Grey Herons at the heronry in the Gailey Reservoir, which sits near the junction of the M6 and M5 motorways, in Staffordshire. Forrest and Langston used data from that study in a 1994 report about the widening of the motorway, which noted that the heronry had been "…monitored annually since 1960, providing an impressive quantity of breeding and population data that is unusual for a single colony."[20] Clive had summarised the first ten years' data in a paper published by the West Midland Bird Club. Albert Coleman and his son Jonathon continued this study into the 21st Century, long after Clive left for Australia. This study was an example of Clive's leadership in the provision of good scientific knowledge that could be fed into decision-making processes. Continuous longitudinal studies became a particular interest of Clive's.

Clive collecting young Grey Heron chicks for banding. (Minton family)

The Gailey heronry was notable in several people's minds, including Andy Whittaker, when he also recalled working on heronries. His tale was about the ringing of young herons there. His role was as the tree climber, taking young herons out of the nests and lowering them down the tree in sacks to be ringed by the large team on the ground below. During one session, a particular teenager was getting

[20] Forrest & Langston 1994

overly bossy, so Andy allowed one of the pullus to regurgitate, the contents falling through the air and hitting his target on the head. “Well the whole island burst into laughter, and me too, and I almost fell out of the tree,” wrote Andy.

Another strong memory came from Jon Coleman who ironically, also migrated to Australia and who is now a driving force with the Queensland Wader Study Group. At about five or six years old and on the island at Gailey he “expressed an interest in seeing the inside of a heron nest. As was always the case with Clive's spontaneity he immediately tucked me under one arm, climbed up a huge ladder against a pine tree in the middle of the island. Well above all the nests, he proceeded to wave me around showing me nests with eggs, small chicks, large chicks and chicks running around in the canopy. Needless to say, I was terrified but at the same time fascinated and I still remember that view vividly even now, 40 odd years later.”

It was while an undergraduate at Cambridge that Clive became aware of the possibilities of large-scale wader catching at the Wash. All the persuasive arguments to get Peter Scott to release his rocket nets for trialling over waders occurred while Clive was at Cambridge. He left Cambridge to work in the Midlands the year after the first rocket netting took place.

The late S.L.B. Lee, then Secretary of the Cambridge Bird Club, wrote in their 1960 report about Clive and Pat leaving for the Midlands that “the departure of the Mintons may appear to be a severe blow, but we can be sure that they have not gone for good and that the waders of the Wash will have plenty of attention for several more years to come. With the number of ringers and the effectiveness of techniques steadily increasing, we should certainly not expect any setback.” And there was certainly nothing like a setback.

4 Marking birds

Since very ancient times, man has used birds to carry messages. Quintus Fabius Pictor, who was born about 254 B.C., recorded in his 'Annals' that "When a Roman garrison was besieged by the Ligurians, a swallow taken from her nestlings was brought to him … to indicate by knots made on a thread tied to its foot, how many days later help would arrive and a sortie must be made." That siege occurred during the Second Punic War, 218-201 B.C. This is probably the earliest recorded instance of the marking of birds to carry a message.[21] Bircham added that the extraordinary British naturalist Gilbert White also was tying cotton to a swallow's leg in the mid-1700s to see if the given birds returned to the same nesting site.[22] This was likely to be one of the first steps in understanding bird migration, at a time when migration versus hibernation as an explanation for where birds went in winter was strongly debated. One of the old hibernation beliefs was about swallows wintering in the mud, which was possibly enhanced by their propensity to roost in large numbers in reed beds before they headed off on migration in autumn. It is uncanny that this practice of tying thread to a leg still continues to this day, as evidenced by the recent catching of several swallows carrying cotton ties at Ngulia in Kenya, where Clive has been mist netting with his old friend David Pearson for several years since the late 2000s.

The use of metal bird bands dates back to at least the sixteenth century, if not before. The first attempt worthy of particular mention, however, is that of Lord William Percy, who in 1890 began marking young woodcock in Northumberland with rings inscribed with "N' and the year. Some interesting records were secured in spite of the poor chances of getting returns from places distant to the banding site.[23]

Systematic bird banding, however, began in Europe in 1899 by the Dane, Christian Mortensen, first with Starlings and then later with storks, ducks and larger birds of

[21] Wood 1945
[22] Bircham 2013
[23] Landsborough Thompson 1943

prey. He and his companions reportedly banded over 5000 birds that if correct, was an amazing achievement, particularly since he made most of his bird rings himself, cutting them from aluminium sheet and stamping each with an address and an individual number. From 1906 he received some financial assistance from the Carlsberg Foundation. The effort he put into refining the development of the rings was exhaustive as it was ingenious. Mortensen was a teacher and at one stage he had his 'good' students carry around small boxes that contained sand and a number of his hand-made rings. This was to ensure the edges were soft, abraded by the moving sand in the box.[24]

This shows that many early pioneers had to learn and experiment and make things happen themselves, much as Clive and his teams have had to do in more recent times.

More than a century ago, Mortensen received so many interesting returns from his banded birds that it stimulated others in Europe. Thienemann, at the October 1900 meeting of the German Ornithological Society, suggested that a bird station be founded at Rossitten in East Prussia. The station was opened January 1, 1901 but Thienemann did not begin banding work until 1903. In 1904, Tomlinson began marking Starlings near Edinburgh, and Gurney banded young Gannets on Bass Rock in the Firth-of-Forth with rings marked "Bass Rock 1904."

In 1909, ringing schemes were launched in Great Britain by Mr. H.F. Wiherby, in connection with the magazine British Birds, and by Landsborough Thompson himself from the University of Aberdeen.

Banding schemes therefore, weren't very old when Clive started his own banding career in the 1950s. Some may say this made it somewhat easier to be the first to do so much in wader banding. Pat agrees to some extent saying, "In some ways he was in the right place at the right time," but as everyone who has been involved with Clive knows, there is much more to his success than that.

An important distinction I make between banding in Australia and ringing in Britain relates to who is permitted to band what. Here in Australia, banding can only occur as part of an approved project that has been submitted to an ethics committee among other things. In Britain, people are encouraged to ring birds in their backyards and their 'local patch'. There is much that is not known about Australian birds because such localised banding has not been encouraged and the understanding of urban birds would perhaps be greatly enhanced if banding and identification of individual birds in such areas was allowed.

Tim Birkhead, in his fascinating book "Bird Sense – What It's Like to Be a Bird," claims "using ringing recoveries to infer movement patterns of seabirds is a bit like

[24] Preuss 2001

trying to ascertain the summer holiday locations of British tourists from the police stations where their lost passports are handed in – crude at best and subject to all sorts of biases."[25] But this was all that could be used when it was all there was.

The next major development in the marking of waders was the use of coloured plastic flags on their legs. Nigel Clark started trialling this in England in 1979.[26] One of the earliest uses of colour marking of migratory waders with these leg-flags was in the American flyway when J.P. Myers and others banded 5759 Sanderlings at 19 locations, across six countries from September 1983 through to December 1987. They marked the birds using a combination of coloured flags and bands. This enabled birds to be traced to their country of banding (flag) and in many cases to individual birds (combination of coloured bands). These birds had mainly been mist-netted along the Pacific coast of South America.[27]

The placing of plastic leg flags on the legs of waders caught in Victoria started in December 1990, initiated by Mark Barter, who was a pioneer in discovering the importance of the Yellow Sea to the migratory waders of the EAAF and who had clearly become aware of developments in other countries. While he faced some initial scepticism from some members of the group, this new technique was generally welcomed enthusiastically and has been used on virtually all waders caught in Australia since that time.

Although bands have been purchased through the Australian Bird and Bat Banding Scheme (ABBBS), all plain leg flags used in Australia have been made by groups of volunteers. Sitting around a table, these teams used knitting needles as sizing tools and pliers to hold the plastic darvic in the boiling water to allow the plastic strips to mould around the needle. A final dunk into cold water 'fixed' the shape of the flag. These flags were then quality checked with final trimmings made where necessary. Tens of thousands of flags have been made in this way.

The application of coloured leg flags on the upper leg meant that they were easily seen and has increased the rate of generating data by a factor of thirty times from that gained from recoveries, that is, from birds found dead overseas, shot by a hunter or caught by another bander.

These numbers are illustrated by the following example. By August 2010, of all the 316 000 waders banded in Australia, there were only 882 reports from overseas, which equates to 0.28 percent or about three in a thousand. Since flags have been added, of 187 000 waders carrying leg flags, 19 000 sightings have been made overseas, a rate of 10 percent.[28] While the overseas sighting data was not as valuable in regard to knowing about individual birds, in terms of understanding

[25] Birkhead 2012
[26] Clark 1979
[27] Myers et al 1990
[28] Minton et al 2011

migration routes and stopovers it proved an enormous boost. While the data didn't identify an individual bird, it did tell which region the bird passed through, or its place of origin.

There was a protocol developed across the EAAF to ensure that no two regions were using the same colour flags within the one flyway.[29] So, for example, orange was used for Victoria, yellow for northwest Australia (NWA) and green for Queensland. There are now over 50 different one or two coloured flag combinations in use throughout the flyway so that for almost all waders, whether they are banded in northeast Chukotka in Siberia, right down to the South Island of NZ, there is a code which identifies their banding location regardless of where they are seen. What it means, for example, is that if someone in Queensland sees a Great Knot with black over white leg flags, they know that the bird has passed through the Yellow Sea at Chongming Dongtan, near Shanghai, on its way to or from Australia.

Imagine the joy of researchers when the reliable knowledge about wader movements increased some 30 fold upon the introduction of coloured leg flags. This meant that sightings of these leg flags became really valuable, not just recaptures of banded birds.

The plain flags themselves had the limitation of only showing where, but not when, the birds were banded and couldn't be linked to any other sightings of that individual bird. In 2000, American Ron Porter came up with the idea of trying to mark these flags with an individual inscription to identify the individual bird whenever it was seen. They tried this with Ruddy Turnstones in Bermuda, using painted characters, but they rubbed off within months, rendering this approach inadequate. An alternative was found where the flag was laser engraved with the characters and then filled with paint. Subsequently, two of the Bermuda turnstones were seen in Delaware Bay.[30] The huge potential for individually engraved leg flags had thus been demonstrated.

In 2001, the first time individually inscribed flags were applied to Red Knot took place in Tierra del Fuego. A few technical issues with font size and spacing as well as confusion between similar letters or numbers suggested that some standards needed to be set and more development carried out.[31] Once again, a new technique had been found but needed refinement if it was to reliably give the researchers the information returns they required. Engraved leg flags that could identify individual birds were used on waders in Delaware Bay just two years later in 2003. They have been regularly used in Australia from 2005.

Clive has said that they can see 70-80 percent of those Delaware Bay birds year after year, with a big dedicated team of people scanning flocks searching for these flags.

[29] Environment Australia
[30] Clark et al 2005
[31] Clark et al 2005

This has become another major step in the amount of information that can be gleaned about the birds and their movements. As with many of the developments in wader studies, Clive wasn't the instigator of all these new marking techniques, but he recognised their potential and embraced them wholeheartedly.

Unsurprisingly, technological advances have resulted in an even greater advancement in the information that could be retrieved from birds carrying markers. The next steps were to trial the use of satellite transmitters and after that, geolocators to plot the actual path flown by the individual birds that carry them. These little devices can record how long a particular flight takes and how long the bird remains in one place to refuel before moving on to its next stopover until it reaches its breeding grounds, on northward migration or their non-breeding grounds on southward migration. Transmitters have been available for many years but it is only with the advent of modern technology that allows the miniaturisation of these devices, that they have become useful for studying the migration of waders.

Clive proudly holding Ruddy Turnstone with orange engraved 'CDT' flag over a yellow flag caught at Beachport in SA in 2013. (Maureen Christie)

It was in 1999 that the VWSG was first involved in satellite transmitter use on Eastern Curlew when assisting the Queensland Wader Study Group. Those 26gm

transmitters were harnessed on the back of the 12-1400gm (900gm fat free) birds. There were some interesting results from that trial, but Clive was sure that they were biased by the impact of carrying the transmitter, not so much by the weight (26gm was only .03 percent of the 900gm weight of a non-migrating curlew), but rather by the interference to the air flow caused by the transmitter block sitting on the bird's back. The birds' natural flying patterns were compromised and they were not flying their normal distances, making the data of little value except to better understand the limitations as to what the birds could carry and to show that the transmitters worked for valuable amounts of time.[32]

A waiting game ensued until finally the size of the transmitters came down to around 10-11 gram and the New Zealanders, in conjunction with researchers in Alaska, put those transmitters onto Bar-tailed Godwits in both countries in 2007.[33] This achieved the most incredible results. They proved, as had been predicted, that these godwits were flying some 11 000km over nine days, non-stop from Alaska to northern Australia and northern NZ on southward migration in September. They then provided evidence that godwits could fly from NZ direct to the Yellow Sea on northward migration some 9000-10 000km. Subsequently, similar work has shown that the godwit from Broome in NWA also fly direct to the Yellow Sea. The Bar-tailed Godwit seemed perfectly comfortable carrying 10-12gms, but more importantly the devices were also smaller and less wind resistant. Unfortunately that was the lowest size limit at the time making them too large for most of the wader species.

A year or so later in 2009, Clive saw a short paper in Science that reported on a study done by Dr Bridget Stutchbury of Canada, funded by the National Geographic Society, on Wood Thrushes and Purple Martins in North America, birds which weighed only 50gm.[34] Bridget had put geolocators on these birds and tracked them down through central America to South America and back again. After reading about Bridget's work, he'd seen that Dr Stuart Pimm was a member of National Geographic's Committee for Research and Exploration. Stuart happened to be another of Clive's huge group of world contacts as they had banded birds together in England. As Stuart reported on his blog in May 2010, "The last time I helped Clive was 40 years ago on a cold, wet fall day on the east coast of England."[35] He added that Clive was already a legend then. Stuart had ringed plenty of birds himself and had just returned from a ringing expedition to central Afghanistan, when he joined Clive, who was the only one ringing on such a huge scale, was as organised and had such a fanatical following. No one was collecting such extensive data on bird migrations, of which waders do the most spectacular journeys. When Clive emailed Stuart, they were reminded of that day. Clive wanted Bridget's details and her contact information and Stuart was happy to oblige.

[32] Graham et al 1999
[33] USGS 2014
[34] Stuchbury et al 2010
[35] Pimm 2010

This was in February. By late May in the same year, a shorebird team was on the New Jersey beaches of Delaware Bay attaching the 1.5 gram devices to the legs of 150 Red Knots. Whenever Clive saw an opportunity, he was sure to capitalise on it.

Clive and Larry Niles applying the first group of geolocators to Red Knot on the shores of Delaware Bay in May 2009.

(Angela Watts)

A geolocator is a small electronic devise that incorporates a light sensor, a clock and more recently, a thermometer with all the data stored on a miniature hard disc. It records when dawn and dusk are each day. When the time of dawn and dusk are known, the location of the bird can be identified anywhere around the world. It is almost like having a global positioning system (GPS) on board, switched on twice each day.

To contrast these two pieces of technology, a transmitter has a relatively large battery to power it, which is why it weighs so much, but it sends regular signals back every day via a number of satellites. It can be programmed to transmit for varying periods with variable periods of non- signalling to preserve the battery. Therefore the whereabouts of the bird is known every day, on that day. But the cost of the transmitter is currently around $3500-4500 and a similar fee is paid to receive the information back from the satellite suppliers, making the cost about $7000-8000 per bird. However, unless there is a technical failure either with the transmitter or through the harness becoming dislodged, information is available from every bird.

Geolocators may weigh only one gram, but they have some significant disadvantages. The key one is that while it stores the data relating to the bird's location every day, the bird must be captured to retrieve the geolocator and access the data! The data is in a form that needs to be passed through a 'cleansing' process to be able to see the path taken. So for birds such as Sharp-tailed Sandpipers that are very site unfaithful, having to catch the bird is an enormous disadvantage and is the reason that this technology cannot be used on such species. In other instances, Ruddy Turnstones that return to the same small bay for the non-breeding season year after year, make an excellent subject for the use of geolocators. The other great advantage to these devices is that, at about $200/unit, they are comparatively cheap, especially while volunteers run the software to cleanse and store the data, as Ken Gosbell has been doing for the VWSG for several years.

While the Red Knot was the first wader to have geolocators, or 'loggers' tried on them, the 1.5gm loggers weighed less than one per cent of the bird's weight, and over time, the development of the loggers has brought their weight down lower and lower to allow their use on smaller and smaller birds.

Geolocator tracks have shown that, at times, birds need to make huge deviations to their preferred migration routes when they come south. This has been best illustrated with Red Knots that migrate through Delaware Bay where Clive has been involved for years. Huge hurricanes and storms occur down near the Caribbean in August and September and tracking of birds when they approached one of these storms showed that they could backtrack and go way out into the Atlantic to give the storm a wide berth. They then come back in behind it, thus avoiding the wild weather within the storm.

Flight speed calculation based on geolocator studies has turned out to be slightly slower than what had been estimated previously. It showed that 50km/hr was a better average speed to use when calculating distances rather than the 60 to 70km/hr that have been used in the past.[36] This was different to the expectations of Clive and many others.

Importantly, researchers have been able to check that the geolocators do not appear to be having any adverse effect on the birds in terms of their survival.[37] They looked at the resighting of 47 birds carrying geolocators and compared them to an additional 622 birds with leg flags only. Of those resighted shortly after catching and marking, but before they had departed on migration, 62 percent of birds with geolocators and 55 percent of birds with plain leg flags, were found. A year later 49 percent of birds with geolocators and 33 percent with just flags were resighted back in Delaware Bay. Whilst it was acknowledged that those birds with geolocators were likely to be preferentially spotted as they were being targeted to catch, there was

[36] Minton et al 2013
[37] Niles et al 2010

very similar data for Greater Sandplovers at Broome and turnstone in southern Australia. There has been no suggestion that return rates are in any way negatively affected by carrying a one-gram geolocator.

Other interesting findings to come out of the geolocator work include that from the Victorian marked turnstones. This showed when only sightings and recovery data was examined, it looked like Taiwan had a huge role as a stopover site while there was only a small amount of evidence of them using the Yellow Sea. Taiwanese sightings were common because there were many keen observers out looking for flagged birds and they were readily seen on lagoon walls at high tide roosts. What the geolocator work subsequently showed was that the Yellow Sea was used by all Ruddy Turnstones so it was equally, if not more important than Taiwan. It appeared that all the turnstones went on to the Yellow Sea after Taiwan.

As turnstones don't congregate in large roosts with other waders but seek out more secluded rocky or weedy areas, they are more difficult to see along the Yellow Sea coast, particularly when observers there are generally on the mudflats. So geolocators have been critically important in confirming what Clive and others had felt, that the Taiwan emphasis was a product of the circumstances rather than a real effect and that Ruddy Turnstone need the Yellow Sea as much as most of the other waders in the flyway. This was important, as Ruddy Turnstone numbers had been decreasing over the past few years and this Yellow Sea connection, where there have been dramatic reductions in the wader's feeding areas due to construction of sea walls, helped to explain why.

The significance of these developments in the use of geolocators also caught the eye of the international press. In The Independent in the UK, reporter Lewis Smith wrote, "Tracker devices have been used to monitor many species of animals but most have been far too heavy and cumbersome to load on to birds as small as the Ruddy Turnstone, *Arenaria interpres*. With the development of miniaturised light-sensitive geotracking devices, however, a whole new vista of avian research has been opened up. 'Unfortunately, the size of the satellite transmitters, and the batteries required to power them, precluded their use on smaller shorebirds like Ruddy Turnstones,' said Dr Clive Minton from the Australasian Wader Studies Group (AWSG). 'However, a different technology using a 1 gram light-sensor geolocator has enabled researchers to track the 27 000 kilometre round trip of Ruddy Turnstones from Australia to their Arctic breeding grounds and back via China on their way north and via Kiribati [the Gilbert Islands] on their return trip across the Pacific. This now opens up the possibility of tracking the migration routes of shorebirds as yet virtually unknown.'"[38]

[38] Smith 2010

This image shows the track of a Sanderling marked orange '3K' /yellow that carried a geolocator applied in autumn 2012 by the VWSG and was recovered in Russia in August 2013. The 2012 journey recorded by the geolocator is mapped and described. The northern route is similar to other Sanderling, but the return via Japan is more unusual. (Ken Gosbell)

Ancillary knowledge about breeding that has come from geolocator studies has been fascinating. Because they record light and dark, in the 24 hour light of the breeding arctic period, when birds are sitting on eggs to incubate, it shows up as dark. Looking for and finding patterns of light and dark during the bird's time in the Arctic signified a high likelihood of breeding. This gave an understanding that, after failed first tries, second clutches have been attempted in over 50 percent of the readings studied, something that was not previously understood.

The generosity of many individuals and organisations has been critically important for these studies to occur. Despite all that has been gained over the recent past with the newer technology, Clive still feels that, "We are only on the edge of what we will find out." This helps maintain excitement for the whole program and reinforces the need to continue the work.

Great joy accompanied Clive's announcement in late 2013, that satellite transmitters were to be applied to five Little Curlews in NWA. Very little was known of their movements apart from seeing masses of them on their arrival in Australia, prior to spreading broadly across the top end as widespread rains create millions of square

kilometres of suitable habitat for them. No overseas record has come from over 1000 Little Curlew banded in NWA.

The fate of the Little Curlew has so far not followed that of its close cousins from other flyways, the Slender-billed Curlew from the Black Sea-Mediterranean Flyway and the Eskimo Curlew largely from the Atlantic American Flyway. But complacency could be a route down that path.

By all accounts the Slender-billed Curlew was abundant after it was first described in the early 1800s, but excessive hunting along the Mediterranean coast and across to its breeding ground in Siberia, Russia was thought to be the main cause of its demise. Incredibly, despite its relative abundance, only one person ever found the nest and eggs of this species, which might say as much about the difficulty of searching that taiga marsh country in southwest Siberia as it does about the decline in the species. Those nests were found in the early twentieth century, when these curlews were possibly already in decline. The numbers observed certainly plummeted in the late 1900s so that the Slender-billed Curlew is currently classified as Critically Endangered by the IUCN,[39] with a population estimate of less than 50 birds. Many would say it has already gone, but as Mark Cocker reports in relation to both the Slender-billed and Eskimo Curlew's potential extinction, "… the pain of loss is blurred and enveloped by the confusion of never quite knowing."[40]

Unfortunately, lessons weren't well learnt from the Slender-billed Curlew situation when it came to the Eskimo Curlew that has been classified as Critically Endangered - Possibly Extinct. This bird has been largely missing since the early 1900s when it, too, was found in prodigious numbers until hunting decimated it. Habitat change prevented any recovery following the protection of the species from hunting. It is now over 50 years since a confirmed sighting has been made, this being one of the triggers for calling the bird extinct.

Hopefully, the latest study of Little Curlew, currently rated as Least Concern, along with continued population studies and associated work, can prevent it following in the footsteps of its cousins. Clive and the team are doing their utmost towards this goal. Inka Veltheim is tracking the satellite transmissions and reporting the results to the study team and the public.

This attempt to use satellite transmitters on Little Curlew from Broome was a very exciting prospect. It is still tricky getting the technologies and the techniques right, but when it works, the results can be absolutely stunning as was found with the track of the first Little Curlew to leave Australia in late April 2014. Of five satellite transmitters applied via harness pack, three birds left Australia, one going all the way to the known breeding grounds in Siberia. What was fascinating was that the

[39] IUCN 2014
[40] Cocker & Tipling 2013

birds used farmland and similar inland sites for stopovers, rather than the coastal mudflats that most waders use. This may explain why very few are seen along their migration route.

After spending two months in the breeding area, LC 131945 moved to the Daursky Marshes before heading back towards Australia, passing by the Philippines at the end of September.[41] This is the first time a migration route for a Little Curlew has been identified, thanks to the team effort and the latest transmitter technology. Understanding the different stopover habitats is essential to understanding the conservation needs of these birds.

[41] Veltheim et al 2014

5 Catching birds

Catching birds allowed Clive and others to get more information about them. This increased even more with banding, subsequent recaptures and ultimately controlled captures by others and recoveries from hunters. The original techniques used included walk-in traps, which are still used today, particularly for birds like ducks that will respond to baiting, and clap nets which involve pulling a hand net over birds that generally have been lured into a baited area or with decoys. These techniques were used for all types of birds where they were appropriate. Clap nets continue to be employed today by skilled craftsmen in the Yellow Sea and elsewhere, using a combination of decoys and individual whistles to call in the waders.

For Clive though, the most critical change of his birding life was the catching of that juvenile Sanderling at Bamburgh with his friend John Taylor and the subsequent meeting of Dr Eric Ennion. As has been described, the clap nets built by Clive and John to catch waders with Eric Ennion effectively began wader banding in Britain. While the boys made great gains in the numbers of waders caught with their clap nets compared to what Eric had achieved, there was much more to come.

After 1956, when Eric became one of the first people to import mist nets into England, the whole development of mist netting techniques was initiated. The Japanese had invented the mist net, with the original ones made from silk. Nylon and Terylene were used to make commercial quantities and they were dyed black to make them less conspicuous to the birds. Today, when experienced people are around to explain and demonstrate methods, learning can occur quickly, but in those days everything relating to these techniques had to be learnt from scratch. One of the critical early lessons, for example, was to make use of darkness to make the mist nets invisible. Amazing results were achieved as a whole range of garden birds that were previously not able to be caught could then be studied. The mist nets were also used in quarries to catch Sand Martins, another species they previously couldn't catch.

There was a gradual evolution through the late 1950s of the use of the mist nets and obviously that included the catching of waders. It started on sewage farms, where water was applied to each section in one year and then it was cropped with wheat the next, continuing a year-by-year rotation. This created great wader habitat. It was found that 50-100 birds a night could be caught on these farms, many more than in previous years. Fellow Cambridge students, Chris Mead and Steve Boddy, were active participants in this early mist netting.

An early (1959) mist netting outing for (from left) Daphne Watson (nee Corr), Steve Boddy, Clive and Pat. The photo was taken on the seawall at Holbeach on the Wash, where they could use the 25 foot high bank as a backdrop and catch Redshank during the day. (Minton family)

Clive explained, "This gave exciting results, for example, the first Sanderling we banded turned up four weeks later on the east of the Black Sea." There were some amazing recoveries and as he said, such outcomes "stimulate your interest." What an understatement that has proven to be!

Having mastered the technique on the sewage farms, the team then looked to the Wash where four rivers flow into the estuary, about 100 miles north of London. There were often 200 000 waders in the Wash and, on one occasion, in front of the group at the 3 pm high tide, they had 10 000 waders. They thought all they had to do was "put up a line of mist nets and we'd have waders galore" at high tide at 3 am. A line of mist nets was set that night, but upon returning to check the nets, they found that all they had caught was one Redshank and one Turnstone. Thus, another critical lesson learnt was that waders do not behave at night as they do by day. Following this they realised that the nets had to be set over water to catch waders as they flew

along the channels at night between feeding and roosting areas. Tony Cook, from the Wildfowl Trust, who had persisted and persisted to get it right, usually with just one or two helpers, worked out these optimum conditions. He recognised the requirements necessary for a successful catch: about a foot of water under the nets at high tide, no moon, light wind and very tightly grouped nets set at right angles to the shore. He generously allowed the WWRG to use his favoured sites and this mist netting gave the group its first year round data on waders.

Clive outlined one hazard associated with this technique in describing an episode with a young Andy Whittaker many years ago. To fully understand the events, a little history on the Wash is needed.

Over centuries, the rivers running into the Wash have been depositing sediment in the bay resulting in the creation of new areas of land that had risen out of the intertidal zone. To enable these areas of land to become used for agricultural production, seawalls were gradually constructed. This started in the mid-16th century, when large-scale drainage and coastal reclamation works led by Dutch engineers began in and around the Wash. As the accretion occurred, new saltmarsh and mudflats were being developed within the bay, creating new habitat to replace that which had been lost. These works around the Wash continued up to the 1970s, with large areas of salt marsh progressively enclosed by banks and converted to agricultural land, so that the Wash is now surrounded by artificial sea-defences on all three landward sides. In front of the seawalls a continuum of the saltmarsh lies next to the wall and mudflats spread out beyond there into the sea.

But, while there are vast expanses of mudflats, many creeks also run through, draining the saltmarsh behind. At low tide, these creeks are empty but at high tide they hold much deeper water than the surrounding mudflats. That network of creeks not only goes through the mud but also back through the saltmarsh vegetation, before petering out toward the sea wall. The mist nets were set out on the mud so a plan was required to establish a way to follow the watershed between creeks and get down to the mud without having to cross a creek. When that happened, a line of six to eight mist nets were set up in several places on the mud where a couple of feet of water would come under them at high tide. Those whose task it was to retrieve the birds from the nets would go out in their waders, take the birds out and wend their way back across the marshland to the seawall, without crossing a creek.

Well, that was the plan and it was generally a success when they knew exactly where they were going, though that was often difficult as everything was done without lights to avoid disrupting the birds' flight patterns. Sometimes there might be small creeks that could be stepped across but the carrying of a prodder, somewhat like a shepherds crook, became a common habit to check the water depth before crossing a creek. Occasionally they got it wrong as happened to Clive and Andy. Vegetation

could cover the creek and it might be only stepping width but might also be five foot deep, so one minute they were standing on saltmarsh with a foot or so of water around them, then the next they were down the bottom of the creek, very wet. Those things happened many, many times to quite a few people, which wasn't a lot of fun in winter on the Wash.

Despite those incidents, learning about the migration of waders and catching sufficient numbers to find the facts behind the migration, is what became central to Clive's life-long, interest in birds. Even then, he was particularly interested in long-term studies of species or groups of species.

Mist nets were thought of as being a miraculous tool for the catching of birds. The range of species caught was well beyond what had previously been possible. However clap nets and mist nets were still only getting a small fraction of the birds, so the next significant improvement came from being able to borrow rocket nets.

Clive had known all along that Peter Scott had been catching geese with rocket nets and, as Clive had been out catching them with Peter, he knew of their potential. It apparently took some years of persuasion and no doubt some forceful begging, to eventually lead Peter to succumb to Clive's requests to use the rocket nets. Malcolm Ogilvie was from the Wildfowl Trust as it was then known (now the WWT). They owned the nets and rockets and, while not present when the nets were first used on waders, (though he went to all the subsequent catches), Malcolm recalled hearing about this persuasive character who finally succeeded in swaying Scott's mind. That first trial use of the rocket nets was conducted at the sewage farm in 1959. Hugh Boyd, Geoffrey Matthews and the explosives expert John Beer, all from the Wildlife Trust, had brought the nets to the Wash for that first catch.

If the introduction of mist netting was a miraculous change to wader catching, there were no superlatives to match what happened with rocket netting and subsequent cannon netting. Numbers soared from catching a few hundred birds a year to catching 1132 in the first catch and around 13 000 over the first five years, and that was just operating for a couple of weeks each year, as that was the limit of their access to the rocket nets. That first catch of nine different species included some they'd never handled before, such as Black-tailed Godwit. It was also made in the early evening and processing all of the birds, which at that stage involved recording the unmoulted outer primary feathers, took until about four o'clock the next morning. All other attempts to catch using the rocket nets were unsuccessful during that first week, but that initial catch gave them more birds to band than all their catching for the whole year prior to this momentous event.

The nets Scott was using to catch geese were huge. Being around 60m long and 20m wide, they were carried on a big wooden barrel with a pipe through it that two or more people could just lift. They needed six rockets so there were six rocket

launchers to be dug into the ground and when the net was unfurled onto the ground it was camouflaged with earth. Only then was everything ready to go.

In 1960, Malcolm had landed a job at Slimbridge (where the WWT was based) and was living at the time in Essex. His soon-to-be work colleagues, Hugh Boyd and John Beer, were taking the rocket netting gear to The Wash for the second time for a week in September. They suggested he join them for the catch. Malcolm recounted his impressions of Clive at the time, saying he has never met anyone else who was "such a powerhouse, a dynamo, an energiser of people." Clive was constantly rallying the troops, encouraging, cajoling, motivating and getting more work out of the assembled team. "You might have just finished a long and tiring catch and wanting nothing more than to flake out for an hour or two, but Clive would be there, with the next set in his sights, and rallying us all for another effort of hole-digging, net unfurling and cable laying." It was no wonder that what was to become the WWRG got off to a flying start.

The rocket netting of waders was again a great success in this second week and Malcolm was involved in all the catching for the ensuing four or five years until Scott suggested to the WRWG that they get their own nets. There was only a limited amount of cordite (rocket fuel) and the WWT wanted to conserve what they had for their own needs.

Ultimately, when the rocket nets became unavailable, the Wash group needed to look for other alternatives. After a while, they came across cannon nets that the British Ministry of Agriculture had developed to catch oystercatchers, which were damaging commercial shellfish beds. These nets were small, about six percent the size of the large rocket nets they had used. This meant they needed to use several at once if they were to have a chance of catching reasonable numbers of waders. However, in another major learning experience, they were to find out the difference between firing these nets on dry paddocks, where the oystercatchers had been caught and the damp moist paddocks at The Wash. Eight nets were set, with an intricate circuit system that would allow them to fire any combination of nets they needed. When it came time to fire, the impact of setting the cannons with their open wiring into the moist ground became very obvious. They needed to fire only two nets, but a random number went off, some cannons of the same net not firing. All this created an enormous mess to untangle. They needed to create their own system for their own circumstance! They set about designing their own cannon-fired nets, which operated under the same principle of firing a net over birds once they were standing on the ground, in front of the net. However, unlike a rocket net that continues to accelerate as it goes with a flame coming out of the back of the rocket, the cannon net acts like a two inch mortar and throws a projectile out of the muzzle which then slows as it goes forward.

The WWRG started building and using their cannon nets in 1967. Other groups around the world had developed similar techniques for catching larger and more robust birds like ducks, geese and turkeys. The earliest documentation that is cited about cannon netting is attributed to two gentlemen in the USA, Herbert Dill and William Thornsbury, who apparently documented how they developed a net that was projected over ducks and geese using cannon power in a paper in 1950.[42] But the nets developed by the WWRG were the first to be used on waders in Europe. Powered nets had been used to catch Ruddy Turnstones in the Pribilof Islands, off the Alaskan coast in the Bering Sea between 1964-66, where they congregated to eat blowfly larvae that were present on seal carcases left from the seal harvest. Max Thompson and Robert DeLong wrote of their attempts to obtain large numbers of turnstones with mist-nets, but these had failed due to high winds, foxes, and the ability of the turnstones to see the nets. They turned their attention to cannon netting because they had 5000 to 6000 birds in one small area. Although they believed at the time that was the first use of a projected net for mass banding of shorebirds they acknowledged that the method was commonly used for capturing game birds and gulls.[43] Without the use of the internet, news didn't travel fast in those days and they were unaware that Clive and the WWT team had been using rocket nets to catch waders for some five years.

The full-sized cannon nets were about half the size of the rocket nets. Over time, smaller nets were made for use in areas where the large net would not fit or where the catch needed to be kept small due to a small team being available to extract and process the birds. Different sized mesh was also used with a smaller mesh becoming popular in later years, as the birds do not become entangled. However, these small mesh nets cannot be used in high winds as the 'drag' becomes too much and the birds can fly out from under the net before it drops to the ground. In addition, extra care is required with these nets to ensure the birds don't drown.

Techniques for catching haven't changed much since the first cannon nets were developed. The expertise has grown, but the basics are very similar now for catching most species in most parts of the world, especially for waders. Some aspects need to be tailored to the conditions and when Clive reached the sandy beaches of the Australian shore, he soon developed one of his favourite phrases when camouflaging the net, "I need a layer of sand, one grain thick!"

The parallels between modern cannon netting and Scott's early rocket netting include, as Scott described, the development of an expertise, specialised skills and a vocabulary of its own. Where else does one find 'jiggler', 'twinkler', 'galah wire', 'switch the net in' or 'chocolate blocks' in common usage? It had almost become a cult! Incidentally, the term 'twinkler' probably came from the flash or 'twinkle' of wings as the birds stretch their wings to prepare for flying following a period of

[42] Austin 1965
[43] Thompson & DeLong 1967

roosting. This occurs when an approaching person moves into the birds' comfort zone. The ideal twinkle is to get birds to simply fly to the other end of the flock and, in doing so, land in the catching area. The flash of wings as birds stretch before flight is commonly used as an indicator to stop putting any more pressure on the birds until they are more settled. Pete Collins created his own idea of the origins of the term twinkling by asserting that it came from what Clive took the opportunity to do while he was out moving the birds!

Peter Scott developed rocket nets as an extension of his attempts at using springs to trip large clap nets and avoid the 'delay time' required when stretching long lengths of rope to pull the nets for geese. He adapted his wartime experience of using a rocket-powered pistol to propel a net to seamen washed overboard, or shipwrecked, to using similar rockets to propel nets over the geese. The first catch using the rockets in 1948 resulted in 32 geese being captured, which was a great outcome. When reading Scott's account, one could be forgiven for thinking one was reading about a wader catch in the 21st century. He had clay cairns marking the ends of the catching area, set out from the ends of the net which had been furled into place and a cable was run back to a hide at the firing position. The main difference was in the final checking of the circuit. This was a much more difficult task for Scott as, unlike today's closed circuits, the powder had to be removed from the cartridges in order to see the 'flash' of the fuses going off. All this was done in the dark before the geese flew into the paddock at dawn. Apparently extracting the geese from the net was surprisingly difficult at times, with catchers wondering how they got so "…ravelled up in so short a time."[44]

In Scott's words, "rocket netting was as thrilling a past-time" as he had experienced and as far as he was concerned, not only had he invented a useful scientific technique, but also a "first class sport." These words would resonate with Clive absolutely! He has no doubt felt this same thrill repeatedly during the years since he started cannon netting.

The whole catching process has been one of continuous refinement. Many things have been learnt over the journey, such as the importance of quickly covering the birds to limit damage to their feathers, which they flap against the netting when first caught. Geese, the only other species the rocket nets had been used on, generally lay quietly under the net. On some occasions, when they avoided getting tangled, they walked around feeding!

The first wader catch was of such great numbers that left as they were, there was no way the birds could be extracted without damage, so the team quickly removed some of their own clothing to provide the calming cover the birds needed. Although there were some casualties, a full disaster was averted by this action. After that experience, they acquired sacks of old clothing from charity shops and rolls of

[44] Scott 1961

material used for lining cases for spectacles, after which hop sacks were used. Rolls of shade-cloth are currently used with great success. The birds remain very quiet once the covering material is placed on top of the fired net. Since that first catch, the need to follow this covering process became an essential part of any rocket/cannon netting of waders and remains so today.

The next development was the modification of the keeping cages used to house the geese. When waders were mist netted, they were put into cloth bags to hold them until processing. Sometimes the birds would be roosted in them overnight. Birds caught at 10 o'clock at night, were often not processed until dawn. The birds always seemed to be fine following their release under these circumstances.

