



INTRODUCTION

Yang Guang, Thank You, Ma'am

I would have loved this book to begin with me sweeping through a rainforest lagoon, binoculars in one hand, notepad in the other; waiting, watching, creeping toward unusual animals in the midst of sexual ecstasy. Or with me halfway up a baobab tree, watching cloacas collide between birds just metres away. Or swinging on a rope above the cliff-top clefts in which female Mallorcan midwife toads wrestled and writhed in an attempt to secure access to a perky male. But no, it doesn't begin there. Instead, this book begins with a visit to Edinburgh Zoo, and features me staring at a giant panda. Or, to be precise, staring at a giant panda's bottom.

This furry backside, in the corner of her enclosure in the zoo, belongs to Tian Tian, the zoo's female panda. I want to describe this bottom a little better, but as far as mammal rear ends go it's rather nondescript. No obvious sign of buttocks, no pink genitals hanging out, moderate hairiness, uniform colour. It looks like a tasteful faux-fur cushion. I had imagined that when I saw a live panda for the first time, literary fireworks would spark. That thoughts would scribble magically onto my notepad; that I would be energised with feeling, with passion, with the awe and wonder of this most exquisite of wildlife encounters. ONLY 3,000! 3,000 LEFT! THE BRINK OF EXTINCTION! THE DESPERATE FATE OF LIFE ON EARTH! Yet . . . why am I not weeping? I should be on my knees, praying for their salvation (or ours). But . . . nothing. Instead I draw a little illustration: a circle with some fur sprouting from it. That'll have to do. Underneath I scribble simply, 'panda's bottom'.

It's late 2012 and I'm paying homage to Tian Tian and Yang Guang. They are the zoo's recent acquisitions and, if all goes well, will soon be the mother and father to a new baby panda. In their first year together at the zoo it didn't really happen (I'm told by zoo staff that Yang Guang 'had trouble with her anatomy', so to speak, and that he 'missed the target'). Perhaps 2013 will be their year?

We're used to being told this, but giant pandas really are a species on the brink. Just those 3,000 or so of them remain on this Earth; a pretty rosy statistic for an animal that once roamed much of China. Victims of a loss of great swathes of their bamboo habitat, made worse by poaching and a (historical) desire for the public to see them in captivity, giant pandas deserve their reputation as a species teetering on the edge of extinction. I grant them that truth. So, I wanted to see them for myself. I've made the visit to Edinburgh, paid the entrance fee and here I stand. But there's more. For, you see, I have recently come to spend rather a great deal of time playing devil's advocate on their

behalf, protecting them from an increasingly hostile public reception. In recent weeks I've found myself writing a host of ripostes, each squared firmly at those people penning comment-pieces in red-tops and broadsheets about the pandas' evolutionary dyspraxia, or their special kind of inadequacy, or their apparent inability to perform that most natural of acts: sex.

What am I to do? Sit on my hands while the pandas take a pasting? I did that for a while, but, hell, when the *Guardian* gets in on the act, you know it's gone too far. Their recent editorial (titled 'Unthinkable? Stuff the pandas') pressed the right buttons to send me into a frenzy. All the buzzwords were there: 'evolutionary mishap' (DING), 'reluctance to procreate' (DING), 'metabolically ridiculous' (DING) and the classic accusation that 'funds are disproportionately siphoned away' from other species on the knife-edge of extinction (DING! DING! DING!).

Am I the only one in the world starting to feel a bit sorry for them? These fat black and white scroungers – forever taking, taking, taking – failing too often to have the common decency to breed like the rest of life on Earth? Is it really their fault? Do they deserve such stick? No, of course not. So, I have become something of a panda apologist. For are they really sexually maladapted? Do they deserve their reputation as frigid, wasteful prudes? The more I've come to think about it . . . well, no. I'm not sure they deserve it at all, actually. Surely pandas are as sexually qualified as the rest of us, coming as they do from a long line of ancestors who managed it successfully (all the way back to our common mammalian ancestor and, in fact, back to the start of eukaryotic life)? None of their ancestors ever failed. They're the same as you and me in that respect. Pandas aren't bad at sex, they have the same batting average as every other animal (pretty much) that you've ever seen. 100 per cent. Actually, I think they're quite good at sex, based on the majority of the public's opinion of what constitutes 'good' and 'bad'.

Let me explain. Surely the fact that the male panda's high sperm count (20 times more potent than that of some bears) tells us something about their sexual nous? And surely the female's tight reproductive window, and the fact that this strategy has managed to see pandas get laid without any problems for thousands of generations, gives a hint that, until we came along, all was OK. In essence, those panda bodies know what they're doing. We're the ones that bugged their lives up. Far from being confused, sexually lobotomised bedroom bumblers, pandas are likely to be anything but, in the wild and away from us, at least.

