

**Pocket Your Pennies: Heavy Metal Toxicity in Birds** by Jill Yoshizawa, Veterinary Extern,  
The Phoenix Zoo

As canaries were used to monitor carbon monoxide levels for miners in the 1800s, birds have often been used as sentinel species for environmental health concerns due to their uniquely high metabolic rate. In addition to air pollutants, birds are also highly susceptible to heavy metal poisoning from their environment. Zinc is the most common cause of heavy metal toxicity in domestic and pet birds, while lead toxicity is most common in wildlife.

The sources of zinc and lead in a bird's environment are numerous. Caretakers inadvertently introduce zinc to birds in captivity in the form of galvanized metal, which is a common anti-rust coating found on wire, hardware, locks, cages and even bird toys! Pennies minted after 1982 are essentially copper-coated zinc tablets, and are easily ingested from careless humans or coin-tossed wishes made in freestanding water. Lead can also be found in galvanized metal, batteries and lead paint, though it most commonly reaches avian wildlife through lead shotgun pellets and bullet fragments in abandoned carcasses ingested by carnivorous birds or fishing weights ingested by bottom-feeding waterfowl from bodies of water.

Common clinical signs seen in birds with zinc or lead toxicity include increased water consumption, greenish diarrhea, anorexia, weakness, depression and neurological abnormalities. The primary goal of treatment is to remove all traces of heavy metal through use of magnets, chelators (which bind metal in the bloodstream for elimination) or cathartics (laxatives).

In two recent zinc toxicity cases treated at The Phoenix Zoo, a curassow was found with the remains of two pennies in her stomach, while several chickens had ingested galvanized screws. The California Condor Project also constantly battles chronic lead poisoning of its re-introduced birds. There are multiple available alternatives to minimize the use of zinc and lead; conscious effort and careful observation of heavy metal sources will go a long way toward keeping them out of the avian environment and away from inquisitive digestive tracts.

Photo Caption: Radiograph of a chicken with galvanized screws in her gizzard. *Courtesy The Phoenix Zoo*

Photo Caption: Two pennies extracted from the ventriculus (muscular stomach) of a helmeted curassow (*Pauxi pauxi*). *Courtesy The Phoenix Zoo*