Clive (with raised arm) still directing traffic when processing a catch of oystercatchers at Rhyll, Phillip Island in 2013. Keeping cages are on the right. (Roger Standen)

It was normal procedure for 50-100 birds, but managing a thousand birds in bird bags was not practical so the use of the keeping cages became a necessity. Initially, Scott's model for geese was used. These were rectangular cages with one compartment for each bird. The structure basically had a rather loose flap on the top. Birds were pushed in over the top of the wall and under the roof then a safety pin secured it. This worked well for geese, but when spare keeping cages were adapted for use with smaller waders, by putting safety pins all the way along the

flap, the waders would still get out. So tailor-made wader keeping cages were designed and constructed by the group.

Daphne Watson started to make custom designed keeping cages for the Wash group using a domestic sewing machine while on night duty at hospital. Her designs originated to fit around the size of the hop sacks she was using, but fortunately, the dimensions were very practical and are still used. She made them in a semi-circular shape to utilise readily available wire hoops, with 6-7 compartments, but with an opening on the top that the bird was pushed through, protected by the hand wrapped around it. There was no flap, just a tight slit, which was bound so it didn't fray. They successfully held five big waders, two curlew or around 20 birds the size of a Dunlin. These first keeping cages were made in about 1959. Daphne has remained a lifelong friend of Clive's and she has joined him on many birding expeditions, including wader catching expeditions held in NWA. Her daughter Hazel was Assistant Warden at the Broome Bird Observatory in 2014.

Apart from slight modifications, such as changing to a rectangular shape and reintroducing a flap over a wider slit, there have been few alterations since those first cages. Virtually everywhere cannon netting occurs around the world, these rectangular keeping cages are used. The only other modification was made in NWA, partly because they had to work under shade cloth to keep both the birds and the processing teams protected from the heat. The change was to double cages, resulting in a four-compartment cage in a two by two form. This meant that all the birds could be accessed from under the shade cover from either side of the cage.

In Victoria, the VWSG keeping cages were all made by Brenda Murliss. Two of her daughters, Vivien Holyoake and Tessa Lamin, are regular members of the current VWSG catching teams. Vivien has renovated the original cages in recent years by reinforcing the worn edges and replacing material where necessary.

One other improvement was to create carrying boxes to move birds from the net to the keeping cages. Before this, birds were either carried directly to the cages or placed in bird bags at the net and then transported to the cages. It depends on the number of birds caught and the distance between the net and the cage as to what method is used. These boxes are plastic with a cloth cover that has a slit through which the birds are placed into the box. In the ABC television series "Hello Birdy" in 2014, the actor William McInnes, who was hosting the show, was carrying one of these boxes along the beach at a slow jog, when he was told not to run to avoid the risk of falling over and hurting the birds.

The original cannon nets had the projectile attached to the front of the net by a rope that went right into the top part of the cannon. Over time, the rope could become frayed and weakened and, as it could travel a long way, created more than a few headaches if it broke during a firing. One such incident occurred early in the development and use of the cannon nets when one of the projectiles did break loose

and sailed hundreds of meters across the field, finally stopping when it hit a large tree on the edge of a motorway with a loud crash. With hearts in mouths, some of the members sprinted to see what had happened, hoping no serious damage had been done. A branch of the tree had been knocked onto the ground but the projectile could not be found and the car driver, who had stopped to inspect the fallen branch, was left to wonder what had happened. Luckily, no damage was done or injury sustained. To alleviate this problem, projectiles were connected to the rope outside the cannon itself using a large shackle. This avoided the pressure on the ropes and minimised the dangers of breakaway projectiles.

Cannon net in operation at Eighty Mile Beach.

(Clive Minton)

Further developments involved the shift away from commercial cartridges that were single use Koffman engine starter cartridges, which ignited the black powder propellant. The initial connecting system utilised spring terminals from light plugs embedded in Tufnol bungs that gave a crude connecting system in the base of each cannon. Reusable cartridges were then produced enabling a safety fuse to be inserted which could then be directly attached to the dropper cable. Initially, these custom built cartridges were made from brass, which could be blown slightly out of shape over time, resulting in jamming within the base of the cannon, or preventing the cartridge from fitting into the cannon. Since moving to stainless steel cartridges, which are inserted into the base of the cannons with a small smear of grease to expedite their removal following a firing, there have been few issues.

For many years in Victoria, to avoid getting wet powder in the cartridges, plastic bags were wrapped around the base of the cannon and taped at the top whenever there was potential for water to pool around the cannon base. This has virtually been eliminated by the use of silicon to seal the base and top of the cartridges. In the early days with the WWRG, they actually melted candle wax into loaded cartridges to try and seal them. Many people were very nervous about that technique. In about 1973, plasticine was used instead, much to everyone's relief. A combination of

plasticine and grease was generally enough to keep the water out of the powder even when standing in water for several hours.

Not surprisingly, firing boxes have evolved into ever more sophisticated electronic designs. Clive bemoaned when each new designer was surprised by the shortcomings of their product which emerged when it got used in the arduous conditions of a catch. It does appear to Clive, however, that the current design of firing box, which costs more than $600 to make, is the most reliable yet.

Cannon nets have been used to catch a variety of geese and ducks, Coots, Starlings and Snow Buntings among other species, as well as the waders. In Australia they have been used by Kim Lowe for catching ibis and spoonbills and at Broome, I was with Pete Collins when we caught both Whistling and Black Kites. The Department of Sustainability and Environment borrowed the equipment to catch Long-billed Corellas in western Victoria as did American Gerry Borgia, who was doing a PhD study on Satin Bowerbirds in New South Wales in 1980. Gerry is now a Professor at the University of Marylands, but at the time, he was studying social arrangements in Satin Bowerbirds at Wallaby Creek on the north coast of NSW. His plan was to catch a group of bowerbirds in August or September before they dispersed to breed. Gerry was joined by a couple of volunteers. One was Kim Lowe, who compiled the first edition of The Australian Bird Bander's Manual when at the ABBBS and who was later to become Director of the Arthur Rylah Institute, where many staff have been involved with the VWSG over the years. Peter Robertson, who became a professional herpetologist and all round naturalist, was the other. Prior to their trip, this trio went to Werribee for one day with Clive to learn how to use cannon nets before borrowing one to catch their bowerbirds. An interesting part of this story, told by Peter, related to ravens at the site where they were catching the birds. These crafty birds watched while the researchers baited for bowerbirds with pineapple, after which one raven would harass the bowerbirds to distract them while the other bird stole pieces of pineapple, caching them so they could recover the food later. Ravens are a clever group of birds indeed.

An outline of how a catch unfolds could be a dry piece of literature, but fortunately there are authors who can turn these experiences into descriptive text. One such piece was produced by Barbara Campbell who joined many VWSG trips. She even visited China to become involved with banding there, as part of her quest to understand how migratory waders impact human behaviour, the subject for her PhD in performance art. Barb's description comes from a three-day catch at the Western Treatment Plant (formerly known as a sewage farm), Werribee.

"*From all over the greater Melbourne area, a disparate fleet of heavily-packed vehicles was making its way to Werribee Sewage Farm just as the second day of the first test, Australia v India, was coming to a close. The crowds streaming out of the MCG were causing all kinds of traffic snares in the CBD. I was in the 'passenger seat' in more ways*

than one on this expedition: I was from Sydney, I'd never participated in a bird-banding exercise and I didn't even have a history of bird watching. I'm an artist, specifically a performance artist (not to be confused with the actor species), and I'm about to begin a PhD, asking the question: in what way do the migratory birds on the East Asian-Australasian Flyway direct human performance? And so my intention on this trip was quite tentative: to ease my way into this culture of birds and people.

Shortly after 7pm, we have all found our way to the prosaically named 'West Lagoon Pond 4' to set the nets in readiness for the next morning. At this point Clive Minton is very much in the director's chair while all around, his willing troupe perform 'Acts of Readiness' which begins with carrying: huge bags of nets and camouflage material, collapsible holding cages, shade-cloth material, heavy cannon projectiles, wooden pegs, spades, boxes of tools, specialty equipment, coils of wire and what looked like miniature bunting, but which I later learn is for "jiggling", that is, encouraging the birds forward of the net line and into the catching area. The team is fairly evenly divided between experienced members and novices, who are guided when setting out nets, laying the firing and jiggling lines, constructing hides and the highly specialised task of burying and setting the cannons. On this occasion Roz Jessop performs the role of cannon setter; stepping, bending to knee, sighting, directing, and wielding the special instrument for checking the firing angle. Finally, bundles of shade-cloth and folding cages are strategically piled nearby.

In the fading light, the convoy snakes back up the highway to base camp - the administrative offices and Discovery Centre of Melbourne Water's Western Treatment Plant. Meals are hastily prepared and consumed and soon we are all horizontal: carpet tiles for earth, Exit signs for stars, and air-conditioning unit for cicadas. Some of us aren't used to camping and don't get a lot of sleep.

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7am and not a single wader can be found in front of either of the nets we'd set the night before, nor anywhere near Pond 4. So much for the famed ubiquity of the Red-necked Stint! Not to be deterred, Clive and three other 'Old Hands' take up position in the hides, others are sent to find where the birds are feeding and the rest of us wait in the cars parked by the pond road. From time to time Clive's voice comes to us clearly across the water and also in compressed from over the shortwave radio.

We wait...and wait...and wait still more. Meanwhile around the lagoon, other birds (the wrong birds) feed, fly, wade and swim in species clusters: pelicans, white egrets, black cormorants and black swans. I try my hand at sketching and am horrified to discover how out of form I've become.

Pond 4 is open to the sea and therefore subject to the tides. It's clearly a no show for this morning. After three and a half hours Clive calls it quits but comes up with a new plan: he suggests some of the group go off to T Section Pond 5 to set a smaller net, thus

broadening our options for the afternoon, and the rest of us head off for some old-fashioned bird watching. There's been a sighting of Banded Lapwing in a nearby cow paddock. They are about to become heavily looked at.

Mid-afternoon and we're all now back at Pond 4 with still not a lot of birds around. Back to the hides, back to the surrounding ponds for scouting and "twinkling" (which I learn is a sort of gentle encouragement of birds from one area towards the catching area), and back to the cars to wait and listen. The twinkling seems to be working. This time...at regular intervals...small flocks of stints zoom in, circling low, while all of us follow their movements and will them to land in just the right place. Over the next hour or so the numbers build at the pond shore in front of one, but not both nets. It's mesmerising watching this bird/human choreography.

Clive breaks the spell, sensing the time is right. He prepares us: "Three, two, one, FIRE!"

There's no time to absorb what's just happened. Before the net has even landed, we are all running to the catching area, smoke from the cannon fire still hanging in the air. Clive is shouting and I am discovering how impossible it is to run with either speed or grace in borrowed gumboots, over grass and through slimy water. Other people - the young team members - are whizzing past. "Thank goodness they are here", I think, not for the last time. How different is the energy now from the rhythms of watching and waiting that have so far ruled the day. What is happening now is pure intensity, for humans and birds. All our focus and action is on the safety of the birds. And for a significant proportion of the Red-necked Stints now fighting against the weight of the net, it's not the first time they've been in this situation. The first priority is to calm the birds' struggle. With as much speed and care as possible, we haul the shade-cloth over the netted birds. It seems to act like a blanket to a babe, causing the noise and flailing to settle down (including from Clive). We quickly move on to the next phase: getting the birds out from under the net and into the holding cages that have been magically assembled just behind the net.

Again, experience comes to the fore for the delicate operation of extracting birds from the net. Many of the less experienced are keen to learn. I'm not confident enough and prefer to act as a runner, taking the birds from those doing the extracting and delivering them to Clive to place in the holding cages. I'm quickly shown how to hold a bird firmly and safely, with head poking out between my index and middle fingers, while the body, wings and legs nestle inside the hand. There's little time to think but I am aware of each tiny body's feathers, smoothly foreign against my skin.

The work continues. At some point I blurt, "Here's a monster!" as Clive bustles a bigger than average bird into the holding cage. We discover during the next phase - of banding, flagging and recording - one solitary Curlew Sandpiper among the 242 stints (including 45 re-traps and 31 juveniles). Other highlights punctuate the re-trap statistic. A black flag over a white flag (signifying China) and a yellow flag (from NW

Australia) garner cheers of wonder and a real sense that other humans in far off lands have done just what we are doing now.

Joining us for the processing are two teams of scientists, one from Deakin University researching changing dietary patterns of birds on the EAAF and the other from the Department of Primary Industries looking for possible avian flu evidence. After completing our tasks, we leave the "the bleeders" and "the poopers", as they are affectionately known, to their more exacting ones. Clive directs us over to Pond 5 where the smaller net is lying at the ready. We also leave our second net in place at Pond 4 in the hope it can be deployed the next day.

Thankfully, a good quantity of birds is already in position at Pond 5 and not too much time passes before this smaller net is fired. More running in gumboots ensues, only this time our path is further hampered by rocks buried in the grass and much stickier mud at the pond. For the birds too, there is an additional risk. The net has landed partly in the water, which makes our job of securing their safety even more urgent. The net must first be "tented" to allow the birds to run out of the water to the relative safety of the mud. We also discover a tear in the net and some birds escape.

By now the sun has set, the light is fading, our time for processing limited. To speed things up, Clive decides that we not flag the Red-necked Stints. I'm charged with recording. Instead of birds I have clipboard and pen in hand. Numbers come thick and fast. In record time we've processed 410 Red-necked Stint (including 90 re-traps and 33 juveniles), 28 Sharp-tailed Sandpiper (1 re-trap, no juveniles) and 24 Curlew Sandpiper (2 re-traps, 2 juveniles). Much appreciated by we novices, there is opportunity to compare and admire the two sandpiper species at close range.

In the last light of the day, we head back to base camp, car radios picking up ABC news rather than Clive's voice. The cricket scores at the end of the third day: Australia in a good position at 8/179, having bowled India out at lunch for 282. Dinners are again assembled. Someone wonders at the safety of eating leftover turkey this long after Christmas. I for one am overcome with tiredness: from the intense activity, the exposure to the elements, the long day and sleepless night, and from the newness of it all. Sleep comes quickly." Barb's report continued to describe the next two days catching.

It is easy to imagine that all the progress being made in our understanding of the birds across the flyway has resulted from the new technology of mist nets, cannon netting, engraved leg flags, geolocators and satellite transmitters. However, a note from Maurice O'Connor, an Australian volunteering in China, is a timely reminder that not all of the technology used is the latest. Maurice became heavily involved with wader studies in NWA after moving to Broome from Perth following his retirement and has made the trip to Chongming Dongtan several times to assist with the banding program as the waders pass through on northern migration. In 2013, he described the catching of waders in Chongming Dongtan National Nature Reserve:

"At 6.30am the next morning we headed out on the mud to meet with the chief catcher, Jing Weiguos, a bander with some reputation in China as he had been filmed for National Geographic and is a great bloke. Jing Weiguos had already set up his clap net and, indeed, had the first half dozen birds in his cage. His method of catching is truly a step back to another time but certainly no relic. He makes it look deceptively simple as he stands, or sits crouched behind a prone umbrella blowing an amazing number of birdcalls on his home made whistle. As he spots particular waders flying nearby, he concentrates on that call. His net is laid out on the wet mud with six or eight home-made, strategically-placed decoys and he sets it off by yanking hard on a 20 metre cord as the birds fly over or land within catching distance. His net is staked along one edge and, by means of a bamboo pole cantilever contraption, swings through 180 degrees either catching the birds in flight or just on landing. We stayed with him for about 2 hours slowly freezing but still in awe of the experience."

This should be remembered when next a wader with black/white leg flags is seen as it might have been caught in this way.

Cannon netting uses black powder and fuses to ignite it, creating an explosion that pushes a metal projectile out of a 50mm diameter steel tube. This is a potentially dangerous combination and everyone must always be respectful when around the cannons and firing material, something that is stressed regularly to participants. There have been a few incidents but thankfully none has resulted in major injury to those involved though, seen in the light of a constantly vigilant supervision of catching teams, they do provide stories of black humour.

The most potentially damaging risk from cannon netting, as mentioned earlier, is that the projectiles come loose. It occurred more regularly in the early days when the net was attached to the projectile by ropes that were prone to wear and could sometimes break due to the force of the cannon firing. The use of a metal shackle to join the net ropes to the end of a metal shaft outside the cannon mouth means that accidents are now rare. Clive's last recollection of one coming loose was when catching Roseate Terns on the Great Barrier Reef in the late 2000s and since then, another escaped into the sea near Streaky Bay in SA. As cannon netting in Australia generally occurs on the shore, most of the projectiles ended up in the sea. Some were retrieved at low tide but many were never seen again.

There have been three near accidents with cannon netting. About 50 years ago, a school Master was banding with the Morecambe Bay Wader Ringing Group (from northwest England). Back then, there were no little circuit testers like those used today but he had borrowed the school Avometer (commonly referred to as an AVO due to the logo including the initial letters of Amp, Voltage and Ohm, the three units that the meters measured, which were widely available in industry and schools across Britain from the 1950s). Presumably, the Master turned up the gain on this machine and, instead of sending one milliamp through to circuit test like the modern

ones do, it must have sent 250 milliamps or so through which is the minimum required to fire a fuse. The other complication at that time was that connections to the cannons were less reliable than they are today and so each cannon was tested individually, in situ, prior to the testing of the whole circuit. The reverse is the case today, where the whole circuit is tested first and individual cannons are only checked if a problem is discovered. When the unfortunate school Master connected his Avo meter, he paid a heavy price: the cannon went off and he was deaf for about two days. It took a lot longer for his nerves to recover!

The second incident happened in England, just after Clive had moved to Australia. A group from the WWRG took nets to an inland lagoon in Cheshire to catch Eurasian Curlew. When they fired the net, one of the projectiles broke free and actually went through the door of a car driving along the road about half a mile away. It hit the side of the car and just about turned the door inside out. Naturally the driver stopped his car, and the team raced over to find that the driver was extraordinarily understanding about it and didn't create any fuss at all. No doubt the group made sure there was no outstanding cost to be borne by the driver. It was indeed fortuitous that the projectile did not hit the window, as it would then probably have been the most serious of the near misses.

A recent reminder of the dangers involved with cannons occurred in 2012 when Larry Niles, the head of the Delaware Bay team, was dealing with an unfired cartridge that was stuck in a cannon barrel. As he was attempting to knock the cartridge out backwards, it exploded, taking all the skin off his hand in the process. A few days in hospital were needed to stabilise his hand and set him on the road to recovery. A warning to all cannon-netters around the world ensued, cautioning them about the inherent risks.

6 A lifetime partner

In August 1957, Clive was back at Monk's House and noticed "this beautiful young blonde girl from London" who had come up there with a friend. Clive subsequently discovered that this beauty had been the assistant warden there in 1953 but, as it hadn't coincided with one of his visits, they had missed each other. Pat actually joined the birding team that day when Clive was there, because she could repair the nets with different types of knots. As a Sea Ranger, Pat had learnt knots to get new badges. As Clive had yet to master knots, he admired this skill. They were using goose nets at the time which, in her words "were easier to mend than these nets", referring to the wader nets that are repaired on the Minton family tennis court each year at the VWSG AGM. Pat says that she "conveniently forgot" all her knot skills over the years.

Pat had already met Eric, initially at Flatford in Essex, though not for birds, but rather for other environmental studies. They had done a number of water studies for the bugs and other creatures as well as plant work.

Pat was very enthusiastic on her first day out when they were going to catch flightless baby Shelducks and baby Eider Ducks on Bugle Bay. Here, the catching team literally walked across the mudflats in a big circle to corral the ducklings away from the sea. There was a creek running through the middle so they went downstream of the ducks and gradually herded them up. At one stage some of the ducklings started to swim down the stream between the team members, so Clive shouted to those on the other bank to "get in. Quick, quick, quick!" His voice became louder and sharper with each word. Being keen, Pat rushed into the water and caught the ducklings, forgetting that she was still wearing the precious gold watch given to her by her grandmother. Unbeknown to Pat, there was a small hole in the back of the watch which filled with salt water. The brilliant metallurgist from Cambridge suggested that the best remedy was to put it on top of the AGA to dry. The AGA is a heat storage stove and cooker, which works on the principle that a heavy frame made from cast iron can absorb heat from a relatively low-intensity but

continuously-burning source and the accumulated heat can then be used when needed for cooking. They were originally heated by slow-burning coal and became popular throughout Britain from the 1930s and then in Australia, where they can still be bought.

Rather than removing the back and rinsing the salt from the watch before drying this, of course, was the worst possible advice, as it locked the salt onto the mechanism and completely ruined the watch. Pat still has the watch for its sentimental value. She clearly remembers that very first day and, obviously, the poor advice and its associated outcome didn't prevent a friendship developing during the weeks of her stay at Monk's House. Pat felt rather sorry for her friend on that trip as once she and Clive started, shall we say 'bonding', her friend was left a little on the outer.

Pat went to London University and later worked at the Colonial Office on locust research at their research centre in the city. She would pay a shilling to "sit on a wooden plank up in the gods" at the theatre where she loved to go to once a week. As their relationship blossomed, Pat started to travel from London to Cambridge to visit Clive. Her recollections of the 'digs' where he was living after he left College were that it was terrible, with paint flaking off the walls. They hung fishing nets up on the walls to hide the dilapidated state of the rooms. While Clive and Pat are still regular theatre goers, he admitted in 2013 that he hadn't seen a film since 'Laurence of Arabia' in about 1963 and had not read a fiction book since 'Biggles'.

The couple decided to go over to the Mediterranean in the northern spring of 1958 and study passerine migration. Perhaps it was a mutual choice, but it wouldn't surprise if Clive made the decision and talked Pat into coming, as this was a trip he had wanted to do for some time. Another school friend of Clive's, Mike Elliot, was invited along so the three of them went over together. There wasn't much known about passerine migration across the Mediterranean at that time and they decided that Sardinia was the place to go. Being students with little money, they racked their brains to think of ways to get to Sardinia for free. Clive wrote to Horizon Holidays, virtually the only tour company that existed in those days. No doubt in his now well-known style, Clive sought to convince the agency to provide a free trip to aide these students, (well two of them were) in their quest to unravel bird migration across the Mediterranean. Surprisingly, the company agreed but when Clive started to provide more details, including their desire to travel on the 20th of April and be there for about two weeks, the reply was that "we are terribly sorry but our first package holidays don't start until the 10th of May."

Clive's focus on the main game was evident then as the purpose of the trip was to study the bird migration, not to have a free holiday. With typical persistence, Clive returned with the pressure pitch saying, "That is very kind of you, but the passerine migration will be nearly finished then so we won't be able to take up your offer."

That was the end of that, it seemed. They had to go to Sardinia by train. Had Clive not quite fully developed his persuasive talents at that stage?

They travelled to France and down through Italy to the city of Civitavecchia on the west coast, then across to Sardinia by boat. Over many centuries, Sardinia has survived countless invasions by the Phoenicians, Carthaginians, Romans, Arabs and Byzantines. It was ruled by the Spanish for 400 years but has been part of Italy since its unification in 1861. Now it had the Minton invasion coming on top of a burgeoning influx of foreign tourists enjoying the famous beaches, a trend that had started in the early 1950s.

An extremely successful expedition followed, with many species of migrating passerines going through, although many were bypassing Sardinia and going straight to mainland Europe. There were also plenty of interesting local birds to enjoy there. To enable them to do some mist netting during their visit, they had borrowed some telescopic aerials from Chris Perrrins, another prominent bird ringer, who became Director of the Edward Grey Institute at Oxford for more than 25 years until his retirement in 2002. They couldn't take their usual long bamboo poles for the nets as they were too long to transport and they would have had difficulty finding a suitable replacement when they got there.

Their camp was on a piece of saltmarsh, not unlike that found in many parts of Australia's coast. However, they discovered it to be a very impoverished community and it seems there wasn't a shortage of thieves in the area, as they returned to their camp one-day to find their tents being carried off by two locals walking in the other direction. When they approached the police about this robbery, it seems the police were much more interested in getting to know blonde Pat than they were about solving the crime of the stolen tents. However, they did eventually get the tents back. Though the experience almost put Pat off Italians for life. She thought they would be honest like the English and that one's belongings could be safely left unattended. She was also not impressed by their limited diet, comprising mostly pasta with tomato sauce.

On one occasion, camped in a mimosa grove, they experienced heavy rain, in fact so heavy that it collapsed both tents. When Clive got up in the middle of the night to tighten his guy ropes, he found Pat lying on the ground, still fast asleep, with a collapsed wet tent on top of her and all of her gear saturated. Pat said that she slept very soundly. To keep warm she had placed plenty of bed coverings over herself and so long as her face wasn't wet, she wasn't bothered. The clouds accompanying the rain brought down many migratory birds and of the next morning Clive recalled, "Although our tents and clothes were wet, it was absolutely fantastic for mist netting passerines."

After having everything thoroughly sodden, another new experience for the intrepid expeditioners came when they were in a remote area in the southwest corner of the

island. They had walked through a road tunnel, about a mile long, emerging into the mountains. Continuing on, they proceeded to move into some scrubby country up there and again, it looked like it was going to rain. Seeing a shepherd's hut some distance away the trio proceeded towards it to take what shelter it could offer. This hut was built with a circle of stonewall about a metre high as its base, with tree branches leaning up to the centre from the top of this wall, rather like a wigwam. It had a hole in the middle at the top where smoke could escape. They entered the hut through a small arch-like structure, akin to an igloo, and found a wizened old shepherd sitting inside. He couldn't speak English and the group couldn't speak Italian, let alone any form of Sardinian dialect, but fortunately, Clive knew some French in those days and they managed to converse well enough with a combination of the French and an early version of charades. This communication was good enough for the travellers to make it clear that they needed shelter and the shepherd welcomed them in.

In the middle of the building was a fire over which sat a large copper pot containing sheep's milk which was changing into curdled whey, all over the surface. They were beckoned to eat some of the whey. The only implements available were made from sheep's horns so their host demonstrated how to use them, by dipping the horn into the liquid and collecting some milk and whey, which was then tipped into their mouths to swallow. It wasn't particularly nice, but neither was it particularly bad. After being there a little while, they looked around and noticed some large round cheeses in the slightly smoky rafters of the hut. Ironically, they were rather like a larger version of the wagon-wheel of King Island cheddar that the VWSG were to be spoilt with during their annual catching trips to the Bass Strait island decades later. They had been buying great chunks of these cheeses in the local shops but had now found where they were made. The threesome were feeling quite content about finding this little hut, the friendly shepherd and seeing where and how these cheeses were made until the shepherd got up and proceeded to wash his hands in the pot of milk and whey! Suddenly there was a little less enthusiasm for the cheese.

In October of that same year, after Pat and Clive had decided to get married in June the following year, a letter came through from Horizon Holidays asking their advice about the likely interest in bird tours in places such as Sardinia and Spain. Their idea was to extend their tours in the early season by offering bird tours and similar activities. Clive's response was positive to which they returned, "We're really trying to build up the early season patronage for our trips to Estartit on the Costa Brava," which is right in the north-east corner of Spain, less than an hour north of Barcelona.

Estartit was just a small fishing village at the time of the planned bird tour. But as has happened with many attractive coastal villages around the globe, the advent of tourism, in this case from the 1960s onwards, has seen large numbers of summer visitors creating demand for extensive development, so that this community grew exponentially for the next two decades. Not surprisingly, the uncontrolled growth

eventually destroyed much of the original charm that attracted people and the area has fallen out of favour with tourists over the last decade or two.

A young Pat and Clive relaxing together early in their relationship (Minton family)

Back then, the Horizon company asked whether Clive and Pat would be interested in going to Estartit the next year, 1959, completely at the company's expense and 'recce' the area for birds for possible future bird tours. Of course Clive agreed saying, "Yes I'd love to go there and Pat would love to come with me, but we are getting married in June and I won't have any spare leave", to which the company suggested that the honeymoon be at Estartit. The Mintons were very pleased with this arrangement. So from Clive's first cheeky letter, which was unsuccessful in getting them to Sardinia to study the passerine migration, came a fully paid holiday to Costa Brava in Spain, staying at a luxury hotel and which included the use of a hire car for their honeymoon.

No wonder Clive claims there are so many opportunities that go begging just for the want of asking. The cream on that cake was that Clive got to go birding every day on his honeymoon, including a trip up into the Pyrenees to 10 000ft where the newlyweds saw amazing birds like Blue Rock Thrushes and Alpine Choughs, returning with a list of about 150 species. There were wader lagoons in front of reed-beds, scrub on the hillsides and passerine migrants going through. Clive was in

self-confessed "absolute paradise." It should be noted that Pat also very much enjoyed the birding.

Clive, with his PhD in metallurgy, made Pat's wedding ring from his own grandmother's ring, but it had an imperfection that Clive was always conscious of. However, about 20 years later, Pat burnt her hand sufficiently badly enough to require that the ring be cut off due to the swelling of her hand. In a masterly stroke, Clive requested that the ring be cut where the imperfection was and so it was fixed.

After they returned from the honeymoon and reported their experiences to the company, Horizon Holidays planned their first birding tour for the following year and asked Clive and Pat to run it. So back they went again, this time with a group of about 20-25 people including many fine birders. One of the tourists was Ian Wallace, a university friend of Clive's, who was also a world-renowned artist and one of the top British ornithologists, along with his wife. They had a wonderful trip seeing about 180 species of birds, which for Europe, is a very significant list. Ian's presence was typical of the calibre of many on the trip as Ian is clearly a great in birding circles. Mark Cocker, author of that magnificent book, 'Birds & People', has described him at various times as both "one of the godfathers of modern birding" and "the grand old man of birds."[45] That tour was one of the first bird tours anywhere in the world. As well as setting up the first themed holiday trip for birders, Clive was also introduced to the fortified drink of Muscat, a drop he is still fond of to this day. Despite plenty of opportunities, Clive found no time to repeat the trips and moved back to his core purpose of waders, catching, banding and unravelling their migration and ecology.

Shortly after they were married and had moved to Staffordshire, the newlyweds were out one day chasing Redwings and Fieldfares among rhododendrons that had been planted in the 1800s, and which were being used by the birds migrating from Scandinavia. They put the nets around the bushes which were absolutely thick with these birds and they caught large numbers of them. However, as it had been raining, they were wearing their muddy boots and were very wet. They decided to call into the stately home owned by the Earl of Harrowby to ask if they could catch birds on his property. They walked up to this impressive house, with its imposing wooden doors with iron bars and knocked. In Pat's memory, they "really looked a mess," but the butler, who was Italian and didn't speak much English, opened the door. Then Lord Harrowby came shuffling out in his slippers and asked them in. They were well looked after by the household and, not only was their request agreed to, they were invited back each year, not only to catch birds, but also for Christmas drinks and for tea at various other times.

Clive and Pat have two sons, Roger and Nigel, who both reside in Melbourne. Roger lives nearby with his wife Sonia and three boys Nicholas, Christopher and Daniel.

[45] Cocker & Tipling 2013

Clive has shared his passions with them including migratory wader studies, in which they have all been involved in the field. The boys also inherited his enjoyment of hunting and look forward to their annual trips into NSW to practice their shooting skills.

Roger was inducted into wader studies at a very young age. Clive tells of when Roger went mist netting on the Wash when he was just two, wearing his all-in-one suit and rubber boots. They would walk for miles across the mudflats at low tide without complaint from the youngster. It was a very suitable arrangement as Clive was supporting Pat by 'minding' their son while Roger's participation allowed Clive to continue his passion relatively uninterrupted. At the beginning or end of a weekend, when driving the few hours to and from their home, Roger would just curl up in his sleeping bag. Restraining belts were not mandated so he'd sleep the whole way on the back seat.

On one such Sunday evening in winter, a stone from the car in front hit their windscreen and knocked the whole thing out! They could do nothing about the broken Land Rover windscreen but keep driving and it "was bloody cold." Clive placed about five blankets on top of Roger with just the tip of his nose protruding and he slept beautifully, but Clive was frozen. Fortunately Roger had great perseverance, as these events were mere introductions for what Clive had in store for his older son in later years.

Once, when Roger was still a small boy of perhaps four or five, Clive was in swimming trunks and Roger poked his finger into his father's already quite generous stomach and said, "It's like mud!" He certainly knew what mud was, after all his hours out on the mudflats with his dad.

The Land Rovers Clive drove often needed half shafts replacing, which wasn't much of a problem if they were near to home, but of course they had a habit of failing when they were most in use, which was when driving across a ploughed field with a load of catching and banding gear on board. Clive knew how to replace his own half-shaft but twice he had to carry out such repairs on a ploughed field. Ingenuity, perhaps the Oundle workshop sessions and a fierce desire to not miss the event that was on the agenda, combined to ensure the situation was always resolved to allow the 'show to go on'. Andy Whittaker recalled one time when Clive's old Land Rover lost the brakes on the way to the Wash and he thought they had "fixed the leak with chewing gum!"

Thankfully, the Land Cruisers Clive has used in Australia are very reliable and rarely let Clive down in the field. There was one occasion though, when the engine failed totally. He had to have the vehicle loaded on to a truck which then towed the catching equipment trailer several hundred kilometres to his home. No doubt he was pleased that it occurred after the catching was completed and he had started for home. To add insult to injury, the trailer blew a tyre halfway there requiring a

further delay. Clive is, however, renowned for getting bogged when preparing for a catch, which results in a profound sense of urgency, some would say panic, to dig, push or tow the vehicle out in order to proceed with the all-important net set and catch.

In Britain, Clive carried out all his own servicing of the Land Rover, as he felt he couldn't afford to pay others to do it. This was in the late 1960s, and it must be said that Clive would have been earning a 'good quid' by then. His reticence to pay for servicing probably followed his belief that, "If you grew up during the war…," a story that was repeated whenever frugality was mentioned. Even the desk that Clive still uses in his Beaumaris home was bought by Pat in Birmingham in 1960 for ten pounds. While that seems cheap, it was "a lot of money" for the newly married couple to spend at the time. It was originally in the lounge back in England, when it was newer and Clive would work at the desk every evening doing bird business. It seems that the "flair of the British amateur for scrounging and making do…was a traditional skill," as Eric Ennion expressed it.[46] He cited an example of telling a young woman who was looking to get a piece of 'good strong cable-wire' to go to the local rubbish dump and find something that would do. While she reacted in 'incredulous horror", she went and she found a suitable alternative.

Clive wasn't backward in using his talents to lure people into team activities beyond the birds either. He was a keen gardener and spent quite a bit of time at this hobby. While he often "cut things back too severely," he was very useful. In 1961 at their first home, Clive decided that the bare field surrounding the house needed to be levelled before planting the garden, so he enlisted the help of a team of four or five young lads from the laboratory where he worked. In order that they could work after dusk, he rigged up lights and offered them roast Pheasant and other game as an incentive, and then put them to work. They loved the Pheasant, which they considered a real treat. A flat area for lawn was Pat and Clive's reward.

Pat recalls from their early days together that Clive's mind worked very quickly and virtually never stopped, but despite this, he never appeared to be in a hurry. While he wasn't one to sit around doing nothing, neither did he actively rush around. Conversely, he must have demonstrated some physical urgency during his late teens to warrant the 'tornado' title bestowed by Charles' father. In his late seventies Clive did start to "flop around on lounges," said Pat, as his seemingly boundless energy eventually began to wane.

In 1978, Clive's company offered him a senior position running their Australian operation, partnered with ICI, to which he said yes on the spot. However, as the family had moved into Herefordshire just a few months earlier, he kept this news from Pat who was quickly settling into life there. So Clive spent a month on his own in Australia preparing for the new job. Surprisingly, he took only one pair of

[46] Ennion 1959

trousers, which he split while taking a photo of the Opera House in Sydney. He did manage to get them repaired, thus avoiding a possible mini disaster.

Upon his return to England, he discussed Melbourne and its correct pronunciation with Pat, but still didn't divulge that they were shifting there. His boss at the time was getting increasingly nervous about Clive's secrecy about the move as the company was basing big plans on his transfer there. Clive believed that Pat wouldn't like the uncertainty of saying, "We might go to Australia" so he just went ahead and planned it and told her when it was all organised. He strongly believed that she would agree with the idea and indeed she did, jumping excitedly when he finally broke the news. Pat had already met and hosted a few Australian work associates who had visited England on business and was immediately keen. While Clive didn't plan it, this move was a major change in their lives.

When Clive and Pat arrived in Beaumaris, Liz Sarrailhe, a long term waderphyle, met them and loaned them whatever they needed, including additional linen which was required when Clive's parents came to visit soon after they arrived. A similar thing had happened to Liz when she and her family had arrived in Australia and she was glad to repay the favour.

John Rickards, who was Director of Fluid Drive, one of the ten companies in Clive's portfolio when he arrived, introduced Clive to Australian Rules football. John was "a lovely fellow," an avid sports follower and long-term member of the Hawthorn Football Club who insisted that Clive attend their next game, some six days after Clive set foot in Melbourne. Clive agreed. It turned out that attending this match with John involved having lunch at the Hawthorn Football Club and then heading off to the MCG for a final that Hawthorn won! Clive went to the Grand Final for the next 17 years on end and has followed the brown and gold ever since. In another case of being in the right place at the right time, Clive's new team were premiers in that year, 1978 and have won eight premierships since for a total of only eleven since joining the competition in 1925. During the winter months Clive is often seen in the field with either his Hawks scarf and/or beanie.

Following the Saturday at the footy, Clive went bird watching from the Dandenongs to Yallock Creek and Phillip Island. This was interesting because Yallock Creek has been a place where he has regularly caught waders ever since the VWSG started their regular cannon-netting. The following weekend he went to King Island on a shooting trip. It was decades later that he was alerted to the presence of good numbers of Ruddy Turnstone on King Island by Nigel and Mavis Burgess which initiated an annual banding program over there.

Clive wearing his Hawks scarf while in his tent early one morning beside Lake Torrens. Younger team members were out in canoes catching and flagging Banded Stilt following a rare breeding event. He has a radio to keep in touch with progress. While unable to be out on the water, he went on the expedition to be part of the experience.

(Rob Patrick)

Killing time in Rome, one time when between flights on transit, Clive and Pat escaped the terminal and sat in the open air where they found some birds flying about. Ever ready, Clive pulled out his camera and binoculars. Almost immediately, police sirens sounded and burly security men arrived and confronted them with, "No photographs here!" With typical Minton charm, Clive explained his and Pat's interest in the local birds and they were promptly taken to an area where they could watch and take photos. When it was time to return to the terminal, the same security men accompanied them.

Clive's working career became quite varied after he left IMI Australia in 1983, as reflected by the positions he subsequently held. He became Human Resources Director at Myer Stores from 1983-86, Deputy Chief General Manager, Director of Policy Programmes with the Health Department of Victoria (1986-88) and finally took on the role of Partner and Director of the Melbourne Office of TASA International Executive Search (1988-92), a position he held until he retired in 1992.

Bailleu Myer, the non-executive Chairman of Myer at the time, remarked that Clive was not just a bird person, that he was very much a people person, very warm and smiling. Bails didn't know what a wader was before he met Clive, but he certainly did after hosting Pat and Clive for dinner once or twice. The whole bird migration story, described in detail, made Bails reflect on the link between it and the powerful impact people migration had made on Australia as a whole.

