

The Preliminary Studies of Wild Toco Toucans **(*Ramphastos Toco*) a Keeper's experience in the field.**

By Mairee Vincent (Leeds Castle Aviary's)

The Winston Churchill Memorial Trust.

Each year the Trust awards Travelling Fellowship grants to enable Churchill fellows to carry out projects overseas. Each fellow is provided with insurance cover, a return ticket from the United Kingdom, and sufficient funds for daily living expenses/travel within the countries they visit. For each and every fellow this is very much their "chance of a lifetime". (WCMT) Fortunately I was one of 100 successful fellows to have been selected from 755 applicants last year (2006) which enabled me to conduct my project.

Introduction

The main purpose of the project is to investigate the intestinal bacterial flora of Wild Toco Toucans however so little is known about Toucans in the wild that all information gained will be of much interest.

The bacterial flora is at least partially determined by the type of diet consumed and the prevalence of non invasive bacterial species. It is very likely that the intestinal flora of wild toucans is dominated by gram-positive organisms, but we would like to establish this beyond doubt. When birds are taking meat protein (for rearing young) the ratio may change as meat based diets lead to a gram-negative dominated intestinal flora (like in raptors). (Extract taken from J Lewis and M Vincent project proposal)

Toucan Characteristics

Toco Toucans (*Ramphastos Toco*) are 60cm long; 16cm of that length is the beak.

The birds are predominantly black with a white bib. The area around the eye is orange with a blue ring surrounding the eye socket. The beak is yellow with a red line along the top of it. At the tip of the upper mandible is a black spot. Chicks will usually start to "colour up" at around 18 months old. The beak has serrated edges along the length of it; the beak isn't solid but made up of a "honeycomb" structure that makes the beak very lightweight. The black band at the base of the bill is completely unique to Toucans. When chicks, their nostrils start in the "normal" place and as they get older their nostrils go up and behind this black band.

Another feature that is unique to Toucans is their tails are on a ball and socket joint so at night will rotate the tail so it lays flat on the back exposing the red flash of tail feathers and then place the beak under the wing. (L Short & J Horne) fig 1.

Male and females look similar although there is a slight difference in length and width of the beak. They are mainly arboreal birds with very noisy voice ranges from coarse raucous croaks to quiet clicks. They seldom go on the floor because they such clumsy birds when they do they tend to hop with their legs straight and the tail straight.

Generally they reach sexual maturity at 2 years old and stop breeding at around 17 years old (although there is a report of a male breeding at 20). (AZA Softbill Web site) Generally longevity is around 21 years old in captivity.

They live in an average group size of 15 birds, although in Jujuy they have seen a group of 35 birds. One bird usually takes off and the rest then follow in single file. During the breeding season birds will pair off we did also see evidence that juvenile or lone birds will continue to remain in small bachelor groups.

There are 2 sub species of the Toco *Ramphastos toco albogularis* which is mainly found in the Southern areas and *Ramphastos toco toco* Northern Toco Toucan.

Range and Habitat

Ramphastos Toco is found from the Guianas through Brazil to Northern Argentina.

Toco Toucan (*Ramphastos Toco*) female at Leeds Castle.



Threats to the Toucan

Pet Trade

Out of the 41 species / subspecies of the *Ramphastidae* family only 10 actually have conservation status. Appendix I (Endangered) currently holds no species. Appendix II has 6 species and Appendix III has the last 4 species. (*CITES/IUCN website*)

According to CITES and the IUCN export quotas we know that Guyana have been legally exporting 200 Toco's a year since 1997 and Paraguay have also exported 132 in 2002.

There has been no population survey conducted on Toucans and the only in-situ projects conducted with Toucans is as seed dispersers where the smaller Toucans are radio tagged and tracked.

