

**Elliott State Forest Research Advisory Committee
Meeting Number Seven**

University Place Hotel and Conference Center
310 SW Lincoln St, Portland, OR 97201
September 25, 2019

Advisory Committee Website: <https://www.oregon.gov/dsl/land/pages/elliott.aspx>

Advisory Committee Members present: Steve Andringa, Paul Beck, Chris Boice, Eric Farm, Geoff Huntington, Mike Kennedy, Michael Langley, Mark Stern, Bob Salinger, Vicki Walker (by phone - just for start of meeting), and Bob Van Dyk

Department of State Lands and Oregon State University Staff: Meliah Masiba, Ken Armstrong, Ryan Singleton, Jennah Stillman, and Bill Ryan.

Oregon Consensus Facilitation Team: Peter Harkema and Amy Delahanty

Action Items

Action Item	Who	Date
Circulate draft September 25 meeting summary to AC members for review and comment.	OC	Completed
OSU to schedule a conversation between Dr. Katy Kavanagh and interested AC members regarding the definition of extensive and intensive and their related prescriptions.	OSU	TBD
First step. Circulate draft set of local economy, conservation and education guiding principles for AC member feedback	OSU	Completed
Second step. AC members to provide suggested edits to guiding principles doc	AC Members	10/10/19

Welcome, Agenda Review and Process Overview

Facilitator Peter Harkema welcomed the group then invited members to do a round of introductions. Peter noted that Oregon Consensus (OC) did not receive any edits from Advisory Committee (AC) members on the draft August 22 meeting summary. There being no further proposed edits, the group formally approved the document.

Updates

Department of State Lands

Department of State Lands Director Vicki Walker briefly addressed State Treasurer Read and Secretary of State Clarno's letters to AC members. Director Walker then shared the Land Board's direction and charge to her and DSL staff that was approved by unanimous consent at its December 2018 Land Board meeting (*see partially-transcribed December 18 Land Board meeting for additional details*). This direction was for Director Walker and staff at DSL to commence work with Oregon State University (OSU) and other agency partners on developing a plan to transform the Elliott into a research forest; include a timeline for submitting a Habitat Conservation Plan; and outline for engaging stakeholders on the range of public benefits including recreation, access, conservation, and working forest research. She noted it was her understanding the Land Board's direction has not changed, nor do they wish to change the direction at this time.

Director Walker then briefly spoke to Treasurer Read's letter. She shared the Treasurer highlighted his desire for the AC to address issues of governance, climate change, carbon, and tribal involvement throughout this process. Director Walker said the AC has addressed several of the Treasurer's aforementioned issues, and will address the remaining ones throughout this process. Finally, Director Walker shared that OSU and DSL will be meeting with the Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians on Tuesday, October 1. She shared there is an open invitation to other tribes and consultation will continue throughout the process.

Public Meeting:

DSL held a public meeting in Portland on Tuesday, September 24th. DSL provided a history of the forest and OSU shared information about the proposed research design. ICF and DSL were also in attendance to answer any questions related to the HCP. The meeting was well attended.

OSU:

Geoff Huntington (OSU) provided the following updates to the group:

- **Engagement.** OSU conducted two listening sessions in Reedsport on the topics of local economies and conservation. OSU has met with local economic interest as well as conservation groups, watershed councils and land trusts. The University will be meeting with Douglas and Coos Bay County Commissioners in October.
- **Consultation.** There is a scheduled consultation with CTCLUSI October 1.
- **Carbon.** Geoff shared the carbon work has been a large undertaking and hopes to have numbers in late October to share with the group.
- **HCP.** OSU has met with both NOAA and USFWS twice. They are on target to have something in writing to NMFS that reflects the research design and HCP conservation measures in November.

Following Geoff's comments, there was a question related to what OSU is hearing from the federal agencies in their conversations about the HCP. Geoff shared they are interested in the notion of a research forest and that there is a sense that OSU is on the right path. Bill Ryan (DSL) stated the agencies haven't highlighted any red flags to date, but would like additional detail before they commit or come to a predecisional agreement.

Recreation Guiding Principles

Geoff reminded the group that OSU had convened a Recreation and Public Access focus group to provide input on the preferred recreation aspects of a research charter for the Elliott. Geoff shared the focus group met in September and provided feedback to OSU. OSU then incorporated the focus group's feedback and presented an updated version for AC member review and input at the meeting, which were the following:

- **Ensure Public Access Into the Future.** The forest will remain accessible to the public for a variety of uses from multiple established entry points, by both motorized and non-motorized transportation, but not all places at all times.
- **Optimize Recreational Access that is Compatible with Research and Ecological Integrity:** Public access will be managed to optimize public use of the forest for different recreational opportunities consistent with forest management activities that support ongoing research, harvest, and conservation of at-risk and historically present species.

Suggested Change:

- *Strike "optimize" from the title and description.*
- **Support and Promote Diverse Recreational Experiences:** The Elliott Research Forest will seek to accommodate multiple and diverse recreational uses to provide a range of user experiences within the context of a working forest landscape. Recreational planning will not favor any one recreational type over another, but will seek to insure high quality experiences on the forest by managing to minimize the potential for conflict between users and research objectives.
- **Partner with Stakeholders and Manage Locally:** Elliott State Research Forest recreation programs should be managed by local staff who live in the community and work with stakeholders to enhance and protect the identified values of Elliott recreationists.

Comments and Questions:

- *What does manage locally mean?*
- *Hope that the governance structure for the Elliott would include setting expectations around stakeholder engagement and conflicting recreation user groups.*
- **Conduct Research on Sustainable Recreation Practices.** An Elliott State Research Forest should pursue relevant research on recreation, with the goal to advance scientific

knowledge and inform the general public on the opportunities and impacts of balancing multiple interests within forested landscapes.

- **Cultivate Multi-Generational Respect for the Forest.** Utilizing a collaborative approach to partner with schools, organizations and volunteer groups recreation planning and management will seek to create more opportunities for engagement and a more widely informed forest-user community that is vested in the future of the Elliott State Research Forest.

General Comments and Questions:

- *Suggestion to include wildlife viewing somewhere in the principles.*
- *Are you anticipating motorized recreation activity on the trails?*
- *Does a research forest give the opportunity to limit certain types of recreation opportunities? There is a spectrum of impacts on ecological and management values. Likely a management plan would address this and help manage expectations.*
- *The Elliott is a regional asset that is tied to recreation and tourism on the coast. I see this as an opportunity to connect with the Chamber of Commerce to promote economic opportunity.*
- *Consider additional agency connections e.g. Oregon Parks and Recreation Department.*
- *Are recreation and education activities part of the HCP? Depending on how much recreation you have on the forest, there could be impacts to species.*

Education Guiding Principles

Geoff then reviewed the draft educational partnership foundational principles with the group. The principles, as gleaned from a meeting with education advocates, were as follows:

- **Seek and Incorporate New Educational Partnerships.** An Elliott State Research Forest will offer opportunities to leverage and integrate existing local educational programs and institutions that support and generate forest-based research and knowledge.
- **Expand Accessibility to Forestry Education.** An Elliott State Research Forest will provide and promote a diversity of values, and in doing so will leverage efforts by OSU's College of Forestry to engage students with diverse social, economic, ethnic, and cultural backgrounds in forestry education programs.
- **Serve Students at All Levels of Education Through Programs on the Forest.** OSU should endeavor to foster and establish a programmatic link with K-12, community colleges, and educational programs at other Universities so that the forest becomes a resource for students at all educational levels.
- **Integrate and Demonstrate Elements of Traditional Knowledge in Educational Programs on the Forest.** Through active partnerships with local Tribal Governments, the Elliott State Research Forest will seek to provide demonstration areas that use traditional forest management practices and focus on Traditional Ecological Knowledge outcomes for use in educational programs.
- **Foster Public Awareness and Understanding of Sustainable Forest Management.** All management and research actions should endeavor to promote broader understanding and

awareness of the role of healthy working forest landscapes to local economies, resilient ecosystems, innovative competitive products, and healthy communities.

General Comments and Questions:

- *Suggestion to include opportunities for building partnerships and cross-collaboration research in different departments within the OSU.*
- *Include both traditional knowledge, as well as ways to incorporate Bob Zybach's work.*
- *Somehow "working forests" feel a little OFRI-like. Suggestion to include something more than what working forests do within a landscape e.g. language that captures climate change, ecological values, etc.*

ACTION ITEM: OSU will circulate a draft set of local economy guiding principles following the meeting.

Carbon Analysis Presentation

Tom Tuchmann, US Forest Capital

Tom Tuchmann provided an overview of the draft carbon feasibility report that was distributed as a pre-read to AC members. Presentation topics also included a brief review of the carbon sequestration market and considerations for exploring a carbon strategy on the Elliott State Forest; OSU's eligibility for a carbon project; implementation plan overview; estimated carbon stocks associated with OSU research scenarios; and financial values of carbon credits.

Tom highlighted key takeaways of the preliminary report, which were:

- OSU is eligible for registration;
- Governance and decision making structure are likely to have an impact whether the "private" or "public" protocol is used;
- The structure and timing of potential conservation easements can have significant impact on the baseline calculation;
- The structure of an HCP will have an impact on the carbon project baseline calculation;
- Forest management eligibility requirements may limit research flexibility or be inconsistent with research design.

Following Tom's presentation, several questions and comments by AC members were related to the relationship of a carbon project to the HCP; conservation easements; cost of a carbon project; and sequencing; and SFI/SFC certification requirements. It was noted that a small group may wish to get together to dig more deeply into the particulars of the carbon, easement, and HCP considerations. Any insights or suggestions gleaned from such a meeting would be brought back to the full group for consideration.