Gaining insights into Clive's professional career was not essential to this story, but after making contact with David Elsum, a former work colleague, it was interesting to find out how Clive's skills and personal traits transferred to the work arena. Many years ago David, as Chairman of a large organisation which owned CBD buildings, had his first brush with Clive. David thought, "The accommodation at the buildings was good but at budget level, rents were minimal and good value." Clive worked in

one of those buildings. When David's hard-nosed secretary advised him that there was a nice man named Dr Clive Minton who wanted to speak to him on the phone about an important matter, David took the call. A loud compelling voice came down the line, "David. I'm a tenant in YOUR building. The lifts are a disgrace, a disgrace. Press the button and wait and wait. Hear the lifts clicking past. Then if one stops it is invariably full. Just entered at the 10th floor, pressed Floor 6. Up we went at breakneck speed. Stopped with a screech. Lights went out then down we plunged, lights back on. Prepared for my end at the bottom, when it suddenly stopped. Doors opened. Out I rushed. Into the carpark. Breathless! Made my way up dark stairs to the lobby and tried again." Clive spoke non-stop, in his breathless, staccato, refined English accent. David was overwhelmed but promised to investigate. He was informed that new electronic controls had recently been installed in the lifts but had teething problems which Clive had clearly experienced. David was assured that there would be no more problems and a better service would result. He "breathed a sigh of relief hoping to never again hear from Clive Minton."

Years passed and David became a non-executive Director of TASA, a Sydney based firm called Executive Search that was expanding their Melbourne office. Magically, they had uncovered the name 'Clive Minton', who joined the Melbourne office. David and Clive met for the first time and have been friends since.

David explained that there were two parts of Executive Search, the tedious part was marketing the firm, the second and laboriously interesting part was doing the actual search. Marketing included boardroom lunches involving four TASA people with four of their VIP guests. TASA people spoke about their company and guests were encouraged to speak about their industry. Then they "all whinged about the governments and taxation!" Halfway through these, Clive spoke about the extraordinary migration of small birds from the sandbanks of Broome, northwards across China to Siberia. "It was just amazing. With his short sentences and articulate presentation, Clive would take us along on the adventure," observed David adding that Clive has a natural and enviable ability to explain complex matters in an interesting, understandable manner. Years later, David would meet businessmen who would volunteer, "Remember those lunches where Clive Minton spoke about those amazing migrations. Saw him on television the other day. Good chap."

They also had to call on clients to sell their wares, a task David found challenging. "An executive with the problems of the day is not anxious to hear from consultants," he noted. Polite and resigned was the usual reception he received, so his practice was to quickly state his case and then leave if the conversation didn't quickly develop. When Clive first joined TASA, David and he decided to make a couple of marketing calls together. Early one wet Tuesday, Clive drove his large 4WD to Springvale Railway station to which David had travelled by train. He climbed in where a smiling Clive, in a booming voice said, "Hello young David. What are you going to teach me today?" They drove a short distance and stopped suddenly. Saying

nothing, Clive rushed into a milk bar and came back with two massive chocolate bars. He started eating saying he was, “Just a bit hungry,” a common condition for Clive.

Smelling of chocolate, they visited the prospective client and when he became antagonistic, David quickly stood to leave. Clive remained seated and started commenting on the detail of the client's business. It seemed to David that Clive knew more about it than the client himself. The conversation developed, David sat down and soon enough, they were appointed. David remarked that Clive didn’t do many such ‘cold-calls’ as he was always busy with follow up new business from existing clients.

The two worked happily together for several years, during which time Clive was always business focused. However, at partner meetings he frustrated David by switching off if a topic became uninteresting. In one such meeting he suddenly began shaking Clive’s arm crying “Are you listening, Clive?” Most people would be annoyed by such an assault but Clive just gave that “beguiling smile.” David apologised and the moment passed.

It was interesting for David to find that, despite always being delighted to speak about birds, Clive was not an easy man to know. David’s reasons were based on his observation that while simultaneously exhibiting the utmost friendliness, Clive seldom volunteered personal information. This was perhaps surprising given that he enjoyed personal interaction and was a great storyteller.

Clive’s ability to raise money was in full flight during that time. He sold David what he thought to be “a magnificent bird encyclopaedia which I put with pride on the shelf. It was only the next day that I realised I had only A & B, with C through Z still to go!” Clive had an ability to engage others in his activities that usually related to birds. Once at TASA, the small office was totally involved in copying, collating and binding a large full-coloured, multi-page document for Clive. Everyone was pulled in, including the attractive secretaries who all favoured, in hushed voices, “Dr Minton.” That was until the overworked copier broke down.

All was going well at TASA, Clive had lived up to all expectations, was very successful and respected and the dollars were flowing. So it came as a shock when Clive formally announced, “I am leaving the partnership in exactly one year.” He declared, “My passion is the birds and I want to spend the rest of my time on many important projects.” Naturally, they tried to dissuade him David said, “But Clive is never turned and he departed, 12 months to the day.”

There was to be a pleasant sequel for David. An important Melbourne Men’s Club was seeking a new General Manager Secretary. Advertisements had been placed and there were several fine applicants. It was normal however, for the best candidate to be happily situated, not looking at advertisements and generally needing to be

wooed. Some of the members suggested the position was so important that Executive Search should be used. The difficulty was that all the top search consultants at the time, were club members and problems could arise should one be chosen. David remains proud that he was able to play a small part in the resolution of this. Clive was no longer at TASA and not a member of the club. He was well respected and liked and was approached to do the search on a personal basis. He found a man who was outstandingly successful, revolutionising the club's ailing finances and refurbishing ageing infrastructure. He was not from an obvious or conventional source but Clive's keen eye uncovered an excellent candidate.

Immediately on leaving TASA, Clive drove Pat across the continent to Broome Bird Observatory. David's wife, Lidge, was keen on Central Australia so she was invited to join them. At 5:30am, the Mintons arrived in the dark, in their large overloaded 4WD to collect her. Lidge climbed into the back seat hemmed in by birding paraphernalia, as many people who have travelled to field trips and expeditions with Clive have also had to do. Clive drove very fast and David was surprised and "a little worried that night, to hear from central South Australia that they were camped out under the stars."

As a result of that Broome trip, Clive, Pat and Lidge developed a close friendship. She was invited to join their weekly tennis party and has had many happy days playing tennis and enjoying the ever-present hospitality at Pat and Clive's home.

David's final words are pertinent for all of us involved with wader studies: "Australia is fortunate he and his family chose to leave Britain for Australia."

A close friend, reflecting on Clive and Pat's lifetime together, observed that Pat is a very special woman, who despite being extremely capable and independent in many ways, has tolerated and even sacrificed a huge amount in order to support Clive and his passion, including his move to Australia. He is well aware that he has driven her mad from time to time and admits that over their 55 year marriage, she has "put up with an awful lot."

7 Wash Wader Ringing Group

Hundreds of thousands of waders use the Wash, which is why it became Clive's focus once he settled on waders as his lifelong study subject. He also realised that to achieve his goal of understanding wader migration and catching large numbers of birds entailed harnessing the resources of many people to work together. And so the WWRG was instigated. Clive quickly recognised that the clap net techniques that he was skilled in using, would not be enough to meet the challenges of the magnitude of birds offered at the Wash. This was a driver to chase Peter Scott and his rocket nets. Mist netting helped get greater value from the Wash, but wasn't efficient enough to catch the large numbers of birds desired.

During the time when mist nets were used, it was individuals who did the ringing using rings that had been issued to them. In contrast, rocket-netting birds was a team exercise where birds were ringed with "group" rings, and its introduction marked the formal birth of the WWRG.

Catching in August and September for migration studies was centred on the south of the Wash, due to better suitability of catching sites. A borrowed caravan was set up as a base and was left on the property of a Mr Bass. It wasn't long before his generosity was repaid. One day he got out of his car to open a gate and the car rolled forward, pinning him to the gate. Fortunately, two members of the WWRG were nearby and were able to help him, for which he was eternally grateful.

Using the lessons from Tony Cook, early winter mist netting allowed regular catches to be made, but not without the odd adverse event, like the night Gordon Mortiboys,

who Clive described as being “as thin as a rake”, developed hypothermia and had to be revived with hot water bottles and a pile of sleeping bags.

Only a handful of Grey Plovers had ever been caught and about four years into the use of the rocket nets, Hugh Boyd from the WWT was desperate to change this. One day he announced that if the group could catch 100 Grey Plovers, “I’ll shout the champagne.” With 144, they easily achieved their goal and Hugh came good with his promise, though they had to drink from plastic cups! No crystal flutes for this team. No more champagne was on offer later in the week when another 248 were caught.

While using the rocket nets for the week, ancillary catching was done using mist nets. One night Chris Mead, a rather large man who was involved with the catch, fell over and was thoroughly soaked. He didn’t have spare clothes and because of his size, there were no replacements available. One creative team member came up with the idea of using covering material (an old curtain), worn sari style, until the clothes were washed and dried. Pat, who was at all of these early catches with Clive, and Daphne Watson, one of the original members of the WWRG, climbed into Chris’ trousers to demonstrate how large they were. They both fitted, one in each leg!

Daphne still has the letter Clive wrote to members of the WWRG explaining that he wanted to develop cannon netting and requesting a donation of 10 shillings and sixpence from each. The proceeds from that call for funds, to which 53 members generously responded, financed the building of two cannon nets at a total cost of 200 pounds. In July 1967 they were ready to go. And go they did, with 18 catches in the first seven weeks. By year’s end they had 10 859 birds ‘in the bag.’

In 1968, the group utilised their cannon nets in other situations and places, such as the five catches at Piel Island, on the west coast of the UK, accompanied by the Morecambe Bay Wader Ringing Group. One of these catches was the largest ever cannon net catch in the UK, and possibly the world. More than 4200 birds were caught, of which about 700 oystercatchers were released directly from the net and 3354 Red Knots were banded or had existing bands read. The team comprised 40 experienced ringers. These catches were attempts to see what movement there was between the east and west coasts of England. It was found that 23 knot had been banded on the east coast. The results made it clear that some birds at least, moulted in late summer/early autumn on the east coast and then moved across to the west coast of Britain for the winter.

A memorable winter night for Clive and one of his co-banders occurred while mist netting over the mudflats. There were two basic approaches to setting mist nets on the Wash, well, no doubt there were a whole range of options but two will suffice for this story. One method was to determine a tide height that would just cover the mud. A higher tide would cover the saltmarsh making the channels invisible so that “people wouldn’t know where the hell they were.” But the normal setting of mist nets involved setting up five to six nets with their base just back on the saltmarsh,

above high tide. Two bamboo poles, with a cross bar tied between them on the ends, were placed there to hang the bird bags. Once the birds had been extracted from the nets, they were placed in the bags before being processed. Then the nets were checked again. This to and fro from the nets was all done without lights, to avoid alerting the birds. During the waiting phase at the base, a group of six to eight people would huddle so tightly that their noses almost touched, and a small build-up of warm air in the middle would come up past their faces. So while the rest of their bodies might be cold, that waft of warm air was comforting. This behaviour brings to mind a group of Emperor Penguins. While quite effective, it must have made an amusing sight.

There was an alternative mist-netting technique for when higher tides were predicted, and that was to use some shallow pools, only six inches deep, up against the seawall. These were permanent pools that were filled by the spring tide and virtually stayed that way until the next spring tide, so they nearly always had water in them. Lines of mist nets could be put up vertically across these pools when needed. Such was the situation one frosty, early December night, following a calm day where conditions appeared quite benign. Three mist nets had been set only about 100 metres from the sea wall across a shallow pool. This was near to where the cars were stationed in readiness to transport the catch, in bird bags, back to the processing base at a borrowed, local farmhouse just a few kilometres away. The seawall is an earthen, man-made bank where cars could be driven, which allowed the team to set up and just walk out the short distance to the nets. There were little creeks between the wall and the nets but they could be readily crossed as they were visible between the salt marsh. This night, catching was on a tide height that should have just trickled into the pools allowing easy access to and from the nets to collect the birds and return to the cars. There were a dozen different people doing the same thing on different pools along a few kilometres of coastline.

Darkness descended at about 4.30pm at that time of year, so Clive, and his partner for the night, Dick Hansford, had set their nets before then. High tide was about 7.30pm so they expected birds to come off the mudflats and go back to the pools to roost at about 5.30pm which was when they set off with their bird bags and stakes for the first check. But, alarmingly, when they got to the bottom of the seawall two hours before high tide, every creek was already brimming full! The tide was already as high as it should be at high tide. They immediately realised that there was no option other than to forge ahead, extract any birds that had been caught, then close the net to prevent further catches. Being very careful and making full use of their stakes to steady themselves and prod to test the water depth, they worked their way along without too much drama. Despite the water height, they could still make out the creek lines and step across them, ultimately reaching the nets. Because the tide had covered the mud much earlier than predicted, there was already “something like 40 or 50 Dunlin in the nets,” said Clive.

They painstakingly unhooked birds, placing one, two or three birds into a bag, then fastened the bag on the shelf strings of the mist net as they went along, telescoping the net up to ensure that there would be no further catching that night. However, by the time they had taken the birds out of the nets, which was quite straightforward as they were using small mesh nets, they were standing in waist deep water. They were wearing thigh waders and by this time there was still about 30-45 minutes to go to high tide! It became obvious that there was no way of safely walking back across the saltmarsh with all the birds. Even with their stakes and the relatively short distance to cross, it would have been impossible to return without falling into one of the creeks that were five feet deeper than the rest of the water. They decided that the only thing to do was wait it out. While they were aware that the tide would not rise above their heads and drown them, it was absolutely freezing. Over the next few hours, the water gradually rose to chest height then ebbed back to their ankles. By then, their lower halves, having been standing in that ice-cold sea, were absolutely numb. As one would expect, Clive "had never felt so cold" and said, "Our feet were like blocks of ice." He had found out through personal experience just what that expression really meant. Due to the lack of blood supply to their legs, they realised that walking out would be no easy task. Eventually the tide receded enough for them to see the creeks among the saltmarsh, so they gathered the birds and set off back to the shore. They crossed several creeks and arrived back at shore, a task which Clive described as being very difficult because it "felt like you had a block of wood or ice under your foot." Back in the car, they hung the birds up in the back seat, completely stripped and put the heater on flat out as the quickest way to warm up, driving up and down the sea wall until they thawed out. Once they were comfortable again, they put on some dry clothes and drove back to the base to join the others.

The rest of the group had also experienced the unusually high tide, but Clive and Dick had that good catch of birds which prevented them from getting back to the car before the tide came right up. Reflecting on the events, they realised that it had been quite a costly forty minutes extracting the Dunlin and wondered "what the hell," had caused their plight. They felt they were good at predicting the tides and knew how the winds and other factors could affect tide heights, but this experience taught them to improve their preparations even further.

The strange conditions were caused by a huge depression off the northwest of Scotland, accompanied by storm force winds blowing between Norway and the Scottish coast. This had pushed a vast amount of water into the North Sea so that as the water came down and the North Sea became narrower and narrower, the tides became higher and higher. What they had experienced was the result of a weather event that originated 500-600 miles away to the north. Thankfully there was no wind where they were catching, but the storm force winds up north had created the huge build-up of water. After all the drama, and despite some extreme discomfort, Clive looked upon this experience with his usual optimism with the words, "All's well that ends well."

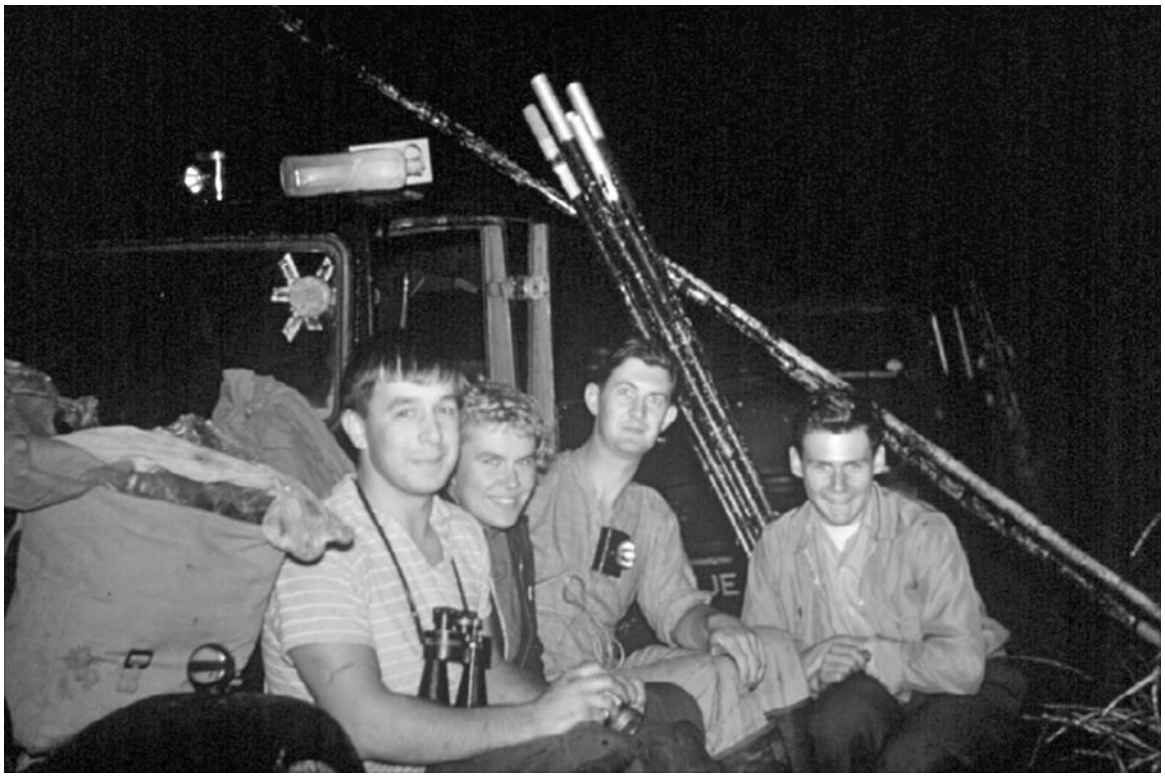
It was noted by Rosie, the VWSG treasurer, after hearing of this tale from Clive, that there were no computers with forecasts or weather apps in those days, but Clive did say that after that they always listened to the shipping forecasts on the radio and would take more notice of the weather on the north-east of Scotland when planning catches.

Subsequently, they had one similar event. This time they were also mist netting, but as they were expecting bad weather, they put the mist nets hard against the sea wall. By doing so, they caught oystercatchers very early, as the tide came in, got the birds out of the nets and had them taken down before the water got too high. Even so, by the time they got to the sand dunes, which were only about 100 metres from the net set position, everything was covered in water. The sand dunes were cut off from the mainland behind and they couldn't even walk along the dunes as the low parts were also covered in water. Again they were trapped for three hours before the tide ran off. Although the tide was just as high, their planning meant that this time they stayed dry.

A WWRG trip report for the 14-16th of February 2014, written by Ruth Walker, illustrates that these super high tides can still catch teams out. Apparently the wind had dropped sufficiently on this particular Sunday evening to allow the few members of the group that had stayed on, after a very unsuccessful and trying couple of day's cannon netting, to attempt mist netting at Gedney. However, during the evening the tide made significantly more than expected and covered most of the marsh. This meant that the pools and flashes around the nets were covered 45 minutes to an hour before high tide so the decision was made to take down the outer nets. A small team was led off the marsh with the birds from the first round while the remaining team members stayed out to take down the remaining nets. The water continued to rise as they worked and was soon above wader height. Thanks to calm leadership from Aron, the team handled the difficult conditions very well and everyone was soon safely off the marsh and drying out.

After they had their own cannon nets operating and the now famous 'Wash Weeks' were underway, the group was based in an old Wisbech council house at the sewage farm which was offered to the Cambridge Bird Club, rent free of course. 1963 was the year of the Great Train Robbery and it occurred just before Wash Week that year. No-one knew where the robbers were, they had disappeared without a trace. Everyone was on high alert, so when someone from the public noticed a clandestine group coming and going at all hours of the day and night at this fairly remote location, the police decided to investigate. After the first few days when the catches can be made twice a day at suitable high tides, towards the end of the week only one tide is high enough to catch on, so the group were able to have some sleep time. This, of course, this was when the police arrived. They stormed in one night when everyone was in slumberland, a burly police superintendent's heavy boots waking Clive as the stairs were negotiated to get to the bedrooms. Clive took the police

downstairs to let others sleep in peace while he explained what they were doing and how they had no relevance to the robbery. One of the local policemen was familiar with their program but this didn't impress the 'super'. Unhelpful to their cause was news from outside the house of the discovery of a box marked 'explosives'. This was one of the few instances where Clive's persuasive talents didn't achieve the desired result, but the group had the last laugh. While leaving the property, the superintendent's Jaguar became bogged when it slipped from the muddy track and he had to get out and help push the vehicle out!



Clive, Pat, Tony Vine (a leading local amateur ornithologist from Cambridge) and John Moyes (not a bander but a local birdo from Wisbech who would go to the Wash every day) mist netting at the Wisbech Sewage Farm in 1957. (Minton family)

Another case of mistaken identity occurred at Snettisham beach, when a helicopter landed in the catching area thinking it had found the survivors from a missing dingy, the bedraggled bunch hiding behind the seawall! Years later in Australia, the police were involved yet again when, not long after 9/11, on two separate occasions the police were called to check out a team of banders. The general public, who were heeding the call to be 'alert but not alarmed', were uncomfortable about people with explosives on Victorian beaches! On another occasion at 80 Mile Beach in NWA, the coast watch plane did a few circles overhead when they saw a small group of people hiding in shelter high on the beach, with lines of disturbed areas in front of them (set nets), and vehicles driving toward that point (twinkling as they do on that beach), probably wondering if this was a smuggling exercise going on.

Interestingly, all the early cannon netting was done on ploughed paddocks, usually where the waders congregated at high tide, in behind the sea wall. But birds like Sanderling and Turnstone generally didn't leave the shore. This provided a quandary to the catching team, as they feared the water would drown the birds. The first attempts were fired away from the sea, but as the birds were reluctant to go inland of the net, the team eventually plucked up the courage to fire towards the sea, though well back from the tide edge. This led to the development of techniques still used today.

Another issue was that long-legged waders were prone to stress myopathy, so care was always taken to let their feet dangle and to try and keep them on their feet in the keeping cages. Clive's concern as to whether a bird suffering such stress would fully recover was alleviated when a curlew that had gone off its feet with this problem was found alive and well about five years later in Sweden. This gave him confidence that they could make a complete recovery.

At one time, Clive had a Morris Minor called 'Ollie', as its registration letters were OLI. On one occasion, he was driving along the track behind the seawall when it became stuck on the central ridge, with all four wheels spinning freely. Fortunately, enough strong members of the team were close by and were able to lift Ollie on to a smoother stretch of track. Another vehicle that Clive took to catches had the registration plate SOB. Many people, especially in the middle of Wash Week, would not disagree with the appropriateness of such a registration plate!

Derek Stanyard's first memories of Clive date back to 1960. Derek was then a 14 year old, and had just spent two weeks clap netting wheatears and Rock Pipits on Bardsey Island, renowned for its breeding colony of 10-15 000 Manx Shearwaters and also home to the Bardsey Bird and Field Observatory which opened in 1953. Derek had quickly picked up the bug for ringing. When he got back home from that trip he contacted the local bird club and was provided with Clive's contact details. Derek wrote to Clive and received an immediate response inviting him to assist with ringing Swallows at an autumn roost. Clive had added that Derek should bring shorts and old runners for wading, some sandwiches, a hot drink and a torch. He continued, "And tell your parents not to expect you home before 2 am." The Swallow roost turned out to be in an urban area of South Birmingham within a reservoir reed bed. The area was littered with old cars and other detritus so probably wasn't the safest place to plod around in in the darkness of night. But Clive, with his now ingrained organising abilities, had assembled about 40 ringers and helpers from around the Midlands, who caught over 3000 Swallows. That night was Derek's "real baptism to ringing."

Derek soon became a trainee under Clive's tuition. By the time he was 16 he had well surpassed the BTO permit requirements and had become one of Clive's earliest "C" ringers. Many exciting and interesting experiences followed that Derek relived when

reflecting on his experiences with Clive. These included wading thigh deep in sewage settling ponds to catch young Shelducks and balancing precariously on catwalks, around the Lucas car battery factory in Birmingham, while catching and ringing hundreds of roosting Pied Wagtails as they settled on the ringers like insects. He employed batfowling nets to acquire roosting Starlings by the dozen in coniferous woodland in deep snow in the middle of the night and assisted Clive in his breeding Swallow studies in south Staffordshire. They regularly went swan catching and spent many dozens of week-ends around the Wash mist netting and cannon netting waders. Pat also recalls nights ringing wagtails in giant glasshouses around Cambridge, but while she regards those times fondly, quickly added that she was "no good at being up all night."

Alan Whitmore on the other hand, was trained by Bert Coleman, who took over Clive's Mute Swan study and was a very capable and shrewd trainer of new ringers. He put Alan through all kinds of ordeals. When he was working for his 'Mute Swan Only C Licence', Alan was taken to a nest just west of Burton where Bert said he needed the cob. Alan successfully approached the nest and caught him but returned with a torn shirt and bleeding arms, the scars from which he still proudly bears. When Alan asked with anticipation, "What do we do next Bert?" the surprising reply was, "Nothing, just release him. You've just got your Mute Swan C Licence. He's the biggest and meanest cob I know and you handled him perfectly!" No doubt Clive would have employed very similar training methods for budding young swan ringers.

It seems Alan had his share of "character-forming" experiences with Clive and his cohorts, like staying at Terrington, around 1977, when they were "sleeping in that rat-infested Mangold store, where you could feel them jump over as you slept!" To try and get a few creature comforts, Hugh McGregor and Alan managed to rig up a hosepipe over a barn door to create a shower! But there were some positives to that stay in the form of a young lad who had just returned from doing research on Black Kites at Hong Kong Airport, whose curries were just "out of this world." Any sausages and bacon left at breakfast would be reimagined in the evening meal! Maybe this was the source of Clive's love of curry which was again witnessed at a catch in Australia in September 2014. It was a lovely day at Stockyard Point, the net was set and a wait of a few hours for the tide to come in was partially filled by people eating lunch. Clive's keen eye spied Tony Ball with something a bit different so he enquired as to what it was. When Tony replied, "curried sausages", Clive's eyes lit up and he started salivating. No prizes for guessing what happened next. Yes, Tony offered him a serving, for which Clive was extremely grateful and seemed to enjoy very much!

Another place of less than salubrious surroundings recalled by Alan was at Friskney, where they stayed in an old disused farmhouse that was "very dodgy." Apart from the bedroom floors sagging in the middle, the main concern was that the seating

consisted of bales of straw. This was a bit scary as the cooking facility often flared up and there were Tilley lamps, (kerosene lamps), everywhere! As he wrote, "We didn't have the rules of 'elf and safety' then!" Alan went on to note that they were wonderful days and that although he is now "battered and badly arthritic," he feels that he is "all the better for the experience."

Another potentially horrendous incident occurred during a family seaside holiday in Cornwall when Clive and Pat's two boys were young. A few other families had been invited along and a cannon net was also taken, because the Camel Estuary was nearby and waders were there for the catching. This was where Clive first met Humphrey Sitters who was to become a world specialist on Red Knot, as well as others including the Dawkins family who stayed in the next door caravan. One of the young Dawkins girls, aged about four at the time, tripped and fell onto a pot of recently boiled water that had been placed on the floor. The scolding hot water splashed over her chest, arms and neck. On hearing her screams, as the nearest adult, Clive grabbed her and ran to a communal standpipe nearby and held her under the water for about five or ten minutes. The child was screaming of course, but the cold running water saved her. She stayed in hospital for a day or two, but wasn't scarred in later life and was forever grateful for Clive's quick actions.

Time has certainly changed the way burns are dealt with. Before the war, when Clive and his peers were young, butter was put on burns. It was during the war when sailors were thrown into the sea with what would have been terrible burns from a torpedoed oil tanker, that victims survived with much less impact than expected. It was then realised that cold water was the best way to treat a burn. Fortunately, Clive was aware of this.

Burns commonly result in blisters but Clive developed quite a few without a flame at one catch in 1968 on fields near North Wootton. Clive never did anything by halves. He always planned on a grand scale, organised hordes of people and caught vast numbers of birds whether they be geese, swans, Starlings, Swallows, or waders. At this catch 2973 birds, including 1861 Knot, were secured. Unfortunately there wasn't sufficient keeping cage capacity to keep the birds for long, so Clive started a 'ring and fling' operation, in which he personally ringed 1000 Knot. It took weeks for the blisters on his hands to recover. Another large catch took place on a late afternoon in 1970, when a light covering of snow provided perfect camouflage. Even the knot didn't recognise where the net was and 3210 birds were trapped, nearly all knot. Processing, which went well into the night, was very cold. It may have been that catch that necessitated Clive sending William Dick's brother on a 180 kilometre round trip to get more rings from Cambridge. Clive then insisted on setting cannon nets the following morning to catch more knots! He was indefatigable and this demonstrated early on that, in Clive's mind, no catch was ever enough.

William, an early WWRG member was only 20 when he was persuaded, against his better judgement, to drive from Cambridge and recce the Norfolk coast. This was in spite of having "absolutely no time available to do so" and "absolutely no inclination to do so." But do so he did, as so many people have done with a bit, or a lot, of Clive's 'cajolery'.

In August 1961, there were some unsuccessful exploratory trips to the Lincolnshire side of the Wash, encouraged by surgeon Rick Pilcher, who was a member of the Wildfowl Trust and lifelong friend of Peter Scott. While there, Pat complained of stomach pains. Clive was quite unsympathetic and enticed Pat into eating fish and chips before they returned to the base at the cottage at Wisbech. However, the pain became so bad that night that as they went back past Rick's home at about 9.30, Clive finally relented and called in for some advice. By 10.30 that night, Rick had removed Pat's appendix! She remained in hospital for the rest of Wash Week, but Clive did call in occasionally, still in his usual field attire which was quite inappropriate for hospital visits, but that was Clive.

In the early 1970s, attempts were made to catch at Gibraltar Point, on the northern tip of the Wash, but very large tides were needed to concentrate birds to a catchable site. Such tides can be prone to large variations. One day they were completely flooded out and Clive recalls sitting in the small firing hide on stools in a foot of water, completely surrounded by 10 000 oystercatchers! At that same site, they had a catch of over 600 oystercatchers in the net even as the tide continued to advance over a flattish area that had been predicted to remain dry. The only option was to pick up the net, plus birds, and carry the lot the 200 metres to the safety of the elevated dunes. This was no easy task as the oystercatchers plus a wet net needed all the strength the team could muster, but the transfer was made successfully.

Another story that Australian waderphyles just can't get their heads around occurred in 1969 at the Wash. It was so cold that ice was piling up on the high tide mark and there was floating ice on the edge of the sea. Despite the severe conditions, a catch of Turnstone and Sanderling was made just near the Snettisham Sailing Club. With boundless enthusiasm, a very young and keen Stuart Brown reached the net at great speed, but tripped over a submerged trace rope. Clive recalled that Stuart disappeared completely into the icy sea, emerging looking like a dripping seal, accentuated by the fur around the edge of his parka.

One January weekend, the nets were set on a beach next to the Snettisham gravel pits. Soon after dawn, a lonely figure was seen walking along the beach from the Wolferton direction towards the nets. Peter Stanley was dispatched to intercept and on his return said that the person seemed knowledgeable about birds, was understanding and agreed to walk the other way. He commented in passing how much this fellow resembled the Duke of Edinburgh. Later that morning, after they had completed processing the catch for the day, (another excellent catch of 800

Dunlin and knot), they ran into the gamekeeper at Wolferton. He greeted them with the question, "Was it you who turned the Duke of Edinburgh off the beach this morning?" Clive wrote an apology, but he was primarily disappointed that he had missed the chance to show the Duke a catch.

Alan Whitmore's version of that meeting with the Duke is more amusing. Alan was kneeling down and wiring a cannon to the 'dropper'. Peter was explaining this process to, as Alan described, "An early-morning local, a scruffy 'Grockle' birdwatcher." Seeing the explosives being wired, the 'stranger' commented in a very posh voice, "Bloody hell – I hope he's not Irish!" whereby Alan turned around and found himself looking up into the face of a grinning HRH Prince Phillip. The Duke shared his own keen interest in birds through his book titled 'Birds from Britannia' in 1962, which included his own photographs.

Clive and Pat (right) with some of the other inaugural members of the International Wader Study Group when they celebrated its 40th Anniversary during their meeting in Portugal in 2010. Clive was the founding Chair of the group. (Jim Wilson)

Adrian Riegen, a major player in New Zealand wader studies, met Clive in 1970, when Adrian was attending a horticultural college in England. He was a keen birder, daring to call himself a 'twitcher'. At college he met Francis Argyle, a different sort of keen birder. Francis was, and is, first and foremost a 'ringer'. He was very interested in waders and was a member of the WWRG. It was Francis who invited Adrian along

for a Wash weekend and that was where he first met Clive. Adrian believed he had little to do with Clive that weekend, due to being “a very lowly ranked junior.” What he does remember is Clive dolling out instructions left, right and centre so that in no time they had five or so nets set in a ploughed field and Clive assured them that come high tide they’d be full of Dunlin and other small waders. Time went by until, finally, a Pheasant wandered into the catching area. Dunlins duly arrived but would not settle because of the “damned Pheasant”. The field telephones were running hot with suggestions of how to banish the interloping bird from the catching area but to no avail. The Dunlin had seen enough and cleared off to another field. There was a suggestion in the ranks that they should fire on the Pheasant and prepare it for lunch. Instead, somewhat surprisingly, Clive accepted the missed opportunity, preferring to wait until the next day, when they had more success.

Their paths didn’t cross again for 20 years, by which time Adrian was running the wader cannon netting in New Zealand, with much moral support and friendly, advice from Clive via letter, fax and phone call.

Throughout the ‘70s, in his role as leader of the WWRG, Clive organised the late summer event known as "Wash Week.” Humphrey Sitters explained how it was renowned for the sleepless masochism it entailed, starting with about four days of two cannon-net catches per day, made possible because, in summer at the high latitude of southern England (53°N), there are two high tides in daylight. The first high tide of the day might be at 6am, so the team would need to be up at 3am and in position an hour later. A successful catch would mean processing until late morning, followed by resetting the cannon-nets for the evening tide. A good catch in the evening might mean processing until midnight, after which the nets would be reset for the following morning.

Mercifully, Humphrey continued, tides get later every day, so eventually the evening tide is too late for cannon-netting but too early for mist-netting. Then, at least for one night, everyone is reacquainted with their bed and gets some well-earned sleep. Cannon netting resumed in the morning followed by mist-netting after dark. This is the way Clive earned the ‘slave driver’ reputation he has among some in England. It should be noted, however, that the WWRG has continued to run Wash Week in a similar fashion ever since Clive's departure. Thus, the only conclusion Humphrey could make is that members of the WWRG have inherited Clive's masochistic tendencies. Humphrey is editor of the International Wader Study Group (IWSG) journal, the Wader Study Group Bulletin, and is a global specialist on Red Knot, having studied them since changing careers in his fifties from the legal profession to full-time ornithologist.

Another characteristic of Wash Week, Humphrey noted, was that quite apart from sleeplessness, it was not a time for imbibing. The best they could hope for was to be allowed a glass of (sweet) Woodpecker Cider, just once during the week. Clive was

not keen on the younger generation going to the pub as they sometimes drank a lot. A young Jim Wilson was one of this group with different ideas to Clive. When he and his brother turned up to swan catching in bowler hats, Clive wasn't amused! Clive was totally focused and, at the time, drank only ginger beer. Indeed when he first visited Clive in in Australia, with flowers for Pat, Jim was quite surprised to find that a bottle of wine would have been more appropriate! Jim found that Clive had mellowed, something that Humphrey was also to learn.

In 1980, two years after Clive moved to Australia, Humphrey and his wife Jackie visited him and spent a weekend cannon netting with the VWSG at the Werribee Sewage Farm. But, according to Humphrey, things had changed. There was no catching on both tides a day, prohibition had been abolished and the accommodation was fit for sheep! In those days, the shearing shed was the base for the wader catching team. Had Clive lost the plot? Humphrey dismissed this thread as being unlikely, as Clive was still a young man but he may have been getting closer to the mark with his next theory that perhaps the Aussies were just a bunch of lazy softies? Without any empirical evidence he wasn't prepared to answer this and should have known that there is no room for weaklings in any of Clive's catching teams. Humphrey came to the more likely conclusion that it was because, at only 38°S and with so much wind, catching on both tides was simply not practical.

In his inimitable style, Pete Collins described one of Clive's moral triumphs. Clive had borrowed his sister's very small car to drive to a Little Stint catch in the UK. Pete found it hilarious watching him shoehorn his way into the vehicle and needing assistance to get out. En route to the catch site, the very hot, catalytic converter lit a trail of fire that followed him through a field of straw. A line of people doing a strange folk-cum-fire dance trailed behind the little car, extinguishing the fire. Stopping never occurred to Clive, not while there was a catch to be made.

As the fire dancing party approached it's destination, it became apparent that all was not well as at least two cannons could be seen, extracted from their buried hiding holes, as well as a good proportion of the net. What also became obvious was a glorious vision in blazer, white slacks and peaked cap accompanied by a yacht of biblical proportions, just off the coast. The coming together became a contest, like watching two bullfrogs getting bigger and bigger as they huffed and blustered, with Captain Blazer trying to out-do Admiral Clive in his pinkish shorts and well-worn T-shirt. The Captain had landed on the beach, one of many in the area, to exercise his dog, and had stumbled over the cannons and net. He declared that this was just not British and he would "have it out" with the perpetrators for leaving such "dangerous debris littering the beach that any idiot" could stumble upon. Meaningful glances were exchanged about one particular idiot.

According to Pete, he picked on the wrong bullfrog. As the argument continued, rather one-sided it seemed to the spectators, Clive raised the bar, and expanding his

chest asked if Captain Blazer had permission to be on the land. He pointed out that if, in fact, the yachtsman didn't then he was trespassing and if he wanted to avoid further action, viz a viz damaging the nets etc. then it would be best for him to leave. Exit deflated pompous bullfrog. Clive won again.

The sound of Clive shouting instructions at people, rounding up geese, catching herons on the Wash or mist netting passerines in the big roosts at Hopwas Woods, Sandon and Blithfield Reservoir in England, resonate with Jon Coleman's entire childhood. Jon now leads the Queensland Wader Study Group and its catching and banding program, but was part of the Wash crew since childhood. When thinking of words to describe Clive, "noisy" immediately sprang to mind, as did "totally irrepressible." Jon has never known anything to stop Clive in achieving an objective, "Obstacles are walked around, crawled under or in most cases just bulldozed out of the way." Indeed virtually all Jon's memories of childhood involve birds and Clive was responsible for providing that interest, which grew to an obsession with birds that Jon has carried with him all his life and which ultimately brought him to Australia. Jon doesn't actually know how his father, Albert, met Clive but the end result was that every weekend involved bird catching of some sort "with Clive marshalling the troops with his loud instructions and no-nonsense attitude." The legacy when Clive left the UK was that Albert inherited the swan study, the herons and a number of Clive's mist netting sites which he and Jon maintained until recently.

