

All about night vision



Tips from the Posse

By Mark Rackay

Today we have many things to help us see in the darkness. Night vision technology has advanced several generations, so much in fact; the first generation seems Stone Age. Add to that all the infrared equipment and it is almost like nightfall no longer matters.

When I was a kid, the falling of night was a serious condition. No 8-year-old in his right mind wants to get caught outdoors once the sun has vanished. Everyone knows that the wolves, Bigfoot and assorted other monsters that only exist after dark, go on the prowl for little kids when darkness engulfs the valley.

Night vision for a little kid consisted of an electric torch, or the old man's 5-cell flashlight, assuming you could sneak out of the house with it. The flashlight was just enough to keep the monsters at bay, assuming the 5 D-cell batteries held out.

Let's say you were at a friend's house for dinner. You were so busy having a good time that you failed to notice the time. Darkness had oozed off the mountaintop and filled the valley. There was no sense calling home and asking my grandfather for a ride. He would have died laughing because kids did not get rides in those days; we walked.

The old 5-cell torch was not nearly as bright as the new LED type flashlights, but it was the brightest we had, and we were darn glad to have it. I would wave that light, back and forth in front of me, trying to get a glimpse of glowing eyes or yellow fangs, before they spotted me.

Without trying to turn this into an anatomy lesson, it is important to understand the basics of how your night vision works. Your eyes have rods and cones, which are examples of photoreceptors, or neurons, found in the retina that converts light into electrical signals. These electrical signals travel to your brain through the optic nerve and are used to form your sight.

Cones create our color vision. Cones are also active in higher light levels but are nonfunctional in low light. They also pro-



Night vision goggles like these might help us to see in the dark. Unfortunately, we don't always have access to them in the woods. (Photo: Mark Rackay)

vide our highly developed special acuity.

Rods are responsible for your vision in low light conditions. Rods out number cones, 120 million to 6 million, are more sensitive, but not to colors. Within these rods lies Rhodopsin, the chemical that allows night vision. When exposed to light, Rhodopsin bleaches and takes around 30-minutes to regenerate.

Animals see much better than humans in the darkness. This is because animals have a tissue layer called tapetum lucidum, found in the back of their eyes. This tissue layer reflects light back through the retina, increasing available light to capture. This is why animals have eye shine when you light them up with a flashlight. Science claims that an animal's eye at night see with the equivalency of second-generation night vision scopes.

It takes the human eye about 30 minutes to adjust itself to darkness. During the adjustment time, the pupils are expanding, and your eyes are much less than reliable. When your eyes do finally adjust, they are still a long way from having a flashlight, but sometimes we don't have that option. There are, however, a few things you can do to enhance your natural night vision.

Something you can do to help your eyes adjust when moving from a lighted environment to a dark one is to close your eyes for 10 seconds. The idea may sound simple, but it does help. It won't

dramatically increase your night vision, but it is better than getting hit with total darkness.

There is a technique called "off center vision" that may help. The idea is to focus on an object without looking at it directly. When we look at an object in dim lighting, we never see the object clearly. Sometimes the object will appear distorted and may even disappear completely at times.

Try focusing your eyes at different points around the object, say 15 to 20 degrees away, rather than directly on the object. This method uses your peripheral vision because that part of the eye functions best in minimal light. This is the area located around the outside edge of your retina.

When you are outdoors during the daytime, and know that you will be out after dark, wear sunglasses as much as you can. Darkness causes impairment in your ability to see colors and details. Wearing sunglasses during the daylight will force you to recognize objects by their colorless silhouette.

If you wear sunglasses most of the time when you are outdoors, you are already "eye trained" in this method. It helps reduce the 30-minute time that your eye needs to adjust to darkness. I have prescription glasses that automatically turn to sunglasses when I head outside. It saved me the hassle of having to carry around two pairs of glasses.

One other thing that can help your night vision

is a healthy diet. A lack of vitamin A is a substantial contributor to poor night vision. It is not like you can just take a vitamin A pill and head outdoors as our bodies are set to have a certain level at all times. Vitamin A is not a vitamin that our body can store up and have a reserve; any excess is just excreted.

Getting the proper amount of vitamin A requires a healthy diet either by a daily supplement or consuming foods rich in it. Foods like liver, carrots, sweet potatoes, milk and fish all contribute to healthy eyes and enhanced night vision.

If you still have problems with seeing well after night has fallen, you can always rely on the old electric torch. They are much smaller and more efficient than the ones of my youth. Whenever I was at a friend's house and knew that I was going to have to walk home in the dark, I brought my wagon along. It carried all the extra D-cell batteries I was going to need for my grandfather's 5-cell light I borrowed.

Mark Rackay is a columnist for the Montrose Daily Press and avid hunter who travels across North and South America in search of adventure and serves as a director for the Montrose County Sheriff's Posse. For information about the posse call 970-252-4033 (leave a message) or email info@mcspi.org

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On the river again



Outdoors

By Bill Harris

Earlier this month I participated in a three-day rafting trip on the Ruby/Horsethief stretch of the Colorado River supported by the Colorado Canyons Association (CCA).

Some readers may recall my article from June 2020, derecho wind and all. We did not learn our lesson, so back at it again this year. I was one of the birding guides, the other was Fred Blackburn, a long-time friend from Cortez.

When Dawn Cooper, CCA's River Program director, asked me about adding another birding guide to the trip I suggested Fred. Fred has served as a guide for the long-standing Ute Mountain/Mesa Verde Birding Festival in Cortez. He also has a long resume of outdoor experiences I thought would add some unique opportunities for conversation.

I met Fred in the fall of 1984. At the time he was an outdoor educator for White Mesa Institute in Blanding UT. He was the leader of a five-day backpack into Grand Gulch in S.E. Utah. I had learned about the trip from friends of mine who were members of the Colorado Archaeological Society. That trip established a solid base for our friendship and led to some of my most memorable backcountry adventures.

Our paths crossed again four years later. I had asked Fred to organize a trip into Canyon de Chelly National Monument for the Chipeta Chapter of the Colorado Archaeological Society. This trip would go down in infamy and earned me the nickname of "floating Bill".

To make a long story short, I managed to bury a 1972 Jeep Wagoneer in 4 feet of quicksand. Our crew safely extracted our gear before the Wagoneer went down. That evening, as we sat

around a campfire, our Navaho guide, Dave Wilson, with a straight face uttered, "That's why we call it Canyon de Chevy". To Dave's recollection my vehicle was the 16th to go down in the canyon. My wife did not think it was so funny.

A year later I re-united with Fred as a member of the Wetherill/Grand Gulch Research Project — a ragtag bunch of desert rats on a quest to visit the original sites dug by the early archaeological expeditions in southeast Utah. Some of the members of those expeditions inscribed their names and dates on the rock walls of the caves, so we started recording those inscriptions. Members of the team also visited the museums back east that held the expeditions' artifacts.

As it turned out, those inscriptions became a key component in tracing the sites from where the artifacts came. In the museums team members were given permission to view the field notes and photograph many of the artifacts. The project team was able to match the dates in the expeditions' field notes with the inscriptions. In archaeology provenience is critical component of interpreting a site. The term "reverse archaeology" was born. The result of those efforts became to guts of a book "Cowboys and Cavedwellers" written by Ray Williamson and Fred.

See RIVER page A13



Preparing to launch from the Mee Canyon camp along the Ruby/Horsethief section of the Colorado River. (Photo: Bill Harris)



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