You all may remember that last years’ Rimrock Report for October featured the camp journal from one of our young ladies at the Natural Resources Conservation Workshop for Arizona Youth (NRCWAY). Many of you commented on that one so we decided to publish another students’ work this year. This is the journal written as part of the NRCWAY experience for Garrett Fish. Garrett, one of our students who came to camp and then returned as a counselor, is a sophomore at Nogales High School where he raises and shows steers and heifers. Garrett is also involved in school activities including basketball, baseball, chess, and student council. He comes from a southern Arizona ranch and is fine young man. I hope you all will enjoy his story as much as the camp directors enjoyed having him at camp.

Monday, June 24

Today was my first day as a counselor; it was a big leadership jump from being a camper. I was in charge of the activities with Leighton. We played name games and started to get comfortable with each other. After we all got familiar with each other, we did the challenge course. Not only was it fun, but we were all learning about each other and opening up. After the challenge course, we heard a presentation by Cheyenne which was very interesting and about forest fires in southern Arizona. Then, we all met our project groups that we would be working with for the rest of the week. We got the topic Ponderosa Pine, which I like and will be surrounded by this week. We also learned basics about birding with Mark Apel. Later, we dissected owl pellets and I found a skull and different kinds of bones.

Tuesday, June 25

Today, we took a bird walk with Mr. Apel. We saw a lot of birds, such as the Brown Headed Cow Bird and the Lesser Gold Finch. I liked learning about calls and songs and their differences. After the bird walk, we learned about Biomes and Wildlife habitat with Mr. Burden. I thought identifying the skulls of the carcasses was
interesting. The most interesting was the Bongo, because I was surprised it wasn’t a pronghorn antelope. Then, we learned about hydrology and habitat. I liked this topic because I could relate to the ecosystem she was talking about and how the vegetation changed. The service project was a lot of fun and hard work (cleaning out algae and getting pinched by crawdads). Then we set up spots with bird seed and a fluorescent powder around the feeding area so we could see what kind of animals were eating the bird seed. I hope we find something! Then we finished off the night with some really fun activities.

Wednesday, June 26

This morning we split up in two groups and went to different activities. One was an invertebrate activity with Edessa Carr. We found an organism with a silver abdomen, which was an awesome adaptation. Then, we went to the other group which was a wildlife scavenger hunt and found a lot of cool new stuff. For example, we found a really cool bird nest with three eggs in it. I also enjoyed learning about box and sack lunches with Doug Tolleson. I learned new things about nutrition and can use this new knowledge on cattle at home. I also learned more about grazers and browsers. The activity where we gathered different grasses and shrubs was where I learned a lot about nitrogen content and protein. Later, we saw that some sort of bird got into our bird seed from the bright bird tracks.

Thursday, June 27

Today, we went on a hike to Rice Spring. It was about a mile long and I learned a lot of new things, such as the negative and positive impacts of the fence. One benefit was sharing the vegetation between cattle and deer or elk. One negative impact was that some animals couldn’t get through the fence. We learned about Black Bears, which was good because one of my parts in our group presentation was about the Black Bear. I picked up some new facts and was able to include them in my summary. We also finished our project, which was awesome!
Larrea tridentata - Creosote Bush, a plant we are very familiar with here in Arizona that seems to be just about everywhere! Although we probably see these shrubs so much that we most likely take them for granted - it turns out creosote bush has some pretty amazing characteristics and adaptations. Creosote bush is an evergreen shrub characterized by dark green to yellowish green leaves that are shiny with wax and less than 0.5 inches long. This shrub can grow up to 10 feet tall. Flowers have 5 petals and are yellow. Although flowers can occur anytime they peak in the spring. The seeds are white fuzzy capsules that are about 0.25 inches.
The Rimrock Report

Plant of the “week”...continued

The creosote bush can go without rain for two years and is known as the most drought tolerant plant in North America. This is probably why it grows so well in 3 of the 4 major North American Deserts - The Mojave, The Sonoran and The Chihuahuan (not the Great Basin because it’s too cold). The creosote bush conserves water with its small leaves that are coated with oils and wax which slows evaporation. This oily waxy coating is what contributes to the strong odor that creosote bushes produce when it rains, this odor is the beloved signature ”smell of rain” for most of us Arizonans. Other adaptations creosote bush uses when it’s very dry is its leaves can fold in half to reduce sun exposure. During severe drought periods it will even shed its leaves entirely and become dormant until it receives precipitation again.