Says Jon, "Who else could possibly head off to talk to an angry farmer, who had a dog and was armed with a shot gun, leaving the team on the river bank with the words 'get those swans ringed quickly and back on the water while I keep him talking'." The words "Get off my land" didn't seem to register even in that scenario and, indeed, for 40 years that site at Blithbury has been known as The Angry Farmer's despite the fact that the new owners are most pleasant. It's another example of Clive's approach to dealing with problems with the outcome being far more important than any barriers.

Malcolm Ogilvie recalls that Mute Swan ringing was part and parcel of wader catching, when they scoured the rivers and drains of the fens (fertile marshland found close to the coastal areas around the Wash), looking for families to catch and ring. On one memorable occasion, one of the adults took off as the catchers entered the water and, as it flew past Clive who was standing on the bank, he launched himself upwards at full stretch with swan hook in hand. He missed, belly-flopping into the drain with an almighty splash. The indignity of it probably went unnoticed…by him, and was mercifully not caught on camera.

Andy Whittaker recalled being out Mute Swan ringing when the group surprised a couple of young vandals. They had swum out to a nest and were throwing bricks at the pair of swans. The kids swam off and hid when they saw Clive and his party, who

were unable to catch the troublemakers. However, they gave the boys something to think about when all the clothes that were left on the bank were collected up and, instructed by Clive, buried in the mud.

The study of Mute Swans in Staffordshire, that he started in 1962, only finished in 2013, a 51 year continuous study where every bird in a 1440 square kilometre area, both adults and chicks, was banded. Albert Coleman, the person who took over when Clive came to Australia in 1978, eventually grew too old to continue. Mute Swans are fairly tame and since like all wildfowl, they are flightless for periods (six weeks for mute swans), they require a safe place to conduct their moult to avoid predation. From a research perspective, they also need to be able to be herded into catchable areas, for example in front of the Stratford Theatre in Stratford-on-Avon, where they can be caught with a shepherd crook on a pole. The crook is swung down, hooking round a swan's neck, which is then hauled quickly up to the towpath. Here, again, Clive's enthusiasm and friendly negotiating skills became useful, as passers-by generally objected to what they saw as cruelty. After Clive had taken as much time as was necessary to explain and engage them in the scientific objectives of his activities, these same objectors often ended up as members of his catching team. This same successful outcome has been observed both in Australia and Delaware Bay, where onlookers are allowed to hold and release the birds, resulting in huge support for the wader research.

This scenario has recurred throughout Clive's life, that is, his impressive ability to change people's minds about actions they initially object to, believe are just wrong, or dislike doing. Mike Pienkowski always felt it was a good thing that Clive "never went into politics, because he could persuade anyone to do anything, against their own judgement!" Mike drew on an experience from 1960 that left a lasting impression on him. He was part of a group that was rounding-up swans on the River Trent, and despite being one who sinks in water, he could not deny Clive's instruction to "Wade further out, it's not deep," even though Mike realised that, "The water was already over the top of my thigh-waders." Clive's mantra is perhaps best summed up by a sign that hangs in his study. Its message is that diplomacy is being able to "tell someone to go to hell in such a way that they actually look forward to the trip."

Swan ringing also took place in the Midlands around Clive's home. In July 1966, several of the ringing team assembled to help round up flightless birds, but on this occasion there was an interruption to the catching, when perhaps 15 or so, assembled in Clive's living room and watched the 1966 World Cup final.

Such an offer demonstrates Clive's very keen interest in his favoured sports as well as his camaraderie among fellow ringers, but was only allowed because the birds were flightless and he could safely take 'time off' with confidence that the birds would still be there after the game. It is very doubtful that the break would have

eventuated if there was a big flock of waders close to the catching area just ahead of kick-off time.

It was not just the long term studies of waders at the Wash and swans that Clive launched in the UK. There were studies of Swallows that were mist netted at roosts, but caught by hand at the nest at his Staffordshire study. At that site they caught pairs of Swallows and banded 72 of 76 pairs one season. He also set in motion long-term studies of Canada Geese, beginning to round up moulting flocks in the 1960s which others, including Albert and Jon Coleman, continued into the 2000s after Clive left for Australia.

Perhaps a less flattering commentary of one aspect of Clive's performance comes from Malcolm Ogilvie when he described Clive writing up that seminal work on Mute Swans in the Midlands. "He may well have been prodigious in his writing, but he had to be nagged to produce anything by the WWT publishing deadlines." Malcolm claims the manuscripts arrived at Slimbridge at the very last minute and written in pencil! Apparently Clive's handwriting wasn't the best either. He continues his preference for writing with pencil much of the time.

Lessons were continually being learnt. Jon Coleman is another who remembers rounding up swans on a small lake which, as it happened, also held a flock of flightless Canada Geese. They looked catchable to Jon, which he mentioned to Clive. No further encouragement was needed and someone was dispatched to Clive's house to collect some rings while the rest of the team erected a makeshift pen of purloined wire netting. A successful drive of the geese resulted in a worthwhile catch, but it taught those used to handling docile swans that Canada Geese fight back, with bill and claws, resulting in several scratched torsos.

Another highly amusing memory for Jon, in retrospect, occurred when Clive visited the Colemans in the UK, just before Jon and his family emigrated. They went on another swan round up, which Jon was leading and where there were many birds. With swans there can be a tonne or two of birds that need to be herded around like sheep so quite some organisation was involved. Jon had spent a lot of time getting people into strategic positions to help herd the birds into the pen, after which he went off to lead the canoes in herding the birds down the lake. After years of heading up such catches Clive, of course, couldn't help himself and after Jon had gone, moved everyone around to where he thought they should be. So when Jon arrived with the birds in front of him and starting calling people out from behind bridge turrets and out of reedbeds to move the birds around, no one was where he expected them to be. Unsurprisingly, this caused a certain amount of consternation and shouting, which is Clive's forte. So he had a whale of a time and the birds were caught. Again, it all worked out in the end! Jon's response obviously mellowed over the years,

To demonstrate the magnitude of this work, a comprehensive report was published in 2001 by the Colemans and Clive. It detailed 39 years of studying these swans and

explained the scale of the work, including the comprehensive databank on 1647 birds that included their complete life histories. Of interest was that, due to a high mortality rate in the first one or two years, only 11 percent of birds became a member of a breeding pair while about half the birds only bred for two or three years. It also showed how the dynamics changed over time, information that is only possible with such long-term studies characterised by diligent and complete recording of the necessary aspects of the swan population.[47] This is what Clive strives to replicate with his wader studies and is why he drives so hard, maintains such amazing patience at a catch and rarely gives up.

In the report "40 Years of Ringing On The Wash," Clive completed his 'note' on the early years of the WWRG in which he was so heavily involved, outlining that "a continuous, comprehensive 40 year study of a group of species at specific sites gives data which is so much more valuable scientifically and conservation-wise than short random studies." [48] This has been his lifetime modus operandi.

That report and the accompanying report by Alison Kew, provided a number of stories for this chapter, or gave the stimulus for Clive and others to elaborate on their own memories.[49]

As recently as July 2010, a bird was caught that was banded when Clive was still actively leading the WWRG, some 32 years after he had left England! The bird was an oystercatcher and was over 40 years old when caught at Wrangle. This wonderful record age for a wader was almost overlooked at the time of catching as it was recorded as having been banded in 1987. However, further investigation revealed that this was, in fact, a re-banding as it had initially been banded as a nestling in June 1970. At the time when this old bird was caught, the WWRG website reported that this was the first wader to join "the over 40 years club" and only the fourth species to have a banded bird recovered after 40 years or more (the others being Manx Shearwater, Razorbill and Fulmar). It will never be known whether Clive had banded this special bird himself, but he almost certainly was around when it occurred. He was amazed and delighted that, after he had been in Australia for all these years, this special bird was still alive and well back in the Wash.

[47] Coleman et al 2001
[48] Minton 1998
[49] Kew 1998

8 Victorian Wader Study Group

For those searching Google for the meaning of the VWSG, it is not the 'Vampire Writers' Support Group'. While some have said that Clive can suck the energy out of those around him, even if that is so, he has given it back in spades. Nor is it 'volunteer warm-season grass,' although that may make good net camouflage. It is also not the 'Vibrating Wire Strain Gauge' used in geotechnical engineering, but maybe there should have been a gauge developed to test the strain put on participating volunteers involved in wader catching!

No, the VWSG everyone has rallied around, sacrificed for and devoted innumerable hours of their life to is the Victorian Wader Studies Group.

Clive came to be in Victoria to enable the formation of the VWSG because his business career was with Imperial Metal Industries Ltd. who in 1978 transferred him to Australia as Managing Director of IMI Australia. Here he turned an ailing business into a very profitable one, before leaving the group in 1983. The move to Australia provided Clive with the opportunity to revitalise wader studies in Victoria through the introduction of cannon-netting. He arrived to find the Victorian Wader Banding project in its infancy, three years after being formed by David Robertson, who had arrived from Malaysia with an interest in waders. In June 1979, as Clive's influence (short for abundant energy, boundless enthusiasm and enormous ornithological knowledge) and his successful introduction of cannon netting started to take hold, he transformed the banding project into the Victorian Wader Study Group which he initially co-convened with David. Clive has remained the Chairman of the renamed VWSG ever since.[50]

[50] Minton 2006a

David, a veterinarian who had recently arrived with his wife Minnie, had been successfully involved in mist netting waders in salt pans at a local commercially operated salt works. Discovering that little had been done in the way of wader banding in Australia, apart from a little in the Perth area in the 1960s and in the Hunter area of New South Wales in the 1970s, he set about trying to mist net waders in Victoria. Several attempts by David and Minnie at the Cheetham Salt Works, Altona during 1975 were largely unsuccessful and only nine waders were caught. On 7th March 1976, they tried for the first time at North Spit, adjacent to Werribee Sewage Farm (now the Western Treatment Plant) and were immediately more successful. Twenty-six waders were caught that first night followed by 68 on a second visit a week later. Mist netting was carried out in almost every month for the rest of the year resulting in a total catch of 620 birds. Wader banding activities in Victoria were thus launched in earnest.

The team of people participating in the wader mist netting activities at Werribee was gradually reinforced, mainly by young Monash University students and recent graduates, and mist netting activities continued throughout 1977 and 1978 with a further 1832 birds being caught. The process was an arduous one. Lines of 6-8 mist nets were set out at intervals in the North Spit Lagoons and these were manned throughout the night, which included a high tide period. As dark came at half-past eight, stints started to get caught in the net, so part of the team was deployed almost continuously to extract the trapped birds, which were spread out over a kilometre or so, and to bring them back in bird bags to the banding station. There, protected by a large tent and using Tilley lanterns, the rest of the team, was involved in banding the birds and recording age, biometric and moult details before releasing them. Some people were allowed to take a two hour break for sleep but many would work the whole night through, taking down the nets at dawn and then going home, having not slept at all. It worked very well, as in those days most members were in their twenties, with Clive perhaps the oldest, in his forties, so recovery was not much of an issue. David's very apt description of Clive was included in Annie Rogers' book.[51] It told of Clive's "…ability to make otherwise sane people run around for days on end without food or sleep in Antarctic conditions and still come back for more."

Describing her experiences and the people involved with bird banding, Annie made several references to Clive and his exploits with wader banding. One tale told of Annie and Ken Rogers and their son Danny reuniting with Clive, whom Ken had met in Iran, through a sighting of some "unusual" plovers they had seen on Lake Connewarre, near Geelong. The Rogers family hadn't been in Australia long and they could find nothing in the field guides to identify these birds that looked like Red-capped Plovers, but with yellow under-parts. Ken knew that Clive had moved to Australia, so he contacted him to solve the puzzle. Clive had caught and banded 591

[51] Rogers 1992

birds a few weeks earlier and had temporarily marked them by dyeing their under-parts yellow to try and gain more information about their movements.

When Ken called Clive, even before there was any answer about the mystery birds, Clive had convinced Ken to join a wader catch in a couple of weeks' time. Ken was considered to be "heaven sent" as Clive was desperate for another licensed bander.

Annie didn't go on that first catch, but was finally enticed by reports of successful catches. Ironically Annie had one stipulation that she would only go "on the condition that I actually help!" She was soon to experience the "Everybody should be doing something," Minton. This is a line that all who have been on expeditions with Clive are very familiar with. It is his most renowned catch cry.

Recollections of those early catches by the Rogers family included observations of twinkling, including the time when Roger Minton was seeking some respite from hard work in a creek via a request over the radio. "Please, Dad. Can I walk on the bank of the creek, not in it? Over." "No! Over," was the reply. This was not a one off by any means. Danny recalled a similar situation when Roger was twinkling in waders in thigh deep water. Clive was concerned that he might disturb the birds flying overhead so he directed Roger to lie down.

When birds were trapped under the net, Annie "hated" launching herself into a very cold sea in winter to save them. She observed that, "Clive is as happy in water as on land and doesn't mind at all. He can't understand why anyone else does." Most people who have been involved with Clive would recognise his expectation that others will perform unacceptable tasks, just because he readily does so. Annie went on to relay an occasion where, "to the delight of the team, one weekend when the nets were set next to what Clive was assured was a very shallow dam, he led the race to the nets. When the cannons went off, he jumped into the water and completely disappeared. Everyone else managed to stop but even Clive looked slightly perturbed when he surfaced blowing like a whale." Having experienced snowy English winters, the nights where mist nets collapsed under the weight of ice and when ice started to build up on the edge of the sea during cannon netting, Clive was unconcerned about any conditions he might encounter in Australia. Not even horizontal rain, blown by gale force winds, on a cold July day at Corner Inlet deterred him, though they were enough for the true Aussies in the group to want to "pull up stumps."

Some things were rarities in Clive's life in England, such as only eating steak once every six months and only very occasionally, after a special dinner, drinking a glass of port. The first time he went to Werribee, he was surprised to find a quart of port on the table. It was passed around and Clive was equally astounded to observe that it was all consumed during the evening. But apparently it went down very well because ever since, some form of beverage has been part of the banding expeditions, although never during catching. The change from the 'old days' on the Wash is

evident in this excerpt from a catch report circulated to Clive, from the WWRG, on 24 February 2014, where it says, "…By 10:30pm we were back at the (accommodation) with tea, hot chocolate or port in hand."

Initially, catch totals were quite variable, often because of wind conditions. Catches of over 400 birds were made twice, the largest being 452 on the night of 24 February 1979. But as cannon netting was gradually introduced and birds could be caught without the team losing much sleep, the frequency of mist netting declined during 1979 and only occasional mist netting attempts have been made since. The last large mist netting catch was 262 birds on 29 February 1992.

Clive was not the first person to use cannon nets in Australia as, from the 1950s, a few members of the CSIRO had used them for catching magpie geese in northern Australia. However, as Libby Robbins, in her book 'The Flight of the EMU – A Hundred years of Australian Ornithology 1901-2001' wrote, Clive "popularised their use" with waders.[52]

The first VWSG cannon net was constructed in November and December 1978. The net making process was carried out at Werribee Sewage Farm. There was a drama when a tiger snake made its way across the open area where they were gathered. One team member, Kevin Bartram, decided he would pick the snake up to remove it, but in doing so, he was bitten on the thumb and blood seeped from the wound. Kevin was driven to the Geelong Hospital but when no reaction had occurred after three hours, it was concluded that no venom had been injected and he returned to the team.

The very first catch made with the cannon net, of eight birds, occurred on December 31, 1978 at North Spit, Werribee. Further small trials in early 1979 were followed by a hugely successful concentrated effort at North Spit on the Labour Day weekend of March 9-12. In five catches during this four-day period, 2333 birds were secured, almost all being Red-necked Stint (1798) and Curlew Sandpiper (495). Dick Veitch came over from New Zealand especially to take part and, on his return home, he constructed a cannon net and carried out the first cannon netting of waders in New Zealand. Altogether 7922 waders were caught in 1979, proving cannon netting to be far more effective than mist netting.

From the early days, the Victorian Ornithological Research Group (VORG) had supported and encouraged the wader catching activities and had adopted these as one of its projects. However, when activities expanded rapidly in 1979 as a result of the introduction of cannon netting, it was decided that the Victorian Wader Study Group should be formed as an independent organisation. This was done at a 2 June 1979 meeting of regular fieldwork participants who had been invited by Clive to form the new group. David Robertson and Clive were elected as co-convenors, Julie

[52] Robbins 2001

Strudwick as Treasurer, and Peter Dann, Brett Lane, Ira Savage and Daphne and Ralph Keller were appointed committee members. The first committee meeting took place on 22 June.

It is interesting that the original objectives of the group, published in the first edition of the VWSG Bulletin in January 1980, are still the same as the core objectives of fieldwork programs at the present time. They are summarised below:

a) migration routes and stopover sites

b) return patterns – site faithfulness

c) population turnover

d) weights, especially those associated with migration

e) moult and age

f) survival rates (from capture/recapture data) and

g) annual breeding success (from the proportion of juvenile birds in catches).

The mission statement, formulated later, stated that the group's principal objective was the collection of information and knowledge in a scientific manner as a basis for conservation and awareness activities. What was also in that first Bulletin was Clive's statement that "…the duration of the study will initially be for five years (i.e. to mid-1984)." Perhaps he didn't want to scare people off by giving them the feeling that they could still be going in 2014!

Only ten formal committee meetings were ever held, the last being on 30 March 1983. The group now formally elects officers at the AGM and has a much larger committee. Liaison between committee members has been on a more informal basis via discussions during fieldwork, and by email exchanges and telephone. The operation of the VWSG under Clive's leadership reflects one of several similarities he shared with his mentor Eric Ennion who, as mentioned earlier, was "a firm believer in a committee of one, or at most two; oneself and one's wife." But also like Clive, Eric recognised the considerable effort from others when he made the two-stage transition from being a country medical practitioner to operating a Field Centre and finally to establishing his Monks House Bird Observatory which he set up at Seahouses. He said that, "Many others, with or without their consent or even knowledge, have been party to … this transition."[53]

Eric was very independent and not a great one for bureaucracy. He'd rather "wear out ten pairs of trousers at the knees and turn-ups, for one that needs a patch on its seat." Clive has always followed this approach by putting his field-work ahead of all other demands. He does struggle to wear out his trouser legs in Australia though,

[53] Ennion 1959

since he wears shorts for so much of the year! What he did however, was wear out his knee. It was ironic that during all his years doing research into titanium as a young man, he never thought it would be used as part of an artificial knee inserted into his own leg later in life.

The VWSG was formally incorporated in 1987. Although a separate legal entity, it has in effect, operated as the Victorian arm of the AWSG since this was formed in 1981.

Initially, most cannon netting was carried out at Werribee on both the North Spit and the South Spit. Activity gradually extended to locations throughout coastal Victoria, both to obtain samples from different local populations as well as to increase the number of species caught in worthwhile numbers. Subsequently, in order to increase the catch of Sanderling and Ruddy Turnstone, the VWSG spread its activities into the southeast corner of South Australia in 1993.[54]

Iain Stewart, a farmer, wader enthusiast and long-term host to the VWSG on their forays into south-east South Australia, was at a Sanderling catch at Canunda National Park and chuckled at the thought of his brother being scolded by Clive for walking across the net. Clive instantly yelled, "You can't do that, go around!" To keep the birds' safe, sometimes bystanders or team members need to follow a 'barked' instruction quickly. That might be to stop, move or lift a net, often with no time for discussion. Iain recognised that and noted that some people "take offence at that – I don't but some do." Their first exposure to this situation can either put banders off or they can accept it and continue.

My own experience has been that I was an intermittent attendee at catches for the first few years, as I lived in rural Victoria and it wasn't practical to get to most catches. But after experiencing a NWA expedition, I rethought my interest in the program. I was not there particularly to gain specific skills but rather to be an extra pair of hands and legs to help in whatever way I could. Four weeks in that heat of November/December wore people down a bit, but the relentless pushing of the team was an eye-opener. It took me a year to go to another catch on my return to Victoria as I had to reconcile the benefits of the program with the periods of discomfort felt by participants at times when the action is full-on. These days, a few of the experienced VWSG members wisely warn new participants that the yelling at the net isn't personal and suggest they just listen and act on what is said.

In all, 38 species had been banded by the VWSG to December, 2013 with eleven catches reaching totals of more than 1000 birds. Various sites in Westernport were visited, Yallock Creek being especially productive. Andersons Inlet at Inverloch proved difficult to master but eventually became one of the prime Red-necked Stint monitoring areas for a time and the site for the geolocator study of Eastern Curlew.

[54] Christie 2006

With 26 species and 30 000-40 000 birds, Corner Inlet has the largest population and diversity of waders in Victoria. It has proven to be a logistical nightmare as a catching site since boat transport is often required and windy weather conditions are common. More than one boat has been damaged over the years and more than once, part of the team has had to remain overnight on offshore islands when the onset of dark prohibited further return ferrying. Fortunately, there was generally some covering material for bedding.

Clive (seated) waiting at the hide for the tide to do its job on Dream Island in Corner Inlet.
(Roger Standen)

Wind conditions were so bad on the first major visit to Corner Inlet in December 1981, that an unnamed island off Manns Beach was ironically christened Dream Island by Annie Rogers, a name which has remained ever since and may now have become part of the official cartography. On that first visit the team actually camped out on Dream Island for four days, (a major logistical exercise in itself), and with three days of temperatures in the forties, several people suffered severely sunburnt feet, with one person's swelling to the size of footballs!

Another Dream Island tale was retold by Pete Collins, a long-term member of the group who found it to be a frustrating place to catch. The land is very flat and the tide can either readily cut or make a lot more than expected. Anyone who has tried to catch there could empathise with this. On one particular day, quite a decent-sized

group had gathered but just missed a good catch of godwit. At the end of the day, in true maritime tradition, women and children were the first party to be transported back but Clive, "being the captain," had to get back quickly, so he nominated a lady newcomer as the one he would replace on the first trip. As they watched the boat leave, it was voiced among the "marooned" that the boat appeared to be struggling in the shallows and there was some concern about the boat's return. Clive had assured them they would be picked up. The newcomer responded that she hoped so as she had an appointment in Melbourne the following morning. As dusk turned to night, those on the island gave up on a rescue, especially as they could hear their "saviours" experiencing difficulty getting off the mud banks out in the gloom. Like true Clive disciples, they bedded down under hessian sacking using keeping cages for mattresses and cannon nets for pillows. It was better than being out on the water, stuck in a boat. In the morning they didn't have to "resort to cannibalism" as their rescue boat returned. However things were to go from bad to worse for the woman whose place Clive had taken. Apart from sleeping rough with the VWSG, someone had hit her car in the car park and it had only recently been repaired after a previous bingle. To add to her woes, apparently she hit a kangaroo on the way back to town. Undoubtedly she would shudder at the thought of "Dream Island". Not surprisingly she didn't make her meeting and was never seen by the group again.

When Lauren Jackson joined the VWSG, she had a better understanding of what was involved than the unfortunate woman above. She became aware of the saying that, "You weren't a proper member of the VWSG until you had been stranded on an island." Lauren was stranded overnight on Box Bank, near Dream Island, with Alice Ewing. Luckily they'd been camping there the night before and had tents, sleeping bags and food. They actually had a very enjoyable time. Clive had the less enjoyable job of explaining to Lauren's family that he'd allowed her to be stranded! Another 'badge of honour' Lauren earned, was to be covered in Crested Tern poo and regurgitates after a day tern banding with Clive! She really earned her stripes as she had to sit in that condition on a crowded Melbourne train.

Lauren met Clive in 1999, when she was just finishing school and about to study Conservation Ecology at university. She had no idea what a wader was and had never even considered going birdwatching! She was invited along to catch Sanderling at Sandy Point by Margaret Rowe, a long-term member of the VWSG. Lauren really enjoyed the day, and from then on regularly took part in VWSG fieldwork. In 2001 she went on the NWA Expedition and had a wonderful time. By taking part in VWSG activities, she was able to supplement her university studies with new knowledge about waders and practical information about field methods, all the while making useful contacts. Many of those she met in the VWSG continue to be close friends to this day.

One afternoon, resting in her tent at Corner Inlet in 2002, Lauren overheard Clive and Roz talking about the need for someone to manage the leg-flag database. She

sprang out of the tent saying, “I’ll do it!” For the rest of her university days, Lauren was employed to manage the leg flag database and type Clive’s emails. This provided her with financial support but she also learnt much about the flyway, the amazing migration routes of waders and all the teams of wader enthusiasts who were regularly reporting leg flag sightings. A regular correspondent was Adrian Riegen in New Zealand, who met Lauren at a conference in 2004 and was quite surprised as he’d “always pictured her as a little old woman typing Clive’s emails!”

Lauren completed her Honours year looking at the habitat use of Red-necked Stints, Curlew Sandpipers and Sharp-tailed Sandpipers at Werribee Sewage Farm. Clive not only set this up, but also provided all the background knowledge and contacts. Lauren even knew how to un-bog her car from mud thanks to her experiences in the field with Clive!

Another woman who showed interest in VWSG activities from an early age was Vivien Holyoake whose first memories of Clive go back to 1982. Her mother, Brenda, then in her mid-fifties, had joined VWSG as a founding member and became their inaugural secretary/treasurer in 1979 when she responded to an advertisement in one of the bird magazines. Brenda was very impressed with Clive’s sheer enthusiasm, ‘can do’ attitude and his incredible knowledge of birds but very quickly developed a sense of wariness, a common sense in fact, about some of the activities he expected of others.

Brenda regularly took Vivien and her three year old son, Jamie, wader banding but she took part with an attitude that although it was important to closely follow Clive’s instructions, it was equally vital to “think about one’s own safety and bodily needs and put them as first priority because Clive definitely would not.”

Vivien listed a number of rules to be followed by her family including; to refuse to carry cannons because of their weight, to never go in Clive’s “tinny” as he loaded the tiny boat to about eight centimetres above the waves and it “could sink at any moment,” let a few of the thousands of stints go quietly out of a corner of the keeping cage after several hours on a hot day, but only when Clive was not looking and to carry nothing other than your lunch when wading across the breaches in the spit at Werribee in thigh deep water because of the rips.

In fact, the phrase “Never be parted from your lunch,” was not commonly uttered until several years later. When Clive expected people to drop everything to go and twinkle for several hours, he meant it literally and would often be heard saying “Oh, don’t worry about your lunch!” Vivien remembers no-one else being impressed with, or following, this slogan.

Jamie remembered Clive as “a very big, very loud man in stubby shorts and a singlet several sizes too small.” Although he yelled often and could sound very ferocious,

Jamie conceded that he “was never scary because the next moment he would be roaring with laughter.”

Vivien’s first field trip with the VWSG was to Sand Island at Queenscliff where 2000 Red-necked Stints were caught. She was stunned when, at sunset, Clive set up lanterns so everyone could process in the dark. Having seen the route round the lagoons and out to the beach in daylight, she was very nervous about finding the way back with a three year old. To her amazement, she discovered that she was the only one present who had any qualms at all. They arrived safely back at the campsite at 11pm. Jamie and Brenda often got caught out late and often were so frequently cold that they extended the common saying to, “Snug as a bug in a picnic rug,” to describe wader banding trips.

Clive’s lateral thinking and his ability to solve problems decisively has always impressed, (and relieved), his band of fieldworkers. Vivien feels that such traits have tended to attract like-minded people in that regard so that what could have been quite a dangerous pastime has never produced a serious accident.

Accidents were certainly not being entertained when Jon Coleman hopped on a flight within the first few weeks of coming to Australia, and headed down to Victoria to get his Australian banding permit endorsed by Clive as the Australian signatory. It is never a simple thing to catch up with Clive, as Jon recalled…”If you can picture me, newly arrived in Australia with my family, all UK bridges firmly burned behind me, down at Swan Island, the military base near Geelong, with a new visa which had a good behaviour clause in it. Clive's first words were, ‘Great. Now just one thing, only Australian citizens are allowed on the base so if you’re asked, you mustn't admit that you’re not Australian or you could be in trouble.’ That scared the hell out of me for the whole weekend as I was definitely not, and probably very obviously not, Australian, and thinking I was about to be deported if found out. It didn't help that the first person Clive introduced me too, completely oblivious to my discomfort was the head of security for the island. The fact that the team comprised three Brits, one Canadian and a handful of true Australians is another great insight into Clive's focus on rules and his selectiveness in which ones he'll follow which also adds an element of excitement to banding with Clive.”

Adrian Riegen once asked Clive how he had managed to get permission to cannon net inside Victoria’s explosives storage site. His answer was, “Always ask for something you want, in such a way that the answer can only really be yes.” A rare skill if you can pull it off.

Compared to the English experience, missing sleep was not as common in Australia. Clive sometimes referred to reports from the WWRG, pointing out catches on the Wash where cannon nets were set at about 2.30-3am and then, when dawn came at about 6-6.30, birds were settled in the front of the net so the catch began. These catches occurred about once a month so the teams there would be far more sleep

deprived than in those Australia. Very few catches in Australia occur where the tides are such that the set up needs to be done before light. One example though was in 2013 when trying to land Red Knot at Thompsons Beach, north of Adelaide in SA. The knots were so wary that everyone needed to be along the beach hours before high tide, which meant leaving the house at 4am. Unfortunately these sacrifices came to nought as no Red Knots were caught over the four days. Personally, I doubt any of that team will volunteer to come on a catch with me as leader after that little stunt.

Vivien well remembers the time at Corner Inlet where she was asked to go and twinkle in the quest for stints. On a flat, sandy beach both Sanderling and stint sat 20 metres east of the net, so Clive sent Viv in her navy mac to lay flat on the beach with her feet pointing to the sea, pretending to be a seal. Clive told her to roll over and over gently to shuffle the birds closer to the net. It was working beautifully until Robyn said quietly to Clive over the radio from the firing position, "I think Vivien had better stop there. She is almost in line with the projectile." "Crikey, you're right!" replied Clive. So Viv lay still, hoping she was safe as they fired the net. She need not have worried as the projectiles sailed past her, high overhead, taking the net well out to sea along with all the jump ropes and pegs, looking rather like a magic carpet. Clive was astounded, but the pegs had proven to be far too short for the loose sand. It was a very wet non-catch and Viv's acting skills were wasted.

One memorable field trip for Lauren Jackson was to Sandy Point, in southern Victoria next to Wilsons Promontory. There the VWSG team had special permission for a limited number of vehicles to be taken onto the beach in an attempt to catch Sanderling. As usual, the team were in 4WDs, twinkling Sanderling along the beach. When the Sanderling had almost reached the catching area, the drivers were under strict instructions not to move their vehicles. What happened next couldn't be called an accident, as it involved conscious decisions. As the tide started coming in, the 4WD Lauren was sitting in slowly got more and more inundated, until the water was coming in the bottom of the doors and their feet were getting wet! Clive still refused to let anyone move so the driver acquiesced, if reluctantly. Lauren was quite bemused while helping to rescue the very wet 4WD after the catch.

Regular members of the VWSG team know to come well prepared for the often, long wait in the hide before catching. Some bring crosswords, quiz pages or books to read. Viv, Tessa and Maureen are the core of this group. Back at the Wash, the members were more innovative. While waiting for a tide to change, some tried to solve 'creative' puzzles such as how many wheelbarrows it would take to build the bund they were waiting on. There must be a few such mental exercises with which the VWSG folk could usefully fill in their time.

Many times, Clive would call on the phone to convince people to attend a catch pleading, "I need you to come. There's hardly anyone coming and we need as many

people as possible." Whoever was on the end of the phone would agree, feeling sorry for him, even if it meant changing their plans, only to show up and “every man and his dog would be there!” The most extreme of these tales came from Jim Wilson when he was living in Canberra. It was eight o’clock one evening when Clive rang, supposedly short of people to set nets for the morning tide at Corner Inlet. So Clive asked, “Could you hop in the car and come down?” When Jim replied that is was six to seven hours driving through the night, Clive’s quick retort was, “That’s OK, you will be just in time to help”. Jim thinks the set was before dawn and he didn’t make it, but when he arrived later in the day the first thing he noticed was the large number of people! Things hadn’t changed much from the WWRG days when Clive discovered that one of the new team members worked nightshift, to which Clive remarked, “Oh, you’re on nights are you, so you are free during the day!”

In most years at least one catch of over 1000 birds has been made and in 1993, three such catches were made. A very impressive 2563 Red-necked Stints were caught in one net at Inverloch on 20 November 1993. With the birds sitting in front of the net, the team had to wait for more than a nail-biting hour until the tide ebbed sufficiently for the net to be fired safely. A team of 30 people was present and all birds were banded and released within four hours, the task being completed in semi darkness.

This contrasts with another attempted catch at Barry Beach. Again, Clive sent Vivien on a twinkle, this time with a radio. She was to wade across the lagoon, along what he grandiosely called "an archipelago of islands.” Viv was often the one chosen as she would be wearing her gumboots. As she hesitated at a deeper section, Clive became his famously impatient self and told her to hurry up, adding, "Don't worry about drowning, but if you do, don't get the radio wet!" Everyone in the hide laughed out loud, forgetting to remain quiet and, not surprisingly, the birds suddenly flew off!

Another incident that Annie Rogers recounted was when Ken accidentally fired the wrong net at Corner Inlet. Apparently everybody except Clive was very sympathetic. I can empathise with Ken as I was involved with the premature firing of a net at Werribee. The main difference was that there were no birds near the net at Werribee, but poor Ken missed catching about 500 Red-necked Stint. Annie related that secretly, the others on that catch were delighted to have avoided the need to process the birds in cold, wet and windy conditions but, at the same time, each was so very glad it was not their blunder. This situation has also occurred back at the Wash, so it is not just we Aussies who make such errors.

In a very similar vein, the team was once trying to catch Eastern Curlew near Inverloch and, to increase their chances, two nets were set. Penny Johns no longer remembers exactly how many birds were in the catching area at the time of firing, but it would have been a substantial number. These birds are very difficult to catch as they are extremely wary, and many trips have been made there without success.

After the wrong net was fired and only one stint caught, it requires little to imagine the expletives that followed from Clive. Fortunately, the name of the poor soul on the firing box has been lost over time.

Some members feel that, at times, Clive's regard for their safety was lower than their own. An illustration of this was described as a 'hairy time' at Roussac's farm in Corner Inlet. Clive was driving the Land Cruiser with loaded trailer along the narrow wall that was built in the 1920s to hold back the high tides and protect the dairy grazing land behind it. Penny recalls clearly that the wombats had built their homes in the wall, leaving gaping holes right where the wheels should run. There was only just enough room for the vehicle on the crest of the bank so the holes could not be avoided. The team was duly instructed to fill the holes with net bags so he could drive along it! As so often happens with Clive, the risk was worth it and they got the vehicle along the wall to the catch site without further problems.

Despite these sometimes 'interesting' experiences, early on the VWSG was invited to take its cannon netting equipment to other states in order to assist in the development of banding activities. Successful visits were paid to Tasmania, New South Wales and South Australia. Later, they also went to the Northern Territory. VWSG equipment and many VWSG members were involved in the initiation of wader banding in NWA in August 1981. VWSG members have strongly supported the activities there since then.

Being Clive, he still laments the only time he failed with his use of cannon-nets was with, what he refers to as "Inka Veltheim's blessed Brolgas." These birds proved to be the most difficult species for Clive to catch. Inka aimed to catch Brolgas and apply transmitters to them in order to understand their movements across southwestern Victoria and South Australia. After some false starts, the net was able to be fired once in Clive's presence but the birds escaped from under it. Inka, however, eventually made one catch of a family of three birds using the cannon net. They certainly proved much harder to secure than Clive had ever thought. Most of the birds carrying transmitters were caught either by running them down as chicks, or using noose mats, after Inka had enlisted the help of an American crane expert.

Even though there have been countless situations where individual catches have been thwarted, Clive was never outsmarted by waders to the extent that they could not be caught. Some of the most common reasons for unsuccessful catches are when the birds don't land in front of the net, when they stand too close to the net and therefore are in danger of being hit by the trajectory of the net as it fires, when tides are unexpectedly high or low or if the birds are spooked by human or raptor movement. A classic example of this was when, after placing geolocators on Eastern Curlew at Inverloch, in southern Victoria, the returning birds proved very elusive and some thirteen separate attempts were made, over about eighteen months, for only two successful catches, the first and the last. But although about a dozen people

travelled to Inverloch, set nets, waited, packed up the nets and usually made the trip home empty handed, the last catch in particular, made it worthwhile. Ironically this was without Clive, who was in Broome at the time, trying to retrieve geolocators from Red Knot. Prue Wright led the catch and Steve Johnson was the local 'recce' king who calculated just where the birds would land. That day, nine curlews were caught, five of them carrying geolocators. This provided six complete migration tracks since one had continued to work for two years. Generally, if the primary target of a catch is unsuccessful, Clive will resort to the second or third priority, but in this case, there was a need to keep the site where the curlews roosted undisturbed as they were extremely wary. Clive's patience is unbelievable and his persistence to "give it one more try" paid off so many times, in this instance in his absence.

In the early days, almost everyone had to learn everything from scratch, including methods of extracting birds from nets, guidelines to age birds and how to record biometrics and moult. Nowadays the group has a large proportion of its members capable of undertaking all of these activities. Nevertheless there is a steady turnover in participants with newcomers present at almost every fieldwork session.

Geographically, the group has expanded its range to include banding expeditions to and membership from, South Australia and King Island. This has allowed a greater volume and much improved data to be gathered for both Sanderling and Ruddy Turnstone.

Both VWSG and AWSG in NWA have always followed a strong "hands-on" approach to visitors and casual participants. Clive has often said, "We never have visitors, only participants." Any new person joining the group or even a casual passer-by, who expressed an interest, was strongly encouraged to take an active part. They were particularly encouraged to join in operations such as net furling, carrying birds from extractors to the keeping cages, holding and filling bird bags and carrying boxes. If time and sufficient numbers of experienced people allow, newcomers can become part of the whole gamut of processing, banding and flagging and of course releasing birds. Newcomers are encouraged to handle the birds even though some are reticent at first, as they invariably enjoy such an experience, especially if at the end they are able to let the bird fly back into the wild.

This is particularly noted because it is known that "visitors" to banding activities elsewhere in the world are sometimes left to look on but are not allowed to take any active part. Clive is sure, and it makes sense, that the VWSG/AWSG process leaves people with a much more lasting and more favourable impression.

The long distance record for wader travel was held for many years by a Curlew Sandpiper, which was banded at Werribee in January 1988. When it was recaptured by Pavel Tomkovich in its breeding area in the Taimyr Peninsular, northwestern Siberia, on 24 June 1991 it had travelled a distance of 13 100km. The circumstances

of this recovery were particularly interesting. An aggressive male bird had been noticed carrying a metal band. Pavel cleverly decided to place a stuffed decoy in front of a small spring net and when the banded bird immediately attacked the decoy, it was easily captured.