Amerindians in traditional rural communities in the past have been involved with trapping wild caught birds as a source of income the monies paid to such people are a pittance so therefore more birds are required to gain more income. The following is based on parrots not Toucans: Trapper USD \$2.57, Trader USD \$7.09, Exporter USD \$49.43, Importer USD \$256 (*Swanson 1992*)

There are official projects being run like Proyecto Ele in Argentina where the local villagers are taught how to look after the parrot chicks properly. A digiscope camera is entered into known and recorded parrot nest sites, if there are more than 3 chicks within the nest the chicks are taken away for hand rearing because in the wild their chances of survival would be far less. The chicks are rung with a leg ring and certificated to show captive reared. In the past the locals received 2 Argentinean pesos

(GBP 0.34p) for selling wild caught parrots. If they successfully rear the chick the project will pay them 100 Argentinean pesos (£6.25p GBP)

Tourist Trade

There are many places across South America where you can go and see Toucans free flying in National Parks and will come and take food from your plate and the birds do come and go as they please but for the purpose of this study we needed Toucans on a “normal” diet. However many places were contacted who have claimed to have Toco’s in big numbers in previous years, when questioned as to how many birds where in the area and places they frequented it turned out that they had many years ago been in good numbers but over the last 5 years or so sightings were becoming more infrequent (*Proyecto Ara Azul and Proyecto Ele per communication*).

Habitat

One major problem Toucans face is deforestation. During the 1990’s alone 200 million acres of the worlds forestland has been destroyed (twice the size of South Africa). (*World Resources Initiative*) 14.6 million Ha of natural forest are lost each year that’s an area larger than England itself. This roughly works out at 30 ha every minute is lost. (*Forests for life*)

This means that Toucans are travelling further to find food or compromising. In Brazil and Argentina there are many fruit and citrus farms being developed Toucans are becoming more frequent in their visits to these farms are becoming classed as pest species. Two farms visited on my trip both had catapulted birds either unconscious and then painted one side of the bird’s beak or completely dead. One lady brought out the head of a Toco that approximately was a 2year old female bird, she then told us how the beak is classed as a “token” and to receive a Toucans beak is a high honour.



Photo taken in Jujuy Argentina

Wood Gathering

Local villagers and tribes also collect wood from the forest areas for firewood and building materials. Through education about how important forest areas are a sustainable firewood supply could be made outside of the forest area to keep gathering to a minimum. Decay in trees is important for Toucans as they cannot make their own nest sites and often adapt other birds nest sites such as Hyacinth Macaws (*Anodorhynchus hyacinthinus*) and White Woodpeckers (*Melanerpes candidus*).

Myth and superstition

The toucans also have symbolic significance to local tribes. It is often recreated on tribal totems to signify the tribes common ancestry, the local medicine man believes he can use this bird as an incarnation to fly to the spirit world so they generally don't harm the toucans and also there is another myth that the father of a new child must not eat toucan flesh as it will curse the new born child.

In Misiones the first place I went to the local Guyarni tribe class the Toucans as the "weather birds" because when they start croaking there's going to be a change in the weather.

How Toucans sleep fig 1



Toucans in Captivity

History of Toucans in Zoological Collections

Toco Toucans first appeared in Zoological collections as far back as 1902. They became very popular in the 1960's and in the 1970's a captive breeding programme was set up for them.(AZA *Softbill TAG*) Although very little is known about Toucans in the wild, a lot has been learnt about them in captivity.

Nearly half of the 41 Ramphastidae species have bred in captivity however this has not been sustained and we don't know of any 2nd generation birds breeding. Leeds Castle is currently one of two collections (Zoological Society of London being the other institute) that regularly breeds Toco's every year in the UK (*John Ellis ESB holder*)

Table 1 shows collections throughout the UK that are currently and historically working with Toco Toucans. A survey has been sent to these collections to gain insight into the current management of Toco Toucans and most common “problems” encountered.

Table 1 Collections currently and historically working with Toco Toucans

<u>Name of Collection</u>
Leeds Castle Aviary's Kent
Zoological Society of London
Paignton Zoo
Isle of Wight Zoo
Paradise Park
Paultons Park
Blackpool Zoo
Dudley Zoological Gardens
Hayle Bird Gardens
Linton Zoo
Whipsnade Zoo
Dublin Zoo
Chessington World of Adventures
The Palms Tropical Oasis
Bristol Zoo
Flamingo Land

Problems encountered in captivity

Iron Storage Disease

Haemochromatosis: - Every living organism needs a certain amount of iron to help the body produce haemoglobin which helps transport oxygen molecules around the body. Haemochromatosis occurs when the body starts to store iron in the entire major organs in particular the liver, it can then start to do significant damage which ultimately leads to death.

Ramphastidae in particular are prone to suffer from this disease. Birds that primarily eat fruit insects or omnivores tend to accumulate more iron in their livers.

