Editorial by Vernon Reynolds

Welcome to another in our BFP Newsletter series. In this issue we look back to the “good old days” (or were they bad?) with a contribution from Bob Plumptre (Andy’s father) on the pre-Amin days. Another old-timer, Patrick Boston, returned to Budongo recently and writes about his new project on butterflies. And we have some further contributions from recent visitors to Budongo. I await articles from our Ugandan students – please write – what do you think of Sonso camp? Tell us about your projects and experiences.

Geresomu has joined Zephyr at Nyabyeya Forestry College, both are training for the Forestry Technician’s Certificate. Thanks to the generosity of Cleveland Zoological Society, we are able to continue our staff development programme and we are very proud of this.

Our snare removal programme has re-started and we hope this will benefit our chimps eventually - but they continue to suffer. Last September, Zefa, now a fine young adult male, appeared after a week’s absence with a snare around all the fingers of his right hand. We discussed whether to intervene (Wayne Boardman was willing to try and dart him to remove the snare) but as he was feeding well and the hand did not appear to be infected, we decided against. The danger would be that he might climb after being darted and fall and injure himself. These snares are an awful problem.

We’ve extended our chimp studies to Busingiro and Kasokwa. At Busingiro the chimps remain afraid of humans – we think this is a result of the continued illegal pit-sawing there which happens at night. At Kasokwa (near Masindi) Richard Kyamanywa and his assistant Alfred report good progress with finding out where these chimps range, and whether they return to the main forest block.

We had some preliminary discussions in September 2000 with Kinyara Sugar Works about how to set up a buffer zone between the ever expanding sugar fields and the forest, to protect the wildlife from snares and traps, and to protect the sugar crop itself.

We also discussed with the local people and with Frank Turyatunga of EPED how to replant a corridor of trees along the Kasokwa river, to re-join the Kasokwa forest reserve to the main Budongo block. Both these are tricky issues and will cost money, and we’re a long way from achieving them but at least the ideas are now taking shape.

Following the Norad conference in September 1999 we had a second one in September 2000, with a greater focus on local issues – protection of the forest and its wildlife, income generation, tree planting, ecotourism and crop-raiding. We enjoyed a half-day visit to the impressive visitors’ centre at Busingiro (Budongo Forest Ecotourism Project). The conference was followed by a Training Course in March 2001, the agenda for which was determined by the local community. Villages in Budongo sub-county sent representatives for a week’s training (see Latest News box on page 3). Many thanks to DFID for funding these events, and to all at Nyabyeya Forestry College for being such excellent hosts.

BFP is now 10 years old! We had our 10th anniversary party in September 2000 and enjoyed ourselves. It was nice to see former staff members there – Joy and Francis, Dissan and Priscilla – who now live and work at Kinyara.

Last but not least I must mention the awards we received in our 10th year – the President’s Award from the American Society of Primatologists which Janette Wallis presented at the September party, and the Chairman’s Award from the National Geographic Society which was presented in Washington in November 2000. And there was another nice surprise – a plaque from the Project’s Steering Committee. It’s fine and gratifying that our efforts are appreciated both locally and internationally.

Thanks to you all. BFP is forging its own destiny. We are not following any known pattern. We try in our own small way to do high quality research with a human face – to always remember the hopes and ambitions of our staff as well as those of our students, and to remember also that we don’t exist as an “ivory tower” in the midst of poverty, but that we are part of the local scene, we have a duty to assist the good people living nearby in any way we can. Some of our recent initiatives are moving closer to this objective.
Budongo Before Amin

by Bob Plumptre

I was first posted to Uganda in January 1957, as a young and very raw forest officer with no tropical experience other than spending the first six years of my life in India. Within two weeks, equipped with a new Land Rover, I was sent up the road to Budongo to relieve Arnold Beaton, for 5 months, as District Forest Officer at Busingiro; he was going on leave. The house was set in a beautiful garden on a hill facing West; it looked over forest and savanna, with a strip of Lake Albert visible at the foot of the 8,000ft high Congo mountains some 30-40 miles away. The District Forest Office was in the garden, 10 yards from the house, so commuting to work was not an insurmountable problem. After the 5 months I was posted to Fort Portal for two years and then back to Busingiro for a year and a half, this time as Assistant Principal of the Forest School at Nyabeya but working with students on practical work in Budongo. From then on I was based in other parts of Uganda: from 1963 until 1971 I was Forest Utilisation Officer at Nakawa Forest Station, Kampala, dealing with forest products research and forest industry development throughout the country; this job took me on regular visits to Budongo.

The forest had been explored and many species identified as early as 1904 by Dawe and then by various foresters including Eggeling and Dale. By 1957 “The Indigenous Trees of the Uganda Protectorate” had already been written and working plans were in force. Budongo was a Central Government Forest. In 1965, Martin Rukuba became head of the Central Government Forest Department, taking over from George Webster. The DFO was in direct charge of all Central Government Forest and acted as an adviser to the Local Government Forest Service. Small areas surrounding Budongo were classified as local government forests and were under the control of Matthew Byabazaire, head of the Bunyoro Local Government Forest Service. Small areas surrounding Budongo were classified as local government forests and acted as an adviser to the Local Government Forest Service. Students on practical work in Budongo were classified as local government forests and were under the control of Matthew Byabazaire, head of the Bunyoro Local Government Forest Service. Small areas surrounding Budongo were classified as local government forests and acted as an adviser to the Local Government Forest Service. Small areas surrounding Budongo were classified as local government forests and acted as an adviser to the Local Government Forest Service.

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Budongo forest, in the ‘50s and early ‘60s, was being selectively felled by Buchanans Budongo Sawmills whose manager was Robin Knight. Annual coupes were allocated by the DFO’s office and felling of large trees, with white rings painted round in mahoganies. In the early ‘60s the mill was bought by the Patel family who still own it. They installed a pressure treatment plant and then a particle board mill to use sawmill residues. Preservation made it possible to use most non-durable species, as almost all of these were easy to treat, and the particle board mill made it possible to use slabs and offcuts, which formerly had been sold very cheaply as firewood, to make a moderately valuable product. It was used in making partition walls, ceilings and in furniture. Late in the ‘60s, they installed a mosaic parquetry manufacturing machine to convert muhimbis flooring strip into finished parquetry squares and parquet blocks for traditional herring bone parquet floors. By 1970, the only major equipment lacking for good utilisation of muhimbis at Budongo was a timber drying kiln to dry the timber fully to 8-12% moisture content before it was made into the finished parquetry product.

