Views From the Watershed

Fall, 2020

P.O. Box 3247, Nogales, AZ 85621

Questions, contact Chris Postel, clerk.scnrcd@gmail.com

Chairman's Column by Stephen Williams

University of Arizona climatologist Dr. Michael Crimmins hosted a webinar on July 21. There was not much good news imparted about the 2020 monsoon. He explained that the monsoon lasts a matter of weeks, and that it is all about moisture which creates instability. He went on to say that July is not a predictor for August and September. Our monsoon ridge is not in a good spot since high pressure systems seem to be stalled over the Four Corners area, which keeps the monsoon flow away from Arizona. Climatologists are watching indicators to determine if a La Nina is developing for the fall. If so, it will mean we are in store for a dry winter and a spring with above average temperatures.

Elgin is blessed compared to other parts of the state. My backyard rain gauge recorded 2.5 inches in July and 6 inches as I write this in late August. My friends in the Diablo Trust on the Coconino Plateau are experiencing their third dry summer in a row. If your warm season grasses are green and growing count your blessings.

How has the Chinese Wuhan Corona Virus (Covid 19) affected you? You are probably tired of hearing about it by now so I will not dwell on it. You know as well as I do how food supply chains were disrupted, how the cattle market took a nose dive, how in person meetings and workshops metamorphosed into teleconferences and Zoom webinars, and how uncomfortable a mask can become when worn for extended periods of time. If you know producers who are involved in the grass fed market niche and have a substantial percentage of their annual receipts provided from farmers markets, they have seen a significant increase in their sales since the Covid outbreak. When the meat cases were bare in the supermarkets shoppers were looking for alternative sources for the acquisition of their family's protein. Farmers markets were such a source, and will continue to be even after the food supply chain becomes re-established.

The grass fed/farmers market reliant producers I know locally have the University of Arizona Meat Lab process their animals. Did you read recently that the University is considering a sale of the Campbell Avenue Farm, the home of the Meat Lab, (aka Campus Agricultural Center in north Tucson), Dr. Samuel Garcia has done a fantastic job of running the Meat Lab and training students there through his Food Products and Safety Lab program. A negative impact to his program would adversely affect a segment of our local niche marketers. Please let your voice be heard. Contact Dr. Patricia Stock, Director of the School of Animal and Comparative Biomedical Sciences, (spstock@arizona.edu), and let her know that Dr. Garcia's program is critical to livestock producers in Arizona as consumers look to local providers for sources of meat protein for their families. Also, copy your email to Dr. Shane Burgess, Dean of the College of Agriculture and Life Sciences, (sburgess@cals.arizona.edu)

The Sentinel Landscape's 2020 Accomplishments Report highlighted the Santa Cruz NRCD's May, 2019 workshop at the Rose Tree Ranch that focused on ecological sites, soils and plant identification. It recognized that the workshop was an effective means of information sharing and will be replicated by partners in the future. The sneak preview for how this success will be replicated centers on soil health education. Sharma Torrens is the education coordinator for the Arizona Association of Conservation Districts. She told the Board of the Santa Cruz NRCD in July that the AACD needs our help to market these workshops among our Cooperators. The focus will be on conserving water through soil health. Look for them in 2021.

The Working Lands and Productive Watersheds Workshop, held February 12, 2020 at the Sonoita Fairgrounds, and sponsored by the Santa Cruz NRCD and Arizona Land and Water Trust, was a well-attended success. Fifty-six people attended to hear topics regarding Water Rights, Best Management Practices for Watershed Health, and Ranch and Watershed Improvement Funding Sources. Evaluation feedback was very positive

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and complimentary. We are planning a Soil Health Workshop in 2021. Look for the details in the coming months.

Please update your Cooperator Agreement and Cooperator Questionnaire. We use your Cooperator Agreement updated contact information to insure you receive important items like newsletters and workshop announcements. We use your Cooperator Questionnaire rankings in our Local Workgroup meetings with the NRCS to establish funding priorities for the highest resource concerns.

Thank you for your interest in natural resource conservation and the Santa Cruz NRCD.

