



QUICK TAKES

BY PAUL J. BAICICH

Vultures in Europe Suffer from Lead Effects

We may be familiar with the secondary deadly impact of heavy metals—often from lead shot and bullets—on birds. The effect on waterfowl, which often consume spent shot, and bald eagles, that consume carrion with fragments of lead bullets, is well known. Over the past few years, the effects on California condors, also consuming carrion, has been broadcast through the news.

Now, we have interesting data from Europe, the Iberian Peninsula to be specific. Griffon vultures in Spain and Portugal are apparently also suffering from the effects of heavy metals, including lead. That is the conclusion of a recent study by a group of Spanish and Portuguese researchers led by Manuela Carneiro, a graduate student at the University of Trás-os-Montes e Alto Douro Province in Portugal.

Griffon vultures are scavengers, mostly relying on human activities for food. In modern Spain and Portugal, most of the carcasses they feast on come through livestock management or hunting practices. Today it's getting tougher: EU livestock disposal is restricted to curb the

spread of “mad-cow disease,” and vultures are forced to seek food elsewhere, often at unhealthy garbage dumps. At the same time vultures will ingest lead from bullet fragments embedded in the meat they consume.

Blood samples of 121 griffon vultures were assessed for mercury, cadmium, and lead, comparing concentrations in wild birds and those living in avian rehabilitation centers. (The rehab birds were either injured or suffering from some form of malnutrition.) On the surface, the wild birds appeared externally healthy in comparison to the rehab vultures, but the tests indicated otherwise. The wild vultures actually had more lead in their blood than those admitted to wildlife rehabilitation centers. Although the majority of the birds were free of cadmium (98.3 percent) and mercury (95 percent), every wild vulture had at least some lead in its blood, ranging from 4.97 to 300.23 micrograms per deciliter.

Carneiro and her colleagues call for evaluating the effects of sub-lethal but still toxic lead accumulation in vultures, for the prohibition of lead-based ammunition in big-game hunting

(with incentive-based program to encourage a switch to non-lead ammo), and new regulations to allow parts of dead animals to be left in natural areas—feeding stations—where they can be eaten by griffon vultures. The final suggestion might also reduce dump scavenging and the rate at which juvenile vultures become malnourished.

The researchers also stress: If vultures are being poisoned by lead, they are surely not the only ones, and their decline could represent broader problems within their ecosystems.

Tricolored Blackbird Woes

In the September/October 2013 “Quick Takes,” readers learned about efforts to help the troubled tricolored blackbirds in California and the efforts, especially among dairy farmers, to keep nesting areas safe. These efforts continue, and, with almost 40 percent of the bird's population and the largest colonies found on farms, private stewardship is crucial. Other cooperators, such as the Santa Lucia Conservancy, with its 18,000 acres dedicated to conservation in Carmel, California, are becoming increasingly important.

This California near-endemic species has exhibited more than an 80 percent decline in the past 70 years, and, although con-

A tricolored blackbird wears a transmitter at Santa Lucia preserve.



centrating on nesting areas is vital, it is probably insufficient. Recently, ongoing banding results have shown connectivity between the Central Valley population of tricolored blackbirds and the smaller coastal population, especially important when considering non-nesting seasonal conservation. Moreover, the species has shown to be especially sensitive to the continuing drought in California.

Although the trend toward recent cooperative management has been encouraging, it may not be enough to pull the species out of its steep nose-dive. Right now, the off-again/on-again “emergency listing” for the tricolored blackbird under the California Endangered Species Act isn't clarifying a path to any long-term solution. The species' emergency status expired in June, but the Center for Biological Diversity petitioned on August 19 for relisting. Larger sustained efforts, with more conservation

SANTA LUCIA CONSERVANCY

funding and landowner education, will probably be necessary.

German Military Bases Transformed into Nature Reserves

The German Federal Agency for Nature Conservation recently announced that it will transform 62 military bases into nature reserves. This will set aside 76,600 acres of forests, marshes, meadows, and moors for wildlife, and it will increase Germany's total area of protected habitats by a quarter.

The bases and military training areas, once at the center of the Cold War, are in historic West Germany, west of the former Iron Curtain. The German government opted against selling the disused bases to investors in favor of creating these green oases. In some cases, the old bases have been considered prime real estate in the relatively populous former West Germany.

"We are seizing an historic opportunity with this conversion—many areas that were once no-go zones are no longer needed for military purposes," remarked Germany's Environment Minister, Barbara Hendricks, when the announcement was made. "We are fortunate that we can now give these places back to nature."

In recent years, some areas along the border between the former states of East and West Germany, ecologically rich zones but relatively undeveloped, have

been made into nature reserves. From this, the European Green Belt, which stretches more than 7,760 miles from Norway to Turkey, was formed. In contrast, the 62 deactivated bases are all in the former West Germany.

Many of these 62 sites are planned to be open to the public and are expected to provide crucial habitats for threatened birds (including eagles and woodpeckers) and also other wildlife, from beetles to bats.

Curiously, in the United States, we have seen parallel developments over many decades, with decommissioned military bases, for example, being turned into National Wildlife Refuges.

Eco-friendly Oil-spill Controls

We can all recall the Gulf of Mexico Deepwater Horizon blow-out in 2010, and the Santa Barbara oil spill earlier this year was a sobering reminder of the continuing problem of such events—real threats to marine birds and the ocean environment.

Whenever light crude oil spills on water, it can form a thin layer that is difficult to clean by regular means. Often a special "chemical herder" is sprayed on the water to cause the slick to retract and make it available for collection or burning. But this exchanges one form of marine pollution for another, since the silicone-based "herder" remains in the water for

at least several years, with the full effects on ocean life, including birds, unknown.

Enter a team of scientists from the City College of New York and Tulane University to seek an effective "green herder." Last summer, in *Science Advances*, such a discovery was announced, based on phytol, a naturally occurring small molecule that is a component of chlorophyll. Phytol is commonly found in the layer of water just below the sea surface, is harmless to marine life, and is cheap and easy to produce. What's best is that in preliminary studies it has been shown to break down within a month.

"Our goal was to develop an

eco-friendly herding molecule as an alternative to the current silicone-based polymers," said George John, lead chemist from CCNY.

Phytol-based herders may not be a universal remedy for oil spills, but in certain circumstances they could become the go-to mitigation strategy, John said. "It's a new tool in the toolbox."

Further investigation is warranted, and some limitations exist (e.g., the process seems to work better in warmer waters, reducing its potential effectiveness in the Arctic). Nevertheless, marine-safe and bird-safe phytol-based herders could move oil-spill cleanup in a more sustainable direction. 🐦

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