The Siiiba block and most of the Biso block of the forest had been completely felled by 1957. In 1968, after a competitive tender, a concession was given to Sikh Sawmills (SSM), to construct a new sawmill in Hoima and start a second felling in the Siiiba block, some 30-40 years after it had originally been felled. The conditions of the SSM licence required a large number of species to be cut and modern sawmill equipment and advanced layout to be used; this included a log turner (to make it easier to use defective logs and get better quality timber from good logs) and a pressure preservation plant; the ratio between forest fees tendered for mahogany and the lowest priced timber (muhimbi) was 35:1, indicating the wide difference in sale value between species. There was plenty of mahogany but other species were also used extensively. SSM had seasoning kilns in Jinja, but they were a long way from Hoima.

Parallel to the developments in utilisation of different species, trials were made in reducing the damage caused by felling and logging. A wheeled logging tractor was obtained through Canadian aid for the Nakawa research mill. It was used mainly for trials in Kiffo forest, where that mill was felling, but also for demonstrations elsewhere. Budongo Sawmills continued to use crawler tractors but logging damage was reduced considerably by training in directional felling and logging organisation given by a German expert from ILO in about 1966; he spent several months in the country training a team, which then went round training workers at sawmills. By the late ‘60s, a procedure had been introduced for most mills whereby all felling coupes were enumerated and the tree locations were mapped before felling took place. Each tree to be felled was thus marked on a map and logging trails were planned on the map before felling started. Felling and cross cutting was done by chain saw but planking with chain saws was not allowed, or practised illegally, as few knew how to use them.
Silvicultural and ecological research was carried out in both natural forest and plantations. Extensive research was done, with varying degrees of success, into getting good natural regeneration of a range of species in Budongo. Trials of enrichment planting with mahogany stripplings 6-8ft high were made in felled forest in the Biiso block; they were planted in lines through the forest from 1949 for about 4 years but were discontinued as elephants strolled down the lines destroying a very high percentage of the trees. Greater success was obtained with smaller seedlings, mainly *Maeusopsis* but also some *Khaya* in Mendo forests where the elephant population was lower. If you protect elephants in the Murchison Park just North of Budongo maybe the elephants are happy but the mahoganies suffer, whereas if you allow the army to shoot the elephants, as Amin did, maybe the mahoganies cheer? However, elephants unfortunately benefit from the “Dawkins furry animal syndrome”!

By the time Amin took over, the knowledge and equipment were available to use and make a saleable product from all except about three natural forest species of sawable size. Sawing trials with small logs had shown it was possible to saw trees down to 25cm diameter (1ft dbh producing some logs down to 9 inches diameter) and obtain a good timber recovery so under-storey trees could be felled down to this diameter if desired. With this technology available, what do you end up doing? Hopefully, in natural production forest, you tailor your harvesting intensity, as far as you are able, to obtain sustainable timber production from most, if not all, of the species already there. In doing this, you conserve as much as you possibly can of the wide variety of wildlife in the production forest, helped by nearby strictly reserved conservation areas; it needs to be remembered that even untouched forest changes as it changes its favour to some species of animal against others. You, therefore, select how many trees of carefully controlled sizes, you remove in each location, doing as little logging damage to the forest as possible in the process. If your harvesting, conversion and marketing technology is good you can do this profitably and a pretty good stab was made at it in the late ‘60s. In the process you get quite high volumes of timber out of the forest per hectare harvested, without over-cutting any one species. The volumes you can get this way far exceed volumes you will get from currently used methods of pitsawing. What you do to animals and wildlife in general has been studied in much more detail by the Budongo Forest Project than it was before Amin. It was assumed that the wildlife would survive if the multispecific nature of the forest was retained, gaps are relatively small and sustainable management for timber was practised. However, elephants unfortunately benefit from the “Dawkins furry animal syndrome”!

What is the present position in Uganda regarding industrial wood products? Current methods of using the natural forest timber resource are inefficient and wasteful. Some species like the mahoganies have been grossly over-exploited while others (including *Celtis*, *Cynometra*, *Mildbraediodendron*, *Erythrophleum*, *Ricinodendron* species and most of the smaller understory species) have been left. Only large logs are sawn. The non-durable species are seldom preservative treated. Virtually no timber is properly dried before being used and large slabs which could provide timber are left in the forest. Uganda may be green and apparently well treed over much of the country but currently it only has enough production forest to supply about 3% of the (sustainable) production of the 2 million hectares of plantation in the United Kingdom. It has only 14,000 hectares of softwood plantations which are currently supplying a substantial proportion of the construction timber used. UK only produces 20% of what it needs and imports the rest at a cost of about £10 billion per year. My guess is that the pressure on the forest in Uganda is going to be very serious very soon. Fiddling around with inefficient pitsawyers who are not encouraged to develop into efficient sawmillers does not seem to be a sensible option. It is a 19th century answer to a 21st century problem. - Bob Plumptre, rPlumptre@compuserve.com.
Getting Genes from the Budongo Forest Chimpanzees

by Andrew Brownlow

By 1996, over a dozen chimpanzee communities in Africa had undergone some sort of genetic analysis and the time had come for the Sonso community to be surveyed as well.

In order to analyse wild chimpanzee genes we first have to obtain tissue samples. Blood, food wedges, faeces and hair are all possible sources. Chimpanzee hair is mostly made from a protein called keratin but at the base of each hair the follicle is made of living cells, which contain a small amount of the requisite DNA. As chimpanzees shed hair much as humans do, hair is a relatively accessible source of genetic information from wild chimpanzees.

Research in Budongo Forest

I arrived at the Sonso site in the back of a pickup at sunset in late August of 1996. At the time I had something of a plan as to how to collect hair samples from the chimps. I had read at least two accounts of hair sampling from other researchers in Africa. The best way to gather enough hair from the chimps was to watch where they built their nests each night and then climb up in the morning to comb the nests for hairs. As I had not climbed a tree since my childhood, I was relieved when Vernon Reynolds suggested the names of a man in Entebbe who might climb trees for me. Some days before my arrival at Sonso I had visited this climber, Stany Nyandwe, at the Uganda Wildlife Education Centre (UWEC) on the shores of Lake Victoria in Entebbe. He had agreed to climb for me, but could not get time off from his work at the Centre until the 13 September. This was an important time for UWEC, as the chimps were getting ready for their transfer to an artificial island environment inside the Preserve, and so I am indebted to Stany’s employer, Debbie Cox, for giving him time off from his vital work with the chimpanzees there.

As I waited for Stany to arrive at Sonso, I used the time to explore the forest and to familiarise myself with the individual chimpanzees. When I first got to the Sonso site, I met Harriet Bennett and her friends, at the end of her study of kinship in chimpanzees, and my first trek into the forest was with them. Not for the last time, we managed to get a bit lost! During our walk, though, we did come across two of the Sonso field assistants, Zephyr Kiwede and Geresomu Muhumuza, quietly observing a party of chimpanzees. These were the first wild chimps I had ever seen but I only managed to see some black shapes moving through the undergrowth as they disappeared silently into the thick forest.

