Firesafe a forested property by eliminating tinder dry brush piles

Eliminating wildfire risk, sequestering carbon & building better soil

Agenda

- Introduction
- My request
- Primary Goal Secondary goal
- How to achieve these goals
- Concerns
- Benefits
- Youth Involvement
- Summary

Introduction

- Forest fire hazard is prevalent throughout our warmer months.
- Forest fires are often caused by or significantly worsened by the presence of large quantities of old, dead woody debris lying on the ground.
- Removal of this build up of old dry woody biomass goes a long way towards firesafing this property.
- This is my intention.

Hazard

- Courtenay has a large 100 acre property that is littered with brush piles.
- Following are pictures of some of the brush piles that present the fire hazard.









Property location







My Request

• I am requesting counsel to grant me a conditional exemption to the fire ban bylaw and to issue me a burn permit.

Primary goal

- To Firesafe the property
- To burn as many old brush piles as possible, thereby reducing the fire risk.

Secondary goal

- The creation of Biochar from the woody debris is a secondary goal of the process.
- Rather than burn the wood to ash, we would stop the burn at the charcoal stage.
- This charcoal is referred to as Biochar

Biochar

- Biochar is defined as:
- A charcoal produced from plant matter and when stored in the soil is a means of:
 - Removing Carbon Dioxide from the atmosphere
 In a <u>Carbon Negative Process.</u>



How to achieve those goals

- Utilize a double walled steel ring kiln
- Fill the ring with the branches
- Burn the woody debris down to charcoal (called Biochar)
- Cool and rake out the Biochar



How the Ring of Fire Biochar Kiln[®] works:

- · The outer heat shield holds in heat for a faster burn
- · Heat shield protects the operator from radiant heat
- Air moving through the annular gap pre-heats for more efficient combustion
- Air flow tends to suck smoke back into the kiln for a cleaner burn

MAKING BIOCHAR - BUILDING SOIL

ALABART .

Concerns: Smoke

- I fully understand that counsel is justifiably concerned about smoke and particulate being released into the air.
- Burning woody debris in this kiln will produce some smoke but it is minimal.
- However, most of the smoke produced is burned up in a convective airflow that sucks the smoke produced back into the fire.
- Utilized correctly, this is an extremely clean burn

Details

- The quantity of smoke produced is also controlled by 2 other factors
 - Dry wood if the wood has less than 20% moisture content, it burns cleaner.
 - Careful and timed layering will contribute to a very clean burn.

Concerns – Fire Safety

- Burning would only take place with the approval of the Courtenay fire chief
- The burns would take place in a large open secluded area.
- In the event of a complete fire ban, no burns would take place
- I would always stay attending the fire, never leaving it
- I would carry a 1000-liter water container on my truck to douse any embers and to quench the fire

- The kiln will be placed in an open clearing, far from overhanging branches
- The minimal smoke produced would not be noticed by neighbors as they are nearly 1 km away
- The burn would take place during daylight.
- Burning begins in the morning, is finished in the afternoon. Never left overnight.

Biochar Benefits

- When added to the soil Biochar sequesters the carbon.
- Biochar enhances soil structure, providing a home for soil microbiology. It vastly improve any degraded or denuded soil
- Biochar is extremely porous acting as a sponge, it absorbs and holds water. This holds true for agricultural land, forested land or private homeowner's gardens
- Biochar has a high cation exchange capacity. It attracts and holds soil nutrients making them available for the plants

Climate Change Mitigation

- All the woody debris in the forest will eventually rot or burn. In both cases it releases all its carbon into the atmosphere, contributing to global warming. By converting it to biochar we stop that process.
- This is a carbon negative process. We are taking carbon out of the atmosphere and putting it into the ground where it stays for millennia. This is a climate change mitigation

Opportunity for youth involvement - Volunteerism

Many other benefits as well

- 1. Utilizing a waste product
- 2. Enhancing regeneration of native species
- 3. Utilizing biochar in our gardens, on our fields, in animal husbandry to promote soil health and water retention
- 4. Sequestering carbon

In Summary

- Wildfire hazard is an ever-present threat to all of us.
- Utilizing this kiln, I can vastly reduce the hazardous woody debris piles.
- The burn will be in accordance with all Fire Department criteria.
- The kiln burn produces minimal smoke.
- The isolated location guarantees no affected neighbours.
- The waste wood debris is converted through pyrolysis into biochar
- The biochar is very healthy as a soil amendment.
- Biochar has a high water retention in its sponge like, porous structure.
- The biochar will sequester Carbon for thousands of years, making this a carbon negative endeavor.
- This can be an opportunity for youth to fight climate change

Win - Win - Win - Win

Converting this woody biomass to Biochar has only cascading virtuous benefits

- 1. The property owner has his nuisance wood piles dealt with.
- 2. Courtenay has a serious wildfire risk mitigated.
- 3. Our Climate has tonnes of carbon removed from the atmosphere.
- 4. Our forests and fields have improved soil structure, water holding capacity and nutrient retention.