Another surprising recovery, which occurred in the early days of the VWSG banding activities, also involved a Curlew Sandpiper. It had been originally mist netted, also at Werribee, but back in 1976 and was recaptured on 29 August 1980 at Point Calimere in southeast India. This is the furthest west at which any wader banded in the flyway has so far been recovered. More recently, one of the most important recoveries was a Red Knot banded as a chick in the Chukotsk region, in the far north-east of Siberia, in July 2003. This bird was recaptured at Corner Inlet in July 2004. This was the first direct proof of the location of the breeding grounds of the Red Knot population that visits Victoria.

Terns have also been an integral part of VWSG activities. Efforts have concentrated on two tasks, the banding of tern chicks which breed in Victoria and the cannon netting of adults of species that visit from the Northern Hemisphere. In terms of numbers, Crested Tern chicks dominate. More than 70 000 have been banded, mostly since 1985 when habitat management was implemented at Mud Islands, in Port Phillip Bay, to provide terns with an area safe from storm tides. The result has been spectacularly successful in increasing the number of breeding pairs of Crested Terns in the central section of the Victorian coast, from under 1000 pairs in 1985 to around 5000 over the following two decades.

Dave Cropley was in the team that returned on a Parks Victoria boat after a banding trip to Mud Islands and, being very cold, dirty and smelly, they went straight to what Clive thought was the Parks Office at Queenscliff to shower, as they had done several times before. They were all gratefully clean and warm when the 'new owner' appeared asking what was going on. The place was now occupied by a different business!

During one of the summer catches for terns at Corner Inlet, on a flat sand island, a thunderstorm broke over the team. As they lay sheltered under a tarp, Clive suddenly yelled, "The cannons!" He had just realised that the cannons were upright and being used as tent poles, not a smart idea with lightning in the area. Being metal and the tallest thing on the island, a mad dash ensued to put all the cannons and projectiles at the other end of the island, all of 50 metres away, to act as a lightning rod while the team lay as flat as pancakes under the tarp until the threat passed. At least Clive had a team there that day. Another time, recalled by Roz Jessop, there was lightning flashing when a group was at the Manns Beach pier and they refused to board the boat. Clive loaded the cannons and took off, sending the boat back for the others with a message that "It is OK on the island," but the team still wouldn't budge, no doubt leaving him somewhat annoyed, alone on the island.

For some time, the group could not afford portable radios. A field telephone was used for communication between the firing hide and banding station while handkerchiefs or arm signals enabled more distant communications. On one occasion at Corner Inlet, the net was fired when the catching area observer took a handkerchief out of his pocket to blow his nose! Fortunately there was already a decent number of Bar-tailed Godwits in the catching area.

It goes without saying that equipment is an essential part of the program so it is always disappointing when it is unavailable, particularly if it disappears. There have been a few instances where gear has been taken, including two large cannon nets, which were stolen. One disappeared from a storeroom in the shearing sheds at Werribee, where the group was allowed to keep their equipment. The other could not be located one morning at a sandy spit on Spermwhale Head in the Gippsland Lakes. An overnight 'guard' slept in his car nearby, but heard nothing. It seems likely that a small dinghy, involved in night shrimp catching, had been pulled across the spit and thereby encountered the well-camouflaged net. Finding a 30 x 13 metre net would have been a dream comes true for a fisherman. It was suggested that the next time the guard attach a string to his big toe so that he would be awoken by anyone tampering with the equipment. On another occasion a saboteur threw cannons and projectiles into deep water from an overnight stockpile on the end of one of the islands in Corner Inlet, presumably either because they objected to the process of catching birds or simply to be mischievous. In the greater scheme of things and across 35 years of catching, these losses are probably quite minor.

Clive instigated the first synchronized counts of waders for Victoria when Peter Dann undertook one on 1–2 December 1979. Organizing these counts was, at first, an important VWSG activity but after the formation of the AWSG, the National Count Coordinator took over responsibility. Nevertheless, a substantial proportion of those involved in the bi-annual wader count program in Victoria over the last 35 years, have been VWSG members. The group has had an active Conservation Officer for the last 20 years, initially Jeff Campbell and now, for over a decade, Doris Graham. They regularly provide data and views on development issues and for land management purposes. It also undertakes direct conservation work, the most significant of which was a fox control program, funded by Coast Action/Coast Care, at Corner Inlet.

Clive's austere spending habits should be mentioned. For him, nothing is unusable and if he is to agree to replace anything, the piece of equipment or tool must have been mended many times over or have been thoroughly worn through. Nothing was thrown out in my first 15 years with the group. So I was gobsmacked when I heard Clive say in 2013 that a set of scales could be ditched if Graeme Rowe couldn't fix it with relatively little effort! The man had mellowed.

In his defence, the group needed to exist quite frugally for most of its history, with a $10 annual subscription in 1979 rising to only a $20 subscription in 2014. Most of

the activities of the group have been financed by the volunteer members themselves. Vital assistance with funding to purchase key pieces of equipment has been provided over time by the Victorian Department of Sustainability and Environment (and its predecessors) and other generous organisations and individual donors. The result is that the group now has an excellent range of equipment in good condition and a modest positive bank balance.

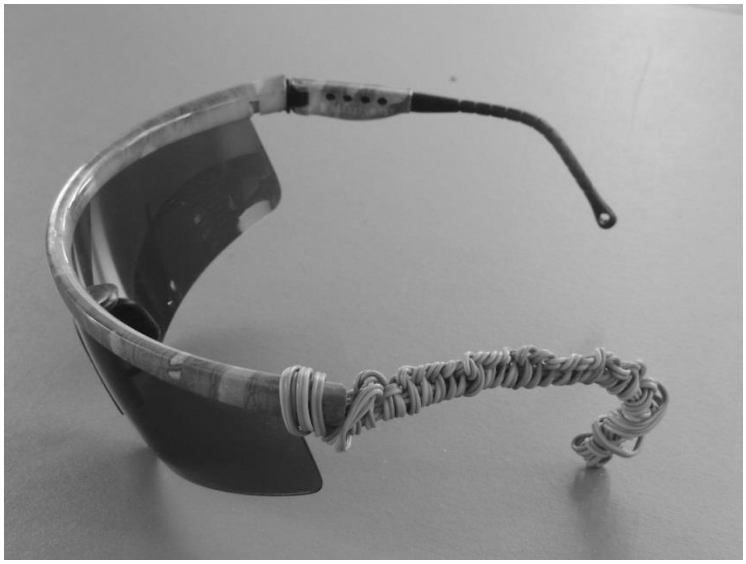
More than fifteen years ago, Clive's penny-wise attitude frustrated Jim Wilson when they sometimes cooked together on the South Australia banding trips, where everybody provided for themselves. The outcome was that Jim cooked on a stove that he was convinced was 25 years old, maybe Wash vintage. As the knobs were missing, pliers were required to operate it. I believe that same cooker, or one in similar condition, was in operation years after Jim was around.

When Clive camps out for a catch, which he still does, although in later years he has commandeered a bed if it is at all possible, he still uses the same sleeping bags that he bought by mail order in 1962. He likes the versatility of using just one as a sleeping bag with the other as a duvet, or if it is really cold, with one inside the other. When he saw the self-inflating mattresses I was using when 'camping out' in the administration block at Werribee in 2013, he remarked that he quite liked them and would ask for one for his birthday. How many people would ask for a new camping mattress at the age of 79?

Three to four metre long pieces of galah wire are commonly used to attach the fuses to the firing cable. They can only be used once but, as nothing could be wasted, team members collect them for their own, or others', use. It is referred to as galah wire because it was originally pink and grey, the colours of the common Australian cockatoo and, even though it changed to green many years ago, the name has remained. Some of the many uses that have been made of this wire include; staking vegetables in the garden, repairing shoes by weaving a patch where the back split, setting up a pulley system to open a window from the outside, creating a new arm on a broken pair of sunglasses, holding up the jockey wheel handle of the VSWG trailer to avoid it hitting the ground, tying a flea collar to a Fox Terrier and holding up trousers as a belt. No doubt such ingenuity pleased Clive.

There is a small group of ladies in the south-east of South Australia who call themselves the 'Dollies'. They are led by Maureen Christie, who is as almost as obsessed with waders as Clive. Maureen's group go out in a team of sometimes two, often three and set their two cannon net to catch a few Ruddy Turnstone or other birds in their 'patch'. The ladies coined the term 'doing a Clive' for those having a toilet break. It refers to Clive's method of relieving himself during a catch. After alighting from his car, he leans on the side with one arm bent, forehead resting on the arm with his other hand between his legs. By staying close to the car, this was

the technique he believed caused least disturbance to the birds, even if it wasn't the most pleasant view for those in the cars behind.



Ingenious and skillful repairs to the arm of sunglasses using galah wire.

(Maureen Christie)

The importance of analysing and publishing the data collected by the group has been recognised since its formation. As early as 1981, the committee encouraged joint authorship of papers by suggesting that those having significant input, whether by major contribution to the fieldwork or by carrying out the analysis or preparing text for the paper, are included as co-authors. Over the years many members of the VWSG have contributed to papers and articles in a wide range of journals and technical publications. During the late 1980s and early 1990s Mark and Terry Barter worked diligently to computerise the group's data. Then Ken Gosbell organised the input of data by a team of VWSG members. An upgrade of the database program, especially in the data input area, was completed by Heather Gibbs, who managed both the VWSG and AWSG databases for banding and flag sightings for around eight years, until her untimely death in 2012. This has been the foundation for over 250 papers using the VWSG's data that have now been published in the scientific literature. Most of these have appeared in the AWSG journal, Stilt. However other papers and short notes have appeared in Emu, Ibis, Arctic Birds, the International Wader Study Group Bulletin and a range of other journals. The annual VWSG Bulletin has also been produced with 37 issues to date.

Other articles have regularly been produced for the Birds Australia (now Birdlife Australia) Wingspan, for The Babbler (the quarterly publication of the Victorian group of Birds Australia) and for the AWSG newsletter, The Tattler. VWSG activities have occasionally been shown on television, and are frequently mentioned on radio and in the print media.

There has been a gradual change in the emphasis of VWSG fieldwork over its 36-year history. Initially the main target was to get birds banded in order to add to

understanding of their migratory behaviour. Achieving this was initially dependent on recoveries and recaptures but movement data have been greatly supplemented by flag sightings over the past 23 years. Whilst the prime interest has always been the migratory waders that breed in the northern hemisphere, the group did undertake an intensive project for ten years (1979–1988) on Double-banded Plover. Over 400 movements between New Zealand and Australia were recorded and it was shown that only the population breeding in the centre of the South Island came to Australia in the winter.

Pied and Sooty Oystercatchers, resident species, have also been intensively studied for the past 25 years. These species have been found to be more mobile than previously thought, with Pied Oystercatchers moving as far northwards as the south Queensland coast and as far westwards as the mouth of the Murray River in South Australia.

Around 20 percent of the waders caught by the group are retraps of birds banded in earlier years. The oldest Red-necked Stint and Curlew Sandpiper recaptured were close to 20 years old, whilst some Pied Oystercatcher, Bar-tailed Godwit and Eastern Curlew reached the age of 22. In most other species, birds of at least 15 years have been recaptured. However, at 3-5 years, the average lifespan of waders is much shorter.

During the last 22 years, the emphasis of fieldwork programs has gradually transferred towards obtaining information on annual breeding success and on survival rates – the key parameters determining population levels. The "summer program" now largely revolves around obtaining adequate catch samples of each species at a range of sites in the November – March period, which is when populations are most stable. The proportion of juvenile/first year birds in catches is used in an index of breeding success for the previous northern hemisphere summer. The VWSG now has an invaluable set of catch data stretching back for over 35 seasons on Red-necked Stint and 34 seasons on Curlew Sandpiper and nearly as long for several other species. Continuing this data collection will be the main priority into the foreseeable future, to maintain the tenacious pursuit of long-term data sets that has occupied Clive's focus for over six decades.

The VWSG continues to help others in their studies. Recently this has involved making birds available to veterinary experts for cloacal swabbing and for blood sampling to test for avian-borne diseases, especially the H5N1 strain of Avian Influenza. Another addition to the portfolio of VWSG study techniques in recent years is the collection of blood samples for DNA testing to facilitate sex segregation for some biometric analyses and to examine differential migration patterns of the sexes, the most extreme case being the Grey Plover, where almost all the birds in Victoria are females. Feathers are now being systematically collected for studies based on stable isotope analysis. By analysing feathers that were grown at a known

location, this technique is proving an increasingly helpful tool for obtaining more detailed information on the migration of different wader populations and sub-populations.

In the 2005 Stilt paper, Clive wrote, “The hope is that satellite transmitters will soon have been proved to have become small enough to be successfully carried by species such as Bar-tailed Godwits. It is still unclear whether they make a stopover on northward migration between leaving Victoria and arriving on the Chinese coast.” This proved to be quite prophetic, as transmitters did become small enough and it is now clear that they do not stop on their way to the Yellow Sea.

Edward Jackson, while outlining what was happening in Britain, brought into focus the parallels with this move to survival rates in Australia too. He explained that for much of the British ringing scheme's history, migration studies were important and still are. “However, concerns that the population trends for many resident and migrant species in the UK were going the wrong way, have meant that the primary scientific focus has now switched to monitoring breeding productivity, juvenile and adult survival rates and post-breeding dispersal, to better help understand the ecological drivers of these changes.”

A great many people have been VWSG members and/or have participated in its fieldwork activities over the years. Cannon netting teams typically comprise 15 to 25 people, although more commonly 10 to 15 in recent years. Formal membership has stabilized at around 150. When he wrote the history of the VWSG, which formed the basis for this chapter, Clive was at pains to acknowledge a long list of people and organisations whose assistance was essential to the achievements of the group.[55] If he was writing this, he would want to reiterate that, but suffice here, is a precise statement from Clive, “The achievements of the VWSG would not have been possible without the enthusiastic and sustained efforts of a large number of people over a 36 year period.” It is important to point out that everyone involved with the VWSG are volunteers and range in age from three year olds to 90 year olds.

Clive’s network spreads like fungal hyphae throughout our community. In the newsletter of the Queenscliff Cruising Yacht Club in December 2011, was some news from the VWSG. This was contributed by their Past Commodore, Greville Gowty, who had recently written to them enclosing a copy of the VWSG Bulletin, which included some interesting facts about birds and their migratory habits around Queenscliff and surrounds. As Greville pointed out, “Many of our members have contact with the VWSG visits to Sand Island as they work on the northern bush area of our lease, noting and tagging birds during their visits. Queenscliff Cruising Yacht Club has always supported this group and, in turn, they have been strong supporters of our club as excellent protectors of the land and the habitat to which these birds return annually.”

[55] Minton 2006a

Commadore Brian Golland went on to note that Clive was a good friend of Greville and their relationship continued to provide excellent support and close co-operation between our organisations in this important work. This shows again the importance of Clive's vast personal network and it seems everyone he knows is willing to help his cause.

Though he is frugal in some regards, Clive's generosity to people is significant. Each year, for the VWSG AGM, he and Pat host 50-70 people at their home. Members come for the whole day and evening, to mend nets and other equipment, to socialise, to participate in the AGM and, in the evening, to hear illustrated talks and presentations from their peers.

On the day before the 2014 AGM, Clive was just finishing his lunch before trialling a new typist. So, when the phone rang, Clive declared it would be Laura saying she was going to be a bit late but, to the raucous laughter of those present, it was found to be Laura alright, but she was standing at the front door with phone in hand, after not being able to make herself heard! It would come as no surprise that Clive has remained a relative dinosaur when it comes to computers. His all-consuming passion for a range of bird activities, particularly his fieldwork, has never left him the considerable time required to master this technology. Perhaps after a lifetime of dictating to secretaries it would have been hard to change.

When, as a student, Lauren Jackson began typing for Clive in 2002, she had to become quite intuitive to understand Clive's approach. An early encounter began like this, "OK, turn on the machine. Now I want you to send an email to that person, the one who lives in Queensland..." By 2004 Lauren had become familiar enough with his ways, his work and his contacts to be able to interpret who or what he was referring to when he spoke in such an oblique fashion.

With many team members coming and going on different expeditions, Clive also faces the problem of instantly recalling many names. One strategy he uses to circumnavigate this problem is to call every young person "Sunshine," even his own grandkids at times. Clive couldn't remember Lauren's name until he'd known her for two or three years. Clive most commonly called her Rachel or Karen. One year she received a Christmas card from the VWSG, addressed to "Karen Rachel Sunshine Angel!"

This confusion doesn't only apply to people's names. One day when Lauren was typing his emails, he asked her to get the "Sandstone Turnderling" paper, drawing fits of laughter from them both. For the non-wader reader, this is a mixed up combination of the two species of bird referred to in that paper, Sanderling and Turnstone.

Although flummoxed by computers, Clive was totally enamoured with emailing, though not to the point of typing them himself. After he hurt his back, Lauren recalls

having to drive to Clive's house, pick up Pat's laptop (whether Pat was pleased with that arrangement or not), then drive to the hospital where Clive was recuperating, so he could dictate emails from his hospital bed. He'd even talk the nurses into providing cups of tea for them both!

At times Lauren found herself typing emails for both Clive and Brian Little, both at the same time! They each vied for her attention and, after an exhausting few hours of dictation, they would take a break where they would "sit together on Clive's couch and discuss their medical conditions". Imagine a 19 year old girl, listening to a pair of men in their late 60s discussing their ailments!

Within the birding world, in some circles, the catching and banding of birds is contentious and wader studies is not exempt from complaints from those who believe it is harmful to the birds and unnecessary. While Clive has had his detractors, their number would have been of a considerably smaller magnitude than that of eminent scientist Charles Darwin. As his great-great grandson Randal Keynes wrote, Darwin kept the essay on his theory of natural selection under wraps until he was "ready to cope with the close and fierce criticism to which his argument was certain to be subjected."[56] By comparison, criticism of Clive is relatively minor.

There have been various periods of controversy on Birding Aus, a blog for bird enthusiasts in Australia, when those opposing banding for various reasons, including the health of the birds, call for its prevention and supporters argue the benefits gained from the studies. At one point, Clive sent a letter in to refute some of the claims being made. It is largely reproduced here, to demonstrate his capacity to harness the science and present data with clarity, to bring people along with him on the long journey of understanding wader migration. Some small changes have been made to avoid identifying any particular objectors.[57]

"*Firstly I would like to correct a misunderstanding (or a mis-quote). Almost all coastal migratory waders are extremely site faithful to their non-breeding grounds - that is, individual adults typically return to the same non-breeding area year after year. A few individuals relocate, either permanently or temporarily, to other non-breeding grounds, especially the Sanderling, Red Knot and (to a lesser extent) Bar-tailed Godwit. There is also some movement of birds in their first year as they explore their preferred non-breeding area, and of course birds on migration can be seen far from the non-breeding grounds on which they were banded. Yet emerging data suggest that in many species, even migrating birds are highly site faithful, using the same migratory stopover sites year after year.*

The reason no flagged birds are seen at sites where no banding occurs is because any birds present would all be immature birds (mostly first year) which had not been

[56] Keynes 2001
[57] Birding Aus 2014

exposed to flagging. All of the flagged birds seen in those areas will have been flagged elsewhere in south-east Australia and most would have only been temporarily stopping in those areas during migration. (Surprisingly, quite a few waders make a short move from Victorian and Tasmanian non-breeding areas to South Australia in March/April - at the beginning of their northward migration – presumably to reduce the transcontinental first leg.)

I would like to now present one or two specific pieces of information to refute people's claims that flags reduce birds' survival, particularly if they are migrating.

a) Red-necked Stint

Ken Rogers has calculated average yearly survival from previously banded birds. The Red-necked Stint is the most suitable species for such an analysis because it is the most widely banded and flagged wader in Australia and is one of the smallest species, so should exhibit problems if there were any.

Period	*78/79-88/89*	*89/90-94/95*	*97/98-03/04*
No. birds caught	*11 258*	*6 186*	*5 849*
Average yearly survival	*75.10%*	*78.20%*	*78.80%*

Data was analysed for three marking periods, as shown in the table above. In the first period birds were only given metal bands. In the second period many also had flags (flagging in Victoria commenced in 1990). In the third period almost all carried a flag (as well, of course, as a metal band). The annual survival rates for all three periods were similar. They showed that three out of every four Red-necked Stints successfully returned to the banding area after completing their migration to their Northern Hemisphere breeding grounds (a 24 000km round trip). This is the level of survival rate which would be expected for a species of this size based on wader survival rate analyses carried out elsewhere in the world. It strongly demonstrates that flagging birds does not prejudice their survival and that a high proportion, even of this small species, returns successfully from migration each year.

b) Larger Waders

Resighting rates and calculated survival rates of some of the medium and large size migratory waders in Australia show annual survival rates in the 80-93 percent range. (It is normal for larger birds to have higher survival rates).

Furthermore recaptures up to 15 to 20 years after the original marking have been made on flagged birds of most species, including the smaller species such as Red-necked Stint, Sanderling and Curlew Sandpiper. Such birds will have made a migration to the Northern Hemisphere each year, with a 20-year-old bird having flown almost 500 000km on migration alone!

c) Ruddy Turnstone

Another example of the lack of any negative effect of flagging on survival concerns a Turnstone carrying an engraved flag - which enables it to be identified in the field with the aid of a telescope or telephoto camera - which has been seen on migration through Taiwan in seven of the past eight migration seasons (four northward, three southward). And of course the Turnstone which made two 27 000km round trip migrations from Victoria to Arctic Siberia, through Asia and then back via the Central Pacific, was carrying a flag - and a 1g geolocator attached to a second flag!

Clive went on to take some of the blame for people's objections to banding on the grounds that it was harmful to the birds, by adding that he should have communicated the Red-necked Stint survival results via a posting on Birding Aus when they became available. But he hoped that having set out just a little of the large amount of evidence, people could accept the fact that flagging waders does not impair their survival.

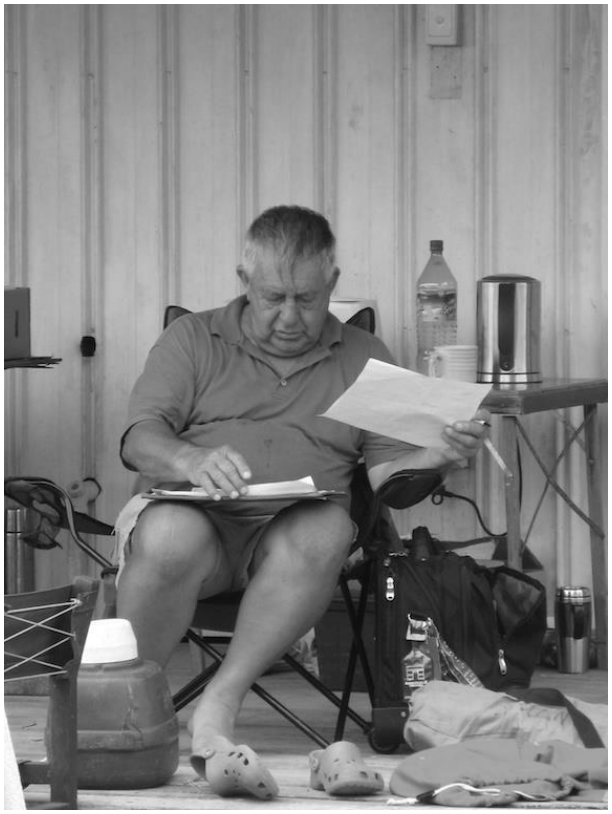
He went on to point out that:

a) Those persons who have volunteered so much of their time to further wader studies are devoted to the wellbeing of these birds and are the last people who would want to be involved in any activity which prejudiced their survival.

b) Scientists take great care not to carry out studies which generate results that are biased by, for example, marked birds behaving differently or surviving less well than the norm, as this would compromise the scientific integrity of the results, the reputation of the researcher, and harm the very species the research is designed to help protect!"

David Hollands told one of the key stories that proved to be the genesis for this book at the celebratory lunch held by the VWSG for Clive when he won the Eisenmann Medal. The story was about their attempts to get photos of Ruddy Turnstone to use in a book they were writing together. Clive knew of a beach at Port MacDonnell in SA where they were likely to get a good chance of getting close enough to photograph the turnstone. As David had to be in SA before their arranged meeting, he said to Clive, "There is too much camera gear to take on the planes so I will leave it here with you to bring over." When David landed at Mt Gambier airport, he was met by Clive who happily reported that he had checked the site and the tides, adding, "Get your gear ready and we'll head straight down to the beach." When a surprised David asked the whereabouts of the camera gear, the response was, "Oh Shit! Bloody Hell!" Clive had forgotten it! A solution was found with the kind gesture of Roger Minton who, following a quick phone call from his father drove west towards Mt Gambier while the others headed back toward Melbourne. They met in the middle, transferred the gear, made it back to Port MacDonnell late that night and took the photos the next day.

There is another role that Clive fulfills with the VWSG which is probably not fully appreciated but which reflects his desire for veracity of data. At the end of what has often been a long, tiring day in the field, Clive checks every field data sheet from the catch to ensure the records have been made correctly. He checks every entry of every sheet. If something erroneous or surprising is found, he makes contact with the scribe or the leader of that banding team to clarify or correct it. Doing this promptly is, Clive knows, the best chance to rectify an error.



After a long day in the field, Clive checks the field data sheets from the day's catches.

(Adrian Boyle)

In SA, for example, the team is fortunate to have the use of a small fishing hut, right on the beach at Port MacDonnell, owned by Paul Feast. Once the field work is done, the team returns to their base to clean nets, clean and reload cannons and cartridges and load the trailer, after which they retire inside, exhausted and ready for a quiet drink and a bit of a relaxing chat, as meals are prepared. Meanwhile, Clive continues to carefully pour over the data sheets. Through all the banter and activity within the close confines of the small room, he manages to stay focused and complete his task. He occasionally looks up to partake in a savoury on offer or to take another swig of his ginger beer but, possibly helped by his impaired hearing, Clive is able to ignore the revelry around him to complete this important task.

Many people, apart from those close to Clive, would also not realise that despite his commitment with birds, and his enjoyment of sport, Clive also indulges in opera. One example of this was a period when he organised tickets for a group of friends for the Victorian Opera's "Sing Your Own Opera" until the conductor moved cities and the program fell through. As if he wasn't busy enough!

Clive is also a prodigious communicator. Whenever he sends anyone a note, email or other communication providing or requesting information, he would always try really hard to add a little complimentary comment at the end with something like, "I noticed…..," "Well done on…..," "It was good to…." So there was always something positive to go with it. This has been a successful modus operandi that he encouraged me to follow.

Even in more formal publications, Clive has been a master at including people and giving recognition and positive feedback. This can be illustrated by the list of 57 people he referenced in his note in the VWSG Bulletin 31, when he said: "Every member of the VWSG contributes something, even if it is only a membership fee! Many take part in the most critical activity – fieldwork, often an arduous task and sometimes in inclement weather conditions. Many members also carry out a range of other activities on behalf of the Group like entering data into computers, making leg flags, recceing, washing bird bags, etc. Whilst people are hopefully appropriately thanked at the time for these efforts it seems worth setting out some of the specific contributors/contributions made by members rather than just making the usual broad acknowledgement. The list below is a "top of the head" first attempt to recognise individuals' contributions. Would people please let me know of significant errors or omissions?"[58]

Those 57 people listed had their personal 'contribution' described. This is just so typical of the man and part of his approach to keeping people interested and encouraging a strong sense of belonging.

When Clive retired from business at the age of 58 to pursue his interests in waders, one of his objectives was to comprehensively record his lifetime knowledge of ornithology, especially waders. Having written and encouraged others to write hundreds of reports and papers, he still has some 100 plus titles of research papers about the banding, flagging and geolocator studies undertaken across Australia that need to be written. Due to ongoing field work, the need for more papers continues to accrue. All attempts to chain Clive to his desk when there are catches to be made have been fruitless. He cannot miss a catch without a very strong reason and writing papers isn't enough.

Only once in twenty years of knowing Clive has a word of despondency ever come from his mouth in my presence. That time was in 2013 when he was verbally reporting on the developments occurring in the Yellow Sea, where most of Australia's waders pass through on migration. He started this report with the following introduction:

[58] Minton 2008

“In relation to the threats to habitat that occur at stopover sites, we in Australia can't comprehend the scale of the pressures from development that are happening in the highly populated Yellow Sea, bounded on the west by China and the east by Korea.”

He then went on to list a whole package of proposed developments for the area, some on available land, but some to be placed on future reclaimed land. This list was sent by David Melville, another English waderphyle. Although he now resides in New Zealand, David conducts research, searching for leg flagged waders, in northern Jiangsu where a new development, Green Binhai Port, was planned. This was to involve the accompanying new developments; a railway, an aluminium smelter, coal handling facilities, a liquid natural gas terminal, wind farms on both land and sea, four 300MW power stations, six 100MW power stations plus two 1000MW power stations. At the time, this project was worth well over $15Billion and serves as an example of the scale and complexity of development in the area. A sign issued by the Commission for Coastal Protection clearly showed the priorities by the government at the time: "Construct the firm coastal defence as Great Wall – ensure the healthy development of economy.”

Earlier, at a 2012 forum at Birdlife Australia’s Melbourne base, Clive gave a presentation on developments in wader studies. At the end of the presentation, there came a question squarely related to the situation that had made Clive feel so flat. It referred to whether the studies undertaken were stopping the destruction of the mudflats in the Yellow Sea. Clive answered in this way:

“Although we are generating scientific information and new information for science, the great motivation behind everything we do is to get information that can be used for the conservation of the birds themselves and the big threat, as you say, is the habitat, the stopover habitat. The answer is all the data, the count data, the recoveries, the flag sightings and the even greater refinements of knowledge that we are now getting from geolocators is attempting to be put to use. There are many ways that can be done. The most direct thing is that very clearly, the population count data has shown, that many wader populations have gone down by more than 50 percent.”

“From the banding and flagging data we can show where the key stopovers are and very convincingly, these are around the Yellow Sea. By looking at everything to do with these populations, you can say that it just must be changes in the Yellow Sea.”

“Almost every species of wader that we’ve got goes through the Yellow Sea and many of them are dependent on critical bits of intertidal habitat, like the Red Knot, which are very specialist feeders. There is only one bit of the whole of the Yellow Sea that 60 percent go to that has just been reclaimed. The Red-necked Stint also goes to the Yellow Sea, but it will feed on a pond, a saltflat, a salt lagoon as well as the mudflats. It is ubiquitous in where it will go, and it’s able to adapt and its population has not gone down significantly, but for those that are dependent on the [particular] habitat of the *shore it is very, very important. That knowledge that we’ve gained is fed into*

governments and international conservation organisations, which do their best to lobby the Chinese and the Koreans."

"But those countries' environmental considerations have a very much lower profile than they do here, and in fact there is almost no environmental body in China. I had hoped that the international fuss that was made over the Saemanguem sea wall, which, although it was not stopped in the end, created such huge international waves and negative criticisms of Korea that I had hoped it would stop further developments in Korea. Well it hasn't. They are still taking away new pieces of estuaries, etc. on the west coast of Korea. It has slowed it down but has not stopped it."

"The good thing is that it has a world profile" was the most positive thing he could finish with.

That was all the positivity that Clive could muster because it is not a healthy outlook. However, as is always the way, he was able to create a compelling argument by bringing the facts to the story. With such skills, it is easy to think that he should be more actively involved in the political process across the flyway. However, Clive knows it is not the place for him. He would become too frustrated by the slow pace of negotiations. Nevertheless, he has huge admiration for those whose make-up enables them to participate and convey the very messages that Clive is helping to build through the research programs he leads.

9 Northwest Australia and the AWSG

On Saturday 15 March 2014, ABC television broadcast a show called 'Hello Birdy' hosted by actor William McInnes. This final episode of Series 1 was about bird travellers – long distance travellers. All who know Clive would expect that he would be included in such a show and indeed he was. The part of the show highlighting the migratory waders was set at Roebuck Bay and Clive was there on an expedition, explaining how and why they catch these amazing birds. William described the catching process as being run with military precision and the 'Commander-in-Chief' was Clive Minton, the "grandfather of wader studies." As he watched Clive assembling the hide that would be their 'home' for the following few hours, William asked "How long have you been doing this hide making Clive?" The answer was, "That was one of the first skills I learnt when I was two – I always was building dens at the age of two – and I'm still doing it!" Later in the program when they were sitting in the hide together, waiting for the tide to bring the birds in closer to the net, William asked "so what do I do when I get down there?" To which Clive immediately responded, "You do what you are told." He later was heard to say that what was meant to convey was that William would be told what to do when he got down there, depending on the circumstances of the catch.

This small encounter between the two summarises Clive's life. He has been in the bush learning skills from a very early age and continues to do so. He is always prepared to share his knowledge and understanding of birds, their study and the results of that work. Along the way he has achieved an enormous amount through both his charm and his dictatorial authority, which though tempered a bit in his older age, is still very much evident when the action is on during a catch.

However, Clive's history with Roebuck Bay and NWA began over three decades earlier. He documented the history of the NWA expeditions in a paper in Stilt, which has been a valuable source of material for this chapter.[59]

The AWSG was formed following a meeting in mid-1980 in Melbourne organised by Norman Wettenhall, who was then president of the RAOU (now BirdLife Australia). It was attended by representatives from all states as well as other individuals and organisations interested in wader studies in Australia. Norman was very proactive in getting Clive involved in Australian birding. He had read in the BTO newsletter about a person with a big reputation in wader studies was coming to Australia. Contact was duly made and once Pat had joined Clive, they were invited around to the Wettenhalls for drinks. Norman, like Clive, made things happen but unlike Clive, he did it in a very quiet manner.

Clive became the inaugural Chair of the AWSG and held that position until Mark Barter took over in 1985. It was decided that the initial priorities of the AWSG would be to organise a comprehensive census of waders throughout coastal and inland Australia and to encourage more widespread banding activities. Funding for a count coordinator for a five-year program was obtained from the federal government and John Martindale was appointed to this position. He and Clive organised the first exploratory visit to investigate northern Australia in 1981.

In areas close to population centres, the task of counting waders was relatively straightforward but for the remote, and often extremely inaccessible, areas of northern Australia it was obviously much more difficult. While suitable on-ground accessibility is a prerequisite for banding activities wherever in Australia they are conducted, aerial surveillance was clearly necessary for many areas in this census work.

Major fieldwork in northern Australia started when two light planes set off from Melbourne on 21 August 1981. Over the next few days they carried out a low-level survey of the southern half of the Gulf of Carpentaria. After then attending an RAOU conference in Katherine, Northern Territory, two members of the team went to Darwin and, from there, they carried out further aerial survey work (from a Commonwealth Coastal Surveillance aircraft) along the coast to Derby in the northern part of Western Australia. On 27 August, two light aircraft flew direct from Katherine to Broome where the team met up again. Two vehicles carrying additional personnel and equipment from Melbourne and Perth also joined the team.

An initial aerial survey of Roebuck Bay and the whole of the coast down to the southern end of Eighty Mile Beach took place the following day. Over the next seven years, almost all wader study visits to NWA were accompanied by a light aircraft piloted by Don Jeans. This was extremely important in determining the geography of

[59] Minton 2006b

the area, especially access points to Eighty Mile Beach, which enabled counts of considerable lengths of shoreline to be made relatively easily.

The team moved from Broome to camp in the bush adjacent to the shore on the north side of Roebuck Bay. The first cannon netting catch was made on 30 August at Quarry Beach, Roebuck Bay where 778 birds were caught, rather more than had been intended. On the next day, Bush Point, the largest but most remote and inaccessible wader roost on Roebuck Bay, was visited for the first time. Creeks had to be swum and some difficulty was found in retracing steps after the count. Grant Pearson's jocks, which had been placed on a high stick to mark a creek crossing, were one casualty, failing to be retrieved! In later years two cannon netting visits to Bush Point were made, the access difficulties being bypassed by a 25km trip from Broome in a 12-person hovercraft.

Bush Point was also the site of Pete Collins' first public twinkle. Pete had been enticed to go on this expedition shortly after he became involved with waders at Broome. According to Pete's version of the story, (including his embellishment), it seemed that the posh people and the elderly were the ones transported to this wader nirvana by hovercraft while the young and fit and people like himself, because he was clearly neither of those, had to drive across treacherous salt flats where vehicles were swallowed whole. Pete noted that, even in those early days, if you set a net and waited, the birds would go anywhere but where you wanted, creating the need for the twinkle. On this occasion the birds settled on a sand bank about 200 metres off shore and Pete was nominated to "go fetch." The radio conversation apparently went something like this:

Clive: "I need a volunteer to twinkle the birds off that sand spit over there. [All eyes turn to the horizon] Well done, Pete. Thought you would."

Pete: "Sorry. What was the question? Oh, just over there. OK."

Then 20 minutes later, Clive: "Are you making progress Pete?"

Pete: "I'm about a quarter of the way there."

Clive: "Keep going. We are going to lose the tide."

(Pete under his breath, "You're going to bloody lose ME at this rate.) Pete: "OK."

Five minutes pass...

Clive: "How is it going?"

Pete: "I'm finding it difficult as I am chest deep in 'fricking' water but the birds are giving me a fantastic sight whizzing over my head, going completely in the wrong direction."

Clive: “Don’t worry about them. How close are you?”

Pete: “About another 100 metres. Are you sure you are going to lose the tide? It seems to be ripping in where I am.”

Clive: “It’s stopped here. Just remember, when you start to swim, keep the radio dry because it’s expensive.”

(Pete in a sotto voce, “F@#@#@ the radio.”) Pete: “OK, but I feel I should point out that I actually can’t swim.”

Clive: “Sorry - didn’t get that. Just carry on, you are nearly there.”

(Pete again to himself, “Like hell I am.”) Pete: “OK.” “The water is remarkably clear here, isn’t it?”

Clive: “What do you mean?”

Pete: “Well if it wasn’t, I wouldn’t be able to see the rather large and fast-moving fish.”

Clive: “What kind of fish?”

Pete: “Well I’m no ichthyologist and I was born and bred on the Grand Union Canal where the most vicious fish were the ones from the local Chinese take away, but I’ve seen ‘Life on Earth’ and they look like black-tipped reef sharks to me, and rather a lot of them.”

Clive: “Are they dangerous?”

Pete: “Well put it this way, I don’t want to be the first casualty. And by the way, I am up to my shoulders so if you want to keep this rotten radio dry, send a 6 foot 10 person out here and I will stand on his shoulders.”

Clive: “Well I suppose you had better come back. How big are these sharks?”

Pete: “OK. Some are bigger than me, length wise, but I’ve got the edge on them for girth.”

As Pete staggered up the beach, Clive grinned and said, “I didn’t think you would give up so easily.” At this point Pete slumped to the ground and found that he had left his cigarettes in his pocket. “Life? Don’t talk to me about life,” he recalled retorting to Clive. Remarkably they made a catch of small waders that took Clive’s mind off Pete’s abject failure and the sharks, which have become bigger in the retelling. Pete was surprised that, “Clive didn’t ask me to catch one for dinner, probably using my leg as bait!”