It turned out that it was Geresomu who was to work with me in collecting the nest hairs over the coming months. In the first few weeks I was totally dependent on him to identify the chimps and even to show the way into and out of the forest. How feasible would it be to track a group of chimps to their nests at dusk and to retrieve hairs from the nests at dawn? We simply did not know. However, early on both Geresomu and I realised that we were going to collect a lot of very detailed information about chimpanzee nests over the course of the three months, and from the start we took detailed records of each nest.

By the time Stany arrived 3 weeks later we were able accurately to note down an entire party of chimps as they nested – not a simple task, deep in the forest at dusk. This was important, as we had to match the hairs to the nest occupant in order to obtain useful tissue samples. Stany, though, was equally vital, and it was only after he arrived that our work began in earnest. He used a rope and a panga knife to climb fifteen or twenty metres into the trees and he would either pick out the hairs there and then, or chop down the nest for us to pick through on the ground. The chimps themselves did not seem overly worried at our strange interest in their nests, apart from once, when Stany climbed up without checking that the chimp had risen, and both of them got the shock of their lives! In all we gathered data on 201 nests over the three month period. Thanks to Stany we got hairs from 56 nests – a wonderful result given the difficulties and uncertainties of the work.

Nest analysis in Oxford

After I had finished the analysis, in search of money as much as anything, I got a job at an e-commerce company – and I still work in that field. My web design experience put me in a great position to help Vernon with the fledgling Budongo Forest Project website and now the Project has a cyber-presence at www.budongo.org.

Genetics of the Sonso community

Tycho Peterson, an MSc student in Oxford, analysed the genetics of the chimp hairs that I brought back. His work gave us the first glimpse into the genetic structure of the Sonso community. His results showed that the Sonso chimpanzees form a cluster when their mtDNA is compared with that of other chimpanzees in East Africa and further afield. He showed that genetic diversity in the Sonso community was higher than that of (European) human populations but slightly lower than that of other East African chimpanzees. I very much hope that this study is the first of many that will shed light on the history and behaviour of the forest chimpanzees. Further studies may show, for example, the kin relationships between the chimpanzees. - Andrew Brownlow, London, andrew.brownlow@netdecisions.co.uk.
In 1964, I started teaching at King’s College, Budo near Kampala. During the next ten years, I visited Budongo Forest many times. At that time there were three main places to stay: the Budongo Forest Station near the foot of Busingiro Hill, the Makerere Field Station on the far side of the hill, and Baggaley’s Small Hotel at the edge of the forest on the Butiaba Road.

In the 1930s, W.J. Eggeling described his early days as a forest officer in Budongo. He tells of the construction of the first Forest Station at Busingiro and how the Lake Albert Hotel (later The Makerere Field Station) was acquired as the Provincial Headquarters of the Forestry Department. Eggeling describes the view over the forest from the veranda of the Forest Station where he spent many happy evenings and from where he would often see elephants, chimpanzees and other animals. He describes the ‘terrific view’ with wooded savannah running down to the Lake Albert rift and Lake Albert itself with the wooded savannah running down to the Lake Albert rift and Lake Albert itself with the Congo Hills in the distance. On this site he tells of a leopard seizing a terrier from under the nose of its owner while he sat reading.

In the 1930s, Eggeling describes the shooting of elephants, buffalo and other game. A game licence was £5 per annum, an elephant licence was £10 for two and £20 for three, but one could walk for 400 miles to obtain a good pair of tusks.

Those days are now gone, but in the 1960s I visited both Forest Department sites and Baggaley’s Hotel. All were delightful places to visit for a few days; chimpanzees could often be heard from the Forest Station Rest House and the views from both Forest Department sites were undiminished.

In 1996 I returned to Budongo and, with the help of transport provided by Chris Heggie, both Rune Solvang and Rune Solvang, a student from Norway studying forest birds, and I were able to visit the remains of the Forest Station. It had been plundered for building materials. Due to lack of time we were unable to locate the Makerere Field Station, but I understand that it had also been ransacked. Baggaley’s former hotel appeared to be a drinking site. Despite the partial destruction of the buildings, these sites still have the potential to be most attractive for Eco-Tourism; both Forest Department sites are very well situated with tremendous views and they are close to the Butiaba road.

Eggeling also described the visit of a remarkable woman, Miss Margaret Fountaine, who was a passionate butterfly collector. She not only collected butterflies, but she bred many species and recorded their life cycles. Her large worldwide collection is at the Castle Museum, Norwich and her paintings of the life cycles are at the Natural History Museum, London. An edited version of her early diaries entitled ‘Love Among The Butterflies’ was published by Collins in 1980.

In the 1960s, I made sorties into the forest from the Forest Station Rest House. The tracks were then kept open and it was possible to drive for miles in a robust car. Only once did I see an elephant which filled the track, fortunately at some distance. The main reason for my forest visits, apart from some tape recording, was to obtain forms of the polymorphic swallowtail butterfly *Papilio dardanus* for Professor Clarke of Liverpool. C.A. Clarke and P.M. Sheppard produced many papers on the genetics of polymorphic butterflies. The yellow and black tips of *P. dardanus* occur only in this form which has tails. The males can frequently be seen in the forest. The females, which occur in a variety of colour forms, do not have tails. They are less frequently seen because they seek food plants amongst the vegetation.

The female forms mimic the generally distasteful species of Acrasinae and Danaidae. My task was to catch and send live butterflies to Liverpool. They were fed on a dilute sugar solution and sent post haste in a polystyrene container. Many survived for up to a week. This hobby started a lifelong interest in butterflies.

After the establishment of the Budongo Forest Project in 1990, I was given the opportunity to undertake a more serious study. My aim was to compare the butterfly populations in the selectively logged forest, N3, with those in the Nature Reserve, N15. On site in 1995 there were expected and unexpected difficulties, eg., essential materials were temporarily unavailable, an assistant proved unreliable, and there was insufficient time to have a trial run before starting field work. Then there was the rain – an unseasonable amount? – that is open to question, but it was discouraging for the study of butterflies. However, the additional rain resulted in useful data to compare with data obtained during the next dry season in 1996, and by that time I had found a very good assistant, Bernard Onenarach. The overall results of the study showed that the numbers of some species varied considerably between sites and between seasons and that a few species were found only in one site or the other. Some recent work in DRC confirms the data for at least one species.

