



Comments to Grass Valley City Council Feb 25, 2025

Re: Item 4, Loma Rica Open Space Fuels Reduction Project

CEA Foundation applauds the City in its efforts to reduce fire hazards by addressing the heavy fuel loads that surround our area. We are also very pleased that the City has acquired the approximately 200 acres of Loma Rica land to be held as open space. And fuel load reduction in that area is needed.

However, we are concerned about four things, 1) the methods used for fuel reduction, 2) the possible use of air-curtain burners, 3) issues such as air quality, and 4) long term forest health. We recognize that this is a complex subject. Take, for instance, bio-char.

What exactly is bio-char? Generally it is a form of carbon that benefits soil health and is stable for long periods of time. But bio-char comes in many forms and there are many other uses such as sequestering carbon to mitigate climate change.

Bio-char is produced by pyrolysis, or heating without oxygen, rather than regular combustion in air. This limits the carbon loss via carbon-dioxide emissions.

The sweet spot for bio-char production is between 850 and 1000 degrees Fahrenheit (450- 550C) where surface area and ion exchange capacity greatly increase, and on up to 1300 degrees (700C). This allows recovery of up to 65% of the carbon in the form of stable bio-char, which lasts for centuries and benefits soil health.

However, if the temperature is too hot, more ash and less bio-char are produced. And if the temperature is too low, the bio-char can have low persistence and cause undesirable reactions, such as tying up soil nitrogen and not necessarily benefiting the soil.

When it comes to dealing with large amounts of bio-mass, burning can be an effective tool, but regular burning in air releases most of the carbon. Air curtain burners, such as the one below town, are slightly better than open burning in reducing emissions, but they create only about 6-10% bio-char. And it is of unknown quality.

For that reason, when considering forest fuels reduction projects, I would ask that people within the community have an opportunity to provide some input into the standards for the proposed work. There are many factors which may be worth considering in order for the City to accomplish the goals of fire hazard reduction, while hopefully minimizing recurring costs, protecting good forest habitat, and maybe even realizing added benefits from bio-char production such as carbon sequestration.

Thank you.