Following the Quarry Beach catch, and after two more small cannon net catches at Roebuck Bay, the team made a brief visit on 3 September to count the waders on the northern part of Eighty Mile Beach. Clive's diary for this day starts off with, "This was a memorable day." And so it was in more ways than one. The number of waders seen was more than any of the participants had ever seen anywhere. The Great Knot numbers were astounding, the 22 000 counted being much higher than the previous known world population. Part of the team and one of the aircraft made it back to Broome that evening, but the ground survey team and the other aeroplane were overtaken by darkness and had to make an unplanned overnight stay at Anna Plains Station. Wader studies in NWA had begun.

The early expeditions had no luxuries. Equipment was transferred to Perth thanks to Clive's employer's generosity. Students like Roz Jessop and others would load it into Grant Pearson's trailer then use his vehicle or a hire car, to tow it up to Broome. Unfortunately, the treatment of the vehicles on the expeditions resulted in the team being banned from hiring cars for a time.

By now, a total of over 30 special "expeditions" have been made under the auspices of the AWSG, to NWA to catch, band and count waders and terns. There have been additional visits of individuals or small teams when counting and/or photography were the objectives and no banding was undertaken. Most of the expeditions have involved 20 to 25 people operating in the field at any one time, but team sizes up to 35 have occasionally occurred. In the earlier years the majority of expeditions were either in the period covering northward departures (March and April) or in the arrivals period (August to early November).

As early as the third expedition, in August and September 1982, 66 different people participated, 15 of whom drove up from Melbourne in a hired minibus. They left on August 6 and had a fascinating trip to Broome, via Katherine and Kununurra. That Annie Rogers devoted over ten pages of her book to this trip indicates the breadth of material that came from it. Suffice to say, many people on the bus were exposed to an Australia they had never encountered before. Ken, who organised the logistics, was surprised to be facing a 10 000km round trip while Annie didn't realise there "….was anywhere left in the civilized world where one could drive some 400km without meeting other travellers." While the trip up to Broome had been relatively relaxed, the return trip home was one of the most frustrating four days that Annie could recall, as the 4000km were transversed in just four days with almost no time for sight-seeing. Nevertheless, the expedition was clearly "a great success."[60]

The largest expedition was over a continuous thirteen week period, from early August to early November 1998, when 117 people from 17 different countries participated. It has been a tradition since the early days that around half of the team each year has come from overseas, particularly experienced wader banders from the

[60] Rogers 1992

UK, who work with the often untrained wader counters and banders from Asia. For some time, the participation of some of these people was financed by the Australian government, though the Japanese Bird Migration Research Centre supported six participants in 1998, not all from Japan.

Chung Yu Chiang, a young wader researcher from Taiwan, who had started his work in 2001, is now a leader in Taiwan wader studies and prominent across the flyway. He said that when he first travelled to a NWA expedition in 2001, Clive picked him up at Broome airport and "… his loudly sounds and sunny smile are still my first image." Clive always encouraged Chung Yu and offered help on many occasions. Several trips were made to NWA expeditions that led Chung Yu to meet many other researchers and broadened his view in wader migration. He learnt a great deal from Clive, especially on attitude. "He leads people to work together and he always says, 'Everybody should be doing something!' This attitude makes me automatically do more in my work." This shows the impact of the NWA expeditions on many people across the flyway.

Banding has been undertaken at both Broome and Eighty Mile Beach on all except three expeditions. It also took place at adjacent inland locations on Roebuck Plains and Anna Plains when conditions were suitable. The Cargill Salt works, near Port Hedland, was "discovered" by Roger Jaensch, Mike Bamford and Doug Watkins during the second NWA expedition in March/April 1982. It was visited on all but two of the expeditions before 2000, but since then, only once for banding. With the saltworks being more than 600km from Broome, it is logistically difficult to fit visits into the more recent, three-week expeditions. It was another of Clive's paradises, especially for Broad-billed Sandpiper and Asian Dowitcher but Pete Collins was not sorry to see the back of it. Mosquitoes were impossible to contain there and seemed to hang around in swarms and suck people dry. He was equally disenchanted with his sleeping companions on one visit. Having been up all night extracting from mist nets, Pete needed some sleep before the sun got too fierce, only for him to find that Clive and two other team members, a big Chinese gentleman and Ira Savage were engaged in a "thunderous snoring competition" which Clive won.

Anyone who has camped at night in the open, shared a room, a hall or even a car during a period of waiting for turnstone to come in from their off-shore rock platform, can empathise with this last tale. Clive has such a reputation for snoring that, for many of his peers, selecting a sleeping site is as critical as selecting a net set site.

Included in itineraries for NWA expeditions were "rest days" and "days off." When Lauren Jackson read the email, she had pictured herself relaxing on the beach, reading a book and chatting to friends. To Lauren's shock, Clive explained "days off" actually meant "days off the beach" i.e. mist-netting or cannon-netting on a waterhole while "rest days" were "just like all the bloody rest!" They generally

involved travel between catching sites or an opportunity for equipment maintenance. However, there was one day in 2011 when the team managed to get to Cable Beach for a rest and the conversation must have moved to the size of Clive's stomach. He was defending himself claiming that despite its appearance, there was a strong set of muscles underneath. He had a few disbelievers so a sizeable team member from Thailand was challenged to stand on Clive's tummy when he was lying down. After some hesitation, the demonstration went ahead and it showed that Clive was still a strong man, despite his age and appearance.

Clive surviving the challenge to demonstrate his muscle strength at Cable Beach in 2011.

(Deb King)

The field objectives of the AWSG were parallel to that of the VWSG and have been modified in a similar way over the years. So, in more recent years, the aim has been the annual monitoring of breeding success via the proportion of young birds in catches. This requires relatively stable wader populations and visits outside the migration seasons.

Getting all the required equipment to NWA and ferrying people around the area has, at times, produced significant logistical problems. This applies especially to visits in the wet season, usually late December to early March but right through until the end of April if conditions have been severe. One expedition, while camped at Eighty Mile Beach, experienced 200 mm of rainfall in less than 24 hours. But even dry conditions can be troublesome, as frequent soft patches of sand on the upper parts of the beach can result in vehicles becoming bogged at any time of the year.

Bush camping was originally the only option at Roebuck Bay. However after the Broome Bird Observatory was established in 1988, with considerable help from expedition members in creating the septic tank and drainage systems, expeditions have been based there when operating at Roebuck Bay. In the early years at Eighty Mile Beach, camps were set up in the dunes adjacent to the beach, six kilometres from the nearest tree. More recently, especially for visits in the hot, wet season, the

base for accommodation has been provided by Anna Plains Station, seven kilometres from the coast. One of the particular attractions of visits to Anna Plains has been the "hot bore" where bath temperature water gushes out into a wonderful spa-type tank, a great restorer after an arduous day in the field.

As Broome's latitude is 18°S, NWA has a tropical climate. In the dry season (April to November) it is relatively free of insects. But during and immediately after the wet season, mosquitoes can be a problem along with other insects, such as myriads of small flying beetles that Clive wrote can be a real problem when camping and "taste very bitter!" Just occasionally, when there was a hot easterly wind coming out of the Great Sandy Desert, flies appeared in plague proportions. Unfortunately Port Hedland Saltworks could have mosquitoes and flies at any time during the year.

Health problems in NWA have been negligible, but care has to be taken that minor abrasions do not turn into tropical ulcers. Minor accidents have included one person putting a wooden splinter about 30 cm. long through his arm and another participant having the glass window from an old Land Rover finish in her face and lap after an Australian Bustard crashed into the vehicle. Both persons, but not the bustard, recovered quickly after treatment at Broome Hospital. By-products of twinkling aren't regarded by Clive as health issues, but they can come close. David Melville was twinkling on extremely hot sand in NWA when Clive kept repeating; "Keep flat, keep flat" while at the same time demanding that the radio be kept upright. Maureen Christie, when she saw him later in the day, thought that David had third degree burns on his elbows. It was, David confirmed, both his knees and elbows that got burnt. Clive himself was the subject of a health issue when he was bitten or stung when he trod on something in the water that 'knocked him around'. He was laid flat and in quite a deal of pain for a few days. Daphne Watson wouldn't give him any pain killers as they didn't know what he had been bitten by.

Mist netting only took place on a limited scale at Eighty Mile Beach because of the large number of sharks. However, at Port Hedland Saltworks mist netting was used extensively. The most memorable mist net catch for Clive was 236 Broad-billed Sandpipers in one evening on 8 April 1988. Wading around in the soft mud there was an energy-consuming exercise, particularly in March and April when temperatures are at their highest. In March 1988 a team of six wader banders from the UK arrived at Port Hedland airport at 11 p.m. They were out at the mist nets within two hours and over the next 48 hours were actively mist netting by night and cannon netting by day with the temperature never falling below 39°C. What a rapid transition from a northern hemisphere winter!

One of the great benefits of mist netting was that a much wider range of species was caught, with up to 35 on some of the expeditions.

Cannon netting in NWA does, however, present different challenges to those met in most other locations around the world. Unlike in most places, where the issue is

assembling enough birds in the net area to make a worthwhile catch, in the northwest the problem is ensuring that few enough birds are in the catching area to make it safe. With very high temperatures, usually 30 to 40^{o}C, another challenge is the need to remove birds from nets quickly and set up shade over the keeping cages immediately. Optimum techniques for handling cannon net catches in this tropical environment have now been developed. The use of small mesh nets, from which birds can be extracted quickly, has been particularly beneficial.

It has also been necessary to limit the size of catches. Depending on weather conditions, a catch of 100 to 400 birds is usually targeted and catches of more than 500 birds have rarely been made. However, because there are so many birds present and these are relatively easy to move into the catching area, the average cannon net catch of 160 is little different from that in the cooler environment of temperate Victoria.

This may sound like catching in NWA is a cinch, but that was not always the case. As at the Wash, decoys have been needed to bolster the numbers of particular species. The VWSG had an extensive collection (30+) of wader decoys in the 1980s that were also taken to NWA on the expeditions. These were made by injecting dead birds with neat formaldehyde which mummified them. They were mounted on little stands and were quite successful on occasions. But Clive noted that they were very fiddly to make and hazardous because of the use of formaldehyde. However, in the early 1990s, on their return journey to Melbourne, he said, "The boxes of decoys blew out of Grant Pearson's trailer on a freeway in Perth. They were smashed to bits by following vehicles in spite of Grant running back to try to protect them. He must've looked like Michael Crawford or Mr Bean!"

Twinkling normally requires a cautious pedestrian approach to the birds. At Eighty Mile Beach however, it involves the use of vehicles. After the net has been set, the vehicles are moved to about two kilometres each side of the catching area. About an hour before high tide they start simultaneously pushing birds toward the nets. The wader flocks often allow a close approach by the twinkling vehicles, providing excellent viewing and photography opportunities for passengers.

An unusual catching hazard that Clive mentioned in the Stilt 50 report about the AWSG at Eighty Mile Beach were the harmless shovel-nosed (milk) sharks that live in the shallow tide edge and have twice been caught in the front of the net. Annie Rogers' version of the story added that while some of the group set up mist nets, Clive's son Nigel set up some fish nets. The tide caught out the mist netters and Nigel caught several Tiger sharks, a seven footer and some smaller ones. Not quite so harmless. Legend has it that on one of the early trips to Eighty Mile Beach, the team ran out of food and Clive resorted to catching and eating shark for them to survive.

Another shark tale was shared by Adrian Riegen. In the early 1990s, during the early years of Humphrey Sitters' studies of British oystercatchers night time feeding, he

took an image-intensifier he had been using for his studies, on a wader banding expedition to NWA. The viewer was used to prove that in contrast to the daytime high tides, very few waders roost on the northern beaches of Roebuck Bay at night.

But ever the lateral thinker, Clive had an idea that perhaps the image intensifier could be put to a new use, that is, to fire a cannon net in darkness! So it was that on one moonlit night at Eighty Mile Beach, where the waders still roost at night on the beach, one cannon net was set to catch on the high tide. Using the image intensifier, Humphrey watched the birds gather to roost. After some twinkling, they fired the net and made a nice catch of a hundred or more waders. Being night-time, it was cool so the birds would not over-heat and it was pleasant processing them in more comfortable temperatures. The whole event was deemed a success by some and might have been repeated, except that Humphrey felt that there were drawbacks to the use of his new equipment. Firstly, he noted that identification of the birds in the catch was problematical as they all looked green in the image intensifier. Also, Clive was convinced he could see the same birds just as clearly through his binoculars, without the aid of image intensification!

Adrian, who was twinkling that night, agreed with Humphrey about the unlikely future use of the technology for this purpose. In 1990 and 1992 he had joined the Broome wader expeditions from New Zealand, where he was running his own cannon netting operation. He recalled that he and Pavel Tomkovich, from the Russian Museum, were asked to twinkle the birds on foot, Adrian from the north and Pavel from the south. Clive and Humphrey thought they could see the nets and the birds well enough on the monitor at the firing position to call the catch. Adrian could see nothing in the dark of the night, but Clive directed proceedings by radio. At one point he asked Adrian to move out into the tide to push the birds back up the beach. Clive was informed that Adrian couldn't see much but could feel and hear "sharks thrashing about in the shallows." Clive didn't deem that an issue but Adrian did, and backed off. Soon afterwards, Adrian saw "four blue flashes" which were immediately followed by the boom of the net as it was fired by Clive and Humphrey. Adrian concluded, "What they were looking at on the monitor wasn't exactly the piece of beach with the net." In the aftermath, it was agreed that night-time cannon netting was too tricky and so it was abandoned.

For several years after that, Clive pestered Adrian to join the Broome wader expeditions but his focus was moving to Asia and the migration staging sites of New Zealand's godwits and knots, and he considered Broome less significant. The Gulf of Carpentaria in Queensland looked a much more likely spot but Adrian could not persuade Clive to take on that challenge. "So he is human after all, and does have his weak points! Or at least does have his limits," said Adrian.

In addition to birds banded by special expeditions to NWA, wader catching has regularly been carried out by locally based teams since 1991. Initially this was by

the wardens at Broome Bird Observatory, starting with Bryce Wells and Gail Hooper, but in recent years has been organised by resident local wader enthusiasts Chris Hassell and Adrian Boyle.

Clive is not renowned for his sartorial elegance. The first time Chris met him at the BBO banding shed in March 1996, he was wearing big, baggy shorts with his underpants on view, a dirty T-shirt and partly broken shoes. Chris was wearing red shorts, with underpants discreetly covered, a dirty T-shirt and no shoes. He politely introduced himself to Clive who looked Chris up and down and, failing to see the irony said, "I see you're dressing like the locals."

Chris says he is not one to kowtow to 'authority' such as his parents, teachers, employers or the police yet he did not answer back when he was given "a dressing down from Clive for something I actually hadn't done!" He says that to prevent himself saying something he might later regret, he was actually biting his lip as Clive railed at him. That is a mark of his respect for Clive.

Deafness is another of Clive's legendary attributes about which there are numerous amusing tales. Chris related a tale about a young woman who came into the BBO to ask if she could join a cannon net catch. "Yes, of course, you'd be very welcome," Clive said. "I am a Seventh Day Adventist," volunteered the young woman. "Oh really, so am I!" sprouted Clive. Chris, who had been present throughout, suddenly exclaimed, "Whaaat! I didn't know that."

The conversation continued as follows:

Clive: "Oh yes, Chris."

Chris: "Really? You're a Seventh Day Adventist?"

Clive: "Oh, I thought she said a diabetic."

Recoveries of banded birds from NWA are dominated by Great Knot and Bar-tailed Godwit. It was their flights direct to the Yellow Sea in China and Korea that became the first major discovery in relation to movements of birds banded in NWA. Subsequently, there have also been several recoveries in Russia, many at breeding locations.

The use of the NWA coast as a migratory stopover site for many of the small to medium size waders which spend the nonbreeding season in southeast Australia was an important early discovery from banding. Stopovers occur on both northward and, especially, southward migration. As most of these species occur in only small numbers in inland Australia, it is clear that the majority probably make the 3000km transcontinental flight non-stop.

In his introduction to the second edition of Stilt in 1981, Clive noted that, "The entire cost of the AWSG Co-coordinator has to date been met entirely by the RAOU from its

own funds. Applications have been made to various bodies for funding on a continuing basis (3-5 years) without any success so far. Further attempts are being made to raise the appropriate finance but, in the meantime, the RAOU cannot continue to finance on other than a care and maintenance, part-time basis. It is to be hoped that this matter will soon be resolved favourably."[61]

To this day, raising consistent funding for the wader studies has been a challenge. The management of the AWSG leg flag sighting database is a case in point. This role was originally conducted by the ABBBS but, as the number of sightings continued to rise, the task was handed to the AWSG, initially including an appropriately funded operator. Despite the role becoming more demanding, as time passed, this funding was reduced and ultimately withdrawn by the ABBBS, leaving the entire cost to AWSG with some minimal support (perhaps on a par with what RAOU funded in 1981) from Birdlife Australia. Then, since the passing of long-time database manager Heather Gibbs in late 2012, the database has been operated voluntarily, a situation which is unrealistic.

Individuals make enormous contributions to wader studies through their own time, travel costs, donations and expedition fees that cover operating costs and expendables. One illustration is Clive's investment in his Toyota Land Cruisers which are almost entirely used for his wader studies activities. He won't like me using this as an example, but his last Land Cruiser clocked about 150 000km in the course of these 'duties'. Based on RACV figures, the cost to him would be in the order of $20 000 each year.

For Pete Collins there are many memorable moments to recount from the Broome banding days, extending from the "indignity of the many Clive falls, when gravity overtook dignity on and off camera, and that little boy smile that came into play which said, 'If you noticed that, I did it on purpose'", to Clive in his "counting house" at the end of the table in the BBO Shade House. This was the communal area where participants cooked, ate and socialised when they had that rare chance to relax. There, Clive would take money and hold court to "adoring acolytes." In the evenings, when expedition participants gave informal presentations to the team, Clive would often sit nearest the door so he could nod off without being noticed. But he would then proclaim it to have been "absolutely riveting and certainly one of the most interesting talks" that he has heard, when the applause woke him from his slumber.

According to Pete, the room Clive stayed in at the chalet when the expedition was at the BBO should have received a plaque for hosting Clive on so many expeditions. The chalet was the most 'up market' accommodation at the BBO as it had its own kitchenette, bathroom, living room and two bedrooms. No one who had ventured in there could forget the sub zero temperatures that immediately steamed up glasses and took one's breath away. All the while, Clive was draped in a towel that can only

[61] Minton 1981

be described as skimpy, making him look "like a Middle Eastern potentate, again with an acolyte or two." This label could be considered contentious by some, but there are elements of its meaning that fit well with Clive. He is certainly powerful and influential, but is he really one that does not have to follow anyone else's rules?

Daniel Gustafsson, an insect specialist, doesn't mix in circles that include migrating wader researchers, so he has had little contact with Clive since joining the 2008 expedition aiming to catch bird lice. However, he does recall a story demonstrating Clive's love of mangoes and cheekiness. At the time, Clive knew of a tree in Broome (possibly in the yard of an insurance business) where he was generally allowed to collect fallen mangoes. The day before they were to move the expedition to Anna Plains, he drove into Broome on business with Daniel, Roz Jessop, and Inka Veltheim. As intended, Clive decided that they would swing by this tree to pick some mangoes. Permission was again given but Clive was told that others had been there picking mangoes the day before, so there may not be many left. They only found about ten in the whole yard, which wasn't enough for Clive. So they spent the next 45 minutes driving up and down every street in Broome, and whenever Clive saw a mango tree, anyone's mango tree, he, Daniel and Inka ran from the car to collect them. All the time, Roz was sitting in the front seat, trying to appear unrelated to these people stealing mangoes. Daniel's recollection is that they filled a box of mangoes and had lots of fun. Inka later recalled finding the whole experience hilarious, noting how Clive had no concern at all about being caught. He kept his binoculars around his neck so that he could explain the importance of getting the mangoes to feed the expedition.

One of the people he had mentored at the Wash fortuitously came to Australia for a number of years in the 1990s. Jim Wilson said that it was because of Clive that he had gone to Iceland in 1971 and 1972, and as a consequence of that trip, he was able to complete a Masters in Ecology. But the key for the AWSG was that Jim also got married there because 25 years later, Jim and his wife Anne Marie came to Australia to allow her to work in the Norwegian Embassy in Canberra. That gave Jim five years to study EAAF waders at their non-breeding sites across the continent. Through Clive's work, Jim felt he came to a "laid table" in Australia and it was Clive "who insisted that I should be the next chairman of the AWSG." Clive's impact on Jim did not stop there, because since 2004 he has been studying knots on spring migration in Norway, catching them in cannon nets. Jim has the only cannon net used for catching waders in that country. Another demonstration of Clive's spread across the globe.

10 International expeditions

Given that it was his primary interest, it is not surprising that one of the purposes of most of Clive's overseas visits was banding. An exception was one of his first overseas trips to the Camargue on the Mediterranean coast of France. This took place in 1954 when this large wetland area was possibly one of the few remaining undisturbed habitats on the Mediterranean. Although he didn't do any banding there it had a banding station, mainly for ducks, even at that time.

It was in the following year that Clive undertook his first overseas banding trip. Clive, Eric Ennion, his son Hugh and another Cambridge friend went in a vehicle to Lapland, the main objective being to find breeding waders and band them as chicks. They travelled by boat from Newcastle to Oslo, in Norway and then drove along the Swedish coast and across into Finland. Their plan was to get to the top of Norway but the spring floods had washed away the river crossings and roads connecting Finland and Norway so there was no way of getting out of the northern end of Finland. Fortunately, it was still a great place for birds so they set about catching birds there. A variety of adult waders were secured, but it was too early for chicks as it was egg-laying time. In particular, Clive remembers catching five or ten Red-necked Phalaropes with a clap net set on the shores at the narrow end of a little lake. The wind happened to be blowing to that end of the lake, so for a metre or two from the bank, the surface of the water was completely covered in mosquito larvae. This was heaven to the phalaropes that gorged themselves on the larvae. The group set a clap net on the shore and were able to catch the birds feeding in the water, one at a time, as they spun past the catchable area.

A decade later, in April 1964, Clive planned a small expedition to Spain. About eight people were involved, all from the West Midlands, whose goal was to study the

spring migration of African passerines. These birds came up and over the Sahara then crossed the narrow part of the Mediterranean via Gibraltar on their way to the southern shores of Spain, in the Coto Doñana. This area is known for its sherry as well as the Coto Doñana marshes. Here, the Guadalquivir River enters the sea and the area surrounding the delta became a reserve in 1963 and a National Park in 1969. It has since become a UNESCO World Heritage site, so it remains a very famous wetland area for migratory birds ranging from geese through to waders, waterbirds and ducks, particularly in the winter.

But it is during the migration period that the coastal fringe area, including the dunes with scrub-pines and other bush vegetation, becomes an absolute hive of activity for migratory birds. Having arrived there after crossing the sea, the birds feed up for a day before heading further north. It was there that the visitors set mist nets to catch bush birds in the scrub each day from dawn, acquiring a huge variety of beautiful birds. Clive is especially proud that of the 22 species of warblers in Western Europe, they caught 18 during those two weeks.

To get there, they had to fly to Gibraltar, and then get a bus to Seville and, "God only knows how we got on from there, probably more buses," recalled Clive. They took their own mist nets from England, including the poles. In those days the poles were 12ft lengths of bamboo that were cut in half with a metal ferrel to rejoin them. This meant they were carrying a bundle of 6ft long poles about a foot in diameter as well as other equipment, no easy task when travelling on planes and buses. A special check was required to ensure they could fit in the Comet aircraft, which was the world's first commercial passenger airliner, designed and built in Britain in 1954. Fortunately for Clive, they were travelling in the revised design that came back into service in the late 1950s. The first production was involved in three fatal crashes before the plane was withdrawn from service to be redesigned to avoid metal fatigue weakening the wing supports. These planes were safe and the group had "a fantastic trip", catching and seeing many wonderful birds. Banding still takes place, and there is a permanent ringing station which Clive and his group helped to establish.

It was also during the 1960s, that members of the WWRG went to the Netherlands to help the Dutch get started with wader banding by demonstrating the catching techniques used on the Wash. In the first year, they took a cannon net and mist nets. The group had two or three weeks at Vlieland, on the Frisian Islands in the Wadden Sea, which was a major wader site and whose waders have, over the years, became highly studied. A few waders were caught with the rocket net but the mist nets were very successful. Bey Speak, the head of the Dutch banding scheme was with them. On the night they arrived, while staying at a remote place on the western end, he said, "I can catch you some Dunlin with this box." The box was about 20cm square, with a strap that he hung round his neck. When he flicked the switch it made a noise like "Bluuuuuuuuuuuuuuuuurgh" which he said was called a 'gong'. This interesting

technique was developed from the African method of using a flare in the front of a boat at night and beating a gong, which drowned human approach and confused the ducks to the extent that people could just creep up and catch them. Bey had a bright torch and a hand net and could catch Dunlin. Clive was sceptical at Bey's claims and he was tired, so he told Bey that he was going to bed but added, "If you catch more than half a dozen you can wake me up whatever the time is." At 10.30pm Bey woke Clive and showed him the box on his chest containing 20 Dunlin! The technique called gonging was quite simple. Bey would pick out a bird feeding on the mudflat, turn his torch beam directly onto it, then walk up and put the net over it. The bird allowed his approach partly because of the dazzling from the blinding light, but also because of the confusion from the noise.

The WWRG developed their own gongs, which were used by one individual in particular, a resident of the Wash who managed to secure a couple of hundred Grey Plover and a similar number of Redshank over several years. Although gonging was an effective method, there were limitations because only one bird could be caught at a time and it was only useful for night catching and even then, only on moonless nights as the torchlight had to dazzle the birds. It did, however, allow people to get a small sample of birds that possibly couldn't be caught any other way.

After that first year of demonstrating their techniques, the English team returned to Holland the next year. Clive's group were to do some mist netting because the Dutch had already constructed eight of their own cannon nets. The WWRG were mist netting for waders at night and the Dutch were cannon-netting in the day. Derek Stanyard recalled that in order to check the long lines of mist nets, cars were driven across the mudflats, only retreating when the salt water was getting close to the doors. On the first day the Dutch didn't catch anything with their cannon nets. When this total lack of success was repeated on the following three days, something needed to change. An examination of their time schedules showed that the Dutch held to their established breakfast and lunchtimes which, as it happened, coincided with times when catching conditions were optimal. They were very inflexible and didn't realise the need to operate by the tides and that eating had to fit around the work. This lesson was learnt quickly by all subsequent banders under Clive's tutelage.

Eventually, after days without a catch, and with all eight nets set on little islands at different places around a lagoon, a load of Oystercatchers, commonly referred to as oycs, landed in two or three of the catching areas. Sadly, when the nets were switched to fire there was a mix up - the wires were crossed, literally. So while two or three nets fired, they were not where the oycs were! They were mortified with the result. After such an inauspicious start, the Dutch have gone on to do countless wader catches using cannon nets and have become major players in global wader research. Their early setbacks were all part of getting acquainted with a new technique on your own.

In the 1960-70s, when the WWRG were developing wader banding in a big way in the UK, they travelled around to several other estuaries to work with the local groups who were cannon netting and mist netting their waders. Many of the younger generation, including people like Jim Wilson, led two or three expeditions to Iceland, Greenland and Morocco, as well as to northern Scandinavia and down to Mauritania in west Africa, where they were the first group to band. Most of the work was done by these young university students as their holidays provided the time to plan and travel. Meanwhile, Clive was keeping the home fires burning by running the Wash banding program. In most of the places visited by the young teams, banding still continues. The group that went to Mauritania in 1973, organised by William Dick, had a forty year reunion in Cambridge in 2013, which involved not just the British, but the French participant as well.

Every two months or so, during 1972-74, Clive was required to be in Iran on business for two weeks at a time. This arrangement meant that he had a weekend available in between. The Mintons were expecting to be there for longer but the development of a copper mine by Clive's employer fell through. There were other British birders based there at the time including Ken Rogers with the United Nations and Derek Scott with the Environment Department and, as a result of a recommendation from Clive, Francis Argyle was running their bird ringing scheme. Ken and Annie Rogers, with their son Danny, who was about seven at the time, were mainly passerine mist netting but they all did some wader mist netting in a variety of locations, as Derek Scott was particularly interested in waders. Sites ranged from sewage outflows near Tehran city, which were quite ghastly for humans but very suitable for waders, to wonderful trips up to the Caspian Sea, a three or four hour drive through the mountains and beyond to where there was an excellent supply of waders on the shore and in the marshes.

The most memorable experience for Clive in Iran also involved mountains. One September, he, Francis Argyle and another colleague from work travelled right up into the mountains, below the glacier of Mount Damāvand, which is the highest peak in Iran. Clive recalls its likeness to Mt Fuji, that definitive shape, old, but potentially active and always snow-capped. The trio were at about 8000ft in the Lahr Valley during a time of huge southward bird migration from Russia and Siberia towards Iran and on to Africa. As always at migration time, there were many isolated patches of bushes full of passerines which had stopped to feed before going on again the next night. This provided a mist netting opportunity near a lovely stream, only about as wide as the road and with knee deep water. Only one side of the stream was suitable for vehicle access and this was where they set up camp, but the mist-netting sites were all on the other side. This meant that they had to wade across the stream every time they went to check the nets. Even though it was 20-25^{o}C in the air, the stream was the melted glacier water so it was absolutely freezing. Despite this, what Clive called "mild discomfort," they mist netted there for two or three days catching many

kinds of migratory passerines like the very tiny warblers, Greenish Warbler and Green Leaf-warbler.

But best of all for Clive were the Long-eared Owls. These owls are migratory and there were about eleven of them in the scrub on the other side of the stream and during the course of their stay, they caught seven. Clive was chuckling with both pride and incredulity as he related this experience. He loved these absolutely wonderful birds with their incredible orange eyes. Annie Rogers told a similar story of catching these owls, possibly from this same trip and she mentions that one of the Long-eared Owls that was banded there, turned up six months later in Firuzabad in the south of Iran, a distance of about 800km from where it was banded.[62]

Clive had always wanted to go to the Arctic and his opportunity came in 1994 when he was invited to participate in a tundra ecology expedition. Over four months, 30 Swedish and 30 Russian scientists travelled on a Russian icebreaker from northern Scandinavia across the Bering Strait to Alaska, and then back again. Clive and Danny Rogers were two 'honorary' Russians while Theunis Piersma, (international renowned leader of a joint team at the Royal Netherlands Institute for Sea Research and University of Groningen, which is regularly classified by his peers as the "world's hot house in shorebird ecology"), was an honorary Swede and were only on the first half of the trip. The researchers would be taken ashore by helicopter every 500km or so for three days and two nights at a time and, on one of the landings, Clive found a metal ring from a White-fronted Goose. There were no bones, meat or feathers, just a band sitting on the tundra. It was an amazing coincidence for him to find something like that in such a vast expanse of land.

Wader and other bird breeding habitat was evident throughout and with a huge range of species, this trip was an order of magnitude more exciting to Clive than northern Scandinavia, where only a relatively limited number of species of waders breed. In Siberia they caught adult Dunlin, Sanderling and Curlew Sandpiper on the nest by hand or with a small spring net. They also built a clap net and were able to catch Ruff at a lek, and seeing the Ruff in the hand, "with all their different gaudy plumages and warty faces" was something that has remained clearly in Clive's memory.

Clive thought that food on the Russian trip would be spartan. Pavel Tomkovich, an intrepid Russian scientist who is Curator of Birds at the Moscow State University Zoological Museum and who has spent over 35 summer field seasons studying waders in various parts of the Russian Arctic, told him that following the break-down of the Soviet Union, Russia was a poor country and this obviously made Clive nervous about his sustenance. But the food turned out to be "super." What Clive hadn't realised was that although it was a joint Russian and Swedish project, the ship had called in to Sweden to collect food supplies for the trip and it was tasty and

[62] Roger 1992

plentiful. So Clive hadn't needed to clean out the supply of Mars Bars at the Swedish supermarket he visited. The checkout assistant was astounded when he said that he was going to eat all of the Mars Bars himself!

Each time the helicopter took the researchers ashore, they were dropped on the tundra with their tent, sleeping bag and food and a tiny little cooker. After their three day stay, they were returned to the ship which would travel overnight to the next location where they were taken ashore again for another stint of research. Clive recalls going to 10-12 different places. The food they had when ashore was freeze dried for lightness, as 50 people and all the equipment meant that the weight in the helicopter needed to be monitored, but nevertheless, Clive found that food too, "delicious." While he took some Mars Bars ashore each time and mostly ate one or two, as it turned out, Clive didn't eat a single Mars Bar on the ship. At the end of the expedition there were still about 30 left, which he gave to Danny to distribute amongst the crew.

A corvid caught stealing a Red Knot egg from its nest on the Russian tundra in 2013. This shows that the hazards are not all gone when the northern migration is over. (Pavel Tomkovich)

Danny and Clive shared what was barely a 'two-man' tent. On one side there was a flap so that they could lie inside the tent and cook through the flap with the burner outside. That worked well and made it easy to cook. In regard to sleeping habits, Danny was an owl and Clive a lark so fortunately, they were rarely in the tent

together. Danny would operate from about midday to about 4am while Clive tended to do his research from about 6am to 8pm so there wasn't much overlap. This was possible, of course, because there was 24 hours of sunlight. One time, they worked together to catch what Clive felt was a "fantastic" prize. Not wanting to miss any treasures, Clive had told Danny that if he could find a Curlew Sandpiper nest, he should wake Clive immediately. When Danny found one at 2am, he roused Clive and within an hour, they had actually caught the sandpiper.

One time, prior to leaving for the tundra, Clive must have been distracted as he was filling his thermos. He thought he had filled it with hot water but, in fact, it was coffee. After climbing into his sleeping bag and starting to heat his dinner, he put a big sachet of powdered chocolate in a cup and poured in what he thought was hot water. Apparently it tasted surprisingly good even though it wasn't what he had intended. Like many tales told by Clive, he did so in peals of laughter, making fun of himself.

This research trip was absolutely luxurious, being able to fly back to the ship to have a hot shower, enjoy some quality food and then be flown back to the shore. The timing was also perfect as it took place when there was an ever increasing spring and summer thaw. As it traversed the Russian waters, the rate at which the ship was moving coincided perfectly with the arrival of the waders. This meant that, for a month, they were in an almost continuous spring resulting in a proliferation of birds around that was "most exciting".

Clive also talked about Vladimir Morozov, another Russian from that trip, who was subsequently in Australia with four other Russians on the NWA expedition in February 2014. Whenever they went ashore in Russia, there was always a need for someone to have a rifle for protection from polar bears. They were very reluctant to put themselves into a position where they may have to use the rifle, not only for the health of the bear, but also due to the volume of paperwork that would result in reporting it to the authorities. This responsibility remains so today across polar bear country, as light-heartedly reported on a 2012 visit to Hudson Bay in Canada when the guide didn't want any unwanted close encounters with bears and was reported to have quipped "…since I have to fill in more paperwork if I shoot a bear, I'll probably shoot you instead!"[63]

Vladimir left them one day on a motorised bike, somewhat like a quad bike or snowmobile, and returned about three hours later with a reindeer draped across the front of the machine. They skinned the animal and ate some immediately as raw meat was common fare in the Arctic. The rest, they cut up and stacked into a natural 'fridge' made by layering meat and snow repeatedly until it was stacked up into a frozen pyramid. Over the days they were camped, they ate all of the meat as by the end of their stay, the 'fridge' had thawed. The surrounding countryside had been 90

[63] Junker 2012

percent covered in snow when they landed in the helicopter, making it somewhat difficult to find somewhere safe to land, as they needed to find an open patch to put out their gear. But just a few days later it was almost totally clear tundra.

Polar bears came onto both the ice and the tundra which was why when any group went out on foot, or a team member went on a quad bike, a rifle was always carried. They visited the Arctic Institute Island, well off the north of Siberia, where the vegetation grew to half a metre tall, and where Brent Geese nested freely. Five of the Russians had rifles as it was well known there could be polar bears. The team had spread out in a circle, perusing the landscape when Clive and Danny spotted some polar bears and the rest of the group came over to watch the bears, even though they were still about 2km away. The bears plodded along on the ice until it was clear that they could smell something. (While retelling this part Clive put his face up to the air in a 'sniffing the breeze' action.) As they started to move ever so slowly closer, the researchers commented that the bears looked so gentle and interesting, but the Russians were concerned and wanted everyone back in the helicopter. By the time the bears were only 100-200m from the helicopter, everyone was returning rather more quickly than Clive, who was taking photographs. Also shooting film, was a member of the group who was a cine-cameraman and when the film was shown to the group afterwards, Clive was seen photographing one bear that was poised, somewhat "like a sprinter," ready to move closer. Despite the 70m distance between Clive and the bear, the telephoto lens gave the appearance that it was standing right in front of him! On the one hand it really was a dangerous act, but Clive didn't see it that way as he genuinely, but possibly naively, believed that he could run fast enough to beat the bear, if it came at him. Perhaps Clive felt he was approaching Usain Bolt's athletic prowess in those more youthful days, which would get him to about 35km/hr, just ahead of the bear's top speed of about 30km/hr. Obviously, all made it safely back into the helicopter but it reflects again, how Clive views danger and risks through a different set of glasses to those of most people. The visitors, not the Russians, then opened the window of the chopper and looked out thinking they were going get some great views of the nearby bear, but instead the Russians started firing berry pistols to frighten it off. The Russians were scared stiff of the bears but were not allowed to shoot them. Even shooting one in self-defence, would have had resulted in a written report to Moscow.

On the evening before he was leaving Russia after the expedition, Clive went into town to the hotel. Walking around, he noticed a couple of pilots at the bar knocking back vodkas. The next morning when he went to the airport, the same pilots were boarding the plane that was to fly him out of there. This happened to be the plane that Nikita Khrushchev used during his years as President of the Soviet Union from 1958-64.

The plane had been re-kitted, of course. The rear was being used for ice surveillance, long before the use of electronic equipment. During the flight, the few passengers on

board were allowed to walk around the plane observing the equipment, a small area that Khrushchev probably used but where any passengers could now sit, and the pilot's cabin. Poking his nose in, Clive found the pilot sound asleep, the co-pilot reading the newspaper and the engineer awake, but with his earphones on. The plane was on auto-pilot of course but when the co-pilot saw Clive standing up the back, he "very sheepishly closed his newspaper."

While Clive never did any banding trips to Antarctica, he and Pat went there with Charles and his wife Jocelyn. Antarctica was one of the few places Clive had wanted to go to for many years and they finally made it in 2012. Clive sat and watched the albatross for a considerable time, absolutely entranced, and he was so thrilled to see the prions. His mobility was restricted so he couldn't walk far, but that didn't diminish his appreciation of the wildlife around him. As usual, he was studying them to understand more about them and perhaps use what he was learning in other pursuits.

Charles and his first wife Angela went with Clive and Pat to Africa many years ago, and Charles says that you couldn't keep Clive away from the animals. He'd be up early in the morning to go out and see what he could find and then go back to the lodge to find the rest of them still sorting themselves out. Pat has said that she is "not a morning person" so was happy to await his return and go out on the second safari shift. Clive has enormous curiosity about animal life.

Another place where Clive had longed to visit was Ngulia, in Kenya where a very large scale bird banding program involving migrating passerines had been started in 1970 by university friend and fellow instigator of the WWRG, David Pearson, who lectured at a university in Kenya.