Some memories

A distant voice could be heard as I approached the Nature Reserve. On approaching more closely I thought that someone was addressing a public meeting, the voice was so loud and oratorical. Soon I came upon a field assistant by the name of George, a large and exuberant man, who was assisting a Ph.D. student from Bristol, named Angela, in recording the activities of squirrels. He spoke into a dictaphone while radio-tracking their behaviour. Angela could not persuade him to talk quietly and so there he was booming into the forest and very pleased to see anyone. He claimed to work from dawn till dusk – with one or two breaks.

Twenty three people, including several children and a baby, plus their luggage, plus several large sticks of *matoke* plus two large bags of rice, squeezed into a Mitsubishi pick-up truck, which swaying dangerously, made its way along a wet murram road to Nyabeya. The crack of lightning and thunder came very close, soon followed by the intense rain I had experienced. A mist arose and the forest sprung to life with the calls of countless tree frogs, as if that was the moment they had been waiting for. It was a magic moment. On our way back we found several newly fallen branches across the path.

On one occasion safari ants invaded my room at night. Fortunately, I was awake and so I heard them approaching. There was rustling and scurrying. The rustling was due to the thousands of ants and the scurrying due to the animals fleeing from them. I quickly rose and awoke the young Norwegian student, Rune, who slept next door. This was difficult because he slept with ear plugs, he thought that the army was coming. Local people use ash or paraffin to stop the ants, fortunately there was paraffin nearby. We sprinkled the floor and walls with paraffin and this eventually stopped them. I spent the rest of the night in an atmosphere of paraffin with the light on - in case ants came through the ceiling.

One afternoon at camp I noticed that Thomas Wagner, a visiting research entomologist from Germany, was at his open window and below was a group of small boys. Some had jars, others had folded leaves or two breaks.

From dawn till dusk – with one

One afternoon at camp I noticed that Thomas Wagner, a visiting research entomologist from Germany, was at his open window and below was a group of small boys. Some had jars, others had folded leaves and within them was a variety of beetles. Some were large, even enormous, others revealed a miscellany of different shapes and colours. All beetles had their price but the supply eventually exceeded the demand and the thriving market disintegrated as quickly as it had formed. - Patrick Boston, 34, Witney Lane, Leafield, Witney, Oxon, OX8 5PG, UK.
Male Dominance Hierarchies and Competition

by Benedict Dempsey

My fieldwork in the summer of 1999 was intended to look into affiliative behaviour in relation to political relationships of the high ranking male chimpanzees. As it turned out, my dissertation ended up largely as an account of the behaviour of Maani during my study period, and the effects of his actions on those around him, especially Black, Duane and Zefa.

When I arrived in Budongo in July 1999, beta male Vernon had already been missing for almost two months, so Black had moved up to beta by default. Maani was ranked third and Duane was secure as ever in alpha position. Over the period of my study though, ending in mid-September, Maani displaced Black for the second-ranking position, and I devoted much of my dissertation to my observations of how this could have come about.

One of the most interesting aspects of Maani’s rise in status was the behaviour of sub-adult Zefa. When I arrived in Budongo Zefa had been missing for several weeks, and he was not seen by any observers until the end of August. During the whole of August we saw no agonistic interactions between Maani and Black. But within days of Zefa’s return Maani’s behaviour changed. Between 31st August, when Zefa reappeared, and 15th September when my study ended, Maani was sighted in 11 occasions and was seen to display 13 times. Four of these displays were definitely directed at Black and two were actively supported by Zefa. Another two were conducted while Black was in the group, suggesting he could have been the target.

I compared the presence of Zefa during Maani’s aggressive behaviour with their record of affiliative interaction. Using Kate Arnold’s data from earlier in the year, it was clear that Maani and Zefa had a close relationship before Zefa disappeared. For the month of June, for example, Maani and Zefa were seen together 81% of the time. This also fitted with my own data on affiliative behaviour, in which Zefa frequently groomed Maani and was his closest associate. In fact, during the morning on which Maani first demonstrated his superiority to Black, Zefa had been closely associating and grooming with Maani.

My results are too short term and small scale to be able to draw any firm conclusions, but I found it interesting that not only were Maani and Zefa close associates, but that Zefa’s reappearance seemingly provoked such a dramatic change in Maani’s behaviour. This suggests perhaps that this was not simply a case of a young male joining in for the sake of it, but that the senior male’s actions were influenced by the presence of a sub-adult. In my dissertation, I tried to relate this observations to other examples of young males ‘latching on’ to high-ranking males. Goblin rocketed up the hierarchy in Gombe because of his relationship with alpha male Figan, for example. Sobongo, in Mahale’s K Group, also apparently benefited from his unusually close relationship with the old male Kamemafu.

I think it will be interesting, if Maani and Zefa’s apparently close relationship continues and was not simply a feature of the short duration of my research, to see how Maani behaves during Zefa’s progression in the male hierarchy.

The other main area of interest with regard to Maani’s rise in status was his relationship with Duane. I hypothesised that a major reason why Maani managed to displace Black was his close relationship with the alpha male following the disappearance of Vernon, Duane’s closest ally. I speculated that Duane cultivated a close relationship with Maani to consolidate his own position and to protect himself from Black, who had a history of trying to rise in rank. However, I also think that once Maani himself rose in rank, Duane became more wary of him and their relationship became less close.

Apparently, Maani’s position as beta male did not last long after the end of my study, which would be consistent with the idea that once he became too ambitious, Duane withdrew his support.

I used two episodes to suggest this change in Duane’s attitude to Maani. The first was an example of meat sharing observed by Kate Arnold on 19th July. Duane was in possession of the lion’s share of a dead blue duiker. Several other individuals were present, including Maani and Black. However, Maani was the only adult male to be allowed to take meat from Duane. He took some from Duane’s hand, from his mouth, and was also actively given a piece of the carcass. Black sat nearby and received no meat at all. It seems Maani was enjoying a good relationship with Duane at this time.

In contrast, an episode we observed on 7th September seems to indicate a different situation. We found several chimpanzees feeding on a rotten raphia palm trunk. They had gouged a hole in the base and were eating the pulp. When we found them, Duane was sitting in the best position, next to the hole. Next to him was Jambo. Maani was present, but could not get close to the tree. Theoretically, as the beta male, he could have supplanted Jambo and taken his position. He did not do this and it seemed that he was wary of Duane, who was right next to Jambo. Maani ran around and screamed but did not try to force his way next to the raphia palm. Eventually Jambo held out his hand to Maani, who joined them eating the pulp. But when Duane got up and left, followed by Jambo, Maani did not go with them.

The impression was that Maani was very wary of Duane during this period, unlike in July when he had freely taken meat from Duane’s mouth.

I think this change came about because it is in Duane’s interests to prevent any other adult male from becoming too strong. I think he associated closely with Maani after Vernon disappeared because he was wary of the aggressive Black. But when Maani emerged as his highest-ranking rival, he began to treat him in a much less friendly fashion. Maani’s subsequent fall back to gamma position would reflect this.

