FLIGHT PLAN

In Bangladesh this month, wild ducks like this ruddy shelduck are leaving waterways to summer in China, Mongolia, and Siberia. But before the ducks take flight, researchers organized by the Wildlife Trust and the Food and Agriculture Organization (FAO) of the United Nations are grabbing the ducks, swabbing their throats and rears to test for avian flu, and strapping satellite transmitters to their backs. The team will monitor the birds for a year, hoping to learn whether migrating birds spread the virus among countries with outbreaks, says molecular biologist and FAO team leader Mat Yamage.

Microbe Mascots

This month, Wisconsin became the first U.S. state to adopt an official microbe: *Lactococcus lactis*, the milk-curdling bacterium behind cheese. But researchers in other states are quick to suggest their own nominees.

For Hawaii, a state famous for species found nowhere else, microbiologist Stuart Donachie of the University of Hawaii, Manoa, suggests the ultrarare bacterium *Nesiotobacter exalbescens*, exclusive to a single lagoon on the uninhabited Laysan Atoll. Iowa might honor the nitrogen-fixing bacterium *Bradyrhizobium japonicum*, a soybean symbiont that "reduces nitrogen-fertilizer use yet allows the soybeans to grow tall and green and produce plenty of beans," says Joan Cunnick of Iowa State University in Ames.

Hog-farming North Carolina, on the other hand, "should impose the microbe non grata status" on food-poisoning bacterium *Salmonella typhimurium*, which colonizes livestock and contaminates meat, says José Bruno-Bárcena of North Carolina State University in Raleigh. Wendy Schluchter of the University of New Orleans, Lakefront, harbors similar feelings toward sulfur-spouting *Acidithiobacillus ferrooxidans,* "a not-so-nice bacterium" that arrived in Chinese-made drywall used to rebuild Gulf Coast homes after Hurricane Katrina.

But microbes can have a bright side: Florida's tasty shrimp and eye-catching flamingos owe their stunning pinks to the carotenoid pigments in an alga at the bottom of the food chain, says Kathryn Jones of Florida State University in Tallahassee. *Dunaliella salina*, she says, "not only feeds Florida wildlife but makes it colorful and exciting."

Bruised Evidence

Forensic experts are routinely asked to tell the age of bruises from photographs of abuse and assault victims. Their opinions can put criminals behind bars, but a new study suggests that their expertise is not entirely beyond a reasonable doubt.

Peter Vanezis and his team of forensic medical scientists at Queen Mary, University of London, asked volunteers to bruise one of their upper arms with a suction pump. The team photographed the marks daily until they faded completely, amassing 132 photographs of 25 bruises that ranged from fresh to almost 9 days old.

Experts use color to estimate a bruise's age; bruises turn yellow as stale blood degrades. But when Vanezis's team asked 16 forensic medical examiners to date the bruises in the photographs, they were off by an average of 53 hours, the team reports in the April issue of the *Journal of Forensic and Legal Medicine*.

A photograph's lighting or exposure could alter bruise tone, explaining the errors, suggests Lawrence Kobilinsky, a forensic scientist at the John Jay College of Criminal Justice in New York City. But he stands by forensic bruise analysis: "My feeling is that as long as the report and testimony are given as a broad range of dates and is done conservatively, the judge and jury may trust the results."

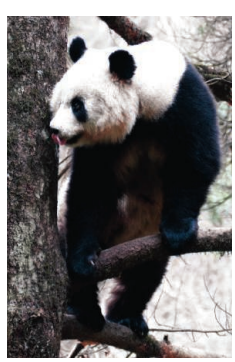
Hope for Wild Pandas

China's government is moving to boost the country's smallest and most isolated population of giant pandas, after scientists warned that the animals could soon disappear.

Giant pandas are highly endangered, particularly in the Xiaoxiangling Mountains on the Tibetan plateau's eastern edge. When researchers led by ecologist Wei Fuwen of the Chinese Academy of Science's Institute of Zoology in Beijing screened DNA from 142 droppings collected from the area, they traced the scat to just 32 individuals.

Genetic analysis showed that the pandas' numbers had plummeted about 250 years ago, a time when Qing dynasty policies were encouraging farmers to settle the mountains. The booming human population's need for land and firewood whittled away the pandas' forest habitat by about 90% to two patches, split by a national highway, totaling 800 square km.

Unlike larger panda populations in other protected habitats, the Xiaoxiangling pandas don't have the numbers or the genetic diversity to survive long term without new blood, Wei's team argues in a paper published online this month in *Conservation Biology*. In response to preliminary results, the government moved one female panda to the area's Liziping reserve in April 2009.



"It's urgent to pay special attention to these kinds of isolated, small populations," says Wang Hao, a conservation biologist at Peking University, who was not involved in the work. But connecting and expanding the patches is also crucial, he says. Only then will "the increasing panda population have living space."

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