Modeling Scenarios:

Geoff Huntington and Tom Tuchmann shared an update on OSU's financial modeling efforts with Committee members. Geoff stated in August OSU committed to providing members with an

update on the progress of their efforts to model harvest revenue from different management scenarios on an Elliott State Research Forest. The spreadsheet (*distributed as a pre-read to AC members*) was a “back-of-house” framework that will go into the model runs. Geoff shared for the first run, Forest Capital currently anticipates running up to four modeling scenarios (Scenarios A, B, C and D). Geoff emphasized the different prescriptions are placeholders / starting points and are not reflective of a management plan the University is pursuing. Following Geoff and Tom’s review of the spreadsheet, the AC provided several comments and questions related to the approach to modeling steep slopes; quantity of stands included in the model; the definition of extensive and intensive and related prescriptions; and the value of modelling hypothetical scenarios.

ACTION ITEM: OSU to schedule a conversation between Dr. Katie Kavanaugh and interested AC members regarding the definition of extensive and intensive and their related prescriptions.

Governance Discussion

Geoff provided an overview of OSU’s preliminary thinking regarding governance and shared three governance options for AC member feedback and input. Geoff shared one goal for OSU would be to have a framework that provides certainty, but that doesn’t undermine or impact longevity. Following this, Geoff solicited feedback from AC members on the three scenarios members’ values and suggestions regarding effective collaborative governance components they would like to see reflected in an Elliott State Research Forest governance structure.

Key themes and questions that emerged from the discussion:

- *Transparency (e.g. ability to submit public records requests, who sits on the Board, how to contact the Board)*
- *Accountability*
- *Involvement from diverse stakeholders (similar to the Committee)*
- *A structure that can’t succumb to political pressures.*
- *Who will the employees be employed by?*
- *Important to have tribal representation on the Board*
- *The scenarios seem to be structured around whether there will be a carbon deal. Would prefer the structure be created and have carbon be part of the suite of considerations rather than the primary consideration.*

Following Geoff’s presentation, there was a brief discussion about next steps. Advisory Committee members generally agreed that any governance proposal will first need to work for OSU. As such, it was suggested that OSU draft a preferred governance option for the AC to react to and provide any additional feedback.

- **ACTION ITEM:** OSU to create a draft governance proposal for AC member feedback and input.

Next Steps

Peter thanked the group for their work and reviewed the meeting’s action items. The next meeting will be held **October 24th and 25th in Coos Bay.**

**Oregon State Land Board Meeting
December 18, 2018**

AGENDA ITEM 7

(Partial transcript of proceedings beginnings at the conclusion of public testimony)

At the conclusion of Treas. Read's motion to approve the declaration, the Land Board commenced discussion on the topic of how to proceed with the Elliott State Forest (2:19:28)

TREAS. READ: Are we on to general discussion then?

GOV. BROWN: Yes, general discussion.

TREAS. READ: Thank you. I'd like to – this will take a few minutes because I've been thinking a lot about this as I'm sure you and the Secretary have, so let me run through some thoughts.

First, I'm really grateful for all the presentations that we heard today. I think the Oregon Consensus Report, and the expressions of interest and the testimony that we heard gave us a lot of good ideas, a lot of useful information about how we can achieve decoupling.

But as I was thinking about it today and preparing for it, I was worried about two potential consequences of what we've been up to lately. First, I was worried that to many observers this conversation might feel like we were going back to square one, returning in some ways to the conversations that the Land Board has been having for years, if not decades. Any my staff and I have been asked on a number of occasions in the last little while, "Didn't we do this already?"

I'm also aware, aside from that confusion, that there are a lot of parents and organizations who are representing education stakeholders who are anxious about the Land Board's ability to successfully decouple the Elliott from the Common School Fund. They're, I think, looking for momentum, a sense of progress from us. And I think it's fair to say that their patience is probably not infinite.

There are obviously, also, a lot of people who are anxious about how the forest will be managed after decoupling, and how the state will protect the conservation elements of the Elliott and ensure that the public will continue to be able to access the forest for recreational purposes.

All of this is to underscore my strong feeling that I think is consistent with what you said, Governor, that we need to continue narrowing the options that are in front of us, particularly, in my view, to those options that meet our core assumptions of public ownership and access, full decoupling, strong conservation features, and of course meeting our obligations to the Common School Fund.

In short, I think we need to keep moving forward.

The second thing I was worried about was that we were somehow creating the impression that we were approaching the future of the Elliott as some sort of auction, as if we were simply asking "Who has \$120 million, I guess with some conservation elements with which they could buy the Elliott?" I'm worried that we're creating the impression that the only thing we are concerned about is the dollars.

From my perspective, this is not an auction. Of course, we have to meet our obligations to the Common School Fund. But, as much as it might feel like we are selling the Elliott, I think the reality is that what we're talking about is a whole lot bigger than that. I think we're talking about the future of the Elliott as a whole, and how it fits into a much broader set of public interests.

As we settle those questions, those fundamental almost existential questions, then we can start to answer the practical questions that follow: What would it take to transform the Elliott from a Common School asset into a different type of forest, with a different mandate and a potentially different ownership structure? It seems to me that what we really need is a conversation like those that stem from a trust land transfer process. That's one of the reasons I'm really glad that the legislature and the governor were able to refine and enact the concept that I introduced as a legislator because that puts that process into place, and I think it's going to be very helpful to us as we proceed.

Now, I want to be clear about something else: I am really excited about the vision that Dean Davis and OSU articulated today. It seems to me that that vision is entirely consistent with what the Land Board has already articulated as a direction.

OSU, it seems to me, sees value in a contiguous 80,000-plus-acre research forest that provides for public access and recreation. They see a strong conservation component on that landscape. And what I think distinguishes it from a lot of positive aspects of the other things we heard, they see a strong research component that will inform not only the future of timber management, but of climate change, adaptation and response, significant potential for tribal partnerships, and of course support for rural communities.

Madam Chair and Mr. Secretary, I think this is a really big opportunity for us as a state to answer some really big questions that will define who we are in the decades to come, and I'm ready to endorse that vision of a research forest on the Elliott.

From where I sit, I see that potential in the research, and I'd like the staff at DSL to begin working with OSU to sketch out a work plan that would inform the questions that need to be answered. It seems to me that embracing the vision of a research forest with OSU leading that conversation would also allow DSL to move forward with its HCP contractor and federal agencies. And we've already heard very articulately how important that's going to be to the Elliott's future.

I would ask, Madam Chair, that the work plan include a process for stakeholder engagement – we've talked about that already – including the involvement of local and tribal governments. I think it needs to begin answering the questions about the governance structures, how to engage the legislature and other potential funders on how a financing package might come together, maybe using the trust land transfer process that's recently been enacted. I think it should include support for OSU to help DSL put together the habitat conservation plan and to help build public support for a research forest.

I know there's a lot of work still ahead of us when it comes to the Elliott, but I'm really excited about this direction, this momentum, and hoping that a year from now we're going to be sitting here looking at a fully developed plan that will position us with the Elliott Research Forest as a national and global leader as the president said well.

So, I have a motion. I'm happy to pause or make that motion as your preference.

GOV. BROWN: Why don't you hang onto your motion --

TREAS. READ: Okay.

GOV. BROWN: -- and we'll see if Secretary Richardson has any comments or questions.

SEC. RICHARDSON: Well, I'd like to see a partnership of OSU, the counties and the tribes without further general fund bonding. In my opinion, this would be best for the schools, for the economy and for the taxpayers. Those are my comments.

GOV. BROWN: Thank you, Secretary Richardson.

I very much appreciate the time and energy that a number of parties have put into these proposals. I think for me I'm very interested and intrigued by the vision laid out by OSU and the forestry center there. I do think it's an opportunity -- and I heard from a number of folks that they want to keep the forest for the children. And I do think we can move forward on this path and keep the forest for the benefit of Oregon school children, probably in a different way, maybe less of a financial resource and more of an educational resource for the next seven generations.

I also -- I probably differ a little bit from Secretary Richardson. I think the counties certainly should be involved in, and certainly be a part of the engagement process. I don't see the tribes as stakeholders but as sovereign nations, and believe that not only should Coos and Cow Creek, but Coquille be part of this conversation moving forward. I suspect that Grand Ronde and Siletz will also want to participate in the conversation as well, and that seems appropriate to me.

But I do think we have an incredible opportunity to set a path for the future that recognizes the challenges we are facing due to climate change on our forests. I think, Anthony, you articulated really well that this will be a unique opportunity for Oregon to lead, not only the nation, but perhaps the entire world in terms of research on this particular forest.

I think given what's happening with climate change, and with how we have managed our lands -- and I'll pick on the federal agencies since they're not here, I don't think -- but clearly --

DIR. WALKER: They're here.

GOV. BROWN: Oh, they are? Okay. We've got a few folks here. So, I'll just talk about federal management of public lands generally, that certainly we are at the perfect storm in terms of federal management of public lands and what's happening with climate change. And I do think we have an opportunity to provide -- to create a new path forward, and I think OSU really has the ability to deliver on that vision, as well as ensuring that our children have an opportunity to learn from and engage in that. My recollection is that the Oregon Outdoor School program is housed at OSU as well, and so this might provide a different type of perfect storm in terms of educational opportunities for our students.

So, I want to continue to support where we're going and narrowing the focus and I look forward to hearing your motion, Treasurer Read.

TREAS. READ: (2:29:45) Thank you, Madam Chair. I think it's very consistent with what we both just said.

I move that we direct Director Walker and staff at DSL to commence work with Oregon State University, and other agency partners on developing a plan to transform the Elliott into a research forest, to include a timeline for submitting a habitat conservation plan and an outline for engaging stakeholders on the range of public benefits including recreation access, conservation, and working forest research.

GOV. BROWN: Thank you. Secretary Richardson, comments?

SEC. RICHARDSON: I second the motion.

GOV. BROWN: Great. We have a motion that is seconded, and hearing and seeing no objection that motion is approved. Thank you. (2:30:30)

AGENDA ITEM 7 CONCLUDED.