Although much of this interpretation is speculation, it would be very interesting if alpha males were able to manipulate the political situation not just by overt aggression and displays, but by more subtle associations with other adult males. I think it would also be interesting if sub-adult males were able to have an impact, as perhaps Zefa did, on the workings of the upper echelons of the adult male hierarchy. - Ben Dempsey, London UK, benedictdempsey@hotmail.com.
To Everything There is a Season
by Janette Wallis

It all Started ...

I first became involved with the Budongo Forest Project when Vernon emailed to ask advice on assessing the long-term records of the Sonso Chimpanzee Community. Now that the Project had collected several years of data, Vernon was eager to examine some of the same reproductive parameters I’d investigated from records of the Kasakela Community at Gombe. Vernon had lined up a student to dig through the records. After a short time, it turned out that the student had developed new career goals. Vernon then located yet another student, but that one also fell through. Finally, I emailed Vernon saying, “Just send ME the records. I’ll do it!” Almost immediately, I had a return email from Vernon, “The records are in the mail!” (Something tells me he was just waiting for me to ask for the data.)

Since then, we’ve come up with many interesting discoveries about the Budongo chimpanzees and how they compare to those living elsewhere. For example, the chimpanzees of Gombe show a distinctly seasonal pattern in the occurrence of females’ estrous swellings and, consequently, the observation of sexual activity and related reproductive events. One of the first things I wanted to learn about Budongo, therefore, was whether the Sonso chimpanzees also exhibited these trends. Surprisingly, I’ve learned that Budongo is even more under the influence of the seasons. The months of October and November mark a huge increase in the occurrence of sexual activity, whereas May through September (in most years) show very little presence of estrous females (and sex). Pity the poor student who spends the summer at Budongo, hoping to study chimpanzee sex!

My studies at Gombe led to the theory that seasonal patterns in reproductive behavior may be attributable to seasonal fluctuations in diet. Of course, we may find that variability in nutritional content can play a role in chimpanzee health – but my thinking is that it is literally the chemical makeup of the diet that holds the key. Phytoestrogens and other plant compounds may interact with the females’ own hormones to either enhance or suppress reproduction.

You Are What you Eat

To investigate this theory, we are analyzing the diet of Budongo’s chimpanzees. Early last year, we asked the Field Assistants to collect flowers from the forest – whether eaten by the chimpanzees or not. We sent these samples to the laboratory of Dr. Patricia Whitten, of Emory University. Preliminary results indicate that we may be on to something. The best evidence for phytoestrogens were found in samples not eaten by chimpanzees. Conversely, the best evidence for a substance that might inhibit gonadotropin action (and thus interfere with estrous swellings) was found in two samples that were eaten by chimpanzees. When Pat gave me these results, I think she thought I was going to be disappointed. However, I hadn’t filled her in on the chimpanzees’ sexual patterns and the all-important factor of timing. You see, the flower samples Pat analyzed were collected from mid-January to early April, 2000. Considering the expected time delay of phytochemical action and the seasonal pattern of sexual activity seen at Budongo, it stands to reason that “anti-estrogenic” foods eaten in January to April may take a while to show suppressed cycling - perhaps explaining the low sexual activity in May to September.

In the future, we hope to examine a wide range of food samples from Budongo (not just flowers) and assess in detail the nutritional and phytochemical content of the Sonso chimpanzees’ diet.

Finally – A Visit

After working with the data for a couple of years, I finally had the pleasure of meeting the chimpanzees and people of Budongo Forest. I first journeyed to Budongo in April 2000. On hand were Julie Munn and Jeremy Lindsell, each conducting research projects. Vernon and I arrived with Sally Seraphin who was also there to set up her thesis study. Toward the end of our stay, a survey team came through to conduct a Uganda-wide census of chimpanzees (see Jeff Donne’s article on pages 10-11).

While in camp, I pored through the records and proclaimed Kalema pregnant, due in September in time for the celebration. Thus, the infant (actually born in late August) was named Kumi (“10”) in honor of the event.

In September, I returned to Budongo again and participated in both the 2nd Budongo Conference and a celebration of the Budongo Forest Project’s Tenth Anniversary. I was welcomed this time by Kim Duffy, Lori Oliver, and Mnason Twwehyo doing their thesis work. Also present were Jeff Donne and Lesley Ambrose, helping Fred with the conference preparations. We also were joined briefly by Jenny Greenham (see page 12). Jenny and I stole Richard and the truck for a quick and unforgettable visit to Murchison Falls.

Some Bad with the Good

Although most of my September visit was enjoyable, toward the end of my stay there was a very sad event. The young adult male chimpanzee, Zefa, had been missing for a few days. When he finally reappeared, he was sporting a fairly fresh snare wound (see photo). I recalled that one of the first things I was told about Zefa when I saw him in April was that he was considered a potential future alpha male. His temperament and size made him a great candidate for leadership. It is unknown whether or how the wire will eventually fall off and which of his fingers may survive. However, it seems clear that his alpha candidacy has been ruined. As a follow-up comment to Ben Dempsey’s article on page 6, I should note that the primary companion at Zefa’s side in September was the adult male Maani. On one occasion, I saw Maani come down from a tree and wait patiently on the path until his friend Zefa struggled to come down from a tree himself. Once safely on the ground, Zefa followed his friend down the path, walking slow and tripedally to an unknown future.

During both my April and September visits, I was able to get a fair amount of good videotape footage of Zefa and other snare-injured chimpanzees. With some additional input from Vernon and Julie, I’ve created a short “Snare Video” – to be used to increase awareness of this sad problem of snaring.

Future Plans

Whether through study of chimpanzee reproduction, fighting the snaring problem, or trying to learn more about the behavioral ecology of the forest fragment chimpanzees of Kasokwa, I hope this is just the beginning of a long association with Budongo.

Janette Wallis shows the Budongo kids photos of primates on her notebook computer. Student Lori Oliver looks on.

Photo: J. Greenham
Kasokwa Chimpanzees

by Richard Kyamanywa

From my childhood in the early 1980s, I noticed the presence of chimpanzees around my home village. Their population was encouraging and their habitat still intact. After more than 1½ decades, their habitat has been degraded and encroached. As a conservationist, I aroused concern to try and find out their status and habitat.

From 1st May 1999 to September 1999, I carried out a baseline study in order to establish the status of these chimps and their habitat and thereafter laid up strategies of giving them better protection. My results revealed that a community of 13 chimps was isolated in small riverine forest patches both on forest reserve and communal forests and their lives are threatened to extinction if no immediate action is taken.

