

## Mobile phones and the birds and the bees

Ken Banks, IDG News

*“An article recently published in the popular press has suggested that there may be a link between the increase in numbers of mobile phone masts and the reduction in local sparrow populations. The number of sparrows in Britain has effectively halved from 24 million approximately thirty years ago to a present day figure of 14 million, a decrease of almost 50%”.*

***(Ken Banks, report to the Vodafone Group Foundation, December 2002)***

Exactly six years ago, a research paper on lowly house sparrows launched my mobile career. Back then, rumours were circulating that the proliferation of mobile phone masts were wiping out Britain's sparrow population, and Vodafone wanted to know more. It was an interesting if not odd piece of research to do, but one far less technically challenging than a lot of the work which was to follow. It also loosely fitted in with my conservation and technology background, a theme which I've managed to continue to this day.

Although I concluded that there was no clear link, that was far from the end of it. More recently, in fact, mobile phones have been blamed for the monumental decline in many bee populations. Firstly birds, and now bees. What next?

Links between mobile phone use and human health have long been a point of study and contention, as have the many theories surrounding the mysterious and sudden decline of some bird and bee populations. Speculation about mobile phone masts affecting birds is nothing new, but blaming them on the decline of bee populations is a little more recent and, because of the importance of bee pollination in many ecosystems, it's potentially more worrying (unless you're a sparrow, of course).

Both arguments hinge on the effect of electromagnetic fields on the ability of birds and bees to navigate, and there is evidence to suggest there might just be some truth in it. A racing pigeon fancier reportedly lost two-thirds of his birds when a mast was built next to his farm, and entire bee colonies have been known to literally abandon their hives in an event known as CCD (Colony Collapse Disorder). In the US, between 50% and 90% of bee colonies have been affected by CCD in the last four years, so much so that bee-laden hives are now literally driven around the state of California in an attempt to keep the economically-vital fruit growing industry going.

Pollination is more than just economically and environmentally important, however. Estimates suggest that one-third of the human diet can be traced directly, or indirectly, to bee pollination. If our obsession with wireless technologies continues, we could very soon find ourselves in trouble. In an experiment carried out on eight bee colonies at Landau University in Germany, three exposed to mobile phone radiation eventually broke down. One hive saw no bees returning at all, and only six

returned to another. Looking at these figures it might come as no surprise to hear that research going back decades has regularly highlighted the phenomenal sensitivity of honeybees to electromagnetic fields.

Could the same apply to some birds? A number of scientists are trying to figure this out, and there's a growing body of research looking into the effect of electromagnetic fields on bird reproduction. A few years ago Denis Henshaw, Professor of Physics at Bristol University, carried out tests where the egg-laying ability of chickens was effected by electromagnetic waves. Of course this doesn't shed much light on why some native bird species are effected more than others, and it doesn't explain the considerable decline in house sparrow populations before 1994, the year which witnessed the beginnings of today's mobile phone boom. According to critics, mobile phone masts have simply joined unleaded petrol, cats, grey squirrels, loft installation and changing farming and building practices on the list of likely – or unlikely – suspects. Even the British Trust for Ornithology aren't one hundred percent convinced, pointing to that fact that other native birds such as blue tit, great tit, robins and blackbirds all live and breed in the same habitat as sparrows yet show no sign of rapid decline.

As with studies on the effect of radio waves on human health, it is unlikely there will be consensus on their wider risk to the environment any time soon. But if you're in any doubt about how 'busy' it is up there, one look at the wireless spectrum is enough to give you a headache. The airwaves – extremely valuable real estate in today's wireless, digital world – are literally packed with chatter and noise, much of which is passing silently through our bodies every minute of every day. Even though you and me may not notice it, there's every chance that the birds and the bees do.

*Ken Banks, founder of [kiwanja.net](http://www.kiwanja.net), devotes himself to the application of mobile technology for positive social and environmental change in the developing world, and has spent the last 15 years working on projects in Africa. Recently, his research resulted in the development of FrontlineSMS, a field communication system designed to empower grassroots non-profit organisations. Ken graduated from Sussex University with honours in Social Anthropology with Development Studies and currently divides his time between Cambridge (UK) and Stanford University in California on a MacArthur Foundation-funded Fellowship. Ken was awarded a Reuters Digital Vision Fellowship in 2006, and named a Pop!Tech Social Innovation Fellow in 2008. Further details of Ken's wider work are available on his website at [www.kiwanja.net](http://www.kiwanja.net)*