September 23, 2019

To: DSL Elliott State Forest Advisory Committee

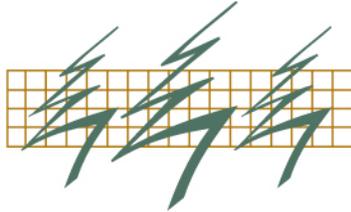
From: Geoff Huntington, Director of Strategic Initiatives
OSU College of Forestry

Re.: US Forest Capital Draft Preliminary Carbon Report

The following is a near final draft of the “Preliminary Carbon Report” produced by US Forest Capital as part of their contract to assess the viability of a carbon project on the Elliott State Forest, and to estimate what such a project might produce in terms of the sequestration and financial value. This report is the first of a few different work products US Forest Capital will produce. It does not provide an estimate of sequestration opportunity or value, but is a precursor for providing that assessment.

This report is a valuable primer on key considerations that must be addressed as part of considering the role that a carbon project could play in a final plan for decoupling the Elliott State Forest from the Common School Fund and managing it as a world-class research forest. We are sharing it in advance of this week’s Advisory Committee meeting so you will have a chance to review the Executive Summary and any (or all) of the longer document so that questions you may have can be discussed and answered by Tom Tuchman at our meeting.

Given the draft status of this document, I ask that it not be posted on line or reproduced for any publication. While you are certainly welcome to share it with others, please be sure to ask them to honor this request as well. As always, please feel free to reach out directly to me with any questions or concerns that may arise either before or after this week’s meeting.



US FOREST CAPITAL, LLC

**ELLIOTT STATE RESEARCH FOREST
PRELIMINARY CARBON REPORT**
Prepared for
OREGON STATE UNIVERSITY COLLEGE OF FORESTRY
September 23, 2019

Prepared by Tom Tuchmann and Charles Kerchner

DRAFT

1130 SW Morrison St. - Suite 300 - Portland, OR 97205 - www.usforestcapital.com

phone: (503) 220-8103 - fax: (503) 220-0056 - tuchmann@usforestcapital.com

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Executive Summary

Introduction

Forest carbon offset markets provide opportunities for landowners to monetize various carbon sequestration related forest management practices on a voluntary non-regulatory basis. Yet, doing so can be difficult to navigate, require tradeoffs and depend on landowner governance structures and objectives.

In some circumstances, carbon protocols and markets provide flexibility that would allow Oregon State University's (OSU) research objectives to be realized. In others, the carbon protocols and markets require strict adherence to certain rules that may dictate governance and management decisions that may make pursuing a carbon project difficult to accomplish. This report assumes that OSU would own and manage an Elliott State Research forest in some form and provides general background on:

- Applicable forest carbon offset programs
- Project eligibility issues
- Carbon project registration
- Barriers to entry and risks
- Forest carbon offset markets

Two accompanying reports will follow in 2019 that will provide an estimate of Elliott carbon project stocks that could be registered, and an implementation plan for a potential carbon project. This report does not provide specific strategies or recommendations for an Elliott carbon project. Doing so will require more detailed direction related to forest ownership, governance and management that result from the College's current deliberations.

Applicable Forest Carbon Offset Programs

Voluntary vs. Compliance Programs - There are two types of carbon markets available to U.S. landowners. First, the voluntary carbon market which applies standards and protocols to generate carbon credits purchased by companies or individuals on a *voluntary* basis. While the voluntary market is a forest landowner opportunity, the lack of consistent pricing, low volume transaction size, sporadic demand and high transaction costs has prevented widespread landowner participation. It is highly likely that several of these same hurdles would be present in an Elliott State Research Forest carbon project.

The compliance market, also known as the regulated market, has provided the greatest share of forest carbon offset sale opportunities to U.S. landowners. In compliance markets, a public entity sets a cap on how many greenhouse gas emissions are permitted from covered (also referred to as capped or regulated) entities. These entities must then meet their compliance obligations by reducing their emissions through several different means which include acquiring carbon "offsets" from organizations, such as forest landowners, which possess registered carbon credits that are available to sell.

Forest carbon offsets, therefore, play an important role in cap-and-trade programs by delivering cost-effective greenhouse gas abatement opportunities for covered entities while providing secondary benefits associated with forest conservation.

To date, compliance offset programs, specifically the California carbon program, has provided forest landowners with much better demand and pricing than voluntary programs. While this advantage may change in the future, the College requested that US Forest Capital initially focus on eligibility issues associated with the California compliance program. *The remainder of this summary is, therefore, focused on carbon compliance programs.*

How a Forest Carbon Project Works - California's forest offset protocol provides detailed rules and formulas for forest landowners who seek to register a project. Fundamentally, a landowner must sequester more carbon than would be sequestered under a business-as-usual approach. This standard is established by calculating a baseline and this baseline standard is different for landowners managing under the private or public protocol.

Following successful registration, a landowner must maintain and monitor each registered carbon vintage according to the protocol for 100 years. A forest landowner may also voluntarily sell the offset credits to any buyer in a private transaction at that time. A forest landowner may choose to terminate their carbon project during that 100-year time period but must pay to replace the carbon stocks it registered under a graduated fee scale.

Eligibility Issues

In addition to calculating whether carbon stocks on the landowner's forest exceed the baseline, forest landowners wishing to participate in the market must also meet a number of eligibility criteria. The most important of these are listed below along with preliminary thoughts on whether and how OSU might be impacted by these criteria.

- **Is a university owned forest eligible for registration?** Answer: Yes.
- **Would OSU be required to register under the “public” or “private” landowner protocol?** Answer: Either is a possibility and the carbon project stock estimate will measure the difference associated with the two protocols. *It is expected that the private protocol will generate more credits than the public protocol.*
- **What is the impact of a Habitat Conservation Plan (HCP) under the federal Endangered Species Act?** Answer: HCP prescriptions will be incorporated into the baseline and therefore reduce the total available credits available for registration and sale to some degree.
- **Are forestlands that are encumbered by conservation easements eligible for registration?** Answer: Yes, but the timing and type of a conservation encumbrance could have an impact on the baseline calculation, and therefore the credits available for sale as an offset.

- **Forest Management Related Eligibility Issues** – There are additional requirements that directly impact forest management flexibility by requiring or limiting certain silvicultural practices. Those that may be of greatest impact to the Elliott forest include:
 - Limitation on even-aged management units to 40 acres or less;
 - Prohibition against broadcast fertilization;
 - Requirement that no more than 40% of even-aged acres can be less than 20 years old;
 - Requirement that any even-aged unit be separated by an area of at least as large as the harvest unit or 300 feet; and
 - Requirement for sustainable forest management plan that can be third-party verified (SFI, FSC, state).

While these requirements certainly benefit various conservation attributes and allow for a carbon related financial return, the requirements can also create overhead and timber related opportunity costs that may make a project prohibitive. While these criteria are generally non-negotiable, there may also be opportunities to develop options that achieve landowner and protocol objectives.

Registering a Forest Carbon Project

Registering a carbon project can take 12 to 30 months and include significant up-front transaction costs before any carbon sales are available to recoup expenses. The carbon market inventory requirements that are more intensive than a typical operational inventory verification requirement make up the bulk of this time and cost. Furthermore, it is important to note that the upfront costs are incurred without a determination that the project will be approved. The registration is comprised of the following 8 steps:

- Assess property characteristic and relationship with forest protocol
- Listing with selected registry
- Forest carbon inventory design and implementation
- Growth and yield modeling/quantification/optimization and carbon offset documentation
- Third-party verification
- Registry and Compliance Entity Registration
- Offset sales negotiated directly with buyers
- Annual monitoring and annual vintage registration

Barriers to Entry and Risks

Both compliance and voluntary markets carry a number of barriers to entry, as well as short and long-term risks. Below are some of the most common barriers and risks.

Barriers - Potential barriers to entry include:

- **Public vs. private protocol** that will result in different levels of forest offsets available for registration
- **Forest management restrictions** that may cause both silvicultural limitations and/or financial costs that limit the desirability of entering the carbon offset market.
- **Financial values** that are less than the equivalent unit value of a harvested tree. While this is especially true in high value regions like Oregon, carbon projects may be financially beneficial for landowners who may not be looking to maximize net present value and/or whose inventory age or species mix create an incremental financial opportunity.
- **Pre-closing transaction costs** are substantial and are incurred with no guarantee of project approval.
- **Permanence requirements** provide that each registered carbon vintage must be maintained for 100 years in the case of the California compliance program and 40 years for the voluntary programs.

Risks – Potential Risks include:

- **Invalidation** refers to the risk associated with having registered carbon stocks invalidated as a result of a landowner action.
- **Reversal of carbon stocks** occur when a registered sequestered carbon tonne is emitted back into the atmosphere whether that reversal is intentional or not.
 - **Unintentional Reversals** are caused by fires, windthrow and other acts of nature and do not carry any financial liability for landowners.
 - **Intentional Reversals** occur when a landowner releases registered carbon credits into the atmosphere as a result of over-harvesting or other activity. Landowners are required to replace released credits with another credit on a 1:1 basis.
- **Project approval** is the responsibility of the registry and/or compliance entity and is not guaranteed.
- **Prices** are set by private buyers and sellers and like any commodity, are responsive to demand and supply forces.
- **Political** support for compliance programs could wane notwithstanding the current strength of support for the program.

Forest Carbon Allowance and Offset Markets

Financial markets associated with carbon allowances (generally) and forest carbon offset markets (specifically) are now well-developed. While these markets are small compared to a traditional commodity like oil and gas, allowance auctions have been fully subscribed in recent years and there is active allowance trading on the Intercontinental Exchange (ICE).

