

# READING WITH REDCORN

by Guy Nixon

With new regulations on hunting ammunition for all Californians coming into effect, the hunting community has been bombarded by all sorts of true and false information. When familiarizing yourself with these new regulations, it is best to decide what exactly you need to know before you dive into your research. Otherwise, you will often end up with more questions than you started with.

Over the past several months, I have been involved in the discussion of these new regulations with various new hunters and even a few experienced ones who haven't had the time to familiarize themselves with terms that pertain to bullets when referencing mass, density, velocity, energy, penetration or performance. This of course, is understandable, considering the massive amount of confusing information that pertains to this subject. In this department though, this Injun has some experience. I have not only been an avid hunter and shooter my entire life but I also served in US Navy as a gunner mate. I graduated at the top of my class and took advantage of the opportunities that I was provided to better hone my skills.

To understand all of this confusing information, you must become a student, as if you were listening to a lecture. The accuracy of your bullet is determined by a number of things.

Because of the complexity of this issue, let's try to make it as simple as possible. The barrel of your rifle has rifling that causes a bullet driven through it to rotate. If you increase the velocity of the bullet, you will increase the speed of the rotation of that bullet. At some point though, the velocity will be so much that the bullet will strip out; which means that it will run over the rifling and leave metal debris on the bearing surface of the bullet. This will result in the bullet leaving the barrel and tumbling through the air with the left over

debris in the barrel making the next shot even worse.

From a mathematic point of view, the higher the velocity, the more energy you will have. One way to achieve this higher velocity is to use a bullet that is made lighter. But this could cause the strip out scenario to happen, which will lead to less accuracy and debris building up in your barrel.

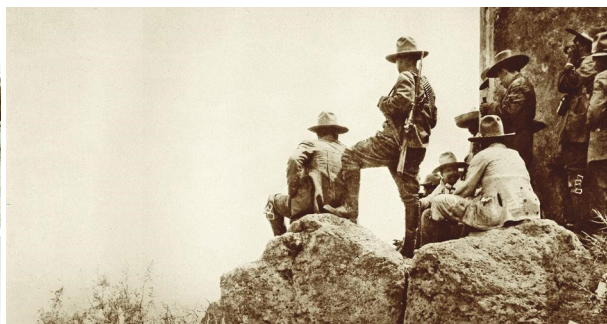
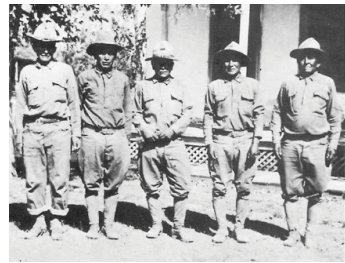
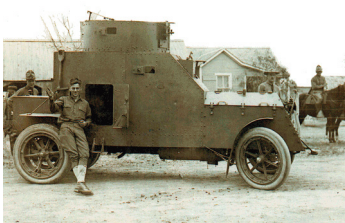
This extreme increase in velocity could also cause a change in the "barrel whip", which is the flexing that your rifle does when it is shot. This results in the bullet hitting a different place from where it used to hit when you used a heavier bullet with less velocity.

Next, you need to understand retained energy. The smaller bullet has more energy at the muzzle but will have much less energy down range than its slower heavier equivalent. Here is a practical reference, the .17 WMR has more energy than the .22 Magnum, same case, same volume of powder just the .17 weighs less and goes faster, so mathematically it has more energy, however the .22 Magnum had more penetration and better performance than the .17 WMR at ranges over 100 yards. The little bullet does not retain energy like a bigger bullet does.

Here is an example I saw with this issue in the Navy. At the time, the Navy Seals were shooting .9mm guns and like many folks, they saw that the "plus P" loads were, by mathematical equations, more powerful. They were always shooting rounds that were faster or hotter with the idea that this was giving them greater performance. However, they had terrible accuracy with that stuff and usually attributed it to the gun itself. Then they got into the subsonic ammunition, these are rounds that go slower than the speed of sound so as to make full use of a suppressor. In addition, these rounds were initial-

ly designed for use in guns using "blow back operated actions" and the only way to get that much blow back without increasing the velocity was by increasing the weight, such as using longer bullets. To the US Navy Seals' amazement, this subsonic stuff was incredibly accurate and penetrated much deeper and was useful at much greater ranges than the plus P loads were. The reason for this was that the subsonic rounds were longer and heavier, so they had more retained energy as well as more surface bearing to engage the rifling of the gun which eliminated the "stripping out" problems they had with the plus P loads. Another issue was that the original 9mm Parabellum was based off our American Civil War military surplus .36 caliber Colt and Remington revolvers and due to the velocity of the original black powder loads, the rifling has a rather fast twist, which is too fast for the shorter, therefore faster, plus P rounds to engage in, so they tended to strip out resulting in the plus P rounds tumbling. Yes, they have made 9mm pistols and submachine guns with slower twists to accommodate the faster rounds but even in these guns the longer, heavier, slower rounds perform very well and penetrate more. So while the faster, lighter rounds look like they should be better, their actual usefulness, given these other factors, are much more limited than the older slower, heavier rounds.