Most of what I know about pandas comes from Henry Nicholls's book *The Way of the Panda*. From its pages I know that the story of panda sex is one of humankind imposing knowledge of HOW SEX WORKS onto pandas, expecting them to procreate, watching them fail, then looking instead at what it is that gets pandas going in the wild, and using this knowledge to make them sex-up in zoos. All sounds rather obvious now, doesn't it? Well, yes. Yes it does (for as you will see in this book, we are arguably the most sexually clueless species of the lot). The most blindingly obvious of those early discoveries about pandas is that they can smell things that we can't. Sex smells, in other words. Those panda scientists in the 20th century completely ignored the existence of such a sense, yet it seems so obvious now. To get captive pandas interested in sex, you need to let them get a good whiff of one another as the countdown to the female's fertile period begins. Specifically, the scientists found that males and females in wild panda populations keep track of one another by such communication, calibrating their sex hormones in readiness for the final act. That's why they only need a tiny reproductive window – anything else is profligate. This knowledge, second nature to us now, changed everything. Today's panda-keepers depend on such information – the smells of sex. They scoop up panda-pee whenever they can and douse wooden blocks in the stuff,

liberally distributing the blocks between the separated female and male cages. That's what gets them going.

For captive panda breeding, this insight into smell and how wild pandas used it was invaluable. Unbelievably so. At one research station, where the scientists were armed with such knowledge, the captive population went from 25 pandas in 1996 to more than 70 a few years later. The lesson learned was this: if making panda babies is your trade, it pays to understand how pandas have sex in the wild, rather than sticking a few together in a pen and hoping for the best. Yet still, after all these discoveries and all this knowledge gleaned from the wild, the pandas drag around this reputation as sexually misguided nincompoops – 'evolutionary mishaps'. I find this more than a little confusing. What the hell is going on here?

I think I like pandas not for what they are, but for what they stand for – they're animals about which everyone has an opinion, but that few of us truly know. Not yet, anyway. And do you know what? I find them attractive for this reason. Yes, you can argue whether or not they're worth the millions and millions of pounds spent each year on their conservation (and I'd agree with you that it's worth discussing), but please, don't start mocking their sex lives. At least not until *you've* tried living a solitary existence in an enormous bamboo rainforest, and somehow managed to track down a mate and copulate with them on EXACTLY the right day to successfully create viable offspring. I encourage you to try it. Go out there now, Hunger Games-style. I guarantee you'll fail. And the pandas, if they could, will laugh at *you* for being so wholly useless at sex.

So let us turn now to this book. I'm rather curious about the whole 'sex life of animals' thing. Many scientists and science-writers have tackled it admirably, and done it far better than I could ever dream of doing. But, if I'm totally honest, I occasionally find myself getting a bit bored. Animal sex books can be a bit like pornography – all big breasts and

whopping great penises. It's easy to get numbed to it all after a few pages. Most accounts include tales of females eating males after coitus; of sneaky males and dominant bully boys; coy hens biding their time, waiting on the sidelines as the peacocks flaunt their wares; male 'rape' of females (we'll talk later about the use of that word); infanticide; cross-dressing sunfish; male seahorses giving birth; the phenomenally long penises of barnacles; the floppy enormity that is the blue whale's todger.

There is plenty of space given to the male lion in this sort of animal sex-piece, for he is a true animal sex star; mammalian link-bait – a biological 'click here'. He can apparently go for hours at a time, and he mates up to one hundred times a day. Documentaries say things like 'Top males must possess extraordinary virility, as lionesses may require hundreds of bouts of mating to get pregnant.' But hang on . . . wait a second . . . it takes him *that many* attempts to successfully inseminate her? Weren't we just giving pandas stick for being bad at sex? On that basis, lions are hopeless! Terrible! There are reasons, of course, for the lion's behaviour: as with the pandas, it often has to do with males and females locked in evolutionary combats, or locked in combat with others of their own kind.

But I digress. In essence, all I'm saying is this: animal sex stories can occasionally play out in odd and strange ways, sometimes bordering on the pornographic. We bring too much human baggage to popular news stories about animal sex, something I have come to detest. And I've always been a bit confused about who's writing the script on stories like these. News editors? Publishers? Broadcasters? Men? Or is it just human nature to wonder about such academic questions as 'whose is biggest'? Is it human to wonder about which animal can go the longest, or which produces the most ejaculate? Is it human to want to know which female animal bites off a male's penis after sex? Are the popular animal sex stories that are commissioned just a thin veneer through

which we see our own insecurities or desires, each played out in the lives of the animals we see on our TV screens? Is this all just social commentary? Perhaps. Honestly, I really don't know. But I think about it every time a female panda is slammed for needing a sperm donor or for being 'hapless' or for showing 'reluctance to procreate'. After all, pandas are just animals – interesting beyond words; mysterious residents of a planet that has brimmed with sex, without any conscious observation, for perhaps a billion years. Sex is bigger than us. And it's bigger than pandas. And lions. And barnacles.

