

# Potentially More Lethal Variant Hits Migratory Birds in China

When China reported in mid-May that the H5N1 avian influenza virus had caused the deaths of 1000 or more migratory birds at a breeding ground in western China, ornithologists worldwide were alarmed. "It is the biggest and most extensively mortal avian influenza event ever seen in wild birds," says David Melville, an ornithologist in New Zealand. Now, in a paper published online by *Science* this week ([www.sciencemag.org/cgi/content/abstract/1115273](http://www.sciencemag.org/cgi/content/abstract/1115273)), Jinhua Liu of the College of Veterinary Medicine in Beijing and colleagues there and at five other Chinese institutions report that the outbreak at Lake Qinghai in western China appears to have been caused by a new H5N1 variant that may be more lethal to wild birds, as well as to experimentally infected mice. Similar findings, from different groups, were published online this week by *Nature*. The results suggest that the virus is evolving and raise the possibility that surviving birds could spread it over an even wider geographic area, endangering more poultry and increasing the chances of further genetic changes that could spark a deadly human pandemic.

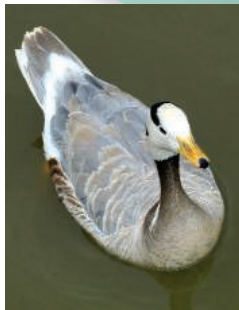
Liu and colleagues fully sequenced four isolates recovered from various bird species and found them all to be very similar but distinct from any H5N1 sequences posted in GenBank. George Gao, a virologist at the Chinese Academy of Sciences' Institute of Microbiology and the corresponding author, says the evidence suggests that the genetic changes account for the increased mortality, although more data are needed to be certain.

The researchers also tested the pathogenicity of the virus by using it to infect mice, which succumbed more quickly than mice infected with other H5N1 strains. "This shows that [the virus] is also more pathological for mammals," says Ilaria Capua, a virologist at the Istituto Zooprofilattico Sperimentale delle Venezie in Legnaro, Italy. This does not necessarily mean that humans will be more easily infected or that the virus can be passed from human to human, she says.

The outbreak raises other questions, including how the virus got to this sparsely populated corner of China. Since H5N1 appeared, researchers have debated whether migratory birds can spread it. Some aquatic birds are known to host strains of the virus

with no or minimal symptoms. But the United Nations' Food and Agriculture Organization says there is no evidence tying outbreaks in poultry to wild birds. Still, Capua suggests that migratory birds from different regions might have carried several less pathogenic H5N1 strains to the "melting pot" environment of the lake, where this new variant emerged. Melville counters that abundant evidence shows that human activity—transporting poultry, poultry products, and even contaminated crates—can spread avian flu viruses over seemingly improbable distances.

A more pressing question is where these migratory birds might carry the virus next. Melville says that bar-headed geese, one of the infected species, fly several thousand kilometers to wintering grounds in India, potentially dropping the virus along the way. For many other species that breed at Qinghai, the understanding of migration routes "is very rudimentary," he says.



**Breeding ground.** Flu experts worry that migratory birds infected with a new strain of the H5N1 virus, like the bar-headed goose (left), might carry it far from their breeding ground at Lake Qinghai.

But "dead ducks don't fly," he adds, quoting an essay on wild birds and flu by Hong Kong-based ornithologist Martin Williams—meaning that if this new strain kills all the birds it infects, it is not going to travel very far. A priority, says Melville, should be determining if surviving birds are carrying a weakened strain of the virus, or if some species or individual birds are carrying the same variant with minimal health effects. "These are the important questions," says Gao, whose team is gearing up to answer them by collecting additional samples from healthy birds over the next couple of months.

—DENNIS NORMILE

## Petition Presses E.U.

More than 12,000 scientists have signed a petition calling for increased research funding. This spring, the European Commission proposed doubling the European Union's research budget—to \$84 billion over 7 years—but disagreements over the entire E.U. budget have threatened to scuttle those plans (*Science*, 24 June, p. 1848).

Science is the first to go when budgets are tight, says Frank Gannon, president of the European Molecular Biology Organization, which helped draft the petition, which asks E.U. leaders for a "significant increase."

—GRETCHEN VOGEL

## Bunker Buster Fight Looms

The Senate and the House are at odds over a White House plan to study a new nuclear weapon for underground targets. Last week, the Senate approved \$4 million for a feasibility study of the Robust Nuclear Earth Penetrator (RNEP) as part of a \$31.2 billion spending bill for energy and water projects. "What is the harm in getting the study?" asked John Warner (R-VA) during floor debate.

In May, the House voted to strike RNEP funding for the project and put the program in the Pentagon, which does not do nuclear research. "It's our hope ... what happened last year will happen this year, and they'll go with the House version," said Joe Volk, executive secretary for the Friends Committee on National Legislation, a Quaker lobby in Washington, D.C., that opposes nuclear weapons.

—ELI KINTISCH

## European BRCA2 Patent Lives On

The European Patent Office has let stand a patent filed by the biotech firm Myriad Genetics in Salt Lake City, Utah, on the breast cancer gene *BRCA2*. Opponents of the patent—including a group of gene-testing clinics—had argued that Myriad's discovery was not innovative and that it discriminated against an ethnic group. Specifically, the European Society of Human Genetics (ESHG) in Vienna, Austria, objected to a legal claim that applies only to "Ashkenazi Jewish women" (*Science*, 24 June, p. 1851).

According to ESHG member Gert Matthijs of the Catholic University of Leuven, Belgium, European doctors will have to ask a woman if she is Ashkenazi before offering to test for *BRCA2*—and change procedures if she says she is. Myriad's opponents may appeal the latest ruling, issued on 29 June.

—ELIOT MARSHALL