While creosote bush is not palatable to most animals except the occasional jack rabbit, it is somewhat useful as cover for wildlife. Creosote bush has long been used for medicinal purposes by native people of the Southwest. It was known to treat at least 14 afflictions and diseases including colds, congestion, intestinal discomfort, nausea, wounds, dandruff, and body odor. It is often made into a tea which is known medicinally as Chaparral Tea. Creosote also has antimicrobial properties which makes it useful for first aid antiseptic. Recent scientific studies have indicated that creosote bush may contain an antioxidant which may be helpful in treating malignant melanomas while another extract is being explored as an anti-cancer drug. The Food and Drug Administration has considered banning the sale of creosote based on a couple deaths caused by drinking the tea, even though innumerable people have used it for many years to treat many sicknesses without any ill effects.

Creosote bush reproduces both sexually and vegetatively. The creosote bush will produce a large amount of fuzzy seeds but very few of them will germinate because it takes very
Plant of the “week”...continued

specific conditions related to rainfall to be successful. Establishment through germination and seedling survival is quite difficult under natural conditions. However, creosote bushes have the ability to generate regrowth through cloning. As the shrub grows, branches continue to grow around the periphery of the original stem crown. These branches will live several centuries then die out. The root crown will produce new branches in a ring around the original plant. Eventually as this process continues, the ring expands outward and the original branches die, rot away and disappear. Over time the new branches become a ring of separate bushes which are clones of the original seed.

The most well-known clone of creosote is called “King Clone” it is near Victorville, CA. With an average diameter of 45 feet this creosote bush clone is thought to be the oldest living thing on earth. With the use of radiocarbon dating and using the growth rates of creosote, scientists have estimated the age of “King Clone” as 11,700 years.

Sources:
http://cals.arizona.edu/yavapai/anr/hort/byg/archive/creosote.html
http://wc.pima.edu/~bfiero/tucsonecology/plants/shrubs_cb.htm
http://tucsoncitizen.com/wryheat/2010/03/06/the-creosote-bush-a-desert-survivor/
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(Photos by Rokelle Reeve, unless otherwise stated.)
Chris’ Hot Topic of Range: The Native/Non-native Plant Paradigm

Creosote Bush is a great plant for our plant of the week, and Rokelle Reeve does a fantastic job talking about it. There is only one problem; creosote is a non-native plant that dominates the landscape, creating monocultures throughout some of its North American range. It’s true! It is hypothesized that some two to eight million years ago a migratory plover in Argentina accidentally picked up a creosote seed, transported it over 4000 miles across terrain hostile to creosote germination, and deposited it safely somewhere in Mexico. A short skip forward in geologic time and now creosote is arguably one of the most important plants in three of our four deserts. That fits the definition of non-native.

Of course we don’t see it that way. To us it has been here so long that it is rather silly to consider creosote anything other than native, but what about other non-native plants? Many lovegrasses were introduced around the 1930’s, Cheatgrass and Russian Thistle have been here for well over 100 years, Dandelion and Yellow Salsify are escaped food crops probably introduced in the 17th century, and Filaree might have been introduced by Spanish settlers in the 16th century; a very long time to still consider some of these plants non-native. As permanently established fully functional plants in their ecosystem it may be time to consider them naturalized (or some other neutral term) and remove the stigma associated with the clichéd native vs. non-native narrative. This may be mostly a game of semantics, but it becomes important when managing landscapes. If a naturalized plant fills an important niche, can it be used as a tool in conservation, restoration, and rangeland management?

This is an old debate that seems to have picked up steam in recent years. In June 2011 the Journal of Nature came out with a commentary authored by 19 ecologists titled, “Don’t judge species on their origins.” At the same time the Journal of Conservation Biology published a review titled, “The potential conservation value of non-native species.” The general message is to prioritize a plant’s function and ecosystem service rather than its origins. After all, “nativeness” is not a characteristic that influences a plant’s evolutionary fitness, function, or even if it will have a positive or negative impact on the ecosystem. These authors suggest that it is neither realistic nor scientific to manage landscapes towards some “native only” historic ideal; especially considering the changing climate, habitat fragmentation, urbanization, extinct or extirpated species, permanently established introduced species, and many other confounding influences. There are also many non-native species that have proven to be very useful in land management. An example are Crested Wheatgrass and Forage Kochia which have successfully competed with Cheatgrass, are decent forage plants, help stabilize soil, and are used extensively in green stripping which has prevented the spread of wildfire.
Chris’ Hot Topic of Range: The Native/Non-native Plant Paradigm...continued