If you want to get your hands on what I am talking about with the rate of twist in rifling, take a cleaning rod and with a fairly tight fitting cloth on the rod, wrap a piece of scotch tape around the rod and back on itself to give you a flag. Then try it with your guns, the tape flag should rotate more per a measured distance in your pistol or 44 Magnum than it does in your .30/06 and even less in your .257 magnum. The idea is that the bullets that ought to be coming out



of those guns will have almost the same rpm to them, even though they have very different velocities.

In going back to the main issue, we need to discuss lead free ammo or as some call it “green ammunition.” Obviously, if the new bullet weighs less, it will be said to have more energy but this is because it has a higher velocity, which will result in less accuracy, as mentioned above. We then have the new all copper rounds that have the same weight as the old standard bullets. This is achieved by making a longer bullet, which gives it an air foil, like a wing on an airplane. This will typically cause them to perform differently in cross winds because they have a larger profile. These will also have a longer bearing surface, which could help with accuracy but only if there isn’t any wind or other factors.

Here is an example that may give you some insight into this problem. The round developed for the old M-16 for use in Vietnam that civilians call a .223, performed fairly well with minor changes until we got involved in the war in Afghanistan. The problem arose when our troops were using a carbine version that when combined with the typically high altitude, resulted in reduced energy for the bullet and reduced accuracy. The shorter barrel length did not develop as much energy as the longer standard barrels.

To add to the problem, the standard .223 bullet was never designed to make lethal wounds; honestly it was designed to wound the enemy soldiers so that they would require medical personnel to remove them from the battlefield. Geneva Convention requires that military bullets used do not have expanding heads, like what you and I use in hunting. The idea was that in a “civilized war” we did not want to kill the enemy in great numbers but instead cost the enemy government

enormous amounts of money in taking care of their wounded soldiers. However, the Jihads we are fighting in Afghanistan were not the “civilized army” for which this round was developed. American soldiers had and have a vested interest in disabling the Jihadi on the first shot because if it does not disable the Jihadi, he will be shooting back. In order to stay within the confines of the Geneva Convention and provide our troops with a more effective .223 round they made a new bullet with a floating plunger, this is to say that the inside of the bullet has a tube with a heavy plunger inside it, that ought to set back against the rear of the bullet when fired, due to the inertia and slide forward in the bullets tube when it contacts the Jihadi. The idea being that this will cause the bullet to immediately tumble resulting in a bigger wound that hopefully will disable the Jihadi yet be “legal” under the terms of the convention.

This new bullet has had some success and some problems. In order to make it weigh the same as the standard bullet, it had to be made either longer or the plunger had to be made of a metal heavier than what was in the standard bullet. Because, the bullet could not be seated deeper into the case of the .223 and could not stick further out of the case and still cycle in the gun chamber, you can figure out what they did. This change in the density of the material has caused many of the very same problems we will have with our all new “green hunting ammunition” for California. The accuracy was not as good as the standard rounds, as the weight of the bullet is much more concentrated to the rear of the bullet. This is what we have with some of the heavier than lead materials being used to get more mass into our “green” bullets. There are as many different ideas and metals as you or anybody can imagine being tried and used in this new stuff and they will have advantages and weaknesses.

Changing the weight distribution in a bullet causes all sorts of strange issues with accuracy. Let me use another Mili-

tary bullet story. My Cherokee/ Osage Grandfather grew up on the Osage Indian Nation. His family farm was right across the Salt Fork of the Arkansas River from the 101 Ranch. This is where a number of the Apache who had served as scouts for General Black Jack Pershing in the US Army’s pursuit of Poncho Villa worked. As my Grandpa was a school kid and his elementary school was located on the 101 Ranch, he was over there 5 days a week and got to know most all the folks. He remembered some of the Apache scouts showing the ammunition that Poncho Villa’s troops were using in the war, which was still going on at that time. Villa’s forces in an effort to take out troops in armored rail road cars as well as armored trucks and vehicles were casting their lead bullets with a sharpened length of nail in the center of the bullet. The idea was to create an armor piercing bullet. They were successful with that to some degree. At close range, and if the bullet was not tumbling, the sharpened steel nail core with the mass of the lead behind it, could penetrate some of the light armor being used.

However, the reduced weight of the bullet due to the use of the nail steel is less dense than lead which results in the bullets having increased muzzle velocity; the powders available at that time cordite or black could not be loaded with an air space beneath the bullet as this would make the round explode. This resulted in an increased muzzle velocity which was enough to often cause the bullets to strip out as well as reduced range and power. It was an interesting concept and in the idea of the “golden bb” it did work to some extent but the problems they experienced with it are the exact same ones we may face with some of the new “green” ammunition.

