Ecosystem Services and Financing Community Forests: An Application to Wallowa County, Oregon

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Background and Rationale

Community forest management (CFM) is the use, management, conservation and ownership of local forests by communities. In Wallowa County, Oregon, many of the forestlands have been purchased by timber investment management organizations (TIMOs), which operate the forests unsustainably to maximize profit. Currently, many TIMO-owned forestlands are on the market (Figure 1). The goal of our project is to assess the provision of added ecosystem services on these parcels under CFM versus TIMO ownership and to leverage these services for financing the acquisition and management of a community forest. Ecosystem services are the flows of benefits that humans gain both directly and indirectly from nature. CFM can benefit communities by encouraging the restoration and sustainable management of forestland while providing increased public access and improving the local economy. Our client, Wallowa Resources, is a non-profit in Wallowa County whose mission is to "empower rural communities to create strong economies and healthy landscapes through land stewardship, education, and job creation."

The ecosystem services we evaluated were carbon storage and timber harvest, outdoor recreation, access to first foods (foods culturally significant to indigenous peoples) and increased salmon habitat. These services were chosen based on their financing potential and their contribution towards fulfilling community values. Carbon storage and timber harvesting were evaluated using a renewable resources growth model and adjusted net present value models.

Outdoor recreation was evaluated based on its contribution towards growing the local economy. The first foods huckleberry and biscuitroot were evaluated for their intrinsic value and how CFM could provide additional or enhanced habitat as well as increase local tribal access. Salmon habitat was evaluated for enhanced riparian habitat, which has downstream effects on salmon populations.

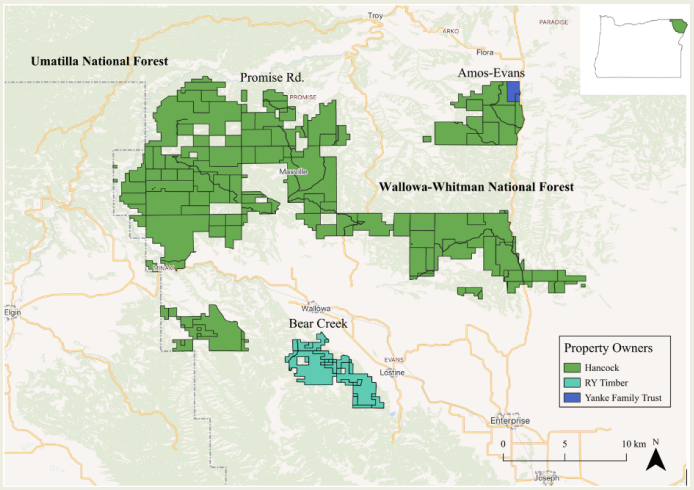

Figure 1: TIMO-owned parcels of interest going up for sale soon in Wallowa County, Oregon. Many of the parcels lie between two National Forests. Wallowa County is the northeasternmost county in Oregon.

Research Objectives:

1. Assess and model ecosystem services in order to analyze the added intrinsic and economic value to Wallowa County.
2. Categorize and explain the financial mechanisms that Wallowa Resources can use to acquire and manage forestland.

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Findings and Implications

Carbon and Timber:
Participating in an outside carbon market (Figure 2) as well as sustainable timer practices will allow Wallowa County to accumulate revenue to help pay for acquisition and management of community forestland.

Recreation:
Wallowa County can derive a total maximum potential benefit of $32.6 million per year from recreation from tourists and locals visiting the community forest. Further research is needed to understand visitation to a community forest.

First Foods:
First foods are of intrinsic value to the local tribes in the area and community forestry would enhance tribal access. This was not measured in financial value, but rather in additional habitat created. Suitable habitat was mapped by showing the areas where the necessary growing conditions for huckleberry and biscuitroot were met (Figure 3). There are 1,000+ acres of potential habitat sites for huckleberry and ~12,000 acres for biscuitroot.

Salmon Habitat:
The potential for enhancing salmon habitat was represented by enlarged riparian stream buffers and riparian management areas within the parcels. Expanding the buffer lengths along the creeks from 30 to 100 feet within a community forest will improve creek health for salmon.