Predicting market prices for an Elliott project is difficult for several reasons. First, the

necessary offset registration that is required to sell offset credits would likely be completed after 2021. Second, and related to the first, California has recently reduced the amount of offset credits that covered entities can use that do not provide Direct Environmental Benefits (DEBs) to the State of California. The impact of this change on prices for non-DEB carbon credits could be substantial but will be unknown until final rule-making on this issue, and when the rule takes effect after 2021. It is unclear whether the Elliott could qualify as providing a direct environmental benefit to California at this time.

With future pricing in mind, CaliforniaCarbon.info reported on August 30, 2019 that compliance carbon offset spot pricing ranged from \$14.48 to \$15.14 per tonne depending on the type of compliance offset. For comparison, Forest Trends reported in 2018 that average voluntary market prices ranged between \$3.00 to \$6.00/tonne with the largest number of transactions being priced at less than \$1.00/tonne.

Ongoing work will estimate the potential size of an Elliott carbon project aimed at the compliance market. This work should further inform whether and how OSU might approach registering a carbon project.

DRAFT

LIST OF ACRONYMS

- AB 398 California Assembly Bill 398
- ACR American Carbon Registry
- ARB Air Resources Board
- CAR Climate Action Reserve
- CCO California Compliance Offsets
- CITSS California Compliance Instrument Tracking System Service
- CO₂e Carbon dioxide equivalent
- CORSIA Carbon Offsetting Scheme for International Aviation
- DEBs Direct Environmental Benefits
- ERPA Emission Reduction Project Agreement
- FSC Forest Stewardship Council
- FVS Forest Vegetation Simulator
- HCP Habitat Conservation Plan
- ICE Intercontinental Exchange
- OPR Offset Project Registry
- OSU Oregon State University
- OTC Over the Counter
- RGGI Regional Greenhouse Gas Initiative
- ROCs Registry Offset Credits
- SFI Sustainable Forestry Initiative
- SIG Spatial Informatics Group
- VCU Verified Carbon Unit
- VCS Verified Carbon Standard
- WCI Western Climate Initiative

INTRODUCTION:

US Forest Capital was contracted to explore the feasibility of registering and selling forest carbon offset credits for carbon sequestered on the Elliott State Research Forest. This feasibility assumes the Elliott would be owned and managed by Oregon State University (OSU) in some capacity.

With OSU's approval, US Forest Capital recruited Spatial Informatics Group (SIG) to review this preliminary report and to model the Elliott's potential carbon project stocks. Results of this modeling are presented separately.

The many and variable factors associated with developing a carbon project are complex, highly dependent on landowner objectives and can be difficult to navigate. In some circumstances there is flexibility to meet carbon project protocol standards. In others, the protocols and markets require strict adherence to certain rules.

The following report provides an overview of forest carbon offset programs, registration processes and available markets for OSU's consideration in determining whether and how they might proceed with Elliott ownership. Beyond general eligibility, this report does not provide specific strategies or recommendations to address Elliott carbon project complexities. This work would ultimately be dependent upon confirmed forest ownership, governance and management.

This report focuses on voluntary and California compliance systems. This report does not focus on how offsets might be used under the recently considered Oregon cap-and-trade legislation, as the program is not authorized. If Oregon authorizes a cap-and-trade system, an offset project under an Oregon program can be analyzed at that time.

WHAT IS A REGISTERED FOREST CARBON OFFSET CREDIT?

Definition

A forest carbon offset credit is one metric ton of carbon dioxide equivalent (CO₂e) that has been sequestered by a third-party's management actions, is validated by an independent third-party and is registered for accounting and other purposes in a nonprofit registry or public regulatory organization. These credits can then be purchased by an organization that is required by regulation to compensate for its own carbon emissions and/or a voluntary buyer.

Offset Accounting

Organizations that establish meaningful carbon offset programs focus on the following accounting principles to assure that carbon reductions are valid:

Baseline – A measure of how much carbon would be stocked assuming intensive but legal asset management; typically thought of as carbon stocks sequestered under a “business as usual” approach. For example, a forest landowner already sequesters an amount of carbon

by complying with state and federal laws, plus any conservation encumbrance or other encumbrances they have sold. These carbon stocks must be measured to create a baseline to determine what additional sequestration will take place as a result of their forest management actions. The California protocol requires an offset provider to calculate “Common Practice” to establish a forestry project baseline.

Additionality – A measure of carbon stocks that are sequestered from activities that are additional to “business as usual.” For example, a landowner voluntarily maintains a viewshed or extends rotation length in a manner that sequesters additional carbon above the baseline.

Leakage – A measure of carbon stocks that have shifted from one source to another. For example, a company reduces timber harvest on their property, but an unaffiliated landowner in another state increases harvest to meet demand.

Permanence – Ensuring the net additional carbon stocks that are sequestered remain stored. For example, the California program requires registered offsets to be maintained for 100 years.

Accuracy – Estimating carbon stocks within a minimum threshold.

Verifiable - All protocol requirements, including eligibility and calculations, have been third-party verified.

Vintage – The total amount of carbon that is sequestered and registered each year. For example, a landowner’s registered 2019 Vintage = 200,000 tonnes, 2020 Vintage = 214,000 tonnes, etc.

Forest carbon offsets can be generated through three different kinds of management activities. These include:

- **Afforestation/Reforestation** – Projects where lands are replanted after having been in some non-forest use for a period of time.
- **Avoided Conversion** – Projects where forests are prevented from being deforested.
- **Improved Forest Management** – Projects where forest management practices are changed in a manner that results in an increase in sequestered carbon.

This report focuses on the potential for an Elliott-based improved forest management project, as the property would not be eligible for an afforestation/reforestation nor an avoided conversion project.

OVERVIEW OF COMPLIANCE AND VOLUNTARY CARBON MARKETS

Carbon markets have the opportunity to generate landowner revenue for their conservation activities. There are two primary markets available to U.S. landowners. First, the Over the Counter (OTC) voluntary market applies standards and protocols from registries to generate carbon credits purchased by companies or individuals on a *voluntary* basis. While the OTC

market is an opportunity for forest owners, the lack of consistent pricing, low volume transaction size, sporadic demand and high transaction cost has prevented widespread landowner participation (Kerchner and Keeton, 2015). There is no “cap” in the OTC market, as all action is voluntary. Thus, the OTC market relies on individual companies and consumers to invest in greenhouse gas emission reductions (Hamrick and Gallant, 2018).

The second market type is the compliance market, also known as the regulated market. To date, the compliance market has provided the vast majority of forest carbon offset sale opportunities to U.S. forest landowners. In compliance markets, a cap-and-trade system is regulated by law. A public entity sets a cap on how many greenhouse gas emissions are permitted from covered (also referred to as capped or regulated) entities. Covered entities must then meet their compliance obligations by reducing their emissions through internal means, acquiring allowances¹ at auction, being allocated “free” allowances by the regulating agency, or by acquiring “offsets” from uncapped sectors.

Compliance markets consider forestry an uncapped sector. Therefore, forest carbon offsets play an important role in greenhouse gas emission reduction efforts because they are allowed to compensate for an emission made elsewhere by a regulated entity. Forest offsets play a critical role in cap-and-trade systems by delivering cost-effective greenhouse gas abatement opportunities compared to other uncapped sectors.

It is critical that landowners who are considering participation in either the voluntary market or compliance market understand the nuances associated with each and the forest protocol rules they will be required to follow.

COMPLIANCE OFFSET PROGRAMS

The forest carbon offset market is both complex to navigate and a potential source of income for landowners who seek to sequester, register and monetize their carbon stocks. There are many factors to consider but identifying the different programs and differences between compliance and voluntary markets is a starting point.

Compliance Offsets Background

While federal efforts to create a carbon market have been stalled for the last decade, California, Quebec and the Northeastern U.S. states², through a separate Regional Greenhouse Gas Initiative (RGGI), have authorized various forms of cap-and-trade programs that seek to reduce carbon emissions.

A carbon cap-and-trade-system is a market-based approach to controlling carbon emissions which allows carbon emitting organizations to trade emission *allowances* within an overall cap,

¹ In carbon markets, an allowance is commonly denominated as one ton of carbon dioxide or its equivalent.

² Northeastern states that participate in RGGI include Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont.

or limit, on those emissions.³ These cap-and-trade programs are typically termed *compliance* systems, in that they create a regulatory compliance standard on businesses' carbon emissions.

The California compliance system is considered to be the most comprehensive operational cap-and-trade program, having established a robust set of policies and programs that seek to reduce carbon emissions to 20% below the 1990 levels by 2020. The cap-and-trade rules were applied first in 2013 to electric power plants and industrial plants emitting more than 25,000 metric tons of carbon dioxide equivalent (CO₂e) per year. In 2015, the rules were also applied to fuel distributors who also met the 25,000 metric ton threshold.

This program was reauthorized through AB 398 in June 2017. Under the reauthorized program, emissions reductions are targeted to reach 40% below 1990 levels by 2030. In absolute terms, this means that California's carbon emissions should drop from 395 million tonnes to 334 million tonnes by 2020 and then drop to 250 million tonnes by 2030.

Any organization regulated by the emissions cap can rely upon a few different pathways for compliance. One compliance option is to purchase carbon *offsets*. California, Quebec and RGGI programs all authorize the use of offsets under their cap-and-trade program. California and Quebec further participate in the Western Climate Initiative (WCI), which serves to develop and harmonize state emissions programs so that offset projects located outside California and Quebec can participate. In comparison to the WCI offset program, RGGI projects must be located within one of the Northeastern RGGI States (RGGI, 2019). Therefore, the Elliott State Research Forest would not be eligible to participate in RGGI.

California's cap-and-trade system is the largest and most established carbon market in North America (Nichols, 2018). California's carbon market is the largest single source of forest carbon conservation capital available to landowners in this region. The California program allows organizations, technically referred to as *covered entities*, that are regulated by the state's cap-and-trade program to offset a small portion of their emissions through registered California Compliance Offsets (CCO).

