

# Forensic pathology: Tracing the origin of the Usutu Virus

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It is generally a mystery how new diseases arise and how the pathogens that cause them first enter countries. However, clues may come from examination of specimens from similar outbreaks. Scientists at the University of Veterinary Medicine, Vienna have recently traced the origin of the virus that caused a sudden decrease in the number of blackbirds in Vienna in 2001. The results are published in the current issue of the journal *Emerging Infectious Diseases*.

The effects were dramatic: throughout Vienna it was impossible not to notice that the blackbirds were disappearing. Their melodious song no longer rang around the courtyards of the inner city nor woke tired partygoers in the outlying districts. The [birds](#) were simply no longer there. Thankfully, they gradually reappeared and a few years later their population had returned to its original levels. But the sudden crash in numbers was alarming and scientists rushed to find the cause.

It soon became apparent that the birds had died as a result of a new kind of viral infection. The culprit turned out to be the Usutu [virus](#), which had previously been identified only in Africa and had only seldom been associated with mortality in animals or birds. It was widely assumed that the virus had crossed from Africa to central Europe with the help of [migratory birds](#) – the Barn swallow was generally fingered as the most likely transmitter – and that such sudden outbreaks would appear more frequently as the result of [climate change](#). But these conclusions have been called into question by the latest findings from a team at the University of Veterinary Medicine, Vienna (Vetmeduni Vienna).

Although not widely reported at the time, a large number of birds, especially blackbirds, died in Tuscany, Italy in 1996, five years before the outbreak of Usutu virus in Vienna's [blackbirds](#). The causative agent was not identified but Giacomo Rossi of the University of Camerino had stored tissue samples from the dead birds. Herbert Weissenböck, Norbert Nowotny and colleagues in the Institute of Pathology and the Institute of Virology at the Vetmeduni Vienna recently became aware of the samples' existence and were naturally keen to investigate them. Surprisingly, the researchers found that the Italian samples contained exactly the same strain of Usutu virus that was responsible for the Viennese cases. As in Vienna, the birds were almost wiped out by the virus but resistance soon developed and the population returned to normal levels.

As Weissenböck says, "We still do not fully understand how the virus reached Austria but we have at least uncovered one piece in the jigsaw. Rather than coming directly from Africa to Vienna, the Usutu virus seems to have been present in Italy for some time." The powerful techniques of forensic pathology may be helpful in unravelling the origins of other emerging diseases: for example, we still do not know how the bluetongue virus reached northern Germany or the West Nile virus arrived in central Europe.

**More information:** The paper Usutu virus, Italy, 1996 by Herbert Weissenböck, Tamás Bakonyi, Giacomo Rossi, Paolo Mani and Norbert Nowotny has just been published in the journal *Emerging Infectious Diseases* (Vol. 19(2), February 2013: 274-277).

Provided by University of Veterinary Medicine -- Vienna

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