There are many proprietary diets available which should be supplemented by non-citrus fruits. However the mineral content of some of these proprietary diets are low in other essential minerals.

Beak Fractures

These can be caused by deficiencies in not using a correct diet and unsuitable housing.

Also poor colour can be caused by a lack of carotenes in the diet. A diet should be chosen which contains both yellow and red carotenoid pigments.

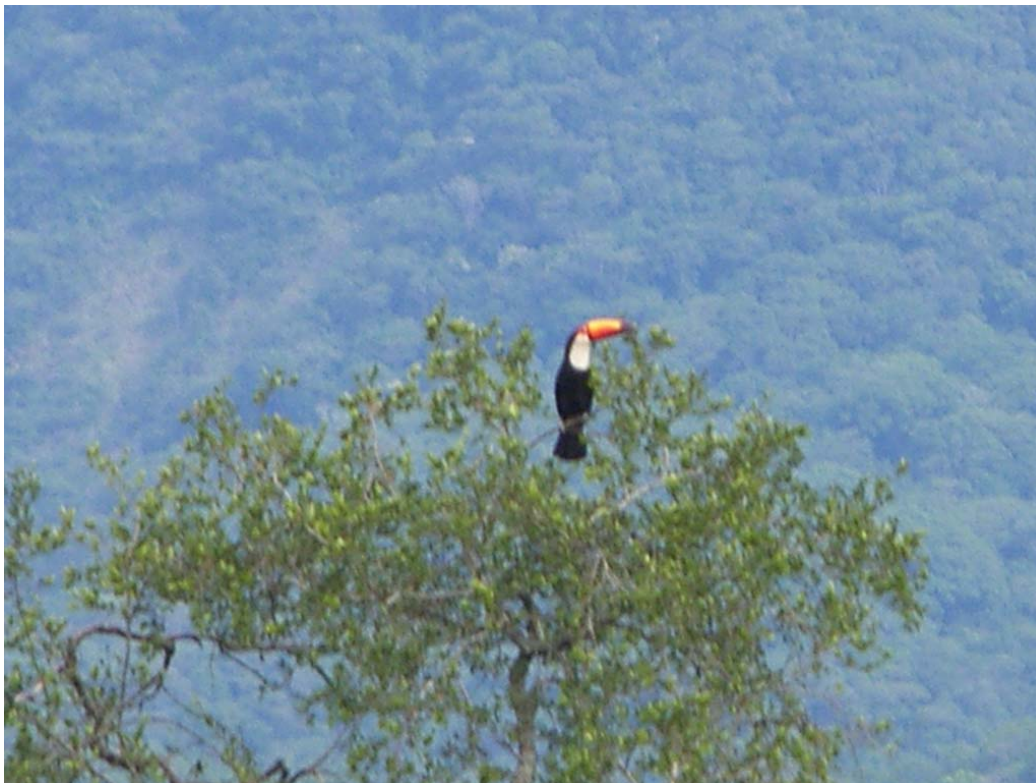
Bacterial Disease

Captive toucans frequently suffer from acute negative bacterial infections arising in the intestinal tract and such episodes prove to be fatal often within 24 hours. In order to manage these species in captivity more effectively this problem must be overcome. An understanding of the types of bacteria normally resident in the intestines of wild toucans may allow selection of a more appropriate captive diet and perhaps preparation of suitable probiotics designed to deter the overwhelming growth of gram-negative in the gut of captive birds. (Extract from J Lewis and M Vincent Project proposal)

Captive survey

Ramphastidae, *Bucerotidae*, and *Musphagidae* made up 78% (229/295) of the total deaths in the survey. Within these taxa bacterial disease was the predominant cause of death. The single most commonly identified pathogen was *Yersinia* (mainly *Y. pseudotuberculosis*). *Yersinia* was identified in 36% (5/14) of Toucans dying from bacterial disease. (J.Lewis Mortality Survey Softbill TAG 90 – 95)

Photo taken in Jujuy Argentina.



Toucans in the Wild

As previously mentioned there are currently no in situ projects working with Toco's. This meant that for 2 years previously to gaining the Winston Churchill Travel Award I researched places and other in situ projects that had stated they had Toco's in that area. This proved to be far more difficult than previously thought. Projects that were working in the Pantanal area had stated they had Toucans taking over Macaw nest sites. However when questioned and more details asked about the Toucans I was told that infact the number of sightings were far less over the past 5 years than when the project had first been set up (*Proyecto Arara azul via communication*). This was the most common problem I encountered.