Stephen Williams, Chairman

Mesquite by Bill Schock, Vice-Chairman Santa Cruz NRCD

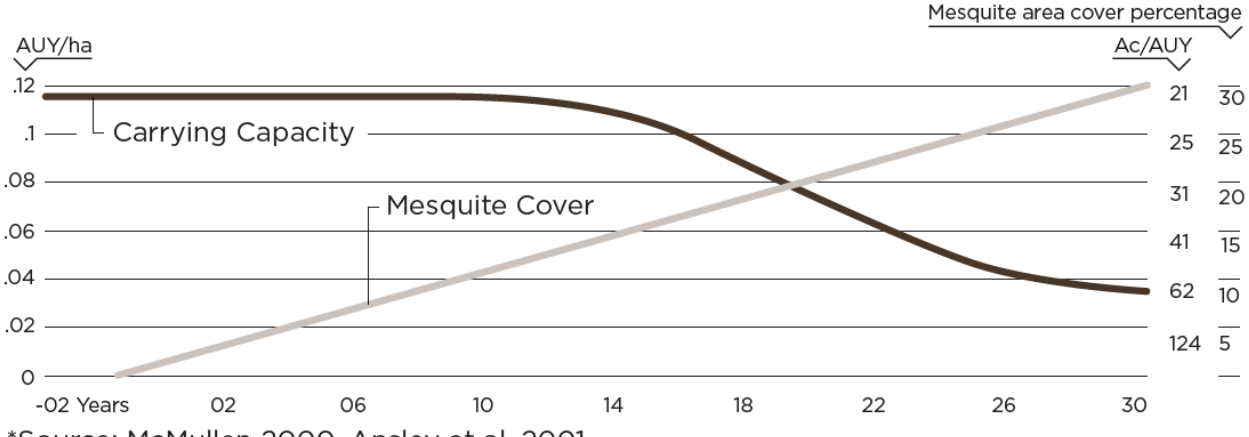
For more than a hundred years, local ranchers have been concerned with the encroachment of mesquite into their rangeland. One article from the U of A in 1950 cites a paper written in 1910 observing that mesquite was moving from the rivers onto the ridges. It was concerned that the small mesquites on the ridges would increase in size and numbers and reduce the carrying capacity of the rangeland. The Santa Rita Experimental Station began experimental plots in 1931 to determine the impact of grazing compared to full protection on the propagation of noxious plants including mesquite. All plots saw substantial increases of mesquite with grazing being the greatest.

In 1955, Frank Boice of the Empire Ranch presented "A Southwestern Rancher's Viewpoint of Shrub Control" to the American Society of Range Management. He discussed how they cleared a 300-acre pasture near the headquarters of 20 plants per acre using mattocks. We have a saying on the Empire that goes like this: "No day on this ranch is completely lost if we kill a few mesquite." And "hurry, hurry, hurry-the time, perhaps, is later than you think. Frank acknowledged that his methods were not effective or efficient enough, but that something had to be done until better methods could be developed.

More recently, 2018, Myriah D. Johnson, Ph.D., of Noble Research Institute, published "Evaluating the Most Economic Way to Improve Rangeland." Her figure 1 graph citing McMullen 2000, Ansley et al. 2001, shows that the loss of grazing capacity due to mesquite encroachment and canopy accelerates after about 10 years from 21 acres per AUM to about 71 acres per AUM at 30 years. During that period of decline, the number of calves that couldn't be produced on those acres would be about 222. She calculated the total loss in revenue to be about $165,000. Her article: https://www.noble.org/news/publications/ag-news-and-views/2018/july/evaluating-the-most-economic-way-to-improve-range/

FIGURE 1. EFFECT OF MESQUITE BRUSH ON CARRYING CAPACITY

Carrying capacity declined with time from a completely cleared situation, due to increasing mesquite brush on the Waggoner Experimental Ranch.*



*Source: McMullen 2000, Ansley et al. 2001

Santa Cruz
Natural Resource Conservation District

Cooperator Questionnaire

Information about which of the following items would help you as a District Cooperator? Rank your top 5 choices with 1 being most important. Final rankings will help determine funding availability for future conservation projects.

___ Low stress livestock handling

___ Livestock nutrition

___ Grazing management planning

___ Noxious plant and pest control

___ Livestock water developments

___ Prescribed burning

___ Relationships with agencies

___ Protection of historic sites

___ Creation of fish habitat

___ Managing small acreage horse properties

___ Equipment rental needs_____

___ Other (describe) _____
_____

___ Livestock reproduction

___ Plant identification

___ Rangeland monitoring

___ Soil erosion control
___ Soil health

___ Irrigation system, design & install
___ Flood ___ Sprinkler ___ Drip

___ Grant writing & funding sources

___ Protection of archaeological sites

___ Creation of wildlife habitat

___ Zoning, land use plans, ordinances

When completed, please email to: clerk.scnrcd@gmail.com or mail to address below:

Santa Cruz NRCD
PO Box 3247
Nogales, AZ 85621

Cooperator: _____
Address: _____
_____
_____
Phone: _____
Email: _____

Revised: September 20, 2020

Santa Cruz Natural Resource Conservation District
PO Box 3247, Nogales, AZ 85621

COOPERATOR AGREEMENT
ARIZONA NATURAL RESOURCE CONSERVATION DISTRICT

To Santa Cruz Natural Resource Conservation District (SCNRCD):
I, the undersigned, have natural resources under my control in regard to which I agree to protect, conserve, and practice wise use. My primary residence is within the SC NRCD's boundaries.

Cooperator: _____ Business Name: _____

NOTE: For voting purposes in District elections, Cooperators are people not corporate entities

First Class Mailing Address: _____

Email Address: _____Telephone #:_____

Acres, if any: _____ Present Land Use: _____

Description of Natural Resource issues or problems on my property, if any:

_____

_____

Suggested Donation: _____$25 _____Other (Please make checks payable to Santa Cruz NRCD)

Signature: _____
(Cooperator) (Date)

The District agrees to assist the above-named cooperator and cooperate with said cooperator in every lawful way for the protection, conservation, and wise use of the natural resources described above.

