

# Greenlist Bulletin

From the Toxics Use Reduction Institute  
at the University of Massachusetts Lowell

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## Lead-ammo ban sought to protect wildlife

[Source: California Watch, March 15, 2012](#)

Author: Tina Ghose

A group of 100 environmental organizations has petitioned the Environmental Protection Agency to regulate lead in ammunition as a toxic substance.

The groups argue that more than 75 species, including the California condor and bald eagle, are harmed when they feed on the carcasses of animals killed by lead bullets and shot. Hunters who eat meat from animals killed with lead ammunition also face a risk of lead poisoning, they say, because tiny fragments of ammunition migrate from the original wound site into more distant tissue. Research has found that lead poisoning can cripple motor coordination and cause digestive problems, blindness and death.

"The EPA has taken steps to address toxic lead in almost every available product from gasoline to plumbing to toys," said Jeff Miller, a conservation advocate for the Center for Biological Diversity, which is leading the campaign. "The one source of lead that is still causing significant lead exposure is hunting ammunition and fishing tackle."

The groups filed the petition Tuesday. The EPA has 60 days to determine whether leaded ammunition poses a significant health or environmental risk and whether regulation is the "least burdensome" way to address it. If it agrees with the petition's conclusions, it will begin a rule-making process that will include public hearings and comments. Otherwise, the petitioners could sue to force the EPA to regulate lead in ammunition.

The Center for Biological Diversity filed a similar petition in 2010, but the agency said it didn't have the authority under the Toxic Substances Control Act [PDF] to regulate ammunition. The center filed a lawsuit, but the case was thrown out because the statute of limitations on challenging the EPA's

ruling had expired.

Gun-rights groups are fighting the petition and pushing Congress to approve the Sportsmen's Heritage Act, which passed the House Natural Resources Committee last month. Among other things, the bill would amend the Toxic Substances Control Act to explicitly bar the EPA from regulating the manufacture or sale of ammunition.

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### Research adds to mounting evidence against popular pavement sealcoat

[Source: University of New Hampshire. March 14, 2012](#)

A parking lot at the edge of the University of New Hampshire campus has contributed important research to an emerging concern for the environment and human health.

The research, detailed in a recent feature article in the journal *Environmental Science & Technology*, has found that one type of pavement sealcoat, common on driveways and parking lots throughout the nation, has significant health and ecosystem implications. Alison Watts, research assistant professor of civil engineering at UNH, is a co-author of the article "Coal-Tar-Based Pavement Sealcoat and PAHs: Implications for the Environment, Human Health, and Stormwater Management."

Sealcoat, a black surface applied over asphalt pavements that is marketed as improving appearance and enhancing pavement longevity, is made of either an asphalt emulsion or a refined coal-tar pitch emulsion. Although the two sealcoats are similar in appearance and cost, concentrations of PAHs (polycyclic aromatic hydrocarbons), a group of organic compounds known to be detrimental to human and ecosystem health, are about 1,000 times higher in coal-tar-based sealcoats than those based in asphalt.

Conducting side-by-side studies of coal-tar-based sealcoated and nonsealcoated parking lots at UNH's West Edge lot, Watts, a researcher with the UNH Stormwater Center, found that the soil at the edge of the sealcoated lot contained "orders of magnitude higher concentrations" - several hundred parts per million (ppm) from the sealcoated lot versus less than 10 ppm from the lot without sealcoating - of PAHs. What's more, soil samples taken three years after the initial application of sealcoat remained high in PAHs.

The problem may be even more pronounced in New England: PAHs move into the environment as the sealcoat wears off, a process that snowplows seem to accelerate. "We think it's likely that we have even a more severe problem here in the Northeast, because the sealcoat wears off more rapidly," Watts says.

The journal article discusses the potential human health effects of coal-tar-based sealcoat, which is associated with elevated concentrations of PAHs in house dust, soil, air, water, and sediment. It cites a recent study that found that children living in homes adjacent to pavement with coal-tar-based sealcoat were likely exposed to about 14-fold higher doses of PAHs than those living adjacent to unsealed pavement. Studies at the Columbia Center for Children's Health have found that PAHs in homes can contribute to delays in cognitive development, asthma and other respiratory symptoms, obesity and metabolic disorders, or changes at the molecular level that could increase children's cancer risk.