I notified the District Environmental Officer, Mrs Doreen K. Wandera about the chimps’ situation who in turn introduced me to Professor Vernon Reynolds of Budongo Forest Project (BFP) and later to Dr. Frank Turyatunga, Director of Environmental Protection and Economic Development (EPED) project. As a result, I started following this community of 13 chimpanzees while collecting data funded by the National Geographic Society through BFP.

Description of Study Area

The current study area is on the Kasokwa Central Forest Reserve and Ibohe, Nyabigata, Nyakabale Nvohe and Kasokwa Communal forests which together constitute the habitat of 13 chimpanzees. Kasokwa Central Forest Reserve runs along the Masindi-Kinyara road and is 7.3km while the Communal forests cover approximately 29km in total.

This habitat is predominately riverine forest corridor. Apart from the reserve, there is no protection status. These riverine forest corridors are part of the Budongo forest system and the two were formerly linked as one. They are therefore rich in biodiversity with abundant plant, animal, bird and insect species.

Deforestation is the major problem, caused by population pressure. The local population cut down forests to form farm land, especially sugar cane and tobacco growing; charcoal burning; and timber harvesting. The protection status of the Communal forests is unclear. Most landlords next to these forests tend to take advantage of ownership, hence utilising the resources at an uncontrollably rampant rate.

Other wildlife in this study area include: black and white colobus monkey (Colobus guereza), red tailed monkey (Cercopithecus ascanius), olive baboon (Papio anubis), vervet monkey (Cercopithecus aethiops), blue monkey (Cercopithecus mitis), spotted necked otter (Lutra nebulosa), tree hyrax (Dendrohyrax arboreus), climbing squirrel, blue and red turaco, hornbill, parrots (grey and brown), hammerkop, and butterflies.

To establish the activity patterns and behaviours of the chimpanzees, their status and habitat state, the attitude of the local people, I applied the following methods: 1. Direct field observations of the chimps and their habitats and data collection while following the chimps in morning and afternoon hours; 2. Administration of interviews to the local people with emphasis on the ones settling along the habitats and meetings with sugar cane out growers, tobacco growers, local leaders and stake holders; 3. Collection of chimps’ dung samples for genetic study.

Status of Habitat

Small chimpanzee communities are isolated in different forest patches. In addition, squatters who come from the north and northeast of Uganda with the aim of getting employment with Kinyara Sugar Factory have encroached on Kasokwa Central Forest reserve next to Kinyara Sugar Estates. This community of squatters are quite difficult to deal with as they settle directly in the forest. As a result, one lost a baby in July 2000 when chimps carried the baby into the forest. The cause of death was unclear, although it seems to have been suffocation. The intention of the chimps carrying the baby is also still not clear. But they appeared not to have intentions of eating the baby considering the time they spent with it. The baby was only 6 months old.

Out of meetings held in July and September 2000 by all stakeholders, the district forest department re-demarcated the forest boundaries as they were not clear. The boundaries were opened early October 2000 and encroachers identified.

Kinyara agreed to look for space on their land and re-settle these squatters (25 families, with 81 people). If this fails, the squatters will be ordered to leave the forest and either go back to their original homesteads or rent nearby if they still need to work with Kinyara Sugar Factory.

Chimpanzee Feeding Habits

The Kasokwa chimpanzee feeding habits vary depending on seasons. When their natural food is in abundance in the forest fragment, they tend to ignore raiding human crops, e.g., sugar cane or pawpaw, especially that which is grown alongside their habitats.

As with other wild chimpanzee communities, this Kasokwa community has adapted their feeding habits to their habitat. They spend 55% of the day feeding, with morning and afternoon peaks.

As the forest corridor is predominantly riverine forest, the most common tree species include Pseudospondias microcarpa and Phoenix reclinata. Both are typically found in wet areas. The most common fig tree is Ficus vallis choudae. These chimps feed on rice (elephant grass) – pith; and Acanthus sp., especially during times of food scarcity. They have been observed feeding on the meat of colobus monkey only once.

Human and Chimpanzee Interaction & Snaring Problem

The communities living around the Kasokwa forest area are mainly subsistence farmers engaged in food and cash crop production. A limited number are sugar cane out growers for Kinyara Sugar Factory and others are tobacco growers. Others are engaged in charcoal burning and timber harvesting. In search for land to expand agricultural production by the indigenous community, and for settlement and cultivation by immigrants to the area (mainly ex-cane cutters brought in by Kinyara Sugar Factory), the natural forest has been significantly encroached and degraded to the extent that the chimpanzees’ habitat is shrinking, forage is becoming scarce and movements of chimps across other forest patches is seriously compromised.

With chimpanzees’ natural food source being depleted, coupled with the existence of an attractive human-grown food crop and sugar cane, crop raiding has become rampant to the extent that chimpanzees now feature in the focus of the current human-wildlife conflict; a position formerly occupied by baboons, other monkeys and bush pigs. The chimpanzees are now frequently harassed, trapped, snared and killed as a re-
In addition to the Kasokwa chimpanzee community, there are other isolated chimpanzee communities in forest patches which were formerly linked to Kasokwa forest area and are facing the same plight and seem to be occasionally interacting with each other.

Conclusion

There is a need to support the local community initiative in the protection of these chimpanzees and their habitats. Furthermore, it is important to support and motivate the local people in the protection of wildlife.

Nocturnal Investigations

by Siddhartha (“Sid”) Singh

Nocturnal copulations have been witnessed in the chimpanzee and the bonobo – although there have not been enough vigil to know whether this is a regular or rare phenomenon. Clues as to its occurrence also exist for a whole range of multimale-multifemale primate societies where sperm competition is an avenue of sexual selection.

I am extremely grateful to Vernon for having allowed me to investigate this phenomenon further. Rare are the scientists who are open to exploratory projects of this nature.

While my study period was very short, progress was made in that Joseph and I were able to devise mechanisms to observe chimpanzees at night. While there were no females in oestrus during my study period, we were nevertheless able to make certain observations that suggested that nocturnal copulations in primates should be investigated further in order to shed light on primate sexuality.

Joseph and I followed the chimpanzees during the day and in the evening/dusk. Tape was used to mark the trees where they were nesting. Each tree was labeled with the name of the chimpanzee that was nesting above. Nocturnal fieldwork poses unique challenges. The chimpanzees nest around 30-60 feet in the trees and vision, even in daylight, is obscured by foliage. To overcome these obstacles, tapes were tied around various branches, situated in such a way that when one looked between the areas marked by the tapes, one would be looking in the approximate direction of the nests. Also used were two infrared torches which supplemented the night-vision goggles. Now, infrared is visible through night vision goggles. When chimpanzees were nested, we would tie the infrared torches to a tree with an infrared torchlight pointing directly at the nest(s) that we were interested in. When night fell, we would look through the night vision goggles and because the infrared light was pointed directly at the nest, we could locate the nest. We camped in the forest whenever we located the chimpanzees. We would spend the whole night in the forest and attempt to follow the chimpanzees when dawn arrived. Sometimes the chimpanzees nested in areas or trees where it was not possible to pitch a tent. We would then pitch the tent on the trails and mark the area to where the infrared torches and marker tape were tied with some orange fluorescent tape.