Not everybody agrees on changing the native/non-native plant paradigm. Shortly after the publication of these articles the Journal of Conservation Biology published a rebuttal arguing against non-native species. In it the authors cited the long list of intentionally and unintentionally introduced invasive species that have severely and permanently impacted several ecosystems. The message is clear, even with the best of intentions and the best available science, mistakes can happen and it is not worth the risk. Examples include the devastated riparian areas caused by Tamarisk, the severe reduction of the Sagebrush Steppe due to Cheatgrass, and the loss of biodiversity caused by fields of Spotted Knapweed. Even plants that seem fine now may have a delayed invasive reaction. This happened with Yellow Starthistle, which was viewed as a harmless non-native for 50 years before it suddenly exploded in population to be one of the most noxious invasive weeds of the west. The environmental and economic damage caused collectively by these species has been staggering, and many believe that continued introduction of non-native species just invites more risk to a threatened landscape. These were the thoughts of the native plant societies of six western states last August when they collaborated on a letter to the United States Department of Agriculture urging them to stop using non-native seeds in restoration.
Chris’ Hot Topic of Range: The Native/Non-native Plant...continued

Those for naturalized plants respond to that criticism by arguing that native plants can be invasive too. They cite the pine bark beetle and Junipers as native organisms that have radically altered ecosystems and have caused environmental and economic damage on par with some of the most notorious non-native plants. There are also naturalized plants that have not spread beyond where they have been used, or simply co-exist with native plants; examples include Crested Wheatgrass, Forage Kochia, Intermediate Wheatgrass, and Smooth Brome. However, some recent research has suggested a hint of invasiveness from these plants in some ecosystems...and so the debate goes on.

I have to admit to finding the whole back and forth of this debate fascinating and the recent conversation on this topic refreshing. Is there a place for naturalized plants in conservation, restoration, and rangeland management? Maybe, but that depends on what you are using, where you are, and your tolerance to risk. How long ago the naturalized plant was initially introduced doesn't seem to play much of a factor in our social conscience, but one thing is for certain; two million years is beyond the native/introduced baseline and the Creosote Bush has no fear of being called anything but native.

Sources and additional reading:

Native Plant Society Letter

Western native plant societies urge USDA to ban exotics

Invasive Species: Guilty Until Proven Innocent?

Don't judge species on their origins.

The Potential Conservation Value of Non-Native Species

Revisiting the Potential Conservation Value of Non-Native Species

Give Lehmann’s Lovegrass its Green Card

Follow us on Facebook, Twitter and Google Plus! Click on the buttons below to access.
“Home On The Range” has to be the all time favorite song about rangelands. Here are my nominations for the next three in line. Send us yours and we will put them on Facebook…

2. Blue Bonnet Blues (Chris ledoux, ‘nough said...)

3. Don’t Fence Me In (I like Roy Rogers’ version...)

4. Out Where The West Winds Blow (Rex Allen, the Arizona Cowboy...)

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I walked in the North Rim County Store just as they opened up a few days ago to buy a pair of shoelaces for my Hathorn boots and the lady asked “if it was a little cool camping out last night?” I guess I looked (or smelled) like I had been camping. Anyway, I said “yes, there is a good solid frost, I figure it must have been around 28 or 30...” She laughed and said “it is 21 degrees right now” Oh well, so much for me being a human thermometer. No wonder Mattie (my little blue heeler cross) was shaking... and I accused her of getting soft in her old age (~17). It did make the instant oatmeal and coffee taste good. The aspens were starting to turn, a big ol’ moon came up over the rim through the pines, the cows, turkeys and mule deer were fat and sassy. House Rock Valley is actually green. Pretty nice day in the office for a range specialist. Fall is definitely in the air. I was up there collecting samples on the second year of a mule deer diet quality study, on my way to Fredonia for a Kane/2Mile Ranch Stewardship Partnership meeting. Things are starting to ramp up with that group; there should be 2-3 research projects in full swing by early next year. Spent a couple days after that doing collaborative monitoring on a ranch near Williams. Wind blew ~40 mph. I was glad to have the tablets and VGS software instead of paper forms and clipboards. Clipping forage was still a challenge though. We had a good drought scenario planning workshop at Yavapai College a couple weeks ago. Approximately 20 ranchers, extension, and agency folks divided into 4 teams and developed real-world drought training scenarios on Arizona rangelands. It will be fun to take those now and use them in class, etc... Jim Sprinkle had a range monitoring workshop for the folks over on the Gila NF in the Young Arizona area. Muchas gracias to Bob and Bonnie Benne for putting me up and treating me better than I deserve. You meet a lot of great people in the extension business. The summer AZ SRM meeting back in August was good. The brush masticator was probably the biggest hit. Facebook has been an interesting experience. Thank goodness Chris likes fooling with it. I am going to have to keep an eye on him though; I may end up on there for something I may never live down someday. Yep, I could almost feel a hint of coolness down here in the Verde Valley this morning. Yall go out and enjoy another good day to be in Arizona.

Till next time,
Doug