National parks like Iguazu Falls have Toco toucans within their grounds but are very tame and are not on a 100% “wild” diet. Tourists can feed the birds and get up close to them. Locations like these unfortunately were not a viable option as we needed as much of a wild diet as possible. Through various birding groups web sites I was able to gain information where Toco’s had been spotted and email members who were able to give me specific information about group sizes and gain an insight into the type of areas they were living in. This then led to another contact that was able to put me in touch with someone else and eventually managed to get 3 locations where local people know that the birds are breeding in the area, feeding regularly in the area and knows the best places to study the birds as well as have facilities that could facilitate researchers.

Yacutinga eco lodge Misiones Argentina

The first place I went to was Yacutinga eco lodge (www.yacutinga.com)

The management and monitoring plan set up at Yacutinga has been cited by the World Tourism Organization in 2004 as an example of responsible management at World level. The lodge only ever has 12 guests at a time stopping there. Guests are able to go out with tour guides to walk 7 different trails.

A certain percentage of the tourist’s money has gone towards building the research centre and camp. The camp also doubles up as an outdoor classroom for visiting schools.

A total of 196 hours was spent out in the field monitoring potential nest sites, gaining information from the guides and staff and the local Guarani (pronounced waranee) as well as observations out on the trails with the guides.

Unfortunately there were only 3 sightings during my stay here but some interesting behavioural traits were found.

During my stay the average mean temperature 29.5 F (the highest being 41F). On the cooler days sightings of Toucans were more frequent in the Capybara area and the biological station area. One sighting took place during a storm. Both birds appeared and started to check nest sites whilst one adult bird was chased away by the white woodpecker parents the other Toucan raided the nest and flew away. The other bird then proceeded to go in an anticlockwise direction around the swamp area pulling out nest material in posts and checking for any other chicks. All smaller birdlife was alarm calling for the whole time the Toco was about.

Unfortunately the direction the birds then flew off over I couldn’t actually gain access to either because it was so dense and “uncharted” or because it was a known area for rattlesnakes and without a guide or assistant it wasn’t a safe area to venture in to without radio contact. The researchers camp and Lodge was only built in 2006 and as yet isn’t as fully equipped as the owners would like. It is planned that researchers will be issued with radios so that if they on their own or in a group and need to venture into these areas they are in radio contact with other guides and the Lodge.

Although Yacutinga has all the requirements that Tocos need the river between Iguazú National Park and Yacutinga is of a width where Tocos could fly over it. With them only making appearances on cooler days and during the late afternoon when its at its coolest both myself and a German Birding Club who has been producing a bird species list for the area believe they are flying over from Iguazú.

I left Yacutinga with more questions than when I arrived and most of them unanswerable on this trip!

Villamonte Jujuy Argentina

For the next 19 days I was in a small village called Villamonte in San Salvador de Jujuy a province in North West Argentina. I stayed on a private reserve and was able to rent lodgings. The people I had got in contact with were also able to help with providing an assistant who knew the area.

We were able to track 3 pairs of Tocos across the reserve, unfortunately it was the breeding season and the birds had paired up. Usually they are in flocks of 15 – 16 birds although they have seen a flock made up of 35 birds here.

268 hours of field observation work occurred here watching and learning about the birds normal routines. Once we had discovered one pair's timings and routine and how "set" it was we then started on the second pairs routine and comparing behavioural traits. Both pairs of birds are very "set" in their routine and you could almost set your watch by them. Apart from slight variations in times both birds' routines were very alike. In both areas there were look out posts that the birds whilst out foraging would appear at whilst on a circular route around the fields. One pair went clockwise around their field whilst the other pair went anticlockwise around an area that incorporated villagers back gardens, forest areas and citrus areas.

Shallow running streams featured in both areas although none of the birds were seen bathing or drinking from them.

