

Sex and the single bat (Certificate X)



As autumn arrives a boy bat's thought turn to sex.

How is he going to get a mate?

The answers are diverse, surprising and frankly often less than gentlemanly.

Readers of a nervous disposition may want to avoid reading the following article as it contains explicit content

Bats are unusual mammals in that they produce a single young. This makes perfect sense as mum is left alone to provide for them and may need to transfer it from one roost to another.

It would therefore make sense to try to ensure that the father at least provides her with the best possible genes.

Males on the other hand simply want to impregnate as many females as possible and if charm fails, they have other tactics

John Altringham recognises two major strategies. If the females are confined to a relatively small area and their colony structure is more or less stable then it makes sense to go there and defend them against other males. This is the tactic used by the long eared bat, which moves into the females' roost as the young are weaned. The larger the roost the more males move in and buddies will defend the roost against other males. A bit like a football away team, they will share females. Males are also found in Natterer's and Daubenton's roosts

But what if you have a more transient female population? You aren't going to be able to confine the females in this way. It's even worse if they have larger territories. So like young men everywhere, you hang out *en masse* on the street corners and try to look cool.

Males set up temporary territories called leks and do all they can to convince a passing female that they are better than other males.

They do this in a number of ways. While young human males may wolf whistle, male bats use the more romantically named "song flights" but the net result is the same. The "songs" are specialised social calls, three or four syllables chirps often emitted at a frequency so low that human ears can detect them (Pipistrelle songs are as low as 14Khz). This is not because bats fancy humans but because the lower the frequency the further the song will travel Common and soprano pipistrelles sing as they fly back and forth, but. They will chase after any female who shows an interest. Pip harems are usually between 3 and 10 strong. This is hard work and a male may lose 40% of his body weight in the process.

Nathusius's' pipistrelles sing from a stationary point, which they defend against other males for several weeks. Whether this involves less energy than flying back and forth like other pips is debatable.



Everyone knows about the reserve of the stereotypical *An African Hammer Headed Bat* © Mary Louise Crosby. Used with permission

British male, when compared with more hot-blooded foreigners and the same is true for British bats.

The African Hammer headed bat *Hypsignathus* holds the Guinness book of Records prize for the loudest song. Groups of up to 100 males gather to make a noise described as sounding like a pond of noisy frogs. A female flying past will trigger ever-louder shouting, made possible by an extreme anatomical adaptation. The males have large inflatable air sacs housed in their elongated hammer shaped heads and a huge larynx almost half the length of their backbone, which pushes their hearts and lungs to one side

But if shouting isn't for you then what else can you try? The human trend for looking gorgeous has its parallel in the bat world and again it's the foreign bats that have



hair on its head

the market cornered. The little collared fruit bat (*Myoncteris*) sports a beardlike tuft of hairs at its throat, whilst the African free tailed bat (*Tadarida spp*) goes for the Mohawk look and has a long tuft of

A male grey epauletted bat. © Mary-Louise Crosby. Used with permission

The male epauletted bat (*Eporphus spp*) is a flasher amongst bats. He has large white tufts on his shoulders which he flaunts at passing females. He combines this with the release of a pungent scent.

This after shave approach is used to excellent effect by the Mexican free tailed bat that releases a pungent mix of pheromones and urine that he sprays over the female flapping his wings to maximise its distribution

The male northern blossom bat has a livid scar that oozes oil for scent marking- see right- and a smug grin – see the front cover

Swarming



You know what it's like, you hang around your local

neighbourhood and none of the women go for you, so you head off to a nightclub or go speed dating. If you are out in the woods before crack of dawn, you may have

(c) Phil Richardson

witnessed the bat equivalent – swarming. Swarming involves the gathering of large numbers of bats, often of different species, but primarily *Myotis spp*, outside caves and roosts. 80% of the swarm is male so only a few are going to strike lucky – and individual bats may visit more than one swarming point in a night. Interestingly no social calls are made during this time

All the above involve the male making himself as attractive as possible, but for some bats this eye-



Noctule advertising his territory

candy approach is rejected. For them, beauty is more than skin deep. The Aristotle Onassis approach says, "I may not be handsome but just look at the size of my territory." Just as in the human world a chap with a bachelor pad can impress females.