When they set up the safari lodge at Westarvo National Park in the south of Kenya, it was found that the lights they used to show people the nocturnal animals, actually attracted birds, particularly birds that were migrating, as many passerines do at night. A tree baited for leopards had a piece of goat hanging from the top and the whole tree was lit up with a light surrounded by moths. When the leopard comes for the meat, the guests are treated to a magnificent close-up view of the animal in its (almost) natural habitat.

Passerines can travel 200-300km a night when the weather is clear and mist netting doesn't eventuate. But when the cloud comes down, as it often does there, the birds get lost in the cloud, disoriented by the glare of the lights and drop to the ground. This provides an excellent opportunity to catch and study these birds. Birds can be mist netted that come all the way from Europe with the swallows from as far away as Kazakhstan.

Generally the mist comes down at 2am and just two mist nests are erected for a team of about 30 people. These are taken down about 5am. During that three hour

period, 400-800 passerines are extracted, with over fifty percent of those being Marsh Warblers. To Clive, this is quite incredible, "like being in heaven." Passerines continually pop into the net while people are still extracting others. Birds are taken, two to three in a bag, and processed in the cocktail bar of the lodge! All birds are released by 6am. After the night migrants have been processed, 30 permanent nets are opened to catch the birds that were roosting overnight. Generally by 9am it is all over but, during that time, between a few hundred and a couple of thousand birds are caught.

This is a bird bander's paradise, providing a wonderful experience where everyone learns very quickly. Like most banding operations, it requires a team of people to carry out the work. Clive has recounted how much it was "a joy to be on someone else's team rather than being the team leader." This is a very rare experience for Clive, who has led or been joint leader of most banding experiences in which he has been involved.

Clive and Pat first had the opportunity to go to Ngulia in 2008 when the team caught 20 000 birds in two weeks. Clive has returned several times since, accompanied by some experienced banders he invited from the VWSG and elsewhere across the globe. They spend a couple of weeks mist netting and then go on safari for a week, using Chege wa Kariuki's guiding group, Birdwatching East Africa. Clive never tires of wildlife watching, or more correctly, wildlife studying as it is most likely that he was always studying and learning whenever he was on these trips.

A group of local community members listening intently to Clive's explanation of what was happening and how the swallow migration worked.

(Colin Jackson)

Despite Clive not being the leader, when the swallow nets were up late one morning, a few years ago, a large group of community members came through on a visit and were able to release a swallow and learn a little about their amazing migration. Once

again, Clive was superb in sharing his enthusiasm for birds and migration as he explained clearly and patiently, the swallows' story to the eager crowd.[64]

Colin Jackson reported an unusual thing that happened there one morning when a swallow was caught with a piece of red string tied around its leg. This was probably the fourth swallow the local team had caught in five to six years with home-made markers on their legs, and they were hopeful that whoever was responsible for using this 'primitive' method of marking birds would "catch one of ours with an addressed ring and get in touch!" It is amazing that there remain individuals who are keen to band birds in their own regions but who, even after a century of use, are obviously unaware of metal banding and that the method they are using is so similar to the first attempts at identifying birds and their migration over 300 years ago.

Chege wa Kariuki is a nature tour guide in Kenya, who I had the pleasure of having guide me around the Rift Valley, out of Nairobi when he introduced me to the African bird families and likely habitat where I could find them, during my trip to Kenya in 2004. Subsequently, and quite independently, Clive engaged Chege and his guiding company to take an international group on a safari tour to accompany a trip to the bird banding at Ngulia. Clive clearly recognised his talent and enjoyed the pleasant personality that Chege exudes and became a regular client and friend. This story is continued in Chege's own words, "I have learnt a lot about ornithology from Clive, not only in Kenya but in the US too, as he is one of those who really encouraged me to visit the Delaware Bay Shore Bird Project." Chege also feels that his business has developed in part because of Clive's support, and has referred to him as being a great friend of the business Birdwatching East Africa. Clive had seen this business grow and he, Daphne and Mike Watson were eager guinea pigs when Chege started their first ever mobile-tented safaris. Sleeping on the floor with a thin mat was roughing it compared to what is offered today – lodge standard bedding. Since meeting Clive, Chege's collection of wader photos has also improved along with his wader identification.

Unbeknown to most people, was that Chege also received the news of Clive being awarded the Eisenmann Medal as it came through an email to the company while they were on safari in Kenya. Chege believed Clive's biggest loves were Pat and birds, but he knew that a BBQ and beer (Tusker) would provide great competition on this occasion. During the safari there wasn't any suitable place to break the news to him and the group about the medal, other than over nyama choma (charcoaled grilled meat), at the Carnivore Restaurant in Nairobi. For the uninitiated, this eatery, allows patrons to consume an unlimited amount of meat of many game species. This was the perfect choice. Clive's face showed that the news was a great surprise and it certainly turned the last safari dinner into a celebration.

[64] Jackson 2008

When Chege told Clive about finding Justine, the love of Chege's life, Clive's joy was obvious and Chege was very pleased that together with Susan Taylor, Roz Jessop, Prue Wright, Dick Veitch and Nick Branson, Clive could witness the marriage of Chege and Justine on the escarpment of the famous Masai Mara National Reserve at the end of 2013. Before meeting Justine, every other email from Clive would have a final question, "Chege, have you found one?" Chege added that, "Clive must be my dad that I never had."

While Clive didn't ever band in Japan, he went there in 1982 as an Australian NGO representative (on behalf of the VWSG and AWSG) to the first of the Japan Australian Migratory Bird Agreement (JAMBA) meetings. Also in his group was Prof. Derek Ovington who was the head of the Australian National Parks and Wildlife Service, another officer from there and another NGO representative from Tasmania. The meeting was in Tokyo and it was there that he first met Kyo Asaki, who amongst other things took Clive out to buy his first modern spotting scope and tripod.

It was in early May, so when they went to observe birding sites around Tokyo, there were still quite a number of water fowl but wader migration was also occurring. One such site is presumed to be Yatsu-higata, as Clive said it was a well renowned place and it matches his description of "a muddy basin 500m by 500m, completely surrounded by buildings and an amusement park, with just a channel that fed the water in at high tide and drained it at low tide." Helicopters giving joy rides were taking off right next to the basin and yet there were about 500 waders all calmly feeding, taking absolutely no notice of the din. Though Clive exclaimed that there was "everything there," he particularly remembers the Mongolian Plovers (Lesser Sand Plovers), which were in full breeding plumage. A quick Google search for wader watching in Tokyo reveals many blogs that give similar descriptions of this site today.

After the first part of the JAMBA meeting, the group went up to Hokkaido, the northern most island to complete the rest of the meeting and its different habitat provided Clive with the chance to see a couple of Japanese Snipe.

Mai Po Marshes, in Hong Kong, are famous for their waders and other birdlife and it is there that Clive, with David Melville, has done his only banding in Asia. In some ways that seems incongruous given the amount of banding he has done in the south of the EAAF. Several Asian countries have invited Clive to band in their regions, but he has been too busy with his banding activities in Australia. During the thirty plus years however, he has brought Asia to Australia to some degree through his support for and training of team members from most of the key banding sites through the flyway.

New Zealand has hosted Clive a number of times. Initially he went to help them get started with cannon-netting of waders. Dick Veitch came to Victoria in March 1979 when the VWSG had their first large scale cannon-netting. On his return, Dick

constructed a cannon net in Auckland, and Clive, while not present himself, recalls their first catch being 800 Wrybills, one of very few species globally that has a bill that bends laterally. Some of those birds were still around for 20 years afterwards. At the time, the total population of Wrybills was only 5000-7000,[65] so to catch 800 was impressive. During his later visits, Clive observed their developing skills and joined them in catching knot and godwit. The New Zealanders very quickly became proficient at using cannon nets.

A stalwart of New Zealand wader studies, Adrian Riegen compiled these notes about a trip Clive made in 1996. Adrian wrote that "the world Grand Master of wader banding was in New Zealand from 17 - 29 October at the invitation of the Miranda Naturalists' Trust. Whilst here, his enthusiasm and unflagging (pun intended) energy inspired many to get out and help on three banding days, with a record 32 participants on 28 October, when we were able to catch and band 64 Turnstone at a new site on the Manukau Harbour. Prior to this, only 18 Turnstone had ever been banded in NZ so the full biometric data gathered will be very valuable."[66]

"The three catches … yielded a total of 1284 birds processed, including 875 Red Knots, 339 Bar-tailed Godwits, 64 Turnstones and six South Island Pied Oystercatchers. Most interesting were the Red Knot retraps and controls. Six were from Australia, of which two were from Victoria, banded as first year birds in 1981 and 1983 (possibly then the oldest known Australasian Red Knots). Three (were) from Queensland, including one banded just six weeks earlier near Brisbane. The last Australian (banded bird processed), was one of Clive Minton's (he gets everywhere!!) from a site near Darwin, Northern Territory banded on 15 September 1995 on its southward migration."

"In the 12 days Clive was in New Zealand he visited most wader harbours from Auckland to Parengarenga in the Far North. He was in raptures about them all."

[65] Hayman et al 1986
[66] Riegen 1996

11 America and Red Knot *rufa*

Allan Baker, who was originally from New Zealand, and did his PhD on the Variable Oystercatcher in the early 1970s, lived in Canada at the time when early studies on Red Knot were made in North and South America. He became Senior Curator of Ornithology and Head of the Department of Natural History at the Royal Ontario Museum and was a leading expert on DNA classification of waders until his passing in 2014. Allan was involved with counts of Red Knot and related studies in central Argentina with Theunis Piersma, the world expert on Red Knot and local Argentinian shorebird researcher Patricia Gonzales, who now works with the Global Flyway Network and the Fundación Inalafquen in Rio Negro, Argentina.

Unlike Clive, Patricia didn't know much about birds in her early years, because she couldn't see them. Only when she got binoculars did she start to discover this new world. As she explained on her own blog, "Many years ago, in the early nineties, I received my first pair of binoculars from Birders' Exchange with a note from the previous owner saying that she was too old to keep using them but she was happy to think that her binoculars will remain alive through my eyes…..and I still have them and use them as a treasure."[67] Patricia never imagined that one day she would work in the conservation of shorebirds!

Worldwide classification of waders was the focus of Allan's work along with one of his students, Mark Peck and they wanted blood samples of as many species as possible. They knew of the AWSG catching waders in NWA and realised it would be useful to go on a NWA expedition. So, in 1994 they came from Canada to NWA. A catch of 25-30 species of waders was common on an expedition, but when Allan and

[67] Gonzales 2013

Mark were there, they made use of other methods such as mist netting and setting a cannon-net to catch a Black-fronted Plover on a farm dam to boost the variety. The month was very successful as they acquired about 36 different species to sample.

A few months after returning to Canada very happy with his results, Allan contacted Clive regarding a study of Red Knot in Argentina. Allan was keen to use Clive's method of catching, banding and flagging to see where the Red Knot went on migration. He planned to go to Rio Grande, which was right down in Tierra del Fuego at the very bottom of Argentina, several thousand kilometres south of where Patricia had been doing her counting, because that was the terminal for these birds' migration. There was said to be a few thousand knots there regularly, so Clive agreed to join the expedition and bring some of his gear.

Rio Grande, Clive recalled had no tree for 100km in any direction. It was barren, grassy and stony, like the "back of beyond" and was very cold most of the time. Charles Darwin would have agreed, since he described South America as having "…primeval forests undefaced by the hand of man…in Brazil where the powers of life are predominant or those of Tierra del Fuego where death and decay prevail."[68] Unfortunately, added to this desolate scene were horrendous piles of junk - metal, plastic, and concrete- strewn along the beach.[69]

Clive provided designs for the cannons and a couple of those were constructed, probably in Canada, and when he travelled across the Pacific Ocean in Feb 1995, he took a keeping cage and some fuses because they didn't have any. Clive got the in-principle approval needed from both Qantas and Aer Lingas Argentina to take the fuses on board and he was lucky on the day that the particular pilot agreed, though they had to be carefully wrapped.

People on that first banding trip included Allan, Mark, who held things together from an organisational point of view, about three other people from Toronto, Theunis Piersma and his partner Petra de Goej from Holland, Patricia and two more Argentinians. When the group gathered at Rio Grande, Clive had the fuses but a potential problem loomed as the black powder for the cannons hadn't been delivered. After exhausting a few other options, they eventually went to a fireworks shop and bought all their rockets and other explosives. Rather riskily, they ground all the propellant in a mortar and pestle! At their motel, this mixture was put into a cartridge and loaded into one cannon, which they took across the road to the mudflat where large numbers of Red Knots and Kelp Geese and all sorts of other birds had gathered.

When a cannon is test fired, a projectile is put down the cannon with about 30-40m of thick rope attached to it. Then a sizable chunk of wood is tied to the other end of

[68] Keynes 2001
[69] Minton 1995

the rope. The projectile fires out of the cannon picking up the heavy rope that slows it down a little. It then collects the lump of wood that impedes its force considerably so that the projectile doesn't go too far. When things go to plan, the projectile will still go 300-400m but this test with the firecracker powder was an abject failure as it just went "phhhhht," landing about 20 metres away! In desperation they decided to try something else. They managed to find some nitro-cellulose powder which was normally used for seismic exploration and which was considerably more powerful. Consequently, a relatively modest quantity was loaded into a cartridge. This time it went "BANG!!! The whole cannon just split like a banana peel," proclaimed Clive. What remained was the base of the cannon with four or five strips of steel peeled around it. This was the exact opposite to the fireworks trial. So, at 8am on a Saturday morning it was back to the drawing board again.

Cannons are made from a standard two inch pipe which is not difficult to find but people able to build a cannon are. The team were in luck though as, in this area, there were many workshops supporting the oil industry with repairs and maintenance for oil drilling rigs and related works. Clive could hardly believe that "by 5pm they had replaced that cannon completely. It was an absolute miracle." With part of their dilemma solved, they turned their attention to the powder. Somehow they discovered a firearm enthusiast who was in possession of genuine black powder though he lived in Ushuaia, about 400 kilometres away, at the very southern end of Tierra del Fuego, where the boats leave to go to Antarctica. The powder was put on a bus and reached them the next day.

This time the trial firing worked in the normal way, and the delay had provided them with time to familiarise themselves with the area. To refine the level of powder, they decided to do a few trial catches of a small number of White-rumped Sandpipers that were relatively easy to twinkle around the beach. However, much to Clive's embarrassment and causing a waste of powder, on the very first catch the net went off prematurely before the birds were even in position. This was due to a malfunction in the firing box. It had been detected in pre-catch testing but later tests could not replicate the failure to identify the problem, so they tried for another catch. Again, the net fired when it was switched in, but at least this time they caught a handful of White-tailed Sandpipers. Always the optimist, Clive felt that the delays were allowing them to get a better feel for the Red Knot behaviour, which was indicating that their roosting sites were moving with tide height, weather conditions and disturbance by joggers, walkers, four-wheel drives, fishermen and dogs. Eventually the team decided that the gear was working well and that they now had enough experience, to attempt catching Red Knots.

There were also many Magellanic Oystercatchers around and the best to catch the knot was on the shore, just in front of the naval police academy. With great laughter, Clive recalls that Patricia Gonzales, the attractive Argentinian, was able to use her charms in Tierra del Fuego to get permission for the team to go into the naval base

to set the cannon net. They set the net on a clear and sunny summer day, in late February. Clive, as always, was wearing shorts and a T-shirt when they set the net at eight o'clock in the morning. By 10 o'clock a mass of oystercatchers was in front of the net with a roost of knot in the middle. The number of knots was unknown though because they were hidden behind the bigger birds. When Clive and the team judged that the tide had pushed the birds up close enough for the knot to be catchable, they fired their net, which Clive says was a full-sized, four cannon net that spread perfectly. After the firing, to ensure that the birds didn't drown, the front of the net and the birds were pushed back ashore. The excellent result was 850 of the targeted Red Knot, 150 superfluous Magellanic Oystercatchers which were immediately released from the net unbanded, plus 35 Hudsonian Godwit. No-one had ever banded these so they were a real trove. Six of the Red Knots were already carrying Brazilian bands and colour flags and two were from the USA/Canada. With such a huge catch, there was a shortage of keeping cages but the persuasive powers of Patricia and Clive resulted in the army bringing down tents, which the team turned into keeping cages, and they cobbled together various other home-made keeping cages. The entire knot and godwit catch were placed into the various cages then processed the godwit first, then the knot. When there were 800 knots left, only 200 metal bands remained, as some of the supplies hadn't arrived. There were however, 400 colour bands for Red Knot, so they used all the metal bands first and then just put colour bands on.

As the day passed, the weather was becoming increasingly cloudy and cold and the wind was getting stronger. They were desperately short of clothing so the navy brought their trucks to the processing area and the team sat in the back. Someone had found some black plastic which they cut into strips as make-do bands. These supplemented the yellow engraved ones they had brought with them to put on the other leg. A gas stove and hot poker were used to melt the ends of black plastic strips and they all crowded in as close to as possible to the stove trying to keep warm. It even began to snow while they were still processing! The end result was that even though they let 200 go, the group had processed 600 Red Knot - an absolutely fabulous catch, about five times as large as they'd hoped for.

That trip to Tierra del Fuego, while being chaotic in the provisioning, was great fun and miraculously successful as those birds then began being seen elsewhere in the flyway and that stimulated further interest. Incredibly, one of those birds, marked as 'B95' was seen on northern migration in May 2014 at Delaware Bay, 19 years after being banded. It has been seen many times and has become so famous that here is even a book about it written by Phillip Hoose called "Moonbird – A year on the wind with the great survivor B95."[70]

[70] Hoose 2012

Its arrival in Delaware Bay in 2012, added to its fame. B95 stopped, right in front of the house where Patricia Gonzales and Allan Baker were staying and a few hundred metres from Clive's accommodation. As it happened, Glenn Swain from the New York Times was visiting so the next day, B95 was featured on the front of that well-read paper. Under the headline 'A Red Knot Celebrity Is Back In Town,' Glenn wrote an article which began, "On Monday morning, Patricia M. Gonzalez, an Argentine biologist, was standing on the balcony of a house in Reeds Beach, N.J., peering through a telescope at shorebirds. She spotted a bird with an orange band around its leg, possibly suggesting that it had been tagged in South America. It was then that she realized that B95, a legendary Red Knot, was walking across the sand in front of her. 'My hands were shaking and my heart was beating fast,' said Dr Gonzalez."[71]

Clive (centre) watching Red Knot in front of the net set on the shores of Delaware Bay just prior to a catch. "Is B95 in there?" (Angela Watts)

During 1996, Allan Baker determined that he wanted to conduct a more extensive expedition the following year by travelling north with the knots. The plan was to catch at six times, each at a different site along the flyway. The itinerary would be southern Argentina in late February or early March, central Argentina in mid-March,

[71] Swain 2012

northern Argentina at the end of March, southern Brazil at the beginning of April, north of Brazil in mid-April and finally Delaware Bay at the end of the first week of May. This time Allan asked Clive to take all the equipment for the expedition from Australia and a team as well. So Roz Jessop, Pete Collins and Doris Graham from Australia, along with Jim Wilson, a former WWRG member who was by then living in Norway, but temporarily in Australia, accompanied Clive to South America. The equipment included four keeping cages, nets, a number of cannons, firing boxes and the difficult to transport fuses. Allan and Mark had organised bands, flags and some black powder. But exiting Australia was still not to be without drama.

Qantas and Air Lingus Argentina had, of course, been fully briefed by Clive about the fuses and after the Australian contingent arrived at Melbourne airport, the initial check in passed without incident. Then, while waiting in the departure lounge, an announcement came over the loud speaker asking Clive to report to the desk where he was informed that the pilot taking them to Sydney had refused to take the fuses. After Clive explained that their expedition to South America couldn't go ahead without the fuses, the airport manager was called. He was sympathetic but could not override the pilot. After some consultation, it was decided that the rest of the team would fly on to Sydney while the airport manager organised for Clive, his gear and the fuses, to be taken on the next flight…as long as the pilot agreed. Imagine the pressure that the manager must have felt with the might of Clive bearing down on him! The plan worked and Clive boarded the next flight to Sydney where, as prearranged, staff whisked him onto a Qantas vehicle and drove him around within the airport, straight to the international flight area and onto the Aer Lingus Argentina plane. All of this was obviously before security enhancement, post 9/11!

While they caught knots at Tierra del Fuego, it was not totally successful. They did get samples of knot in the south and the middle of Argentina and then in the north, just at the mouth of the River Plate. Here they also attached ten radio transmitters to Red Knot, and had a wonderful catch of 400 common terns, 22 of which had bands from North America.[72]

Once the whole group had arrived in South America, there were about a dozen of them travelling together. As they flew between banding areas, unsurprisingly, they had more than 400kg of excess baggage. Clive's policy was that when facing a problem, you should always be upfront, so he would approach the desk alone but with all the luggage, often targeting the most sympathetic looking young woman. He would put the heaviest items, the cannons, on first (they were all wrapped up in sacks so you couldn't see they were pieces of armoury) and say, "We've got a huge amount of luggage, way over the top" but would go on to explain about the expedition, the large amount of gear required, how important it was for Argentina, (or Brazil or wherever they were), and for the birds themselves. It was made clear

[72] Jessop & Collins 1997

there was nothing illegal about their equipment, it just weighed “a hellova lot.” And not once were they charged for excess baggage!

The quantity of gear temporarily provided another problem at Buenos Aires airport when they couldn’t get from there to the bus station for a long haul road trip to San Antonio Este. As usual, Clive managed to organise a remedy, their own bus. There were some 10 000 Red Knot at the San Antonio area which generally gathered in one huge flock, “a smoke of knot” as Roz referred to it as. Catching there proved difficult as, being only a stopover site for them, the birds were restless. Each day they would set the net before high tide, judging from the previous day’s recce, only to find the birds roosted further down the beach. A falling tide series wasn’t helping and after several days they had caught only 15 Red Knot.

Despite this, the catching in Argentina was reasonable, but they did miss out on a catch at Fracaso Playa on the Peninsula Valdez. Perhaps they needed to check the English translation of the site names before the trip was planned, as this place lived up to its name, Failure Beach! They experienced unseasonal heavy rain there that locked them in the shearing shed where they were staying and the impassable roads only just managed to dry out enough to allow them to retrieve the net that had been laid out on the beach, the night before they were due to leave.

There was also quite a bit of press associated with the project and by the time they got to the north of Argentina and were about to fly to Brazil, there was a front page article in the newspaper accompanied by photos telling the story of the expedition. That helped at the check-in desk as well.

When they arrived in southern Brazil they went to Lagoa do Peixe, which is a lagoon system behind the shore where the sea occasionally comes in on very high tides and which the knots used regularly. Apart from all the knots and other pleasant sights, the most memorable thing for Clive was that they “had the most almighty storm.” The sea rose right up to the dunes and flooded in through the entrance and put metres of water into the lagoons, which was an incredible sight to see. A short distance from their cabins that were fortunately on little sections of high ground, they had found a Painted Snipe’s nest in the reeds. Unfortunately the nest was flooded out by the storm surge, which was a great shame. They also saw a flock of rare Tawny-breasted Dotterel forced in by the storm. Sadly, these birds have been persecuted by hunters, leading to a marked decrease in their population.

Humphrey Sitters, a member of that 1997 team, noted that since Clive first developed cannon netting for waders, many others have learnt the technique and become qualified to follow in his footsteps. But Clive's mastery of the art of cannon netting was such that he could make successful catches in circumstances that the rest of we mortals wouldn't even dream of attempting.

One such occasion on this expedition, deeply etched in Humphrey's memory, occurred when they were trying to catch the knots where the water flowed across the beach between the lagoon and the sea. A few hundred knots were present but their movements did not relate to the state of the tide, making it difficult to identify a site at which they could be cannon netted. The only place where they roosted with any consistency was out in the flowing water. It was a wide area, tens of metres across, and the birds roosted right in the middle of it. Even though it was only two to three centimetres deep, water was flowing constantly and if the net was set on the dry ground beside the flowing water, it would not have reached the birds. So Clive instructed the team to set the net in the middle of the water! In reality, they set the net on dry ground and then carried it into the water where it had to be pegged down. The cannons were wrapped in plastic bags and buried in the watery sand behind the net. The net was pushed to and fro by the flowing water.

There followed three events which, even 17 years later, seemed miraculous to Humphrey. Firstly, within minutes, a sizeable flock of knots landed in the catching area. Then, both of the cannons that were mostly under water actually fired while the sodden net surprisingly took flight and indeed they caught the birds! At this point, Clive went into high-volume, rapid-command mode. This could be code by Humphrey, the English gentleman, for Clive going berserk and bellowing instructions. The team gathered up the whole of the net with the birds intact and carried it to dry sand where they were extracted and allowed to dry in the keeping cages before being banded. Humphrey felt that it was a catch to admire, but not emulate! Catch leaders around the world would agree with Humphrey's assessment.

Another situation there that stirred up Clive's 'excitement' levels occurred at a later catch in a different location when a twinkler, returning from some distance away, didn't realise where the catching area was. Everything was twinkled out from in front of the net! Given Clive's reaction, he would have paid more attention the next time.

Two or three days after the 'wet' knot catch, one of the Argentinians was returning to a catching site via the only route to get there, which was a 40km strip along the shore. All the way along the shore he found dead or dying waders. The team collected them all and samples were taken but no-one could ever explain what caused their deaths. It was thought to possibly relate to a form of algal bloom and/or an issue resulting from the storm. The losses remained a puzzle. About 40-50 knot and a range of other birds were lost although the knot seemed to be the hardest hit.

Further north, not far from Belem, at a place called Salinas which is about 80km from the mouth of the Amazon River, was the next stop. Clive and Jim Wilson pitched their tents on the porch of a house where there were some flowering shrubs about one metre from the tent entrance. One bush was frequented by two or three different species of hummingbird so the pair could happily sit in their tents and

freely observe the birds. Roz remembered entering the house to find that all of the walls were covered in mosquitoes so she, Pete and Mark relocated to a local motel to sleep. Both mist-netting and cannon-netting secured them a variety of species. When mist netting, they would sometimes be catching 100-200 birds in an evening. They caught a few different species, like a bittern which surprised them, a Scarlet Ibis and some other beautiful birds. During their stay, the cannon net catches provided more waders than the locals had caught there with mist nets for all of the previous year.

In order to allow time for the birds to get to North America, during the third week in April the trip was temporarily disbanded. Jim and Doris went on a trimaran along the north coast of Brazil looking for Red Knot through all the mangroves, estuaries and islands. Allan and Mark travelled back to Toronto for a short time and Clive visited his sister Angela in Toronto and moved on to stay with friends in Massachusetts. They reconvened again on the 7th May at Delaware Bay, on the New Jersey (east) side. There they linked up with some local banders and resumed the program.

The first sighting was a host of horseshoe crabs, the major source of food for waders, coming up onto the sandy beaches at high tide. These are amazing creatures, the largest females being almost as big as a car steering wheel and the males more the size of a side plate. But everywhere there was some beach, trucks were stopped and people were filling the back of a truck with one or two thousand big crabs, the gravid females spewing eggs everywhere! With a selling price of $2 each, they were making $1000 an hour. The team were aghast at this incredibly irresponsible act in the US which they had been led to believe was one of the most environmentally friendly places in the world, especially during the 70s and 80s. Clive's voice had a tone of incredulity as he described this selective harvest of breeding females unfolding before their eyes, in the 1990s.

The team were absolutely outraged and Doris in particular, who was upset if a blade of grass was bent, went berserk. The angry response amongst the team had a significant impact on the local team members. Larry Niles and others had been voicing their disgust at this ridiculous, uncontrolled harvesting of crabs but were now seeing that, from a world perspective, it was much worse than even they had believed. This gave them "huge power to their elbow." They were reinvigorated by the strength of the international research team's reaction to what was seen.

Larry was to become the leader of the Delaware Bay expeditions so he has had countless experiences with his friend Clive that captures their relationship. Undoubtedly the most fateful encounter he recalls was their very first. "It was a time when the horseshoe crabs of Delaware Bay were fast going to the ropes. The commercial fishing industry's destruction of this undervalued fishery was gaining momentum and they were about to make quick work of destroying another Delaware Bay fishery. They had just finished the destruction of the Atlantic

sturgeon, now an endangered species and lost from the bay. American eels, river herring, weakfish and horseshoe crabs were next."

Larry led the Endangered Species Program for the New Jersey Division of Fish and Game, "a group that had divided loyalties about the crab. They knew they should protect birds and crabs, but were weak-kneed about fighting the politically powerful fishing industry." The Endangered Species Program found itself alone in caring about the future of crabs and the shorebirds of Delaware Bay. Then one day in May 1997, Clive went to the office asking for permits and logistic support to start the cannon netting of shorebirds on Delaware Bay.

It was the "start of an exciting opportunity" for Larry and he did his best to help Clive's small team of Allan, Humphrey, Jim and Doris to find a modest place to stay and begin the paperwork to start trapping. It was his introduction to cannon netting and at the time he didn't know this experience would change his life, that he would combine with Clive nearly every year for the next 18 years and that their work would turn into "one of the most important shorebird projects in the Americas," that it would "form a rock solid foundation on which our 20 year fight to save the horseshoe crabs and shorebirds would rest." Larry had just completed his PhD on raptors but from that day on, he became a shorebird biologist, with Clive providing the necessary training that would reorient Larry's career. He was on the cusp of discovering that "this gentle man, so full of enthusiasm and keen insight would become a mentor, whose advice and training would guide me to this very day."

Press exposure was organised for the visiting group almost every day, which was so effective that, within ten days of the team's arrival, the Governor of New Jersey, Christine Whitman (who later became head of the US Environmental Protection Agency under President Bush), declared a halt to the harvest of Horseshoe Crabs. This was immediately challenged by the powerful fishermen's lobby group in the courts which, with considerable financial backing, had it overturned within a week. Vicious lawsuits pitted Christine Witman's government against itself. Many battles ensued, but after eight years or so, there is now a reasonable restriction on harvesting and no harvesting by hand off those beaches during the May breeding period. The waders had scored a well-earned victory even though they had not won the whole war.

Knots will soon receive full protection under US law as a federally threatened species, a first for a bird that doesn't breed in the US. Crabs, though diminished in population, still occur in numbers sufficient to provide shorebirds with the food they need to go on to the Arctic in good condition. And Delaware Bay still remains home to the largest population of horseshoe crabs in the world.

According to Clive, Delaware Bay was, and still is, the easiest place in the world to catch waders. As he describes it, "There are just heaps of waders on nice steep, narrow shores, with not too much rise and fall of the tide, and the birds are as tame

as tame can be." Observers can sit on the beach 30 metres away in full view of a thousand knot and the birds won't take any notice. When the team started operating at Delaware Bay, they were able to gather samples of knot, Sanderling and godwit every day, at will, and so the major study at Delaware Bay began. What had started as a study of the migration of the knot in the Americas quite quickly refocussed on conservation.

When Clive started his expeditions to Delaware Bay there were 70 000 knot on the bay, ten years previously there had been double that number but by 2012 it had diminished to only 16 000. That was the scale of the decline, caused entirely by the over-harvesting of Horseshoe Crabs and the eggs that refuelled the knot, turnstone, Sanderling and other waders.

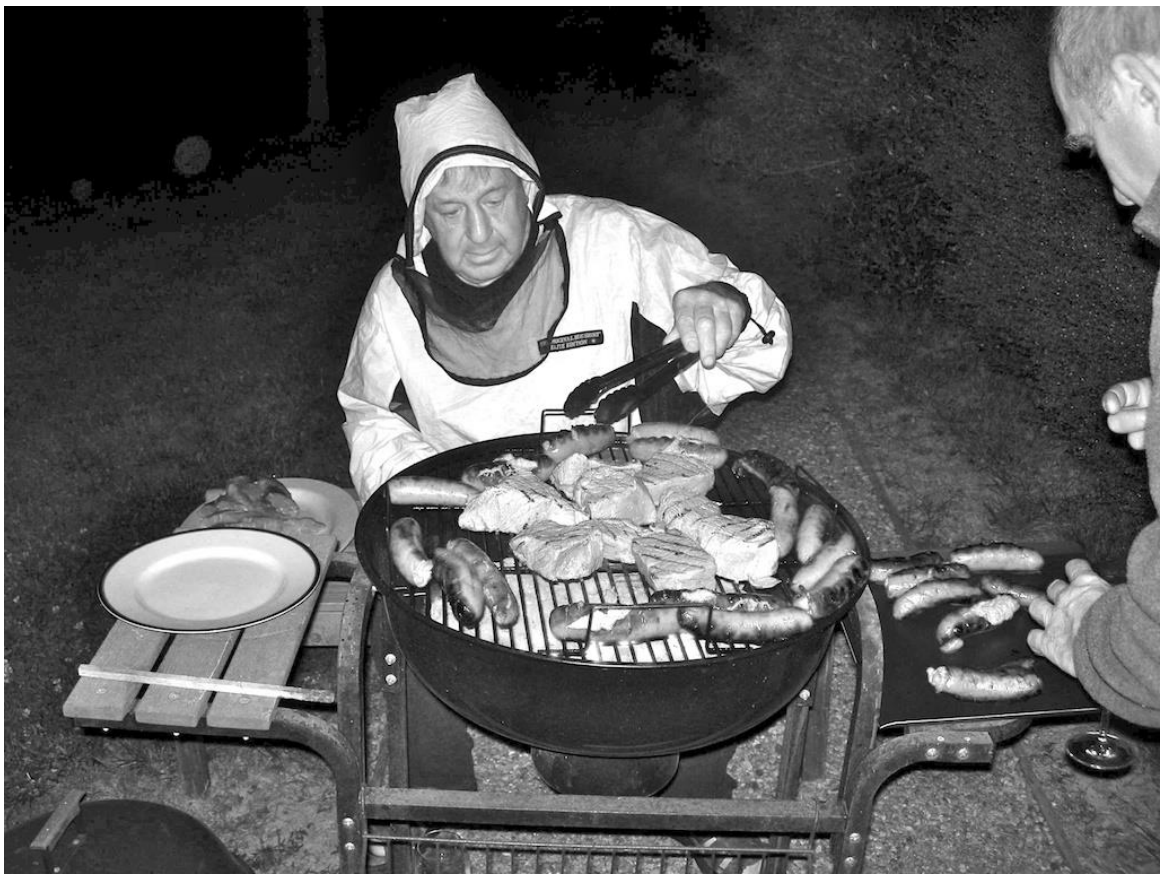
For the first two years they covered both sides of the bay with the one team. It was rather like having "one study site on Dover in England and the other at Calais in France." It took about ninety minutes by ferry to cross the entrance from one side to the other. Subsequently, the Delaware team has mostly been supported by the WWRG, while the New Jersey side works with a team from Australia, New Zealand and Canada.

Jane Morton Galetto has known the "loveable cherub we know as Clive" since he first started going to Delaware Bay. She chaired the Endangered and Nongame Species Advisory Committee in the State of New Jersey, USA for over 18 years and still serves on its board. It was through that entity that she became familiar with shorebird recovery work. As President of a regional conservation organisation she encouraged the members to become involved in the monumental task of assisting at banding stations and feeding the Shorebird Recovery Team. This developed to the extent of providing about a thousand meals a season, so that the team would hopefully depart as well-fed as the birds.

Clearly, Clive eats only a portion of the meals provided by Jane's group, but she says that, "he makes a good showing." He is famous for his enjoyment of the camaraderie surrounding a meal and the partaking of it, almost as much as for his love of shorebirds. As he developed a deep appreciation for wild North American fare, elk, quail, striped bass and Canada Goose all made their way to his menu. The vegetarian chilli is not at the top of his all-time hit-list, says Jane, his typical response being, "Where is the MEAT?"

Another who catered for a meal on one of the banding trips there was Chung Yu Chiang, a wader researcher from Taiwan. Taking charge of lunch, Chung Yu was told by Larry of Clive's need for meat. But as Chung Yu discovered, including the requested fare in his Chinese meal was not enough. "It's not only meat, but a lot of meat!" said Chung Yu.

Jane isn't sure if it was his English upbringing or Aussie style or a combination of both, but she says that Americans took to his way with words and, in fact, so did those from all continents. Loaded with positive embellishments, she says that "his superlatives act like kindling on a flame igniting all of us to follow his glow."



"It's not only meat, but a lot of meat!" Clive is in his element, cooking a meaty meal for the team.
(Chung Yu Chiang)

Naturally, Jane noted that Clive doesn't get everything right but such is his standing that when he is a tad off the mark, it is overlooked or made into a joke. One such occasion relates to his sense of style, or lack of it. A number of years ago, a New Your Times reporter was to interview Clive at Delaware Bay. Aussie team member Susan Taylor, who has accompanied Clive on his trips there for over a decade and has been an integral participant in Aussie banding programs for even longer, was with Jane in the kitchen awaiting the man of the hour's entrance after getting "gussied up". Jane explained that while neither of them were fashion experts, they didn't have to be on the staff of Vogue to know that this was one remarkable outfit. Picture this: "drawstring shorts pulled waist high, in fact higher" (though how to determine where Clive's waist is anymore is beyond most of us)," a tucked in T-shirt, dark knee-high socks, some kind of leather footwear and slicked hair." The ladies suggested that his casual style required the T-shirt be untucked and over the top of

the draw-string shorts, which he clearly thought improper but he finally "caved in" when yet a third member, Jeannine, who runs the Delaware shorebird flag sighting database, echoed their recommendation. Jane finished with "that was the best we could do before sending him to the media wolves… where we knew in the end he would be … well, beloved."

Larry Niles offered another reflection. Susan, often scolded Clive that she would "not haul his carcass off the beach" after an injudicious lapse of caution about his health. After all, Larry added, "We all know he will outrun a teenager after draining a can of dolce de leche (a South American confection prepared by slowly heating sweetened milk), if the catch is large enough." Clive was introduced to dolce de leche on his trips to South America, when he was "in heaven" eating this for breakfast every morning. To such charges about his eating Clive invariably responds meekly that he has no choice, because he loves life so much - his family, the people, the food, the excitement of a catch. At 80 and going strong, can there be no more important advice on how to live our lives?

Stuart Pimm, when describing a catch on the Delaware shores explained that it's done "almost entirely by an amazing group of amateurs. They have come from around the world to be on the New Jersey shore for a few critical weeks. They are all repeat offenders. They have followed one man–Clive Minton–to literally the opposite ends of the Earth, season after season, some of them for decades."

We have all 'had to follow' Clive to some extent when it comes to Jane's next tale, from the 2013 Delaware Bay season. It could have been rather embarrassing were it not that the team were field researchers and used to having to improvise in the field. As Jane said, they "clearly understand those compulsory moments when nature demands that our bodily functions must simply … function." During the shorebird season there is little foot traffic on the beaches where they catch, so finding a dune or high grass for such private moments is not a problem. Having been in the 'field' with Clive for as long as she could remember, Clive's sister Angela confidently assured the team that he used proper decorum in his time of need. Evidently, his propriety wasn't good enough for one beachfront resident who, after stealing a peek, felt the need to register her complaint to the shorebird recovery team in a manner that Jane referred to as "coming unglued, or going off her wig." Although Jane did not witness either Clive's act or the local observer's unhinged response, she recalls that the amount of play it got during that year's banding season led to what Clive might call, "a superior fuss."