The third pair of birds we could not get a routine for, compared to the other 2 pairs of birds these pair proved to be the hardest. Both birds would appear on a look out post then go in opposite directions in a circular route but not returning to the area for anything up to 3 hours later or not until late afternoon. The area that were in had no trees that were capable of housing them (the trunks were too narrow) although there were evidence of them feeding in the area some areas were impossible to investigate (50ft drops, flash floods swelling the river). We eventually managed to get a digital camera shot of both birds looking the same way and could compare beak length through zooming in on the photo. The beak lengths were very similar and one bird was slightly paler than the other. We came to the conclusion we had a juvenile male and a lone male that roosted over night together, a third toucan did join them for two mornings, and all 3 birds were seen playing together.

We had an opportunity to look inside a toucans nest in the form of a digiscope camera that was extended up to 15ft and put inside the nest cavity where it was hoped that we would get footage of Toucan chicks in the nest and be able to view hoe nests in the wild compare to captive nest boxes. Unfortunately in the space of a week the birds had fledged and the nest was empty. We did however manage to gain a faecal sample from this site in an area where the birds were discarding all nest material and faecal droppings. Toucans had been seen producing the samples in this area so it was identified as Toucan faeces.

The samples were then smeared onto a slide air dried fixed in alcohol then air dried again. The results from these samples are still pending at the time of writing but the first signs are encouraging.

Findings

Nesting / Habitat preferences

- Dead or dry trees used and adapted for nests.
- Nest site entrances sited above straight trunks (in captivity the nest boxes are at a 45 degree angle due to the birds being so clumsy and smashing eggs)
- 2 holes: - small hole at front that the beak can just fit into and a bigger “bolt” hole elsewhere in the tree.
- Nest Cavity quite big inside although snug enough for the bird to feel secure.
- No preference to the species of tree used for nesting.
- Not found over 1800ft.
- Take over other birds nests and adapt.
- Have 4 or more “look out” posts within the area that are smooth and worn.
- Territory feeding range could well be 5KM.
- Lots of Laurel (*Ocotea acutifolia*) within the area.

Diet and feeding behaviour

- When the adults are rearing young they raid other bird’s chicks to feed usually every other day. (examples:- Yellow-striped Brush Finch (*Atlapetes citrinellus*), White Woodpecker (*Melanerpes candidus*), Cinnamon Flycatcher (*Pyrrhomyias cinnamomea*)
- Insects given to chicks but parents have never been seen eating any themselves. Very selective in what they feed the chicks.
- Diet (seeds and fruit) not high in Tannins. (perhaps “supplemented” by the tannins in the water drunk from trees)
- 70% of fruit taken not ripe and very green.
- Water drunk from V’s in trees that have collected in them. (Both sites had running shallow water through them but they had never seen the birds drinking from them.)
- As forests change (citrus farms, tobacco plantations, and de forestation) they may have to feed further away like the parrots in the area so there could be a decline.
- Bananas not native to South America, those that are there generally humans can’t eat because they are very bitter. The “forest banana” (Philodendron fruit) can only be eaten at a certain time and cannot be chewed but of the acidity in the seeds. No Toucans had been seen taking any bananas.
- Fruits and seeds taken readily include: Umbae, Cerella, Pacuri, Ubajay, Araticu, Palmito, Pitanga, Pindo, Yacaratia, Guavira, Poliganaceae and Sapindaceae berries. Fruits available to the Toucans that were taken after the above berries were Grapefruit, Lemon, Mandarin, Mango, Papaya, Avocado all of these were taken whilst very green and under ripe but could be “easy pickings” rather than part of the staple diet in the wild.

Birds

- Males very bold, females shy.
- Beaks very vibrant (often see beak first)
- Work as a pair raiding nests one bird acts as a decoy.
- 5 beats of wings then glide.
- They can fly over an 800m – 1Km river.
- Prefer cooler / stormy weather to hunt nests.
- Very vocal before storms.
- Prefer showers in storms
- Obsessively clean beaks often with a specific branch for that purpose.
- Very sociable flocks, even during breeding season immature birds or single adults will flock together.
- Main call (AARRKKK) heard 90% of the time rarely hear clicks or alarm calls.