Finances:
There are potentially millions of dollars in funding to support a community forest. Wallowa Resources and Wallowa County can leverage our analyses of enhanced ecosystem services under community forest management to acquire and maintain forestland. 42 financial sources are presented in the report.

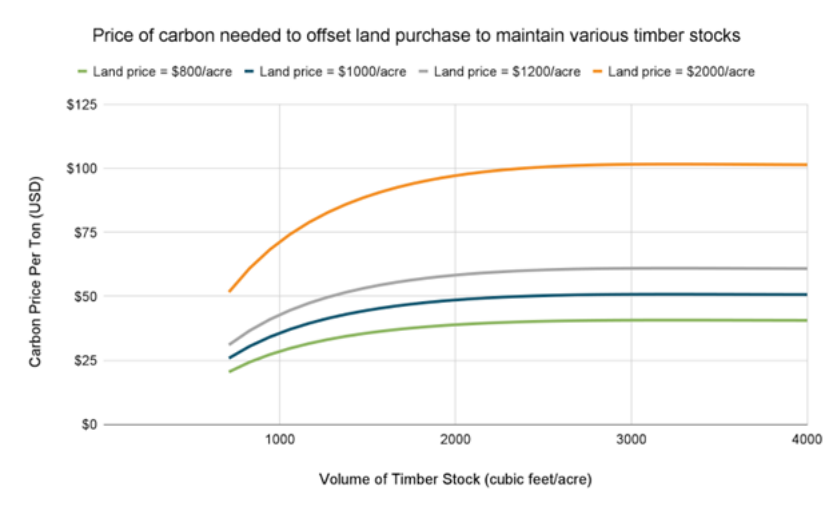

Figure 2: The price of carbon needed to offset forestlands purchased at various prices with different volumes of timber stocks maintained. The curves represent the price of carbon per ton needed to offset the forestland purchase, if forestland was purchased at various prices, ranging from $800–$2000/acre. The required carbon price is dependent on land price values, so the required carbon price starts lower for forestland that was purchased at a lower price, and starts higher for forestland that was purchased at a higher price.

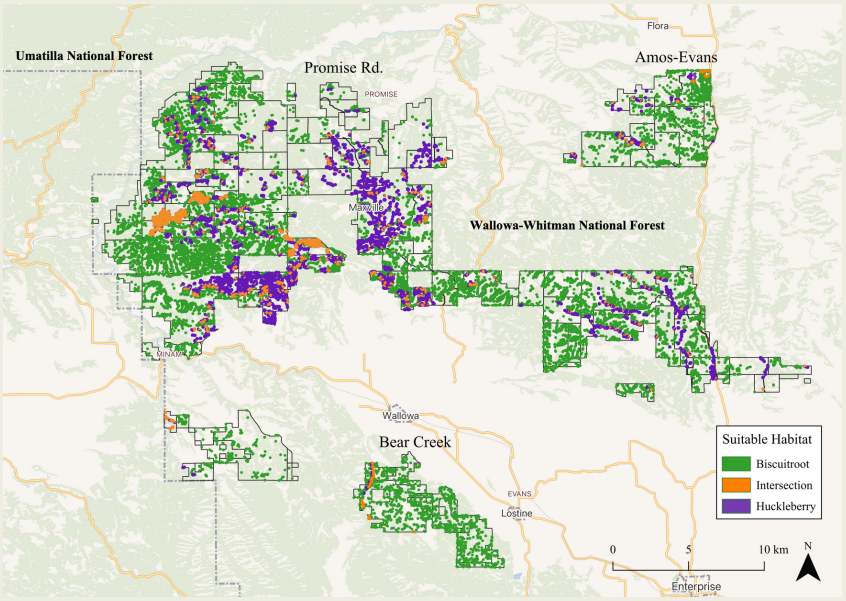

Figure 3: Areas containing suitable habitat for huckleberry and biscuitroot, and areas where both can grow within our parcels of interest.

Impacts

Research in the project is directly applicable to Wallowa County, and Wallowa Resources is encouraged to use our findings in applications for the funding sources listed in the report. This project can serve as a framework for other western, rural, resource-based communities interested in planning and financing community forest management.