Nevada resurrecting charcoal production

By JoAnn Kittrell

Early Nevada miners historically used charcoal as a fuel source to smelt less valuable ore to extract silver and gold.

Located near mining districts throughout the state, charcoal ovens were utilized to optimize the charcoal conversion process.

With the Ward charcoal ovens just south of Ely, 35 cords of wood were loaded in each oven and cooked more than 10 days to create 1,750 bushels of charcoal. The ovens allowed operators the ability to manipulate the flow of oxygen needed for conversion of wood to charcoal.

Charcoal is produced when organic matter is heated in low levels of oxygen. If too much air (oxygen) enters and the fire burns hot, the result is ash, so the careful manipulation of air flow is essential for the efficient production of charcoal. To control air flow at the Ward charcoal ovens (also called kilns), brick vents were opened and closed to adjust the amount of oxygen and the resultant heat of the fire.

Ward ovens are being used to make charcoal. Photo/Provided

At Ward, pinion-juniper (PJ) wood was used to make charcoal for the smelting process. PJ woodlands were plentiful and located near most state mining districts.

The Nevada Division of Forestry is now making charcoal, but for a very difference purpose.

NDF has helped to resurrect this historic production process in order to amend poor Nevada soils. When charcoal is used as a soil amendment, it is called biochar. Biochar has been shown to increase soil moisture and nutrient retention capacity, improve habitat for soil microbes and even reduce the effects of soil pollutants. When PJ wood is converted to long lasting biochar, much of the carbon otherwise lost by the cut and scatter methods is preserved in the soil. As such, biochar production reduces atmospheric levels of carbon dioxide, a significant contributor to climate change.

While state agency began experimenting on a small scale with biochar production in the western region with one working kiln about four years ago, it has recently and dramatically increased their ability to make biochar throughout the state. With funding from the Eastern Nevada Landscape Coalition and the USDA Forest Service, NDF now has 10 kilns dedicated to biochar production.

To help increase moisture on burned areas, replace expensive potting mix ingredients in the state’s tree nurseries and improve survival of restoration plant material and urban trees, NDF is now making biochar on an unprecedented scale. Each of the NDF kilns converts about 1,200 pounds of wood to about 600 pounds of biochar in a three-day operation. The first day, crews load and ignite the wood inside the kilns. Kilns burn for one to two hours and then most of the vents are closed and sealed with dirt. The cooking process takes about 24 hours. After 24 hours, all the vents are closed, the fire is extinguished and a cool down phase takes another 24 hours. Then, the fresh biochar is harvested and processed for use.

In November and December, Ely camp crews made about 70 yards of biochar for urban and rural use. Making biochar gives land managers working on PJ removal an option other than the usual cut and scatter.

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