Behaviours

- Out of breeding season very vocal but during nesting/rearing time of year are usually just seen not heard.
- Each pair has a preference of foraging either clockwise or anti-clockwise.
- Jousting reinforces bonding between pairs but also will play joust. 3 birds seen jousting together 2 “ganging up” on the 3rd bird then changing sides and “picking” on the other one.
- Parent birds share incubation periods.
- When foraging during the day 1 bird can spend up to 2 hours away before swapping.
- In flocks one bird leads the others
- Fly in single file
- Every week will come and check an old nest site up to a month after chicks have fledged to check if adults have recycled.
- Every other day will check ripeness of fruit, taps with beak and gently squeezes fruit to check if edible.
- Parent birds stop feeding chicks after 6pm parents will spend time together till dusk.
- Start foraging at first light (Jujuy 05.45 – 06.00am) both birds go out and forage for about 20minutes then head back to the nest this is continued to roughly 09.00am. The birds will then go out individually for anything up to 2 hours at a time before returning and swapping with other adult.
- Have set routines.

Typical Toucan Day

The following is based on observations on 2 different pairs of birds at Jujuy.

TIME	BEHAVIOUR
05.45 – 06.00am	Both birds appear and go behind the tree before setting off in a circular direction around the field returning every 20 minutes.
09.00am – 15.45pm	One adult bird will stop at the nest whilst the other bird goes out and forages for anything up to 2 hours at a time before coming back and swapping with the other adult. For roughly 5 minutes both birds will greet each other beak fence before swapping.
15.45 – 18.00pm	Both adult birds go back out foraging and returning to the nest every 20 minutes.
18.00 – 20.30pm	Both adult birds out preening at one of the look out posts, beak fencing.

Sorocaba Zoo (Parque Zoológico Municipal Quinzinho de Barros)

Then last two weeks of my adventure was going to take me to a small town in Brazil where there was a rainforest corridor project unfortunately due to technical difficulties this wasn't arranged in time, also my plan B fell through because permits couldn't be issued in time, during my first two weeks out in South America one of my contacts put me in touch with the head veterinary officer Rodrigo Texicara at Sorocaba zoo.

Fortunately there is an Alojamento (trainee house) on site where veterinary student or students training to be zoo keepers stay. I spent 10 days at the zoo working on the majority of sections.

The zoo dates back to 1916 where it was mainly a ranch but became a zoo in 1966. Sorocaba is a government run zoo that has in the region of 1,800 animals covering 282 different species. 43 species of Reptile, 182 species of bird, 57 species of mammal there are 24 species of animal that are on an official threat of extinction

- *Leontopithecus chrysomelas*
- *Leontopithecus chrysopygus*
- *Chrysocyon brachyurus*
- *Ateles belzebuth marginatus*
- *Brachyteles aracnoides*
- *Chiropotes satanas*
- *Blastocerus dichotomus*
- *Leopardus pardalis*

- *Leopardus tigrinus*
- *Leopardus wiedii*
- *Panthera onca*
- *Puma concolor*
- *Pteronura brasiliensis*
- *Myrmecophaga tridactyla*
- *Harpyhaliaetus coronatus*
- *Crax blumenbachii*
- *Pipile jacutinga*
- *Amazona brasiliensis*
- *Amazona rhodocorytha*
- *Amazona vinacea*
- *Anodorhynchus hyacinthinus*
- *Guaruba guarouba*
- *Pyrrhura cruentata*
- *Pyrrhura leucotis*

I worked with the Vet team, reptile keepers, parrot keepers, education team, nutrition team and the cat/anteater keeper. Although language was a barrier keeper skills are a world wide language! I learnt a lot during my time there and was fascinated in differences between the UK and Brazil keeping for example:-

The nutrition team consists of 6 people and they have every 1,800 animals feed prepped and ready to be fed by eleven a.m.

In Brazil it takes 5 years to train to be a keeper.

Brazilian law states that no fireworks or events using pyrotechnics are not allowed within a certain area of a conservation area.

I was the first UK keeper to go there and made front page headlines of the Sorocaba news as well as having TV interviews about Toucans etc. I hope to continue my links with Sorocaba and have been invited back to a symposium next year.

Conclusion

This trip proved to be a lot harder than first anticipated and although our main target of gaining freshly voided faecal material from wild Toucans was achieved it was only one sample. The results preliminarily coming back from the lab are showing positive signs but we still need further evidence to establish the theory without doubt. I hope to continue this research and get a better understanding of Toco Toucans status in the wild and so in return benefit Tococ in captivity.

The questionnaires that have been sent out will give us a better idea of how captive Toucans are already being managed and will also help in this research.