I remember, once, an immigrant (unhabituated) community was found close to the main camp. We attempted to erect a tent, but there was hysterical pant-screaming and all of them disappeared from their nests. (However, habituated chimpanzees are not disturbed by nocturnal observers, as long as torch light is not shone towards them). There was an oestrus female with whom my field assistant and I were unable to recognise, as we only saw her sexual swelling (which is discernible in the dark). It may have been the oestrus female who was missing from our community. On another occasion, Black took Kalema away from the group to night-nest away from the group. Such a phenomenon has been observed before and it seems possible that there is a link between nocturnal copulations, mate guarding, night nesting behaviour and night time vocalisations.

I had the time of my life in Budongo. I miss the unbelievably warm and generous community there. I will forever be grateful to Vernon - both for having enabled Budongo, as well as my trip - and to Fred, Richard, my indomitable field assistant Joseph, and everyone else. And the bread that is baked there – that is worth the trip just by itself. - Siddhartha Singh, Cornell University, ssinghk@hotmail.com.
One Chimp, Two Chimps, Three Chimps …

Four Months on the Chimpanzee Population Census of Budongo

By Jeff Donne

Walk, walk, walk, walk, walk, walk, walk, chimp, walk, walk, monkey, walk, dung, walk, walk, chimp nest, walk, walk, pitsawyer hoofing it in a flurry of flip-flops, walk, walk, walk, collapse in a heap of sweat. That, in a nutshell, is the day-to-day events of a chimp census. Good thing I enjoy walking.

It all started for me last year on a cold English February night. Slouched on the sofa in one of my sloth-like TV trances, I was mildly disturbed by the shrill of the telephone. Unusually, it was for me. A forgotten application to the Jane Goodall Institute for six weeks voluntary work had blossomed and fruited in the form of an eight-month job offer as team leader on a chimpanzee population census of Budongo and Maramagambo. From sloth to startled duiker in an instant.

One month later, I found myself and the team cruising at midnight down the majestic gateway of the Royal Mile, on our way to Sonso to begin the census on the following day. Did I have a clue what I was doing? No. But all I could think about was the remarkable sight that lay illuminated by the glimmer of our advancing vehicle. The splaying titanic ‘dog paws’ of towering figs flanked the track as I came to the conclusion that England does not have trees, just a collection of meagre weeds. We set camp at Sonso under the dim light of a half moon and retired to our tents. A member of the team, Moses, offered his prayers for the camp as the tree hyrax screamed above our heads. It wasn’t long before I drifted off into an inscrutable malarial dream, but before this I just had the time to consider what lay ahead. Eight guys, four months, over 400 square kilometres. We had to cover every three kilometre square on the map, whilst monitoring populations of chimps, other primates, and angulating, plus recording the frequency and effect of human impact on the forest. And they’ve placed me in charge. I chuckled nervously and fell asleep.

On the first day we found our feet. Nabert and Julius, who had previously worked as field assistants for the Budongo Forest Project, led us into the blocks where we will be using transect methods (recording data once every three weeks using the same line). They took us to the N3, W21, N11, N3 (again), and N15 blocks, which to a certain bone idle English man who admits to enjoying walking, but is just not very good at it, seemed like an endless walk around a giant pressure cooker. Here I discovered a whole new array of alien sweat pores that I never knew existed. I stumbled from the forest at around four, and contemplated crawling into the nearest water tank. The guys saw my lame old husk and here ensued the soon to be daily ritual of laughing at the boss. Sam Isole, my appointed field assistant (but in reality was more of an all round good friend, teacher and mother), walked calmly over and announced, almost prophetically that, come the third day, I will feel as if I am dead. How nice, I thought, and fell asleep.

It’s 5:30 am; an hour put by for the sole purpose of blissful unconsciousness. I’m impressed with managing to get just a little sleep last night - despite the murderous howling of the tree hyrax, and the raucous bedlam of an apparent chimp stag-night – but now I find myself losing the battle.

One Chimp, Two Chimps, Three Chimps …

Jeff Donne and friend - at the Uganda Wildlife Education Centre, Kampala

and giving in to my wakeful adversary. The screams and long, wailing cries rush the door of my tent without as much as a polite tap. A crazed species had awakened in a frenzy of whooping delinquency … “Good morning team. Enjoying our coffee are we?” This was that special Ugandan coffee known as ‘direct injection’, supped by the pint and containing enough caffeine to wake the dead.

I poke my puffy face through an aperture in my tent and see a fully saddled team, seemingly immune to early morning dishevelment, waiting impatiently for their ‘leader’. With gumboots half on I stumble from my warm palace of sleep, clapping my piece of paper scrawled upon it the order of today’s events.

Today we had to split into groups of two and census the nearby N3 block. Each duo would walk a two kilometre transect, stopping every 250 metres to record and map their position using a flashy Global Positioning System (GPS). Upon reaching the end of a transect, they must then leave the comfort of the path and return on a parallel line through the bush, back to the starting point. The three days training provided by Andy Plumptre, on such necessary topics as not getting lost was to be put to the test. It all seemed pretty straightforward, walk in a straight line and come back again, no problem…well. The presence of all the buttons on our GPS units proved to be too much of a temptation for some people, mentioning no names of course. As they stood puzzled at the start of the transects I had a steady flow of team members claiming faulty goods were to be blamed for their lack of knowledge as to where they were. A swift inspection of the so called ‘faulty goods’ revealed that in the course of pretending to use the GPS as a mobile phone, they had inadvertently reset the country of origin to Canada, Abu Dhabi or wherever.

So problem solved I soon discovered that eyes like a hawk were to be needed, because spotting a chimp nest or bolting blue monkey 100 feet up in a tree is not that easy. Luckily for me, I had Sam at hand, who with his extra sensory abilities of spotting a flatulent mosquito at twenty paces, worked as the eyes for both of us. Fortunately, however, it wasn’t long before my senses enjoyed an awakening, opening a whole new world to the one I had previously seen (or not in this case).