That visit to Edinburgh got me thinking, and writing, and I wrote a piece about those pandas that got me talking with a friendly chap at Bloomsbury, the publishers. In a busy Chinese restaurant I whispered expletives across the table at him, like an international secret agent giving up military secrets. 'Am I the only one to want to know a little about the biggest *vagina* in the world?' I hissed, noodles dangling from my chin. 'Am I the only one who wonders how the Earth's movement around the sun affects how *horny* the frogs in my pond might be?' I leant in closer. 'Why do we HAVE *sex*?' I say the s-word quietly and through my teeth so no one can hear. 'Why do STICKLEBACKS have it? Why do some animals, like wasps, have *sex* and then largely DIE, and yet other animals carry on ready for more *sex* the year after? Why does a peacock's train scream 'SEX!' to us, but not the contents of a panda's pee? What's going on?'

These are the sort of questions that can seem either ridiculous, or bold and brave. I suspect that Bloomsbury thought them ridiculous, for ridiculousness also has value, if only as a yardstick against which true sense and rationality can be judged. So they went with it and I was to devote the next year of my life to sex: animal sex. I got the commission. I walked out onto the street. 'Where do I go from here?' I thought. I did a lot of thinking. I tried to approach sex with a clear mind, forgetting all that I'd learned. I started on the animals with whom we spend most of our time, the ones

that are all over the place. I began investigating these, the sex lives of the everyday. The hedgehogs, the frogs, the dogs, the ducks, horses, rotifers, garden spiders. And among them I found magic. I searched further and found the fireflies, the slugs, the slug mites and the salamanders – each of which is long overdue in having its sex story told. Every one of them is a majestic sexual being, each capable of stopping us still and getting us to shut the hell up about barnacles and lions and focus our full attention their way. They show us how life on Earth truly is.

Sex got interesting again. Natural selection likes to solve a problem (as well as creating new ones), and how all animals find and have sex is one worthy of our full attention, not just a titillating nod and a wink. This book covers the others, then; the also-rans, like me, who like their sex wild, passionate, hard and fast but also, well, a bit *normal* too. For there's beauty in that sort of everyday sex. As I worked through the literature and spoke to scientists it underlined to me that, actually, the story of sex on Earth plays out not in the headlines, but in the day-to-day, the year-to-year and across and throughout the fossil record, not just with adaptive endowments and brash penis-shaped pub banter.

At this point you might have a burning question. 'But who cares?' you might cry. 'Isn't it all just sex?' Well, yes. Quite. But I suspect that knowing and understanding the generalities of animal sex lives might have some value, particularly if we are looking for a solution to how we might go about saving their greatness for our children and grandchildren. This is something I touch on later in the book: that knowledge about sex is a conservation necessity. Pandas exemplify that brilliantly (as do fen raft spiders, for that matter). For this is a great time to be alive, and it's our job to try and keep it that way. Sex allows this greatness to continue, in almost everything (except those pesky rotifers in Chapter 7). For every burly elephant seal guarding a harem, there is a hermaphroditic slug swarming over a dog

turd, or a nearly extinct spider being encouraged to have sex in someone's kitchen. That's where the story is at. A panda sniffs a piece of wood; a toad safely crosses a road to find its ancestral breeding pond; a dolphin gently gooses its buddy; dogs hump. Sexual successes each and every one, each worthy of admiration, respect, greatness and further study. Each worthy of inclusion in this book.

I felt great joy while writing this book. There were moments between animals that, being a human, I would label as close to deep happiness, closeness and warmth. Against a popular backdrop of rampaging purple-headed monsters and 'o-faces' close to the demonic, there was care, tenderness and, dare I say it . . . love? (a subject that is, of course, covered in the final chapter). Whatever the story, reflected throughout its pages are those pandas, sitting there, misunderstood and ne'er celebrated for the sheer magnificence of their potential or their evolutionary history . . . if only we listened, observed and, if only now and then, metaphorically dashed our faces with their pee to remind us about the sexual perspectives of animals other than ourselves.

This is a story about Sex on Earth, and it is dedicated to Tian Tian and Yang Guang. Their pee smells wonderful . . . if you only stop and take a second to think like a panda.