As a keeper going out and seeing animals you look after out in the wild is an amazing experience and really helps to put things in perspective, behaviours that in captivity you put down to an individuals quirks can suddenly make sense seeing it first hand in situ.

I would like to thank the Winston Churchill Memorial Trust, Leeds Castle, ABWAK and all the individuals involved in helping me achieve this.

www.chasingtoucans.com



References

Iguazú Life and Colour Guide to the flora and fauna Maria Luisa Petraglia de Bolzón

Aves de Argentina y Uruguay Tito Narosky & Dario Yzurieta

Toucans, Barbets and Honey guides, Lester & Horne Oxford Books

WWF 2002 Forests for life – Working to protect, Manage & restore the worlds forests (www.wwf.org.uk)

AZA Toucan Husbandry Manual (www.nashvillezoo.org)

CITES (www.cites.org)

IUCN (www.iucnredlist.org)

Projeto Arara Azul (www.projetoararaazul.org.br)

Yacutinga Eco Lodge (www.yacutinga.com)

Winston Churchill Memorial Trust Travel Fellowship

Report 2007



**The Preliminary studies into the intestinal bacterial flora of
Wild Toco Toucans (*Ramphastos toco*).**

By Mairee E Vincent

The Preliminary studies into the intestinal bacterial flora of Wild Toco Toucans

As a zoo keeper everyday you work with some of nature's most incredible creations. You become increasingly aware of the problems that their wild relatives face, which in return you increase that awareness to members of the visiting public and to other people within the industry be it on a regional, national or international level.

However whilst it is very important to make people aware of these issues it is equally as important to try and help the species in a captive environment. Toco Toucans are renowned in the Zoo industry to be very hard birds to breed and face numerous veterinary conditions in captivity some of which still are not fully understood. One of these conditions is linked with gram-negative bacterial infections which is the biggest killer of captive toucans. To continue working with these species we need to understand the types of bacteria that are normally resident in the intestines of Wild Toucans.

There are no current in situ projects that work with Toco Toucans in South America.

Purpose of the fellowship:

- To make contacts with existing conservation and field research centres and utilise their infrastructure and local knowledge.
- Veterinary protocols are being put together for the practical methods of obtaining faecal samples in the field.
- To observe the birds in their natural habitat and record any observations about behaviours, diets, nesting areas and any problems Toucans face.
- The observations will then be analysed by John Ellis who is the European Studbook Holder at the Zoological Society of London and Laura Gardner (who used to be the UK studbook holder of Toco Toucans until the studbooks merged). This will be used directly to improve the standards of captive husbandry and diets of Toucans in European Zoos.
- Faecal samples will be analysed by the International Zoo Veterinary group.
A more appropriate captive diet or suitable probiotic specifically designed to deter overwhelming growth of gram-negative bacteria in captive birds may be drawn up from these observations.
- To compare behaviours and traits between captive and wild Tocos.

The Grant

The WCMT awarded me a sum of £4,000 for my travel grant with an additional £600 which reflected higher than anticipated costs of air travel plus an extra week due to the Christmas and New Year holidays.

The total amount allocated was very well calculated and covered everything budgeted for and also covered costs of replacing supplies after they failed to turn up with my luggage.

Suggestions for future Fellows.

1. Always check the advice given by WCMT relating to WHO medical requirements.
2. Check availability of exchanging traveller's cheques or what credit or debit cards are accepted in the places visited. Access to a bank may not always be possible and they may not always accept all common cards in the UK.
3. Be aware of pick pockets and scams in South America, read up on the places you are visiting and make appropriate precautions.
4. Always try and learn the language even a few words in a local dialect or language breaks down many barriers (even if it is to laugh at your pronunciation!)
5. Be open minded and try as many things that you may not do in the UK as possible. I was being taught Argentinean folk dancing New Years Eve something I would have never dreamt of attempting in the UK and had one of the funniest nights of my life.
6. Be prepared read up on every where you are going well in advance.
7. Enjoy every minute of your research for your project but do allow time to enjoy and look around the places you are stopping at.
8. Research your project thoroughly and allow plenty of time and always have a contingency plan for any eventuality (lost luggage, no communication etc)

Plans for dissemination

Completed

Media interest

- Sorocoba newspapers ran a story on me and a local TV crew did an interview.
- Local UK radio interview
- Local newspapers ran stories
- National specialist magazines/ newspapers ran articles.
- Web site won an award from “Animal Corner”

