

ENVIRONMENTAL CONCERNS

**POLITICS, RELIGION, SEX AND MONEY
- ALL AGE OLD TOPICS OF
CONVERSATION THAT HAVE SPARKED
CONFLICTS FROM FAMILY FEUDS TO
WORLD WARS! IT SEEMS THAT SOME
PEOPLE JUST CAN'T ENJOY A GOOD CHAT
WITHOUT GETTING ALL WORKED-UP...**

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Today though, we're seeing new topics to debate and argue over – environmental issues for example. Hardly the stuff for most shooting folks to get really worked-up about, particularly as it's only in the last fifty years-or-so that we've been made aware that the 'environment' even exists. Before that, it seems that everyone simply lived their lives on a day-to-day basis, took what they needed, earned or were given, then left the planet. No big deal. Well, now it appears it is a big deal! And the biggest for the recreational shotgun shooting world is not the high cost of competition entry fees, it's the issue of lead shot and the non-shooting public's perception of how we leave it lying

around to mess things up for all other living creatures.

But there's no sense in wasting time feeling indignant or becoming angry about an ill-informed public. Instead, let's be proactive and ask questions like – *What can we do to ensure we're doing all we can to prevent any lead contamination of our environment?*

Well, quite a lot actually. How lead can enter any ecosystem is usually a complex process, and, trust me, writing about lead chemistry and solubility is guaranteed to have you nodding-off – unless of course the words oxidation/reduction, precipitation/dissolution, adsorption/desorption, complexation/chelation are usually on the tip of your tongue! They are, as I'm sure most of you remember from chemistry 101, the geochemical processes and factors controlling the fate and transport of lead. Do you need to know and

understand these to operate a shooting range? Well, not really – but you do have to appreciate that they exist, and, with regard to lead shot on the ground, they can seriously harm your land and the surrounding environment if ignored.

If I am creating an uncontrollable desire to learn more, you should make sure you're capable of reading to the very last riveting page of those wonderful best-sellers, "Lead Mobility at Shooting Ranges" produced by the National Shooting Sports Foundation, and "Best Management Practises for Lead Shot at Shooting Ranges" produced by the EPA. They're hardly 'unputdownable' stuff since they are just a bit too technical for most to absorb beyond the first few chapters, but they do provide an excellent, condensed source of reference material on these

chemical processes and lead shot management in general. Seriously, I think it is in everyone's best interests to at least pick-up copies of them – and if they prove too detailed to comprehend, call a professional who can translate the scientific gobbledygook for you.

There are a few factors you should consider on a regular basis. Under typical conditions the pH of the soil on your land is perhaps the most influential factor that determines whether lead can eventually contaminate your property – so take some time to learn about the local soil conditions in your shot fall areas. Check the pH of your soil and keep it as close to 7.0 (neutral) as possible. Don't just find out what's on the surface. Learn the soil horizons (layers) and how stable they are, since their composition will influence the pH and can affect how water either flows over or into

your ground, or whether it's likely to puddle for any length of time.

Since water is typically the primary source for transporting lead into the surrounding environment, simply avoid it or control it where possible. Don't shoot onto wetlands – or any body of water – and try to avoid areas where slopes increase the rate of stormwater runoff. If you can't, then consider lowering the slope to reduce the flow rate of surface water, or grow various grasses and shrubs to reduce the flow rate.

We all know that water runs down, but it can run up too. High water table fluctuations, combined with certain soil horizons, can seriously affect percolation of lead particles into the soil, or can deposit mineral salts on the surface that can chemically alter the lead shot and allow it to leach into the soil.

Educate yourself on the various plants growing in your shot fall areas. Some plants have the ability to bio-accumulate lead into their tissues – which can be very beneficial if lead is a potential problem in your chosen area. However, if you're not careful the plant material will eventually pose its own problem by having to be disposed of as toxic waste. I know, damned if you do and damned if you don't...

Other than giving-up and not shooting at all however, the safest way to minimize any potential problem is to design and calculate an accurate lead management plan. Such a plan first considers all local environmental factors and their potential to create and mobilize lead compounds so you can predict how long you can reasonably leave your lead shot on the ground. With careful management of local soil, plant, water, organic and mineral conditions, and careful design and location of all your shooting positions, you can usually keep the shot fairly stable for up to 20 years.

Then, by measuring the actual shot fall area and estimating the number of shells that will be fired onto it annually, you can calculate how much lead shot there will be per square foot over time. That will then allow you to calculate when it will be economically feasible to reclaim the shot, if required. Be aware though, sometimes economical is neither a consideration nor a possibility!

Although this might seem like quite a bit of work, if pressed by local planning authorities – who might have concerns about this issue – you will be able to present them with a plan. The outcome might be that you will have to recover the shot after so many rounds fired or after so many years, whichever comes first. Is this a pain? Does Pinocchio have wooden cahunies? Of course it's a pain – but at least you'll be operational and if nothing else, you'll have gained a certain amount of esteem in their PR department which you can always use for any future problems.

Taking a look at where we are today as an industry, phrases like "...shooters take pride in their stewardship of the environment..." are quite common in many articles. But is this just chest beating, or can we really make bold statements like these with all honesty? Well, I do think there is a definite growing awareness of environmental issues by shooters and range owners, and how we as a group can improve how and where we are shooting. And there certainly are some organisations doing great work in this area, but my concern is that we may not be moving quickly enough.

In the US at the moment, range owners only have to contend with guidelines on lead shot management, not regulations. Given some of the more 'modest' gun clubs I have seen, they're lucky to be getting away with

their activities right now. I strongly feel that if they continue to ignore these guidelines, I'm quite sure they will quickly become regulations – and regulations that in all likelihood we will not be happy with.

In Europe, for example, the German government has recently produced what they regard as the 'definitive' research document on lead toxicity at shooting ranges. The fact that it has mistakes in it and is not thoroughly researched doesn't matter. Governments rule! In light of there being no other studies like it, and depending on the mood swings of the various Governments in other European countries, I wouldn't be a bit surprised if it becomes the basis for all other regulations throughout the European Union. The point worth considering here though, is if the regulations that have been enacted as a result of that study were enforced here, it would put most gun clubs out of business overnight!

I don't mean to sound apocalyptic, but it's worth identifying areas of concern and where the sport can improve its chances of success. It would be easy to bemoan the fact that other industries and products are far more damaging to the environment than lead shot is from recreational shooting. The cost of that gold ring on your finger, for instance, was much higher to the environment than it ever was to you, and the car you drove in to

buy it left its heavy metal mark (along with thousands of others) on the roadside's grassy verges that deer enjoy eating every spring. But what was it we were taught as children about a couple of wrongs and a right?

Like most others in our sport, I don't appreciate the ongoing manipulation of the public's opinion or attempts to lay blame on one side while ignoring the same indiscretions by others. I'm of the mind that if those in opposition to our sport are right, then they don't need to lie to win. But, unfortunately, the lead issue is here to stay – at least until one side wins, or we can all reach a compromise. Quite frankly, if it's a compromise I'm not sure what that might be, but I do believe that if we choose to remain complacent or become belligerent towards the non-shooting public's perceptions on this issue, then the regulatory agencies might be forced to make decisions to suit the masses.

At the very least though, I feel that this debate has pointed out to us where we are making some mistakes, but I think we are fortunate in that we are being given the chance to correct them. For a little while longer anyway...