By: _____ _____ _____
(Signature of Authorized Board Member) (Title) (Date)

Definition: "District Cooperator" means any person who has entered into a cooperative agreement with a Natural Resource District for the purpose of protecting, conserving, and practicing wise use of the natural resources under his control. (Section 37-1002, Arizona Revised Statutes)

Updated: May 14, 2018

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The papers she referenced were written about Texas pastures that are primarily loam and clay and receive more rain than we do here. Here, mesquite propagates and grows slower outside of river areas. Howe*v*er, over the past 60 years, it has increased substantially and in many areas is reducing carrying capacity. This means that her cited graph showing substantial decline in carrying capacity during the 15 to 30-year timeframe would need to be extended out further here. Howe*v*er, the day of reckoning is coming.

The Ansley 2001 paper "Economics of managing mesquite in north Texas: a sensitivity analysis" makes several more points. If brush is not controlled it increases, further reducing herbage production and increasing cattle management costs. Thicker mesquite infestation can hinder normal ranch functions such as gathering cattle for branding and weaning. Herbage growth beneath mesquite changes little until a threshold is reached beyond which herbage growth is severely reduced (Dahl et al. 1978). Clearing mesquite only saw an increase in herbage if the pre-treatment mesquite cover was 30% or more (Dahl, et al. 1973). If cattle numbers are not increased following brush treatment, individual cow production should increase owing to the increased amount of herbage per cow as demonstrated by Bement (1969).

In my case, I have been removing mesquite by the cut stem method on about 300 acres since 2010. Beginning with chainsaw and stump treatment with herbicide on large trees; and then, clearing smaller ones with loppers and treatment. This took a lot of work. Densities averaged about 8 plants per acre with some areas being very densely covered. Using GPS during the year to locate individual plants has allowed most plants to be found and removed in 3 or 4 days per year. Recently, 160 plants were removed and treated in 3 short days. Less than 1 plant per acre per year are now being found and they are small. I have left about 40 mature trees in the pasture for shade and several larger trees were cut and treated about four feet above the ground as scratching posts. Mesquite seeds remain viable for a long time. The mature trees are probably contributing to the seed load. However, the number of new plants has been continually declining. At this point it would be nice if teenagers could be taught to perform these tasks since they are more agile and faster than me.

I mix a quart of herbicide using 3 cups of diesel, 1 cup of Dow Remedy and a teaspoon of Dow Milestone. This generally lasts for more than 100 small cut plants. The tree is cut as close to the ground as possible. Herbicide is applied to the cambium around the cut and to any exposed roots in the bud zone. Re-sprouts are *ve*ry rare.

In her article, Dr. Johnson discusses the economics of various treatment methods including fire, spraying, grubbing and combinations of them. Treatment costs vary from place to place and year to year so it would be best to consult herbicide suppliers, contractors, and fire departments when ready to compare. The NRCS is a good place to look for funding as well as the US Fish and Wildlife Service.

The reward for this removal is that the pasture will not be overrun by mesquite in the foreseeable future as there are no trees 10 y*e*ars old or younger. Costs for the current removal is less than $10 per year for herbicide and $5 for mileage. My time spent has been about 12 hours per year, so at $15 per hour, a $180 value. The secret of brush control to me is to get the big ones first and then remove the rest yearly when they are young, small and easy. Like Frank says, “We need to hurry."

AACD Update by Cindy Coping, Pima NRCD Supervisor

The Arizona Association of Conservation Districts (AACD) is a nonprofit organization that unifies and supports Arizona's 32 Natural Resource Conservation Districts (NRCDs) and 10 Tribal Soil and Water Conservation Districts (SWCDs). All 42 Districts are members with representation on the Board of Directors. The AACD provides expertise that a typical NRCD with $13,245 of annual State funding and an all-volunteer Board of Supervisors would find challenging to muster. Beginning in 2018, the AACD developed a 5-Priority Strategy, (see https://bit.ly/344xGUd) briefly summarized as follows:

1. Provide assistance to assess resource conservation needs, District-wide, for each District. Map and incorporate the comprehensive assessments into a statewide GIS portal for conservation planning.
2. Support the Education Centers with K-12 programs and adult workshops, e.g, Beginning Farmer and Rancher Workshops, Drought Planning, etc. Support research, e.g., quantifying the benefits of brush management on rangelands. AACD also has developed comprehensive District Supervisor and Clerk training programs, which are accessible through the AACD website.
3. Support District outreach and recruitment of new cooperators. This is achieved through educational workshops along with the recently upgraded AACD website (https://www.aacd1944.com/), social media (Facebook, Instagram) and a new magazine, *ConserveAZ*.
4. Provide technical and financial support to the Districts. The AACD seeks out major funding opportunities and works with partners including the National Association of Conservation Districts, BLM, NRCS and others to achieve landscape-scale results. AACD provides professional assistance with archaeological clearances, grant writing, planning, and contract management.
5. Provide direct District support. Between January and September of 2020, AACD helped various Districts write 13 grant proposals, 7 of which were funded, 3 were rejected, and 3 more awaiting a decision. That is a far better rate of success than is typically seen by grant writers.

SantaCruz NRCD

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