Unlike many complex environmental issues, however, this one has a relatively painless fix: avoid coal-tar-based sealcoats in favor of asphalt-based ones, or no sealcoat at all. "Consumers generally can't tell the difference," Watts says. And voluntary shifts in the market are making that choice easier, she says, noting that retailers Home Depot and Lowe's no longer sell coal-tar-based sealcoat, and several commercial sealcoaters use only asphalt-based sealcoat.

"The crux of this issue is that it's a fairly simple choice we can make that will be beneficial to the environment and to human health without significant impact to the users," Watts says.

Moving beyond the Stormwater Center's test parking lots, Watts will next study the effect of coal-tar-based sealcoats in raising the PAH concentration in the sediments of New Hampshire's Great

Bay. "PAHs are increasing in Great Bay sediments, and in fact in sediments across the country," she says. While there are other sources of PAHs in the Great Bay -- including old gas plants, car exhaust, and woodstove smoke -- she wonders if sealcoat may be the culprit.

### Gypsum board: are our walls leaching toxins?

[Source: GreenSpec Insights. March 14, 2012](#)

Author: Martin Solomon

Virtually ubiquitous in our buildings, gypsum board is widely seen as an innocuous building material. However, in the last decade, Chinese drywall has been linked with indoor air quality problems, while concerns have cropped up around waste from coal power plants and its links to drywall.

Domestic manufacturers are quick to point out that gypsum board manufactured in the U.S. has not been linked to indoor air quality problems, but potential leaching of heavy metals and biocides included for mold resistance are among the issues that need to be addressed more thoroughly by the gypsum board industry.

Synthetic gypsum is created from a byproduct of flue-gas desulfurization (FGD), a process coal-fired power plants use to limit emissions. Although the chemical process that captures FGD gypsum is different from the physical collection of fly ash and bottom ash, which is more likely to pick up heavy metals as a matter of course, mercury and other heavy metals are showing up in synthetic gypsum--and, as a result, in our buildings.

In 2010, the U.S. Environmental Protection Agency (EPA) released a study of total content and leaching values of heavy metals in synthetic gypsum, which found that these chemicals could have leaching values of up to 550 times the level for safe drinking water.

Total content, on the other hand, never exceeded a measurement of 100 ppm--a difficult feat considering that 100 ppm is the threshold for disclosure in the most rigorous green chemistry programs. Further, gypsum board commonly achieves indoor air quality certifications, such as Greenguard Children & Schools, suggesting that drywall is not a problem for indoor environmental concerns.

However, when drywall reaches landfills--and it does so in vast quantities, as it constitutes about 15% of all construction and demolition debris--it can leach these toxic chemicals into groundwater. And in the anaerobic conditions of landfills, bacteria convert gypsum into hydrogen sulfide, a poisonous gas.

Unfortunately, post-consumer gypsum board is commonly diverted from landfills to be used as a soil amendment in agricultural settings. If we have restrictions to prevent these toxic chemicals and heavy metals from being spewed into the air by power plants, is it really a good idea to add them straight into our soil?

As if heavy metal content weren't enough, biocides are commonly used in mold-resistant products because paper-faced gypsum can develop mold if not installed properly. When gypsum is used as a soil amendment, moisture in the soil causes these toxic chemicals to leach into the earth as well.

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**From fungi to foam: NY company grows its business making packing material from mushrooms**

[Source: The Washington Post. March 13, 2012](#)

Turns out that mushrooms - great in soups and salads - also make decent packaging material.

Mushrooms are a key ingredient in the pale, soft blocks produced by the thousands in an upstate New York plant that are used to cushion products ranging from Dell Inc. servers to furniture for Crate and Barrel.

More precisely, the packaging blocks are made with mycelium - the hidden "roots" of the mushroom that usually thread beneath dirt or wood. Two former mechanical engineering and design students, Eben Bayer and Gavin McIntyre, figured out how to grow those cottony filaments in a way that binds together seed husks or other agricultural byproducts into preset packaging shapes.

Their 5-year-old company, Ecovative Design, has a toe-hold in the increasingly lucrative market for eco-friendly alternatives to plastic foams - and their business is growing like shiitakes on a damp log. Bayer and McIntyre are already expanding their line for everything from footwear to car bumpers.