How California's Compliance System Works

In 2017, there were approximately 800 organizations in California, heretofore covered entities, that are allowed to offset a small portion of their emissions with registered California Compliance Offsets (CCO). Prescriptive protocols have been established for project developers to follow in creating offsets related to forestry, livestock, grassland and mine methane capturing and ozone depleting substances.

These offsets are generated by third-parties, such as forest landowners, that voluntarily implement carbon sequestration management practices and then measure, verify and register their carbon offset credits with the California Air Resources Board (ARB) under their

³ The California cap and trade program, for example, sets a cap on carbon emissions by "covered entities." The cap is the sum of all emissions from the covered entities (i.e. it is not specific to a certain entity), and allowances are issued equal to the cap amount. A covered entity must acquire and submit allowances that equal its carbon emissions for a compliance period. Covered entities (and other registered, voluntary participants in the market) can trade allowances, as well as offset credits.

approved forestry protocol.

Under the California forest offset protocol, forest management practices must sequester more carbon than would be sequestered under *Common Practice* to result in carbon credits that qualify for registration (ARB, 2015). Common Practice is determined by looking at an ecoregion's average stocking, compliance with current law and determining the "Logical Management Unit."⁴

Following registration, a landowner may voluntarily sell the offset credits to any buyer in a private transaction. The landowner is required to maintain and monitor the registered carbon stocks for a 100-year period.

If forest landowners decide to voluntarily participate in California's cap-and-trade system, they must follow long-term protocol requirements, ensuring carbon stocks are maintained for 100+ years. A forest landowner may choose to discontinue its project during that 100-year period, but it must replace its registered carbon with graduated fee scale (see page 18).

It is important to note that offsets can only be used to meet a small percentage of a covered entities' compliance obligations. California's current program allows a covered entity to use CCOs to offset up to 8% of its emissions through 2020. For a number of policy reasons, the 2017 legislation reauthorizing the program for 2020-30 (AB 398), reduced the number of offsets a covered entity could use to meet their emissions targets. Offsets are now capped at 4% of a covered entity's 2021 through 2025 emissions and 6% of their 2026 through 2030 emissions. Of these amounts, 2% (and 3% in 2026) must result from projects that have *Direct Environmental Benefits (DEBs)* to California with a priority on rural, tribal and disadvantaged communities.

There are several policy clarifications and determinations that will be made in the rulemaking process to further define offset use, including the definition of DEBs. It is currently expected that a project will need to be either located in California or have a direct relationship to California for it to be considered a direct benefit to the state. It is further expected that this determination will be made on a project-by-project basis.

Landowner Opportunities – Landowner opportunities associated with compliance offset programs:

- Demand for larger offset projects greater than 50,000 tonnes
- Financially viable for well stocked properties greater than 5,000 acres (Kerchner and Keeton, 2015)
- Generally, much higher pricing than voluntary. Compliance offsets are currently selling for \$14.50 to \$15.00/tonne (Evolution Markets, 2019).
- Offset protocols have become increasingly standardized.
- The market has withstood legal and political challenges and in California's case, AB 398 authorized the market through 2030.

⁴ A *LMU*, according to the ARB protocol, means all land that the forest owner owns that is within the same assessment area where the project is located. "Assessment Area" means a distinct forest community within geographically identified ecoregions that consists of common regulatory and political boundaries that affect forest management.

Landowner Challenges – Challenges associated with compliance offset programs:

- Slightly more complicated and expensive registration process as a result of both registry and regulatory sign off requirements.
- More burdensome regulatory requirements
- Programs are subject to policy and political changes (Kelly & Schmitz, 2016).
- Demand for non-California offsets. Therefore, prices associated with those non-California tonnes may decline in 2021 when the maximum available offset tonnes drop from 8% of total allowances to 2% of total allowances (rising back to 3% in 2026).
- Longer landowner term commitment to project than voluntary markets

VOLUNTARY OFFSETS

Voluntary Offsets Background

Voluntary offsets refer to those offsets that are used by a non-regulated organization that seeks to voluntarily offset its emissions for goodwill or other reasons. Said differently, buyers of voluntary offsets are not required to reduce their carbon emissions but choose to do so for a variety of reasons. For example, technology, automobile, aviation and other companies may buy voluntary offsets to seek carbon neutrality.

Voluntary offset buyers do not have a required set of standards that they must follow to assure carbon accountability. Technically, voluntary buyers set their own rules, however, they generally require that landowners use one of the protocols established by a carbon registry, which is summarized in the next section.

How Voluntary Offsets Work

Voluntary offsets work in much of the same way that compliance offsets do. For example, a third-party forest landowner voluntarily implements carbon sequestration management practices. They then choose to work with one of the carbon registries and use that registry's protocol to measure, verify and register the carbon they have sequestered. Following registration, the landowner or project proponent will sell the credits to the voluntary credit buyer. Fundamentally the same, baseline, additionality, leakage and permanence principles apply to the three voluntary protocols described below, however, each of the registries approaches the problem a bit differently. Research has shown that offset protocol accounting rules can have a significant impact on forest management (Gunn et al., 2011, Russel-Roy et al. 2014). Moreover, registry choice and corresponding protocols can also influence financial viability of forest carbon projects. Studies have shown differences in protocols can lead to a wide variation in carbon offsets and ultimately, revenue received by landowners (Pearson et al., 2008).

Opportunities – Opportunities associated with voluntary offset programs:

- Demand for voluntary offsets may increase as international efforts, such as the Carbon Offsetting Scheme for International Aviation (CORSIA), are established

- Provides a carbon monetization opportunity for landowners who do not or cannot participate in the compliance market
- Marginally more flexible registration protocols
- Marginally less expensive and complicated process given that there is only one registration requirement that is required

Challenges – Challenges associated with voluntary offset programs:

- Currently, the market has shown low demand for sales over 30,000 tonnes of carbon.
- Pricing is generally much lower than compliance at \$1 and \$5/tonne. This is especially true for projects attempting to sell larger amounts. There are, however, examples of small voluntary transactions that equal or exceed compliance pricing.

CARBON MARKET REGISTRIES

Carbon registries serve two primary functions. First, registries are analogous of an independent, third-party clearing house that acts as a certification body. Second, in the case of the California compliance market, registries serve as the intermediary between the project developer and California’s Air Resources Board (ARB). ARB requires all projects to be listed with a third-party registry. After carbon credit verification, described below, registries review projects and issue Registry Offset Credits (referred to as “ROCs”). These ROCs are then converted to California Compliance Offsets (CCOs) in the final stage of project approval by ARB.

The second primary function of registries is to develop offset standards and protocols for the voluntary market. Although all voluntary forest protocols go through a similar review process, the protocol methodologies and project requirements can vary greatly between registries.

The three largest registries are summarized below, along with the primary attributes of their voluntary protocol.

Climate Action Reserve (CAR)

The Climate Action Reserve (CAR) is a California Offset Project Registry that lists offset projects under their voluntary protocol, collects project reporting documentation, facilitates verification and issues ROCs (CAR, 2019). Founded in 2001, CAR also serves as a preliminary certification body for project developers and ARB in the California Compliance market. CAR is one of the largest carbon offset registries in North America.

CAR’s forest protocols were developed as a precursor to California’s compliance market. Thus the credit issuance, credit period and project life commitment is, for comparison purposes, very similar to the California compliance protocol. Although CAR manages voluntary protocols, they are viewed as more restrictive for the voluntary market and have fewer users. For the voluntary market, landowners in North America prefer the American Carbon Registry (ACR) or Verified Carbon Standard (VCS).

American Climate Registry (ACR)

Founded in 1996 as the first private voluntary offset program in the world, the American Carbon Registry (ACR) has eighteen years of experience developing carbon offset standards and methodologies as well as operational experience in carbon offset project registration, verification oversight and offset issuance (ACR, 2019). ACR is part of an umbrella nonprofit organization, Winrock International, that works around the world on natural resource management and economic development.

Similar to CAR, ACR is an approved Offset Project Registry for the California compliance market. ACR works with ARB to oversee project registration and issuance of ROCs. ACR's crediting period and quantification methodology for the voluntary market is, however, different than CAR's voluntary protocol. For example, CAR's voluntary forest protocol requires a 100+ year commitment to a project while ACR's permanence requirement is 40 years.

ACR forest sequestration projects include conversion from conventional logging, conversion of managed forests to protected forests, extended rotations, and conversion of low-productivity to high-productivity forests. In terms of the Elliott State Research Forest, the most relevant ACR protocol (ACR IFM, 2018) would be a methodology used on non-federal U.S. forestlands. It uses Net Present Value of harvested wood products in the baseline compared to the landowner's project scenario (actual management practice). This protocol includes two 20-year crediting periods within the 40-year contract commitment. While the ACR protocol would likely generate the most credits for the Elliott State Research Forest, compared to other voluntary protocols, the quantity of credits generated could be great enough to outstrip demand at a desirable price point.

Verified Carbon Standard

The Verified Carbon Standard (VCS), like CAR and ACR, is an Offset Project Registry (OPR) that is authorized for the California compliance market (VCS, 2019). While VCS provides the same services as other compliance market registries, it has fewer California offset projects registered than CAR and ACR.

The VCS is predominately known for creating a trusted, fungible greenhouse gas credit for the voluntary market, later termed the Verified Carbon Unit (VCU). Projects are enrolled on 40-year commitments and must be verified by a third-party every 5 years with written updates yearly. The majority of VCS's projects have other conservation mechanisms in place such as Forest Stewardship Council (FSC) certification; Climate, Community, and Biodiversity certification and conservation easements.