Noctules stake out a territory and then advertise it by emitting a monotonous call to attract the females. Horseshoe bats have the same idea. Males have been recorded using the same caves for sixteen years and as many as eight females may visit an individual male during the breeding season.

The importance of foreplay.

A skilled human Casanova will invest time in getting his female into the mood and so it is in some bats.

The Australian grey headed flying fox is somewhat of an exhibitionist, mating in full daylight and as a result we know rather more about his sexual shenanigans, I am far too shy to describe their goings on in detail – but fortunately this is not the case on the Australian Broadcasting Company's website so to spare my blushes I have merely cut and pasted. Such is the relaxed attitude of this site that they have photos of the whole process. I have, of course, put the link on the web site

Upside-down Sex



"Making love bat-style is not an easy job, especially when you spend most of your life upside down. Both males and females have very sharp teeth, and females may not immediately respond to the overtures of an amorous mate.

"He begins by licking her genitals, which can go on for

several hours. When he thinks she wants to mate, he'll move up behind her. If she isn't in the mood, she'll turn around on the branch and face him, making it impossible for him to enter her.



"Flying fox penises are very long - up to one quarter the length of the body - which helps the male stay firmly inside the female, despite their precarious position. The female signals when she is ready by stepping off the branch

and grabbing hold of the male by his ankles. He holds on to her neck with his teeth and pins her wings to her sides. After all the preparation, copulation is pretty quick and when they are done, the female flies off to mate with many other males over the next few weeks.

<http://abc.net.au/science/scribblygum/flyingfox/default.htm>,

According to Neuweiller, the same tactic is used by some African flying foxes, but it would seem these males are less patient, for the literature states this stimulation merely "makes the female less unfriendly". Time is of the essence, not for him the languid tantric approach described above. On having his evil way with her the female "issues defensive sounds".

Does this deter him? - No.

Does this upset him - Yes?

If she continues to fend him off, the male will begin to shriek (in frustration she wondered anthropomorphically?) and his calls stimulate all the other males in the area to mate with the nearest female. This cacophony of protest can last for an hour. And how do you know when it is over? - because the male goes quiet and loses interest.

It has been suggested that this has evolutionary advantage in that it means that most of the females get pregnant at the same time, that's as may be, but it's not exactly the behaviour of a gentleman is it?

Not at all the sort of behaviour you would get from a British bat I hear you say? I regret that when it comes to caddishness we Brits can still win the day

The Dastardly Daubenton

For the male who is less than a gentleman, the question is "Why expend all this effort in trying to coax a female into co-operation? Daubenton's have been caught cutting straight to the chase, not for them the finer nuances of courtship.

Once again to save my blushes I quote - this time Grimberger, Hackethal & Urbanczyk They observed a male Daubenton searching for a mate in a mixed species hibernaculum site " In doing so he crawled between and over the sleeping animals, even across their nape fur and ears, forced its head under the animal he was examining at the moment and inspected the genital region; in short pauses between it licked its own genitals. In this way in a short time all the

animals in the cluster, regardless of species, had been disturbed from their winter sleep"...

Ignoring the protests of bats whose hibernation he has disturbed he moves relentlessly on until he finds a suitable female. But he is thwarted momentarily; the hibernating female has her tail membrane in the way. So what to do? "He kicks her with his hind legs, or bites her nape fur or ears until she stirs", then he has his evil way with her, while continuing to bite her ears and fur, ignoring the female who "scolds loudly with wide open mouth and raised head", before crawling off to find another victim. leaving an impregnated female to go back to sleep. "



And that gentle reader is where we will leave her, but come back in the next issue to find out what happens next.

This is the first of a series of 4 that will trace a bat from sperm to weaned adult. Next time, why if she has sex in September-December doesn't she get pregnant until the spring?