Another of the problems I mentioned is to realize that the round will perform differently if there is less or no air space between the base of the round and the powder in the case, this has a technical name but I want to keep this

simple. The change in this spacing causes all sorts of changes in the speed and the way the powder burns, and it is different for different powders. This can give you all sorts of otherwise unexplained “flyers” at the range.

Then, if the round sticks out any further from the mouth of the case, it usually has feeding problems. I watched my hunting friend Dan lose two opportunities, one a deer, the other a wild pig, because the new ammunition jammed in the feeding when he chambered it fast while hunting. Of course when he was at the range, he was slower and it didn't have the feeding problems. So try the new stuff out with the same speed and possible problems you might have when actually hunting. The problem can be not only the length but also the shape of the bullet head and angle of the ogive. The loading ramp on some guns is shaped differently from others, so some bullet shapes don't work as well as others, you need to check to see with your gun.

Here is another issue that can come up and I'll use the US Military floating plunger rounds again as the example. When the new military .223 rounds hit

water vapor, let alone an actual rain drop or heaven forbid a piece of hail, the plunger goes forward and the bullet tumbles out of control and misses the target. Even at longer ranges, the floating plunger has on occasion drifted forward and destabilized the round. Yes, even a .50 cal BMG round will deflect in rain and hail but there is so much more mass that it typically gets close enough to do the job. Now for the opposite end of the spectrum, I also used the depleted Uranium rounds in the Navy and I will tell you in all honesty, they will do things that almost defy imagination. By this, I mean I have grown up with using lead and lead copper combination bullets, even in a .50 cal it was just a .30-06 on steroids. Greater energy and penetration but I could figure the trajectory in my mind rather instinctively, it was predictable to me. The totally different density of the Uranium rounds gave me trajectories I did not expect and cross wind performance I did not believe. So, though it will be to a much smaller degree, when you shoot bullets made from or with metals with much higher or lower densities than you are used to, the performance will be different from what you are used to.

All this stuff I have given you boils down to this advice. You will need to not only sight in your rifle with the new “green ammunition” but also try it out under hunting conditions, load it into your gun and cycle it like you would under the stress of hunting so that you know what your limitations with it are. Yes, it is expensive stuff but you are asking for problems if you do not use enough of it to get familiar with it.

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*Guy Nixon (Redcorn) is an avid hunter who lives in Northeastern California. He has a Bachelor's Degree in Biology, with an emphasis in Recombinant DNA, and a minor in Geology. He worked for the USFS at the Institute of Forest Genetics and later as a Forest Protection Officer performing the first Abandoned Mine Survey of the El Dorado and Tahoe National Forests and an extensive trail survey. As a school teacher and father of four, he helps operate his grandfather's family sawmill near Spanish Flat, California. As a Petty Officer 2nd Class he served three enlistments in the US Navy as a Gunners Mate Guns serving in the first Gulf War and numerous other operations and is a 10 point disabled Veteran. WahShaShowahtinega Guy Nixon Hapashutsy (Redcorn) honors his Osage, Cherokee, and Pawnee ancestry and is the author of nine books.*

## HUNTER'S CODE OF ETHICS:

The scientifically well-established North American model (NAM) of wildlife conservation has been used to manage and maintain population levels of game and predator species for centuries. Consistent with that traditional preservation approach, the vast majority of hunters obey hunting regulations and adhere to the hunters' code of ethics which prohibits waste of game and unsporting hunting methods. The truth is that licensing fees paid by hunters provide the vast majority of the funding for natural resource conservation efforts in California and that hunting, trapping, and strategic depredation efforts are critical components contributing to the historical success of NAM. CRPA opposes the ongoing duplicitous efforts by animal rights extremist groups (see humane-watch.org, huntfortruth.org) to abandon NAM in favor of an unbalanced and unscientific approach to species management that would ban hunting and encourage unchecked populations of predator species to continue to explode, decimate game herds, and terrorize suburban neighborhoods. These are the core principles of NAM:

- **In the Public Trust** – Wildlife belongs to the people and managed in trust for the people by government agencies.
- **Prohibition on Commerce of Dead Wildlife** – It will be illegal to sell the meat of any wild animal in North America.
- **Allocation of Wildlife is by Law** – Laws developed by the people and enforced by government agencies will regulate the proper use of wildlife resources.
- **Opportunity for All** – Every citizen has the freedom to hunt and fish.
- **Non-frivolous Use** – In North America we can legally kill certain wildlife for legitimate purposes under strict guidelines for food and fur, in self-defense, or property protection. Laws are in place to restrict casual killing, killing for commercial purposes, wasting of game, and mistreating wildlife.
- **International Resources** – Because wildlife and fish freely migrate across boundaries between states, provinces, and countries they are considered an international resource.
- **Managed by Science** – The best science available will be used as a base for informed decision making in wildlife management.