Other Registries and Voluntary Market Standards

In addition to CAR, ACR, and VCS, there are registries and standards that dominate a lesser share of the market. These include the Plan Vivo Standard and Markit Registry. The majority of Plan Vivo projects, including forest offsets, are outside North America (Plan Vivo, 2019). However, the Plan Vivo Standard can be applied to North American forest

carbon projects and provides greater landowner flexibility through rolling aggregation to participate in the offset markets. Markit Registry, a global registry, acts as a tool for managing global carbon, water and biodiversity credits. It allows participants to track projects and to issue, transact and retire credits. Projects listed on the Markit Registry (Markit, 2019) ⁵ are primarily developed under the Gold Standard and the Verified Carbon Standard.

OPPORTUNITIES FOR FORESTLAND OWNERS:

As discussed in the market section below, carbon markets are real and are expected to generate demand for offset credits through 2030. These offset programs provide opportunities to monetize management activities that are voluntarily implemented and can be shown to sequester carbon above and beyond their regulatory and legal baseline (Dickinson et al., 2012; Keeton et al., 2018). Examples include:

- Set-asides associated with viewsheds or riparian areas;
- Extended rotations beyond those that are economically or legally required;
- Creation of no or limited harvest reserves that do not result from regulation;
- Implementing harvest rates below commercial standards; and/or
- Maintaining or slowing the conversion of tree species that would otherwise have no or low commercial value.

Moreover, while net timber value can vary significantly based on species, grade, and logging cost, carbon pricing is fungible across the market. Meaning, a tonne of carbon sequestered in a redwood is worth the same as a tonne of carbon sequestered in jack pine or tanoak. A benefit/cost analysis regarding the tradeoff between commercial harvest and carbon sequestration project can help a landowner determine whether or not to move forward and whether land management activities can be optimized in a way that both timber harvest and carbon sequestration can add financial and impact investment related returns.

FOREST CARBON PROJECT REQUIREMENTS

Project Eligibility Requirements

Under the California compliance forestry protocol, all avoided conversion, reforestation, and improved forest management projects are required to meet a detailed set of both general and project-type-specific eligibility criteria (ARB, 2015). Should OSU decide to move forward with a carbon project, a detailed eligibility criteria questionnaire would be developed to determine whether and how the final research forest management prescriptions and Habitat Conservation Plan (HCP) requirements would affect carbon project eligibility.

Initial California Compliance Market Forest Eligibility Issues

There are a number of eligibility issues that affect whether an OSU-owned research forest is

eligible for carbon project registration and therefore whether it is worthwhile to move forward with a carbon registration process.

For the contracted purpose of estimating carbon stocks and associated financial returns, OSU directed focus on eligibility criteria associated with the California compliance market. Some of the most important eligibility criteria are addressed below along with a preliminary perspective on how they would affect a potential Elliott carbon project.

- **Is a university owned forest eligible for registration?**
Answer: Yes. There are no prohibitions against registering a forest carbon project on a state university owned forest.
- **Would OSU be required to register under the “public” or “private” landowner protocol?**
Answer: Either is a possibility. The answer depends upon the ownership and governance structure established by the University. The rules for establishing a baseline are different for landowners that are deemed to be public or private and therefore, have an impact on how many carbon credits are issued. However, the distinction between public and private is based more on how management decisions are made and whether there are legally mandated management protocols that apply to the University that are more restrictive than those which apply to privately owned forests. For example, tribal governments and two state university sponsored subsidiaries use the private protocol even though they are chartered public entities. Resolving this question will require more work on governance structures, how the property could legally be managed and how the property would be transferred to OSU ownership.
- **What is the impact of the HCP?**
Answer: HCP prescriptions would be incorporated into the baseline and therefore have an effect on the total available credits available for registration and sale. The land use constraints imposed by an HCP would be built into the carbon project baseline. A more restrictive HCP in terms of harvest limits and spatial coverage, compared to a less restrictive HCP, would result in fewer credits generated for the project. In either case, more credits are expected to be generated for the Elliott if an HCP is adopted, rather than if it were to be unpermitted and thus additional restrictions would apply. Without an HCP, the baseline would assume that all threatened and endangered species habitat is unavailable for harvest and would place greater constraints on the baseline model, resulting in fewer credits generated. Thus, a well-tailored HCP that is efficient in its coverage will provide more flexibility for registering a carbon project.
- **Are forestlands that are encumbered by conservation easements eligible for registration?**
Answer: Yes, but the encumbrance could have an impact on the baseline and therefore the additionality available to credit for offset. There is no prohibition against registering forestland that is encumbered by a conservation easement,

although the type and timing of the easement could significantly impact carbon credit generation and a project's financial viability. Per California's forest protocol, an easement does not have to be incorporated into the baseline if it was recorded within one year of a carbon project commencement date. ARB also has rules related to how carbon rights need to be addressed in conservation easements. It is very important to review ARB's easement requirements prior to considering whether and how a conservation easement may be incorporated into a project.

Forest Management Related Eligibility Issues – There are a number of additional eligibility requirements that directly impact forest management flexibility and require, or limit, certain silvicultural practices. Those with the most potential to impact the Elliott research program include:

- Limitation on even-aged management units to 40 acres or less;
- Prohibition against broadcast fertilization;
- Requirement that no more than 40% of even-aged acres can be less than 20 years old;
- Requirement that any even-aged unit be separated by an area of at least as large as the harvest unit or 300 feet; and
- Requirement for sustainable forest management plan that can be third-party verified through the Sustainable Forestry Initiative (SFI), Forest Stewardship Certification (FSC) or state standards.

While these requirements certainly benefit various conservation attributes and allow for a carbon related financial return, the requirements can also create overhead and timber related opportunity costs that may make a project cost prohibitive. While these compliance program requirements are generally non-negotiable, there may be opportunities to develop options that achieve landowner and protocol objectives. These requirements should be carefully considered before moving forward with a carbon project once a preferred forest research management plan is finalized.

Project Process Requirements

Carbon project registration is complex but can be summarized into 8 stages. These are detailed in the accompanying Implementation Plan, but as an overview, an Improved Forest Management project requires the following:

Stage 1: Data Mining and Project Eligibility and Feasibility

1. Collect inventory data (timer cruise format is acceptable)
2. Assess property characteristics (stocking, size, forest type)
3. Assess how property characteristics intersect with selected forest offset protocol (state date, legal constraints, future management and consider reversals)
4. Quantify credit generation and financial viability

Stage 2: Listing & Contract

1. Project development agreement between landowner and project developer to define responsibilities and transaction terms
2. Landowner register with California Compliance Instrument Tracking System Service (CITSS)
3. Select and list project with registry (American Carbo Registry or Climate Action Reserve)

Stage 3: Forest Carbon Inventory Design and Implementation

1. Develop inventory manual
2. Stratify property
3. Layout inventory plot grid
4. Solicit bids for inventory
5. Select inventory firm
6. Ongoing inventory oversight
7. Check cruise (if desired)

Stage 4: Growth and Yield Modeling/Quantification/Linear Optimization

1. Quantify onsite stocks using ARB approved methods
2. Use Forest Vegetation Simulator (FVS) or another approved growth and yield model to apply College approved harvest prescriptions in baseline modeling
3. Use linear programming to maximize credit generation
4. Apply ARB reductions for buffer pool, leakage, & stored wood products

Stage 5: Carbon Offset Documentation

1. Collect all relevant project information per Section 7.2 of the ARB Compliance Offset Protocol (2015)
2. Draft the OPDR
3. Landowner review and approval

Stage 6: Third-party Verification, Registration and Credit Issuance

1. Third-party verification
2. Registry review and approval and issuance of Registry Offset Credits (ROCs)
3. Compliance program review and approval and issuance of California Compliance Offsets (CCOs)

Stage 7: Offset Sales Negotiated Directly with Buyers (during project development phase)

1. Emission Reduction Project Agreement (ERPA) that outlines carbon credit sale terms to buyer
2. Transaction structuring
3. Contract close and payment

Stage 8: Monitoring, Reporting, and Verification (100+ years)

BARRIERS AND RISKS

Both compliance and voluntary markets carry a number of barriers to entry as well as short and long-term risks. Listed below are some of the most common barriers and risks.

Potential Barriers to Entry

Public vs. private protocol – For public or quasi-public organizations, the public protocol can create a barrier to entry as it requires assumptions that raise the baseline. A raised baseline may limit a carbon project’s viability.

Forest management restrictions – The forest management requirements highlighted in the last section may cause both silvicultural restrictions and/or financial costs that limit the desirability of entering the carbon offset market.

Financial Value – No definitive study has been published but in general, the current value of a carbon tonne does not equal the unit value of a harvested tree. This is especially true in high value regions like Oregon. That said, carbon projects can be financially beneficial for landowners who may not be looking to maximize net present value, and/or whose inventory age or species mix create an incremental financial opportunity.

Pre-closing transaction costs – The pre-closing transaction costs, especially the carbon inventory requirements, are substantial and are incurred with no guarantee of project approval.

Permanence requirements – Each registered carbon vintage must be maintained for 100 years in the case of the California compliance program and 40 years for the voluntary programs. This creates an encumbrance similar to a conservation easement or Habitat Conservation Plan. There are opportunities to buy out of a carbon project, but doing so is expensive, especially in early years of the project.

Risks

Invalidation - Invalidation refers to the risk associated with having registered carbon stocks voided as a result of a landowner action. Under the California compliance market, registered carbon credits have an 8-year invalidation period. That period can be reduced to 3 years if a landowner voluntarily agrees to “double verify” the vintage. This simply means that a second third-party verification is completed to substantiate the original verification findings. Under the compliance program, invalidation can occur for one of three reasons:

- Carbon reductions were overstated by more than 5%.
- The project was not in accordance with environmental, health and safety regulations.
- The offsets were issued in another voluntary or compliance program.

Reversal of Carbon Stocks – “Reversals” occur when a registered sequestered carbon

tonne is emitted back into the atmosphere, whether that reversal is intentional or not. There is an important differentiation between the two in terms of landowner liability.