So, what exactly did we see? The chimps of Budongo were, as expected, elusive to say the least – Duane and Co obviously an exception here. It appeared the Kaniyo Pabidi site had the highest concentration, with Alfred and Robert’s team sighting 59 chimp nests on a single, two kilometre transect (the average number of sightings being much less than that). Chimps and their nests were frequently seen in this small part of the forest – no coincidence that it is the part of Budongo protected as a National Park, and the only part where no human interference was found. Also the far North of the forest boasted a fairly high density of chimps. Again, human interference in this part was minimal with any pitsawing sites being very old and no apparent signs of poaching or snaring were found. In contrast to this was the far South, particularly around the Kapecca area. Here the forest was, in a word, depressing. Snare after snare after snare. Huge patches of forest, quite simply gone, replaced with vast stretches of impenetrable creeper vine. The well worn

By Jeff Donne
The Ecology of Budongo’s Redtail Monkeys  
by Donna J. Sheppard

In June 1997, I came to Budongo and found a busy research camp complete with a number of PhD students, hardworking field assistants, support staff and children! BFP proved to be a comfortable, safe and fun place to do research. With other students to bounce ideas off, children to laugh with, and support staff to help collect our mail, foodstuffs, and do laundry, there was very little lacking. I teamed up with Kyamanywa Julius, who was living off camp at the time, and we got busy identifying tree species, locating monkey groups, and selecting redtail study groups. Julius knows the Budongo monkeys and floral community very well, and these were two skills essential to the completion of my data collection. Redtail monkeys (Cercopithecus ascanius) are small bodied, arboreal primates with a shy and cryptic nature. As a result, a lengthy effort was required to locate, select and habituate two study groups.

The overall aim of my study was to assess the impact of habitat modification on redtail monkeys living in the Budongo Forest Reserve. This was achieved through ecological and behavioural comparisons of two groups of redtail monkeys inhabiting primary and regenerating forest sites at Budongo. Behavioural ecology aspects associated with patterns of habitat use were compared through redtail group activities. Specifically, three variables were employed in this investigation: redtail group ranging patterns, diets and population densities. By using the above variables, the principle focus of the study was to quantify patterns of habitat use. Observed differences in the floral communities at the two study sites, determined using vegetative plots, offered possible explanations for differences noted in redtail behavioural ecology.

Julius and I collected observational data on two groups of redtail monkeys over a six-month period. This yielded 135 hours of scan sampling data. One group ranged within the unlogged Nyakafunjo Nature Reserve (Compartment N15), and the second group resided in mixed forest selectively harvested in 1947 and 1952 (Compartment N3). In addition, census routes were established in both of these forest compartments and these routes were sampled weekly. Redtail monkey population estimates were then established using the data from these counts. Results revealed that redtail group densities were three times higher in the selectively logged habitat. Significant differences in habitat use patterns, indicated by differences in plant consumption, ranging patterns, canopy use and group dispersal, were observed between the two study groups. Factors accounting for these differences were the higher densities of redtail preferred food trees, and an increase in tree species diversity in the regenerating forest. This advantage for the redtails, observed in the logged forest, correlated with the low intensity of selective logging there, and the trend towards a Cynometra monodominant condition in the primary forest. - Donna Sheppard, Dept. Anthro, University of Calgary, djsheppa@ucalgary.ca.
Chimps’ Choices
by Jenny Greenham

Chimpanzees are resourceful when it comes to food. They are in the main herbivorous, selecting fruit, leaves, stems, roots and sometimes bark. However they do occasionally seek out termites and are not adverse to the odd monkey, when the opportunity arises!

Figs are a favourite and the Budongo Forest does have twelve species of Ficus trees which supply the chimps with ripe fruit throughout the year. Another popular food source is Broussonetitia papyrifera and there are some trees of this plant situated around the edge of the Sonso sawmill site, adjacent to the camp.

I work in the Phytochemistry Research Laboratory at Reading University in the UK and my interest in the chimps at Sonso is in their diet and which chemical barriers the plants produce to deter the chimps from selecting certain plants or conversely, what attracts the chimps to particular species.

Starting with wild fig fruit, all of the nine species I analysed contained tannins. These tannins give an astringent taste, certainly to humans anyway, and are produced by plants as a deterrent to herbivory. The chimps are very selective in picking which fruit to eat; it was thought that the unripe fruit would contain a higher level of tannin with less sugar, with the tannin level dropping and the sugar content rising as the fruit reached maturity, so ensuring seed dispersal at the appropriate time. The seeds pass through the chimps’ gut unharmed. However I found that the tannin level remained constant and it was the higher sugar level which had an effect on the chimps’ palate. They have a sweet tooth and do not usually worry about the tannins at the level at which they are present in the fruit. In fact there was a particular tree of the species Ficus sur which is a sweet favourite and was dripping with ripe fruit just waiting to be eaten, but was rejected by the chimps. When I analysed the fruit I found tannins, but virtually no sugar. It must have been a quirk of nature!

Approximately ten to twelve times a year, the Budongo chimps will settle high up in mature mahogany (Khaya anthotheca) trees and feed on the bark, for several hours at a time. This remains a mystery as to why and as to the timing, as there seems to be no obvious pattern. Usually chimps, as well as other primates, just lick stripped bark to obtain the sugars from the sap rising up the phloem. The chimps actually chew the Khaya bark, sometimes eating it and sometimes wadging it and swallowing the extracted juices. The tannin level is significant at around an average of 1.7 % of dry weight and even reaching 4%. There are also limonoids present, which may contribute to the astringency, but these still do not seem to deter the chimps. There is sugar, but at an average of 1.4% there is not as much as in the fruits eaten by the chimps. The Khaya produces, through the bark, an exudate which is made up of polysaccharide. This is in the form of strands and lumps and the chimps will sometimes eat the pure lumps of this. Whether this is for food or medicinal purposes is still not known. I am continuing the research on Khaya.

As the chimps eat leaves, I am looking at species the chimps avoid, to try and establish, as far as the chemistry is concerned, the reasons. They still eat leaves which usually do not have a high sugar content. Chimps do, on the whole, prefer young to mature leaves, presumably because they are tender and juicy. Broussonetitia is an exception, as all parts of the trees, including the leaves, contain a high level of sugars, especially fructose, which is very sweet and as mentioned earlier, this species is a favourite food source. Tannins are present, but in at a very low level.

So why do the chimps tolerate the astringent tannins, present so abundantly in the fruits of the wild figs? The tannins do not appear to be harmful to the chimps and maybe the chimps appreciate a choice of food, as after all: variety is the spice of life!

I was fortunate enough to visit Budongo in September 2000 for the 10th anniversary of the project and see for myself the students and field assistants at work, observing the chimps’ behaviour. It is no mean feat - collecting the data and samples and requires patience and tenacity. It was an unforgettable ten days for me, meeting everyone at the camp, seeing the chimps and experiencing the sights and sounds of the Budongo Forest.

- Jenny Greenham, School of Botany, University of Reading, E-mail: J.R.Greenham@reading.ac.uk