Presentations

- Leeds Castle Staff
- Association of British Wild Animal Keepers symposium in March 2007.
- Leeds Castle Bird Adopters
- Caged Bird Society
- Local Women’s Institute and Gardening club

Future

- Article to be published in specialist Zoo Keeper Magazine.
- Presentation for South East WCMT branch
- Presentation for Zoological Society of London
- Article to be written for Veterinary Scientific journal
- Results to be sent to South America and Central America zoos
- Analysis work to be collated and go towards improving husbandry and diets of Toucans hopefully in a UK husbandry and management guidelines.
- To give a presentation at the next International Zoo Keepers Conference in Toronto Canada.
- To return to Sorocoba Sao Paulo to give a presentation at a symposium being held at the zoo.

WCMT Travel Fellowship to South America 2006/7

Original Itinerary

<u>Date</u>	<u>Destination</u>	<u>Address / contact</u>
28.11.2006	London (Heathrow) – Sao Paulo (Guarulhos)	
29.11.2006	Sao Paulo (Congonhas) – Foz do Iguaçu (Brazil). Overnight stay	Paudimar pousanda campestre info@paudimar.com.br
30.11.2006	Transfer from Puerto Iguaçu to Yacutinga reserve	Yacutinga reserve bio@yacutinga.net
15.12.2006	Puerto Iguaçu (Argentina) – Buenos Aires (Aeroparque)	Hotel Waldorf Buenos Aires
16.12.2006	Buenos Aires(Aeroparque) – San Salvador de Jujuy then transfer to Las Lancitas park	portaldepiedra@yahoo.co
03.01.2007	Jujuy – Buenos Aires(Aeroparque) then transfer to Ezeiza international Buenos Aires	
04.01.2007	Sao Paulo - Minerios Cuiata line	
05.01.2007	Stay in Minerios	
16.01.2007	Minerios – Sao Paulo	
17.01.2007	Visit Sao Paulo University and Zoo	
18.01.2007	Sao Paulo (Guarulhos) – London (Heathrow)	

Revised itinerary 2007

04.01.2007	Sao Paulo autobus terminal – Sorocaba zoo	
04.01.2007	Arrive at Sorocaba zoo and stay in premises on site.	
17.01.2007	Travel Back to Sao Paulo to visit Veterinary University	
17.01.2007	Overnight stay at Sao Paulo	Travelodge international
18.01.2007	Autobus to Sao Paulo (Guarulhos)	
18.01.2007	Sao Paulo (Guarulhos) – London (Heathrow)	

Unfortunately due to technical difficulties that Conservation International was having in Brazil I was unable to go there. Emails weren't being received and 2 weeks before going despite various people trying to get in touch there had still been no confirmation that everything was in place for my arrival. 2 weeks into the trip I had the opportunity to go to Sorocaba zoo and exchange ideas and knowledge with the staff and vet team there. After a month of not hearing from the people I was going to work with the itinerary changed whilst I was out in South America.

Proposals for 2007 – 2009

- A questionnaire to be drafted and sent to every zoo within the UK that has historically or currently has Toco Toucans within their collection to compare husbandry and diets. (Drafted and sent 20 replies so far)
- To make contact with more organisations that may be able to help track Wild Toco Toucans within a natural and wild environment.
- To research the nutritional values of the fruits and berries identified in both locations.
- To go back to Jujuy in the winter and compare and observe behaviours out of the breeding season.
- To make contacts in Guyana and visit areas where Toucans are being trapped.
- To heighten awareness about loss of habitat and natural areas that the Toucans usually reside in.
- To continue sharing knowledge with Zoos globally about Toucan husbandry and diets.

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- The Grant
- Suggestions for future Fellows
- Plans for Dissemination

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- Map of route.
- Report The Preliminary studies of Wild Toco Toucans (*Ramphastos toco*) a Keepers experience in the field.
- Small selection of photos from the trip
- Proposals
- Acknowledgements



Photos from the trip



Chasing Toucans San Salvador de Jujuy branch.



Zoo Keeping at Sorocaba Zoo



I can see Brazil from here.



After a 4 hour trip upto 1500ft in tropical storms



Over here!



Typical Argentina



Views at 1500ft



Working with the weird and wonderful



And the very cute(3 day old Puma cub)