- **Unintentional Reversal** – There is no financial landowner liability for unintentional reversals caused by fires, windthrow and other acts of nature. Every approved project is required to place +/- 19% of their total registered credits into a registry “buffer” account that serves as an insurance policy for the entire program. If the unintentional reversal is large enough, the project may have to be canceled, which negates registration of annual vintages.
- **Intentional Reversal** – An intentional reversal is one where a landowner releases registered carbon credit back into the atmosphere as a result of over-harvest or other activity that is deliberately caused by the landowner. Intentional reversals are allowed under ARB’s policy. If a reversal occurs, however, the landowner needs to replace the already registered carbon credit with another credit on a 1:1 basis. With proper planning, intentional reversals can be prevented, mitigated or properly compensated by withholding credits for sale and retaining those credits in an internal landowner bank.

Project Approval – Despite the substantial time and cost associated with registering a carbon project, the registry and/or compliance entity has final approval of the project. Where issues may exist, the registries have worked with carbon project proponents to resolve project level issues.

Price Risk – While carbon credit sales must be reported to the registries and compliance entities for tracking purposes, such entities do not play any role in the carbon market. Prices are set by private buyers and sellers, and like any commodity, are responsive to demand and supply forces. To date, prices have generally risen proportionally to the allowance market where price floors are established. There are no guarantees that this will continue in the future. See the Carbon Market Dynamics (page 21) for more information on this topic.

Political Risk – California’s carbon offset markets resulted from legislation that established a program from 2011 through 2020. In its early years, the program was litigated on a number of fronts and prevailed in each case. In 2017, the program was reauthorized to continue from 2021 through 2030.

Fundamentally, the compliance market was created by a public body and that body could either modify or terminate the program in the future. While California’s compliance market has strong political support and legal foundation through 2030, changes can and do occur. For example, California’s reauthorized program reduced a covered entity use of offsets from 8% to 4%. In Ontario, the recently elected premier terminated Ontario’s cap-and-trade program when he took office.

LONG-TERM CARBON MANAGEMENT RESPONSIBILITIES

Monitoring and Compliance

A landowner is responsible for ensuring each vintage’s carbon stocks that they register are maintained for 100 years. For example, the 2019 vintage must be maintained through 2118;

the 2020 vintage must be maintained through 2119; etc.

The compliance and voluntary protocols establish similar guidelines for monitoring registered carbon on an annual basis. Monitoring and reporting requirements include:

- Annual submission of attestations that summarize environmental law compliance, estimated carbon stocks, yearly harvest volumes and other registry requirements
- Annual “less intensive” desk verification that does not require a third-party check cruise
- A “full verification” that does require a field check cruise is typically mandated every five years
- Re-inventory of the property every ten years

These annual monitoring and reporting requirements can be incorporated into the work that a landowner completes for purposes of registering annual vintages, which saves time and cost.

The accompanying Implementation Report also touches on the timing and cost associated with annual reporting and monitoring responsibilities and costs.

Carbon Project Termination

Like a Habitat Conservation Plan, a landowner can terminate a project if fees are paid. Table 1 illustrates the credit compensation paid to ARB if a project is terminated. For example, the project owner must pay ARB 1.4 credits for every credit terminated if the project is cancelled within five years.

Table 1: ARB Credit Compensation for Terminated Project

Number of Years from Project Start Date	Compensation Rate (per registered credit at the credit sale value at time of termination)
0-5	1.40
>5-10	1.20
>10-20	1.15
>20-25	1.10
>25-50	1.05
>50	1.00

Post 2030 Responsibilities

It is difficult to determine landowner responsibilities if programs like California’s or others are terminated or not reauthorized. Kerchner and Keeton (2015) outline policy scenarios if the California program is not renewed post 2030. In one scenario, the legislation ends in 2030 and a bill is passed that requires 100 years of monitoring. Another is that legislation ends in 2030 and essentially terminates the requirement to monitor for 100 years. A third

scenario is that independent of the regulatory requirement, a carbon credit buyer requires the landowner to continue monitoring. If this is of concern, there are several mechanisms landowners can use to mitigate the potential financial risk. One such mechanism is the establishment of a Reserve Fund from the initial sale of credits that will pay for long-term monitoring and project maintenance.

CARBON MARKET DYNAMICS:

Compliance vs. Voluntary Markets

To summarize the earlier discussion, covered entities (businesses) must regulate their carbon emissions in California and Quebec by using Western Climate Initiative authorized allowances and/or offsets for meeting their compliance obligations.

No voluntary allowance market exists as there is no regulatory scheme to drive this market. However, a compliance offset market was created concurrently with the allowance market. This compliance market complimented the voluntary market which had already existed.

Compliance Allowances

While the forest carbon offset market operates independently from the allowance market, there is a relationship in that offsets trade at a discount to allowance pricing. This discount serves as a cost containment mechanism for covered entities. While there are and will be other factors that affect offset pricing as discussed below, understanding allowance demand and supply dynamics helps estimate where offset pricing may be in the future.

The California cap-and-trade program sets an annual limit on greenhouse gas emissions. This limit is translated into tradable emission allowances that are typically equivalent to one metric tonne of carbon dioxide or carbon dioxide equivalent. As previously mentioned, these allowances are either allocated for “free” by the state or auctioned quarterly to approximately 800 “covered entities” on a regular basis. An auction price floor was established when the program began and increases annually.

A covered entity must report its annual emissions for the year and then surrender allowances and offsets for at least 30% of *previous* year’s emissions. In addition to annual surrender obligations, there are three-year Compliance Periods where covered entities are required to retire the aggregate of their outstanding reported emissions obligations for that Compliance Period.

For example, during the first compliance period, if Company X retired 30% of their emissions obligation for 2013 in 2014, they were required to retire the additional 70% of their 2013 obligations plus 100% of 2014 obligation at the end of 2015. They were required to do the same for the second Compliance Period in 2018 and will be required to for the third Compliance Period in 2021. This is important for allowance and offset sellers in that demand increased in 2015 and 2018 when the 1st and 2nd compliance period ended. We expect the same dynamic in 2021 at the end of the 3rd compliance period and at the end of future compliance periods.

Allowance Supply – A cap-and-trade program is a market-based mechanism that seeks to reduce overall emissions without mandating a specific amount of emission reduction by individual businesses. ARB’s current program established allowance targets that decrease from 394.5 mm tonnes in 2015 to 334.2 mm tonnes in 2020. Such allowance targets will be further reduced on an annual basis to approximately 250 mm tonnes in 2030.

Allowance Demand – Demand for allowances is dependent on:

- A covered entity’s total emissions;
- To what degree carbon sequestration programs, such as the Renewable Portfolio Standard, that are independent of the cap-and-trade program has reduced emissions;
- The amount of allowances from an undersubscribed auction that are placed back into a future auction;
- The impact of other governmental subdivisions (i.e. Quebec) that are linked to the California program;
- Allowances that are available through the secondary market;
- To what degree allowances have been banked; and,
- Other market factors.

From a regulatory standpoint, the emission cap is currently being met through the variety of means outlined above. Allowances demand is therefore relatively weak and this dynamic is expected to continue through the mid-2020s. At that point, analysts currently feel that the market will go short and prices will continue to rise above the floor.

Allowance Pricing – Allowance pricing is driven by supply and demand typical of any market with the important caveat that California has placed a floor on auction prices. Floor prices have grown from \$10/allowance in 2012 to \$15.62/allowance as of August 2019. By regulation, floor prices will increase at 5% plus the rate of inflation through 2020. Increase in floor prices into the future cannot be predicted with certainty.

- **Historical Pricing** - Spot (non-auction) pricing for allowances has ranged between a low of \$11.54/allowance in May 2014 and a high ranging around \$17.80/allowance in July 2019. Previous highs peaked at \$14.78/allowance in May 2013 and then quickly dropped to their low. Allowance prices hovered in the \$12.00/allowance range between October 2014 and January 2017 due largely to legal and reauthorization uncertainty associated with the program. With reauthorization of the program, allowance prices have steadily climbed.
- **Future Pricing** – Looking to the future, many analysts believe that allowance prices will hover around the auction floor price through the early 2020s. According to CaliforniaCarbon.info’s 2017 futures market report, allowance pricing would steadily increase to \$17.72/tonne in 2021. These prices were actually achieved earlier this year though they are now in the \$17.10/allowance range. Such pricing increases reflect projected gradual increases in the auction floor price and general confidence in the market. Allowance prices are expected to grow to \$60/allowance ranging between 2023-2027 and up to \$90/allowance by 2030. Again, this mid 2020’s

increase should be generated by an allowance market that is expected to go short at that time.

Compliance Offsets

As discussed above, regulated entities can currently use registered compliance offsets that are created by third-party providers to meet up to 8% of their compliance obligation. In 2021, the California cap is reduced to 4%, of which 2% must be from projects that have Direct Environmental Benefits to California. In 2025, the offset cap rises back to 6%, of which 3% must create Direct Environmental Benefits to California. California has not technically defined what kind of offset credit will or will not provide the required benefits to the state. Legal issues related to the interstate commerce clause could impact final determination. It could be that an offset must be based in a California-related watershed or airshed or that more strictly defined to require DEBs to be generated within state boundaries.

This issue has important ramifications for the Elliott State Forest in that the California program generates the majority of demand for compliance offsets and an Elliott project would likely be authorized after the new cap has taken affect.

Offset Supply –As carbon offset programs and processes have matured over the last seven years and larger projects have been approved, more commercial landowners have become interested in carbon project registration. Moreover, means have been developed to optimize and analyze the tradeoffs associated with carbon and timber returns.

Total offset issuances have grown from 1.5 mm credits in 2013 to 34.8 mm credits in 2015, and 162 mm credits as of August 2019. Of these, 79% have been forestry projects and the remainder have been livestock, mine methane capture, and ozone depleting substance projects.