"We want to be the Dow or DuPont of this century," Bayer said.

If the aspiration sounds grandiose, consider that six years ago Bayer and McIntyre were Rensselaer Polytechnic Institute students growing fungus under their beds for a class project. Today, the young entrepreneurs are more than doubling their production space and recently announced a deal with Sealed Air Corp., the packaging giant known for Bubble Wrap.

Not bad for a product that grows itself.

Workers at Ecovative inoculate mycelium into pasteurized bits of seed husks or plant stalks, then place the mix into clear plastic molds shaped like the desired packaging pieces, such as a cradle-shaped mold for a wine bottle. The mix is covered for about five days as millions of mycelium strands grow around and through the feedstock, acting as a kind of glue. The piece is heat dried to kill the fungus, insuring that mushrooms can't sprout from it. Since the mycelium is cloned, the product does not include spores, which can trigger allergies. The packaging is edible, technically, though it does not appear appetizing and is not recommended as a snack.

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### How a gold mining boom is killing the children of Nigeria

[Source: Yale Environment 360, March 2012](#)

Author: Elizabeth Grossman

In early 2010, while working in the impoverished rural region of Zamfara in northwestern Nigeria, the group Médecins Sans Frontières - Doctors Without Borders - encountered many young children suffering from fevers, seizures, and convulsions. An unusually high number of very young children, many under age five, were dying, and there were many fresh graves.

The doctors initially suspected malaria, meningitis, or typhoid, all common in the region. But when the sick children didn't respond to anti-malarial drugs or other antibiotics, one of the physicians began to wonder if local mining activity might be implicated. Historically an agricultural area, Zamfara had been experiencing a small-scale gold rush, thanks to rapidly rising gold prices that encouraged the pursuit of even the most marginal sources of ore. Mining work was taking place in and around the villages and within many of the mud-walled compounds where families were using flour mills to pulverize lead-laden rocks to extract gold.

Médecins Sans Frontières (MSF) doctors sent children's blood samples for testing and the results revealed acute lead poisoning. Many of the children had blood lead levels dozens, even hundreds, of times higher than international safety standards. Within a week, an emergency medical and environmental remediation team arrived and began to grapple with an epidemic of childhood lead poisoning that is being called unprecedented in modern times. In the past two years, more than 400 children have died in Zamfara, more than 2,000 have been treated with chelation therapy, and thousands more have been - and continue to be - severely poisoned by exposure to pervasive lead dust.

"We're losing a whole generation of kids," said Human Rights Watch researcher Jane Cohen, who was in Zamfara last December and whose group issued a report on the situation last month. The crisis continues despite the extraordinary work to date to treat the most severely affected children and to clean contaminated homes and village sites.

The lead poisoning crisis in Zamfara is unparalleled, but small-scale mining and other industrial activities - including lead-acid battery and electronics recycling - create lead contamination that afflicts children worldwide. Leaded gasoline and lead-paint have been phased out in most

countries in recent decades, greatly reducing the extent of childhood lead poisoning, but in many places extensive childhood lead exposure continues. These include mining and smelting operations in La Oroya, Peru, where thousands of children have been exposed to dangerous levels of lead; the lead-zinc mines in Kosovo, whose lead contamination has been called one of Europe's biggest environmental disasters; lead and zinc mining in Zambia; and smelting and mining waste in China that has exposed children to dangerous lead levels. A 2011 survey of worldwide childhood lead exposure found additional mine-related exposures occurring in Australia, Brazil, India, and Mexico.

The hazards of artisanal, or small-scale, mining and lead are well-known. But rarely have they coincided with such a disastrous outcome as in Zamfara. Artisanal gold mining - which is often unpermitted or illegal - typically involves manual labor, both in the mines and in extracting ore by breaking and grinding rock. Chemical extraction of gold ore using mercury also poses serious health hazards. Child labor is common in these mines, and very young children can be exposed to mining's dust and chemical hazards when they accompany parents to work sites. Mercury is typically the primary chemical hazard in artisanal gold mines, but in Zamfara, "the lead poisoning has blown the doors of any mercury poisoning that's occurring," said Ivan Gayton, who is head of mission for MSF Nigeria, speaking from Nigeria.

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