In fact, such was this woman's hostility that she even had the authorities involved! To Jane's surprise, they were not amused with Clive's antics either. Evidently the constable on duty was not involved in wildlife rehabilitation and "was of a ripe young age where he could ignore bodily functions through a catch that might last many hours." This left his sympathies not with the crew, nor Clive, but with the local

resident. In fact, he threatened arrest for any repeat performances! This lack of understanding elicited in Clive a degree of indignity that is rarely seen, informing the team that "he could not, and would not, ignore bodily needs and they could bloody well lock him up." The resultant teasing would certainly would have continued in Australia had the VWSG been aware of such a tale. However, the joking may have climaxed at the annual Delaware shorebird picnic, when the indoor loo was no further than 35 metres from the site, yet a portable loo was rented to halve the distance. Displayed on the side was a special sign for Clive, directing him to the wooded area adjacent to the outhouse. For Jane, the good natured way in which he handled all the jibes directed his way is what makes him simply "the most loveable of all folks on the entire planet."

A few times each year, Angela and her husband Barrie help with the migration field work at Long Point on Lake Eirie, on the Canadian border. Often, she says, discussions about cannon netting and lately the geolocators, has led to great interest from both local and international visitors. Many of the English visitors reflect on the impact Clive has had on their lives when working on waders and swans in that country, many years beforehand. Angela and Barrie arrived one day to find a student from Denmark leaving unexpectedly early, as he was flying back to Spain specifically to hear Clive talk about geolocators at a birding seminar. His influence is certainly global.

During a short time-out from catching at Delaware Bay, Clive demonstrates his enthusiasm for getting involved in anything that is happening.

(Angela Watts)

Red Knot is probably the most intensively studied species in the world. All aspects of their life have been examined. Delaware Bay is where engraved leg flags were first used in any significant way for waders and it has "just been an absolutely marvellous thing to take part in" for Clive. Since the start, he has been there every year for four weeks in late May to early June. Delaware Bay continues to be a hugely regarded site for studying Red Knot.

Larry shared this story about Clive from only a few years ago. The politics on the bay required limits be set on the number of shorebirds caught and banded each year, 350 knots, 350 turnstones and 1000 Sanderlings. All the while tens of thousands of shorebirds use the bay just waiting to be caught. One can imagine the trouble Larry had holding back Clive from catching all 300 000! One day they were trapping knots and having a tough time of it. Bad luck plagued them the previous day and it seemed to be continuing. They set the net on a shoal soon to be covered by the tide but the birds wouldn't cooperate. Then as if by magic, knots, turnstones and Sanderlings gathered on the shoal (with some judicious twinkling) and soon they had a catchable flock. Unfortunately for Larry, if they fired then, the catch would be so high in number it would have blown their quota. On the other hand, they had just started putting on geolocators the year before and the bigger the catch, the better were their chances of retrieving them. They had already caught a few and were thrilled with the maps developed by Ron Porter, so were determined to catch more. They decided to fire. Clive and Larry didn't so much run to the net, as float, because the net itself floated with flapping shorebirds desperately trying to get out.

This is where Larry's story gets interesting, because he had spent much of the last 15 seasons convincing Clive to consider himself Larry's "assistant." Larry felt that task was "as difficult as catching shorebirds on a falling tide on an ocean shore with 30 foot tides." His view is that, "Clive can never be someone's assistant; he will say he can and he will pretend to all he can, but realistically, how can one expect any man of such enormous skill and experience to be an assistant."

At the net Larry said they would take all recaps (called retraps in Australia, with both terms referring to catching birds that have been banded before) but release all but 100 unbanded knots and a similar number of any other species. He knew he would have trouble because the net boiled with caught birds. Once they started releasing birds, keeping recaps and enough birds for their main purpose, he could hear in the background not only Clive, but Guy Morrison grousing about releasing all these birds. All the while the normal pandemonium of a big catch filled the air with team members rushing to cover the birds, erecting keeping cages and systematically extracting birds in peril from the rapidly rising tide filling the catch area.

Then Larry lost it, yelling at both men, for whom he has the utmost respect that he "didn't want to hear any more complaining." Clive sternly admonished Larry, telling him to stop, which he did for the time it took to take the birds out of the net and have

the team busy themselves at the cages. Afterwards, Larry explained that he was sick and tired of having to wrestle with Clive's obsession with keeping all caught birds. They had a quota to adhere to and it was difficult to keep trying to justify their greater than appropriate size catches. Clive told Larry it was wrong to explode publicly and scolded him for acting badly. Larry knew Clive was right and stopped, "but still fumed inside."

Clive, Guy and Larry stood there in that "awkward silence that often follows harsh words said amongst family." All the while the team, who heard all this commotion, looked on to see what would happen next. By then Larry had regained some composure and apologised to both men for his outburst, "finally feeling the guilt that comes with a cooled-down perspective - I am Catholic after all!" Clive and Guy accepted his apology and they stood for a few seconds wondering 'what comes next.' Then Clive took both Guy and Larry's arms and coached them to put on a good face for the sake of the team. Arm in arm they walked up to the team as though nothing in the world would break their spirit or that of the team. To Clive, Larry's anger was only a bit of bad weather and now it had passed. The team breathed an almost audible sigh of relief and went on with the work. Once again Larry "learned a valuable lesson from a man that had taught me much in the years I have had the honour of his friendship and gave me one of the most important relationships in my life."

Amanda Dey is Larry's wife and her words expand on his sentiments and provide an insightful description of cannon netting. She believes that it is one of the most difficult methods of capturing wildlife, because of the potential of danger to both animals and humans. It requires difficult choices that must be made in the moment using uncommon patience, persistence, calmness under pressure, and most of all, courage. The team is critical, it needs a singular focus on the welfare of the birds at every step in the process; capture, holding, processing and above all, trust in the person leading the catch. It requires getting outside of yourself, putting aside your fear, being your absolute best because the birds are depending on you. Mandy said that she believes "it's why so few people cannon net in the world and especially in the US. It's difficult to do it well, unless you have a Clive Minton to teach you."

Cannon netting is all about technique, skill and understanding what the birds like and don't like. But to be successful, you must also understand people. Clive has taught Mandy much about how to be with integrity in a team. "It doesn't mean you act perfectly, it means you suspend judgment, don't take things personally, be more patient and trust in the council of others more experienced than you." She added that when things fly apart, it's important to bring them back together despite the pressure and stress. With Clive guiding them through eighteen years of rigorous work, they've learned not only about catching shorebirds but lessons about caring for a team, being successful despite poor odds and persisting in the face of political

interests who would like nothing more than for them to go away. All of this must be done with the singular focus on the welfare of the birds.

Mandy could have easily imagined this project falling apart without those lessons. Instead it has grown and accomplished more and more each year. Clive has been a patient mentor and ardent voice for shorebirds and "without him our successes on the bay would not have been possible."

12 Accolades

An excerpt from Clive's own CV when he was 68 years old illustrates how he had seen his life in relation to birds. "The study of birds has been my principal extramural activity throughout my life. Waterbirds, especially waders, have been a special interest for the past 50 years. My main focus has been on the generation of scientific data, particularly involving banding techniques, especially if this has conservation applications."

In this lifetime of working with birds, Clive has received many accolades. William Dick was one of the early WWRG members who spent many hours with Clive in pursuit of the catch and, in his words, Clive had "greater influence than anyone else, in opening opportunities which have enriched the experiences I have enjoyed." Further to this personal impact, he believes that "Undoubtedly Clive was the most important single influence mobilising amateurs to become involved in contributing to wader research, in Europe and Australasia but also worldwide. Without amateur involvement, the subsequent expansion of professional research would not have been possible. The web of influence is truly remarkable."

Stuart Pimm concurs with these sentiments. After Clive contacted Stuart about geolocators four decades after they were catching in England, he had no hesitation in responding to the call for help from Clive. No matter that his career had taken him to Australia and Stuart's had taken him to the USA, first to do a PhD in desert biology (a legacy of earlier ringing in Afghanistan), but soon thereafter, capriciously into tropical moist forests and then determinedly into conserving species where they are most in danger. In Stuart's words, "Clive had remained an icon — an inspiration for what we now call citizen science." Stuart had followed the science from wader ringing because ecological studies across huge areas and over decades are, and will always be, special. Also, the adrenalin from that morning's shouts, forty years earlier that they had hundreds of birds in the net, was still palpable. Stuart said that Clive was an inspiration in 1970 and he still is.

Very few of us have another living species named after us, but Clive's work has twice been acknowledged in this way. The first was endowed by Andrew Whittaker who first met Clive at the age of eleven in Birmingham, and who now lives with his Brazilian wife and children in Manaus in the Amazon and works as a tour guide. According to Clive, Andy always had a brilliant ear for bird calls and was (and no doubt still is) a brilliant field observer. He has found and described several new species, a process that requires enormous attention to detail and meticulous documentation. He describes his history with Clive as being "essential in me becoming what I am today!" Andy's father was a birder and when he attended an Open University course, part of which Clive delivered at night, he took along his young son who was also very interested in birds. Of course Clive allowed (or more likely 'encouraged') him to join, despite his age.

Many years later, in 2003, when Andy described the etymology for the Cryptic Forest Falcon (*Micrastur mintoni*), a small raptor found in the Amazon jungle of South America, he said:

"I take great pleasure in naming this species in honour of my good friend Clive D. T. Minton in recognition of his major contribution to our understanding of shorebird biology and their conservation worldwide. Clive was a major influence in teaching me ornithology during my childhood and later became my bird-banding trainer and mentor. His never-ending enthusiasm for the study of birds and their conservation was contagious and has inspired many."[73]

This new bird had been confused with the Lined Forest Falcon, but was found by Andy to be a different species. Andy took years to gather the detailed evidence needed to support the naming of a new species. They have quite different calls and a number of other specific characteristics such as the barring on the tails, the Cryptic Forest Falcon having only a single white tail-band, in addition to a narrow white tail tip. In a sense there are two ironies here, one that the species involved was a bird of prey rather than a wader and the other that he was later to write a book on waders with a bird of prey specialist, David Hollands. Clive found Andy's naming of the falcon for him "very rewarding."

In 2014 Clive was to be reacquainted with 'his' falcon when Josh Engel sent a photo of the bird in his hand in the Amazon forest. Josh had met Clive through the VWSG while he spent time in Melbourne in late 2004. He was looking to get involved in bird research as a way of escaping the city and, of course, as a way to see a greater range of birds. Initially he joined in day trips to Werribee, usually getting a lift from Clive but extended this to some overnight trips further afield, including to NWA.

It was during this time, that Josh learned that Clive was to have a falcon named after him. Being American, Josh hoped he would get a chance to see one of these and could

[73] Whittaker 2013

tell Clive about it. Nonetheless, he was surprised when it actually happened. While doing fieldwork in south-eastern Amazonian Brazil, he walked up to a mist-net set in the forest and to find a trapped “mean-looking raptor”. He noticed its bright orange face, checked some other features and determined it to be a mintoni! His colleagues snapped many photos of Josh with the bird, and eventually he was able to send one on to Clive.

Cryptic Forest Falcon (*Micrastur mintoni*), a new species of falcon named after Clive by Andy Whittaker.

(Andrew Whittaker, Birding Brazil Tours)

The second species is perhaps less glamorous than a falcon, but equally significant. The researcher responsible is Daniel Gustafsson who explained that he contacted those on the mailing list of the Wader Study Group requesting help to catch all the species of Calidrinae (sandpipers) for his PhD thesis on lice. There was little response except from Clive, who invited him to the expedition to Broome in 2008. From that expedition, Daniel collected a great deal of useful material. When he started the revision of the louse genus, Lunaceps in 2009, he found that even though many of the species were genetically very distinct, they were more or less identical morphologically, or the differences were usually in characters that didn't lend themselves to suitable names. Generally, Daniel didn’t name animals after people, so he was toying with using “some geographical thing, like *sibericus* (after breeding sites), *orientalis* (after the flyway), *australiensis* or *broomensis* (after collection

locality)." But thinking about Clive's love of Great Knot, Daniel decided that the coincidence of finding a "previously unknown species of louse on one of his (Clive's) favourite bird species," during an expedition he'd been invited on by Clive, couldn't be ignored. Hence, *Lunaceps mintoni*.

According to Daniel, *L. mintoni* is not found on any other bird, except possibly as a straggler, which is a louse that has crawled over to the 'wrong' host, but which has not established any independent viable population on that bird. Daniel has looked at material from all Calidrinae hosts except some of the North American species, and "so far found no *L. mintoni* on them, so it seems safe to assume that the Great Knot is the only host of this species."

Little did anyone know that two birds, the source of the *L. mintoni* lice, both caught at 80 Mile Beach, Great Knot with band #063 03628, aged 2+, caught at 25-30km south (south of the entry to 80Mile Beach from Anna Plains Station) on 18/11/08 and Great Knot with band #063 03474, aged 2 and caught at 5-10km south on 17/11/08, would become so important in Clive's life for reasons other than for increasing our knowledge about migration, survival or their general ecology.

Daniel and fellow author Urban Olsson wrote a paper, with the somewhat humorous, but probably apt title of 'The "Very Thankless Task": Revision of Lunaceps Clay and Meinertzhagen, 1939 (Insecta: Phthiraptera: Ischnocera: Philopteridae), with descriptions of six new species and one new subspecies.' It was here that Clive's louse was described.[74]

Recognition has come in other ways such as when the National Museum of Australia were setting up exhibits for the Journeys gallery, which explores the connections between places in Australia and overseas through the movement of people, ideas and objects. The AWSG were approached in the hope of securing some equipment to do with migratory wader studies. Two curators met with Clive, Ken Gosbell and Penny Johns to discuss potential objects, the work of the AWSG and aspects of fieldwork. Recent contact with Laina Hall from the museum confirmed that, "Clive's generosity with his time and knowledge certainly helped make the exhibit possible."

The exhibit included Clive's original Broadhurst Clarkson telescope (and case) and his 10 x 50 binoculars which he used for years before upgrading to modern optics to help him in the field. An inscription sitting with these exhibits states, "Amateur ornithologist Clive Minton used this telescope and these binoculars in his research. He needs instruments with strong magnification to observe, count and identify migratory shorebirds." Other items on display are an Eastern Curlew decoy (with a harness fitted satellite transmitter attached), leg flags and bands, and a bird bag (a cloth bag with a drawstring used to hold the birds after catching until the researchers take them out and measure them). A sandpiper skin, collected in July

[74] Gustafsson & Olsson 2012

1905, was also loaned to the exhibit. The museum said that the exhibit has been very popular and provides a different angle to the story of journeys.

The museum's 'Journey' exhibit showing Clive's old telescope and binoculars.
(Lannon Harley of The National Museum of Australia)

At the 2013 VWSG Annual General Meeting, Ken Gosbell proposed that Clive become the inaugural Life Member. In his introduction, Ken referred to Clive's monumental impact on the study of waders and terns over the life of the VWSG which he helped set up in 1979. "He is the father of wader studies," said Ken, then with a self-correction, "Maybe that should be grandfather now." He went on to explain how "Everyone involved with the VWSG has been hounded from time to time, like any father hounds their kids," at which point Maureen Christie interjected that members have also been known to "spit the dummy sometimes," to which Ken agreed. But Ken reinforced that Clive has been a mainstay and observed that the presentations made that evening demonstrated that the science the VWSG has produced over that time was now "having an enormous impact in terms of conservation and flyway research."

The reaction to Ken's proposal was a strong "Here here" from around the room, followed immediately by broad spontaneous applause from all members, who clearly concurred with Ken's proposal.

Clive responded with, "Thank you Ken, and seeing as I have just paid my subscription…" to which Ken's quick comeback was, "You can have it back." Clive continued that he might be "lucky to last much into the next year so it won't cost the group too much", to more rapturous laughter, but "… it is a very, very nice gesture. Thank you very much indeed."

He went on to say "…the greatest enjoyment of all, over and above the birds and the science and conservation and everything, is having all of you as friends who we share doing things together. It is the people aspect and I am not just saying that as hollow words. I think you know that it is the people aspect of what we do that are the most enjoyable aspect of…everything." Charles Allen then interjected with "Clive he didn't say an Honorary Life Member," upon which the whole group broke into laughter once again. Clive then asked, "So I do have to pay my subscription?"

New Jersey also recognised Clive in 2014 with the President's Award in The Citizens United Program. In doing so, they referred to him as the Shorebird Recovery Team's inspirational leader. "Clive is one of the foremost recognised shorebird experts on the planet," says Jane Galetto, the group's president. "His great enthusiasm for life, people and, of course, shorebirds, dominates his landscape. His joy is contagious."

Clive has written innumerable research and conference papers as well as supporting many others to publish their findings. One example came from Silke Nebel, who researched the subject of whether geographical variation in the size of Australian shorebirds was consistent with hypotheses on differential migration. The publication of their paper was a time-consuming process, but success came when EMU published it in May 2013.[75]

Silke sent words of thanks through a short email to Clive following the publishing of their paper. They are repeated here to reflect the expressions of appreciation from those people who have been helped, encouraged, cajoled and pushed into publishing their work. Silke wrote, "Thank you for being supportive of this all these years! I recall a very large volume of faxes with banding data sent to UNSW, which now seems a very long time ago indeed! Too bad it took so long, but I guess what matters, is that it is finally published. This wouldn't have been possible without you!" The final sentence will resonate with many who have been associated with Clive in relation to wader research and the subsequent publishing of that research.

Just one example (of possibly thousands) of Clive's work being cited by others was when his 1968 paper 'Pairing and Breeding in Mute Swans' published in the journal

[75] Nebel et al 2013

Wildfowl, was referenced in the 1996 book, 'Partnerships in Birds : The Study of Monogamy'.[76] In that book Clive was reported to have been one of the first authors to present a detailed account of a species with continuous partnership.

Brett Lane wrote in 'Shorebirds in Australia' that Clive was "instrumental in getting the study underway."[77] He was referring to the first national wader counting study that resulted in the book written by Brett. He went on to say that Clive's "enthusiasm generated a greater interest in the study of shorebirds among many bird-watchers and brought many people into the ranks of those who supported the study."

It would be no surprise to anyone that there are a myriad of Clive's reports and papers referenced in the Handbook of Australian, New Zealand & Antarctic Birds, Volume 3 Snipe to Pigeons, the volume that includes most of the waders.[78]

Once a cannon-netting licence is granted in Australia, a copy of the BTO's Cannon-netting Manual is sent to the licensee. The Cannon-netting Code of Practice, the forerunner of this Manual, was instigated by the Wader Study Group and published by the BTO in 1978. The Ringing Committee "acknowledged the work of Kate Lessells, John McMeeking and Clive Minton in the Cannon-netting Code of Practice." Since that date many minor developments have taken place and ringers have used cannon-nets in a wider range of situations. Once again Clive's influence has had far-reaching impacts, with banding offices around the world still referring to work originated by Clive and his peers so many years ago.

Dr Yahkat Barshep is one of several successful PhD candidates who Clive has supervised. She studied the migration strategy of the Curlew Sandpiper, also under the supervision of Prof. Les Underhill (University of Cape Town) and Dr Pavel Tomkovich (Moscow University). This reflects both Clive's international credentials and the co-operation that exists among the world's leaders in wader research. Pavel is a renowned researcher in his own right, particularly on arctic breeding areas while Les Underhill has built a reputation in avian demography and statistics.

The very mention of the name Clive Minton often triggers a flow of descriptive words and phrases among his friends, colleagues and team members. A collection of these are; genius, erudite, intelligent, large, round, powerful, hard-working, focused, self-centred, modest-living, self-confident, never doubting or changing his beliefs, interesting, driven, infectious enthusiastic, loud, energetic, unstoppable, respected, passionate, fanatical, dedicated, persuasive, organised, generous, exciting, engaging, forceful, lovable and inclusive. So strong is Clive's personality, that in certain situations, some of these traits are expressed to the point where they become overwhelming, but the huge positives far outweigh the negatives.

[76] Black 1996
[77] Lane & Davies 1987
[78] Higgins & Davies 1996

A few of hundreds of people who have been influenced by Clive over his 80 years gave me brief insights into the impact he has had on their lives. They are not necessarily Clive's most important or closest relationships but they do represent a snapshot of the effects he has had on a variety of people.

It wasn't just in her life as an undergraduate in the late 1990s that Clive influenced the shape of Lauren Jackson's life. In 2002 she met Digger Jackson, who was staying with Clive and volunteering with the VWSG. Digger and Lauren moved to Scotland, married in 2006 and have two children. "If I had never met Clive, my life would certainly have been very different and probably a lot less interesting," says Lauren.

Jim Wilson once drove one of the SA banding team back to Melbourne. She told him that she actually hated cannon netting, but could not resist going on these trips because she had never met anyone who was as enthusiastic as Clive and it "kind of rubbed off on her."

From Delaware Bay, Larry and Mandy expressed their gratitude with, "Thank you for your dedication to us and the shorebirds of Delaware Bay … and we are depending on you to show up for the next eighteen years."

Chris Barnes, an avid birding enthusiast and long-term reporter of leg flag sightings from Queensland said, when responding to one of Clive's thank you emails, "It's always a pleasure to see your birds here! Appreciate you taking the time to write, as like others, I am in awe of the work you have done with waders. All the added information obtained enhances the enjoyment I get seeing these fantastic birds return year in year out. Looking for leg flags at the large roosts makes the counting so much more fun."

"I will always be grateful to Clive," wrote Derek Stanyard, for "the experiences in joining him on so many birding trips between 1962 and 1972, the people I met, many of whom have become lifelong close friends and, of course, encouraging me in my own lifetime birding passion."

Malcolm Ogilvie has "never met anyone quite like Clive before, this amazing dynamo of a man" and he's not sure he has since!

"Clive's ability to motivate people is quite exceptional," wrote Adrian Riegen. "One only has to look around Australia, England and other countries, to see how many people are now involved in wader studies. This is partly or wholly due to Clive's influence, enthusiasm and motivation." Adrian finished with a plea to Clive to "band less, publish more and look for more flags, especially from New Zealand!" but offered his genuine appreciation, "Thank you Clive."

As a former UK resident and now Queenslander Jon Coleman said, "Clive is responsible for a whole generation of banders in the UK, all of whom remember and talk of him fondly." An entire lifetime of fascination for the environment and the

privilege of being able to get up close and personal with birds every weekend, was a direct result of Clive's influence on Jon and his family. He is very grateful for that enrichment to their life.

Nicholas Branson, another major player in the WWRG and a peer of Clive's since undergraduate days at Cambridge, described Clive's twenty years with the WWRG as using a "unique blend of authority, persuasion and inspiration", which led to the WWRG becoming, for a time, the major contributor to European wader studies.

"Ahh! Those wasted years," sighs Pete Collins. He claims if he had known what he was letting himself in for, he would either have run like hell in the opposite direction to a cannon net, or if the truth be known, would hope to have bumped into "Colonel" Minton many years before he did. After reading the Hollands and Minton wader book, he "thought about all we have been through and I hope I can call Clive a good friend, not just someone who radically changed my life."

There have been many awards, honours and roles that have been bestowed on or held by Clive. Most of these have been mentioned in some way though the story, but are listed here chronologically to clearly set out his impressive achievements.

1957 – BA, Cambridge University

1959 – MA (natural resources), Cambridge University

1959 - Founding chair of the WWRG

1960 – PhD (metallurgy), Cambridge University

c1970 – member of the council of the BTO

c1970 – member of the council of the RSPB

1975 – Awarded the Bernard Tucker Medal for services to ornithology

"For outstanding service to the Trust" - i.e. for outstanding contributions to the BTO's scientific work, through Trust surveys or Trust-aided investigations.

1970 – Founding chair of the Wader Study Group, later to become the International WSG

1978 to present – member of RAOU (now Birdlife Australia)

1978 to present - member of Bird Observers Club of Australia (now Birdlife Australia)

1979 – Co-convenor of the VWSG with David Robertson.

He retains this role most actively today and has been the sole chairman since 1982.

1980 - Founding chair of the AWSG, a role he held until 1985

1980-88 – member of the RAOU research committee

1989-95 – Vice-president of the RAOU

1998 – Elected a Fellow of the RAOU

Norman Wettenhall commenced his citation of richly deserved accolades with the words "Clive Minton has always been fascinated by birds and is an outstanding amateur ornithologist with an international reputation" and concluded with "…he is a great team man as well as being a leader and it is very appropriate that he be elected a Fellow of the RAOU."[79]

2000 – Awarded the John Hobbs Medal

This became a national award in 1999 and is conferred by Birdlife Australia for outstanding contributions to Australasian ornithology by an amateur.

2001 – Elected a Member of the Order of Australia

The citation read for 'services to ornithology, particularly in the study of migratory wading birds in Australia'

John Landy, then Governor of Victoria, gave Clive a personal investiture for his OAM as the formal dates clashed with Clive's field work.

2003 – Awarded the Australian Natural History Medallion

The Australian Natural History Medallion is awarded each year by the Field Naturalists Club of Victoria to the person judged to have made the most meritorious contribution to the understanding of Australian Natural History.

2012 – Awarded the Eisenmann Medal

The inscription on the medal, awarded by the Linnaean Society of New York, states "For excellence in Ornithology and Encouragement of the Amateur."

2001- Bestowed the "Banana-eating Man of the Match" award on the NWA expedition – self-explanatory.

2013 – VWSG Life Member bestowed at the AGM

2014 – Awarded the Citizens United President's Award (New Jersey)

[79] Wettenhall 1998

Major historical birding people share many traits with Clive including Sir Peter Scott, Dr Eric Ennion, even Charles Darwin. But so it seems did the famous American John James Audubon, who was referred to in a letter to his wife from John Bachman"…*he has taught me much can be accomplished by a single individual who will unite enthusiasm with industry*."[80]

[80] Waddell 2011

13 Numbers

It is impossible to know exactly how many birds Clive has caught and handled in his lifetime of bird banding. That lone Sanderling caught under his coat was the first of what are probably well over six hundred thousand waders and terns across England and Australia, even more when you add in the Delaware Bay numbers. These have not all been personally handled, but virtually all have been caught in his presence by the teams he has led. This is an outstanding achievement and has helped shed light on the migration patterns, stopover sites and breeding performance of so many wader species across the globe.

The drive to catch birds has never left Clive. This chapter hopes to express, numerically, the magnitude of what has been achieved in his lifetime of wader studies.

In August 1959, the WWRG make its first catch with Peter Scott's rocket nets. The progressive accumulation of a number of species caught by the WWRG is shown in Table 1 Firsts for a range of species caught by the WWRG.

Between 1959 and 1978, the period of Clive's reign, the WWRG caught 142,173 waders by cannon netting. A further 11,649 waders were caught by the group using mist nets between 1972 and 1978.

Table 2 Cannon net catch totals from WWRG 1959-1978 shows the annual details of these catches. The WWRG reported in 1979 that they had 24 000 retraps in their records. Just as Mark and Terry Barter did for the VWSG, it was around this time that the WWRG had to undertake the tedious task of transferring all their hard copy records into a format that could then be entered into an electronic storage and retrieval system.

Clive has spent more than twice as long with the VWSG than he did with the WWRG and he already had two decades of cannon netting experience when he started, so it

is understandable that the total numbers caught by the VWSG are much larger (see Table 3 Species caught by VWSG and Table 4 VWSG catch totals).

However, the WWRG era for Clive was more productive in terms of waders caught per year, with an average of 7899 birds secured compared with the VWSG average birds trapped per year cannon netting of 5498. About fifty catching days are normally scheduled in recent years by the VWSG, and over the years they have averaged around 40 catches per year.

A total of 38 wader species have been caught by the VWSG. In addition to these waders, some 80 000 terns of six species have been banded. These have mainly been collected as nestlings at colonies of Crested Terns on Mud Islands in Port Phillip Bay, The Nobbies on Phillip Island and on Clonmel Island at Corner Inlet.

The AWSG expeditions to NWA and local banding by BBO wardens and local wader experts Chris Hassell and Adrian Boyle, add a further 139 643 new birds and 17 338 retraps to the total. The vast majority of these have been caught on expeditions under Clive's leadership. The largest catch in NWA was 2,042 on 29 August 1998, a nice cool day. This catch contained 1,001 Great Knot. The largest expedition total was 15,012 birds in 71 cannon net catches spread over thirteen weeks from August to early November 1998.

There have been just fewer than 900 recoveries of VWSG banded birds, where the metal band has been found overseas and returned to the ABBBS. That is 0.28 percent or just below 3 out of every 1000 banded birds from which one piece of datum is obtained on the migratory movements of those birds.

The number of sightings of flagged birds away from their marking locations has increased rapidly over the years, as awareness of flags has become more widespread and people have learned where to report their sightings. Table 5 No. Birds flagged by VWSG shows each species that has had a leg flag attached by the VWSG. A total of 15 229 reports of birds flagged by the VWSG (Victoria, SA or King Island) had been received up to late 2014. To illustrate the spread of these sightings, Table 6 Countries where Victorian flagged birds were seen in 2013/14, shows where each of the 2252 records of Victorian flagged birds seen over 200 kilometres from their flagging site came from. There is clearly a large contingent from New Zealand, as that is where most of the young Red Knot and Bar-tailed Godwit move on to after arriving in southern Australia at the end of their first migration, but also because of the enthusiasm and expertise of wader observers there.

This data (recoveries and flag sightings) is heavily influenced by where there are people to catch birds and observe birds, whereas geolocators and transmitters provide the information across the migration route without the need for the involvement of local people. However, it is always added value when a bird with a

geolocator is seen somewhere along the route, as it provides an additional point of reference to calibrate the signals to when the data is finally downloaded.

Table 1 Firsts for a range of species caught by the WWRG[81]

	Year the accumulated catch achieved this number of birds							
	First	100th	500th	1000th	5000th	10 000th	25 000th	50 000th
Oystercatcher		1962	1967	1967		1975		
Ringed Plover	1963	1968	1978					
Golden Plover	1960							
Grey Plover		1963	1968	1975				
Knot		1960	1960	1963	1968	1969	1974	
Sanderling	1960	1968	1968	1968	1974			
Little Stint	1968							
Curlew Sandpiper	1962	1978						
Dunlin					1963		1971	1976
Common Sandpiper	1968							
Ruff	1973							
Snipe	1973							
Bar-tailed Godwit		1968	1974	1974				
Whimbrel	1962							
Curlew		1961	1974	1978				
Spotted Redshank	1967							
Redshank			1961	1967	1975			
Greenshank	1972							
Turnstone		1961	1967	1968				

[81] Kew 1998

Table 2 Cannon net catch totals from WWRG 1959-1978[82]

	Cannon net		
Date	Total birds caught	No. of catches	Average catch size
1959	1132	1	1132
1960	2893	7	413
1961	1940	3	647
1962	1426	6	238
1963	6017	8	752
# 1964			
# 1965			
1966	746	2	373
1967	10 859	22	494
1968	14 654	41	357
1969	8934	35	255
1970	8524	25	341
1971	13 151	28	470
1972	10 000	42	238
1973	7971	39	204
1974	10 313	49	210
1975	13 321	48	278
1976	10 904	52	210
1977	10 380	52	200
1978	9008	56	161
Total	142 173	516	
Average	7899	29	

- These years the rocket nets were unavailable and the WWRG were yet to build their cannon nets.

[82] Kew 1998

Table 3 Species caught by VWSG[83]

	VWSG catch totals		
Species	New	Retrap	Total
Latham's Snipe	347	14	361
Australian Painted Snipe	1	0	1
Black-tailed Godwit	4	0	4
Bar-tailed Godwit	5383	728	6111
Short-billed Dowitcher	1	0	1
Whimbrel	49	6	55
Eastern Curlew	869	89	958
Marsh Sandpiper	2	0	2
Common Greenshank	535	64	599
Terek Sandpiper	37	1	38
Grey-tailed Tattler	38	3	41
Ruddy Turnstone	5286	2536	7822
Great Knot	698	89	787
Red Knot	5170	743	5913
Sanderling	5472	2091	7563
Little Stint	9	0	9
Red-necked Stint	122 099	32 727	154 826
Long-toed Stint	1	0	1
Pectoral Sandpiper	2	0	2
Sharp-tailed Sandpiper	10 006	447	10 453
Curlew Sandpiper	26 364	5041	31 405
Cox's Sandpiper	1	0	1
Broad-billed Sandpiper	5	0	5
Pied Oystercatcher	3164	1613	4777
Sooty Oystercatcher	1043	369	1412
Black-winged Stilt	51	0	51
Banded Stilt	1985	3	1 988
Red-necked Avocet	631	26	657
Pacific Golden Plover	267	26	293
Grey Plover	177	30	207
Red-capped Plover	723	186	909
Double-banded Plover	3823	1007	4830
Lesser Sand Plover	115	11	126
Greater Sand Plover	31	3	34
Black-fronted Plover	57	4	61
Hooded Plover	44	2	46
Red-kneed Dotterel	136	11	147
Masked Lapwing	189	5	194
Total	194 815	47 875	242 690

[83] Vaughan & Minton 2014a

Table 4 VWSG catch totals[84]

	VWSG Catch Totals		
Calendar Year	New	Retrap	Total
* 1975	9		9
* 1976	616	4	620
* 1977	482	12	494
* 1978	1296	42	1338
1979	7436	486	7922
1980	6121	1206	7327
1981	4561	869	5430
1982	3774	796	4570
1983	2875	628	3503
1984	4272	1045	5317
1985	4073	1051	5124
1986	7144	2057	9201
1987	5350	1559	6909
1988	8019	2697	10 716
1989	5437	1584	7021
1990	4094	1950	6044
1991	3224	850	4074
1992	4652	861	5513
1993	8831	2588	11 419
1994	4839	1753	6592
1995	2708	625	3333
1996	5263	1035	6298
1997	4366	1050	5416
1998	8083	1408	9491
1999	6515	1591	8106
2000	10 350	2594	12 944
2001	4839	1320	6159
2002	10 421	2162	12 583
2003	8495	2854	11 349
2004	5110	1224	6334
2005	6320	1893	8213
2006	6676	1467	8143
2007	4689	924	5613
2008	4611	1317	5928
2009	3965	831	4796
2010	3006	759	3765
2011	4291	830	5121
2012	3598	869	4467
2013	4404	1084	5488
Totals to end 2013	194 815	47 875	242 690

(* These years were pre-cannon netting and involved mist netting)

[84] Vaughan & Minton 2014b

Table 5 No. birds flagged by VWSG[85]

Species	No. of flagged birds
Latham's Snipe	282
Australian Painted Snipe	1
Black-tailed Godwit	4
Bar-tailed Godwit	3953
Whimbrel	46
Eastern Curlew	599
Marsh Sandpiper	2
Common Greenshank	456
Terek Sandpiper	13
Grey-tailed Tattler	6
Ruddy Turnstone	6238
Great Knot	398
Red Knot	3977
Sanderling	7377
Little Stint	7
Red-necked Stint	69 250
Pectoral Sandpiper	1
Sharp-tailed Sandpiper	6126
Curlew Sandpiper	12 097
Cox's Sandpiper	1
Broad-billed Sandpiper	3
Black-winged Stilt	33
Banded Stilt	2386
Red-necked Avocet	422
Pacific Golden Plover	102
Grey Plover	108
Red-capped Plover	183
Double-banded Plover	648
Lesser Sand Plover	55
Greater Sand Plover	16
Black-fronted Plover	5
Hooded Plover	25
Red-kneed Dotterel	17
Masked Lapwing	40
Total	114 877

[85] Compiled from information in VWSG Bulletins 36 (2013) & 37 (2014)

Table 6 Countries where Victorian flagged birds were seen in 2013/14[86]

	Country Victorian (orange) flags were seen in 2013/14												
Species	Australia	China (mainland)	Hong Kong (China)	Indonesia	Japan	Malaysia	New Caledonia	New Zealand	Russia	South Korea	Taiwan (China)	Total Overseas	Total Sightings
Bar-tailed Godwit	136	41			2		2	255		108		408	544
Ruddy Turnstone	1							11			2	13	14
Great Knot	6	1									1	2	8
Red Knot	141	769			1			430				1200	1341
Sanderling	8	12									1	13	21
Red-necked Stint	25	43	7	4		1			1		5	61	86
Sharp-tailed Sandpiper		5										5	5
Curlew Sandpiper	22	62	13								6	81	103
Total	339	933	20	4	3	1	2	696	1	108	15	1783	2122

[86] Standen et al 2014

14 Acknowledgements

The largest contribution to material for this book came directly from Clive, from stories shared during hours in the car returning from expeditions, at mealtimes when overnighting at catches and as a distraction to flag sighting or banding work in his home office. Three reports written by Clive about the early years for the WWRG, VWSG and AWSG and the NWA expeditions have also been valuable sources.

His sisters Angela Watts and Diane Ross freely offered background tales about his early years while his best mate Charles Allen filled in many gaps from their time at Oundle and Cambridge. Pat Minton also provided details and added more richness to Clive's stories.

Others who generously responded to my queries include Malcolm Ogilvie, David Melville, Chung Yu Chiang, Chege wa Kariuki, Larry Niles, Mandy Dey, Jon Coleman, Roz Jessop, Nicholas Branson, Adrian Riegen, Chris Hassell, Maureen Christie, Vivien Holyoake, Pete Collins, Derek Stanyard, Andy Whittaker, Daniel Gustafsson, Penny Johns, Dave Cropley, William Dick, Susan Isheda, Lauren Jackson, Barbara Campbell, Iain and Sandy Stewart, Alan Whitmore, Josh Engel, Pavel Tomkovich, Jim Wilson, Rob Wilson, David Elsum, Jane Galetto, Edward Jackson, Humphrey Sitters, Colin Jackson and Mike Pienkowski. The Bendigo Field Naturalists and Rob Patrick thankfully recorded some of Clive's recollections for me. I hope I have not overlooked anyone.

Photos were supplied by Diane Ross on behalf of the Minton family, Kejia Zhang, Lannon Harley, Pavel Tomkovich, Susan Ennion on behalf of the E.A.R. Ennion Estate, Ken Gosbell, Maureen Christie, Rob Patrick, Colin Jackson, Chung Yu Chiang, Adrian Boyle, Angela Watts, Andrew Whittaker (Birding Brazil Tours) and Deb King and are acknowledged where they appear throughout the book,

David Hollands, Annie Rogers and the Ennion family supported my use of material from their respective books and I am grateful to the AWSG (Stilt 50), VWSG (Bulletin 37) and Phil Ireland of the WWRG (special report on the first 40 years, 1997/98 Report) for allowing my use of material from those publications.

My wife Angela edited the story and tolerated the considerable time I spent collecting the material and writing the book.

To all these people I offer my gratitude and thanks for their contributions, as there would have been no book without them. It has been a fascinating journey for me.

Happy 80th Birthday Clive.

Roger Standen

October 2014

15 Sources

The following books and articles were accessed to provide substantial content in the case of the histories that Clive wrote, along with much contextual material and supporting facts from several books and articles.

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