In addition to the offset credits that have been issued to date, there is a large backlog of 25 million credits that are waiting approval by ARB. It was estimated by CaliforniaCarbon.info (2017) that that there may be another 49 mm tonnes in the project pipeline with project developers working to bring them online before the offset cap is reduced in 2020.

Supply for the 2021 to 2030 program, which is of more importance to the College, is difficult to predict. We do know that existing approved projects will continue to register their annual vintages. The uncertainty is whether forced reduction in offset demands as described below will keep offset suppliers out of the market.

Offset Demand

Actual annual offset demand through 2020 is expected to be 75% of the 8% offset cap or 20 to 23 million tonnes/year. If supply projections at 60 to 70 million tonnes highlighted above are realized, this means existing projects could fill much if not all of the demand through 2020.

Using the same logic for post 2020 demand, we might expect demand for allowances to drop

to 350 tonnes in 2021. Assuming 75% of the 4% offset cap, this means that demand will be approximately 10 or 11 million tonnes. The new program requires that 2% be from offset projects that benefit California. Thus, this further reduces demand for non-California projects to 5 to 7 million tonnes. In any case, a significant drop from the 20 to 23 million tonnes demand is expected through 2020.

Offset Supply/Demand Projection - It is very difficult to project supply and demand for the 2021 through 2030 program where the use of offsets will be scaled back, especially for projects that do not produce Direct Environmental Benefits to California. There are a number of scenarios being forwarded.

- Collectively covered entities only used 4% of the 8% authorized cap today, so the impact on demand will not be as large as perceived.
- The reduction in offset use caused by the Direct Environmental Benefits requirement will generate an oversupply of credits and there will be some reduction in offset pricing.
- The reduction in price will keep large commercial landowners and project developers out of the market, thus a new equilibrium will be created with smaller or one-off projects.
- The offset cap may be raised back to 8% if this is the only way allowance cost containment can be achieved.
- Other states and Canadian provinces may approve cap-and-trade programs and link through the WCI to the California program, as Quebec has done. This will generate increased demand for offsets and therefore, supply may stabilize or grow modestly. Note however, that the opposite has proved to be true with Ontario withdrawing from the market and Oregon and Washington failing to pass cap-and-trade programs.

In their October 2017 report, CaliforniaCarbon.info projected that demand for California DEB credits will exceed supply but that non-DEB credits will be oversupplied post 2020. If this is true, we would expect the price ratio, as summarized below, between allowances and non-DEB credits to increase.

Offset Pricing – Offsets are priced at a discount to allowances and in relationship to the risk that they will be invalidated. Regarding the allowance relationship, offset prices have historically tracked at 85% (+/-) of allowance prices. This spread has recently been as low as 78% of allowance prices and as high as 90% of allowance prices.

When the offset cap is reduced to 4% in 2021, prices could bifurcate with those that result from California projects maintaining or increasing their value relative to credits from other states. Prices for non-DEB offsets are expected to drop relative to allowance pricing if supply significantly exceeds demand. There is a scenario where current pricing spreads continue if there is not an influx of new offset providers and other governmental subdivisions create offset programs that link to the California system.

Prices are also related to a credit's "invalidation risk" that was discussed on page 18. From a

market standpoint, buyers translate that risk into three product categories. CCOs that have 8-year invalidation periods are referred to as CCO-8s. Those that have been double verified are sold as CCO-3s. Purchasers are willing to pay more for CCO-3s than CCO-8s. Some purchasers have also created what is known as a “Golden” or CCO-0 credit, whereby the seller contractually retains the invalidation risk, which they are not required to do by regulation. CCO-0 carry no purchaser invalidation risk and therefore carry the highest price.

Historically, the spread between CCO-8s and CCO3s has been in the \$0.20 to \$0.60/tonne range. The spread between CCO3s and CCO-0s, however was historically much higher up to \$1.50/tonne. This difference has dropped dramatically over the last year, perhaps because buyers are becoming more comfortable that the rigorous nature of the protocol and approval process creates a low likelihood of invalidation.

As of August 31, 2019, CaliforniaCarbon.info (CCI, 2017) published spot and offset prices are as follows:

- CCO-8 - \$14.48/tonne
- CCO-3 - \$14.64/tonne
- CCO-0 - \$15.14/tonne

Voluntary Offsets

Forest Trends estimates that 95 million voluntary forestry offsets were issued worldwide through various means and registries between 2005 and 2018 (Hamrick et al, 2018). While this total number is significant, demand for these offsets remains low. More importantly, voluntary offset buyers generally seek to acquire 50,000 tonnes or less and are more typically looking for sales in the 10,000 to 30,000 tonne range. Compliance buyers, by comparison, typically do not want to acquire less than 50,000 tonnes per contract and often look to buy hundreds of thousands and even millions of tonnes in one transaction.

On the pricing front, Forest Trends shows that average prices ranging between \$3.00 to \$6.00/tonne, with the largest number of transactions being priced at less than \$1.00/tonne. The authors have received unsubstantiated offers up to \$10.00/tonne for 100,000 tonnes but have not transacted at that level.

There is speculation that the 2015 Paris Agreement and the International Civil Aviation Organization’s sector wide cap-and-trade program will generate new demand for voluntary offsets. Until that is a reality, however, the WCI compliance market provides the highest demand and best pricing for forestry offset credits at scale.

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DRAFT

Elliott State Research Forest
Advisory Committee
Preliminary Carbon Analysis Briefing

September 26, 2019



Elliott Carbon Feasibility Analysis

Project Components

1. Carbon Preliminary Report
2. OSU Eligibility
3. Implementation Plan for Carbon Project
4. Estimate carbon stocks
 - Associated with OSU research scenarios
 - Financial values of carbon credits



Carbon 101 Report

Key Concepts

- Accounting
 - Baseline
 - Additionality
 - Permanence
 - Leakage
- Types
 - Avoided Conversion
 - Reforestation/Afforestation
 - Improved Forest Management

Registration Process

- Compliance or voluntary?
- Select registry
- List
- Inventory
- Project design document
- 3rd party verification
- Registry approval
- CARB approval (if compliance)
- Sales



Relevant Carbon Markets

- Voluntary
 - Addressed in Report, but not included in model
- California Compliance Market
 - Modeling using: 1. private and 2. public protocols
- Oregon Compliance Market
 - Did not analyze



Primary Eligibility Questions

- Is the University owned forest eligible for registration?
 - Yes.
- Would OSU be required to register under the “public” or “private” landowner?
 - Either is possible. There may be measurable difference in the credits available between the two.



Primary Questions

- What is the relationship of a HCP to Carbon Project Market Enrollment?
 - HCP prescriptions will be incorporated into the baseline calculation.
- Are forest lands encumbered by conservation easements eligible for registration?
 - Yes, but the timing and content may affect:
 - The carbon market baseline calculation negatively or
 - The carbon risk rating positively



Forest Carbon

Preliminary Report Take-Aways

- OSU is eligible for registration
- Governance and decision making structure is likely to have an impact whether the “private” or “public” protocol is used
- The structure and timing of potential conservation easements can have significant impact on the baseline calculation
- The structure of an HCP will have an impact on the carbon project baseline calculation
- Forest management eligibility requirements may limit research flexibility or be inconsistent with research design



Carbon Pricing

- Voluntary
 - Range: <\$1.00/tonne to \$20/tonne
 - Average: \$3/tonne to \$6/tonne
 - Median for sales at scale: approx. \$1/tonne
- Compliance
 - Currently – \$14.50/tonne to \$15.00/tonne
 - 2022 – Impact of CA-Direct Environmental Benefits is difficult to predict



COLLEGE OF FORESTRY



Oregon State
University

September 25, 2019

Governance

- Three possibilities
- Lots of details left to determine
- Lots of flexibility to frame each option
- OSU is not making a proposal today

September 25, 2019
College of Forestry

Governance Option 1

OSU Ownership and Management

Key Characteristics

- OSU acquires title to the property (with or without deed restrictions)
- OSU is the sole owner and manager of the forest
- Operated pursuant to management plans adopted for forest operations, research, and recreation
- Possible with or without stakeholder advisory role on forest management
- Possible with or without stakeholder advisory role on research program

Considerations:

- Flexible and allows discretion to manage the forest to support research program goals.
- Flexibility to establish and appoint advisory board(s) to frame ongoing stakeholder engagement on forest management issues.
- Clear flexibility to integrate College oversight of research program with forest management.
- Day-to-day management and operation of the forest is direct responsibility of OSU – even with advisory board(s).
- Clearly qualifies the forest under the “public protocol” designation in carbon markets with associated implications for sequestration market value.

Governance Option 2

Wholly Owned Subsidiary Ownership and Management

Key Characteristics

- OSU creates a subsidiary non-profit with charter to manage the forest for benefit of OSU research objectives
- Non-Profit Subsidiary acquires and holds title (with or without deed restrictions).
- Non-Profit owns and manages the forest for the benefit of OSU (via charter document)
- Enforceable fiduciary obligation to manage to support OSU research via charter document.
- Oversight by appointed Board of Directors responsible for management and staffing.
- OSU can manage research program on the forest.

Considerations:

- Allows discretion to manage the forest to support research program goals via Charter document.
- University appoints Board of Directors who will be directly responsible for management decisions.
- OSU would not have control or oversight of day-to-day management of the forest.
- OSU can enforce Charter terms by changing board membership if “mission drift” occurs.
- Flexibility to establish and appoint stakeholder advisory committee(s) for input.
- Clearly qualifies the forest under the “private protocol” designation in carbon markets with associated implications for market value.
- Net revenues flow to OSU

Governance Option 3

OSU Owned with Lease to Wholly Owned Subsidiary

Key Characteristics

- OSU acquires and holds title (with or without deed restrictions).
- OSU creates a subsidiary non-profit with charter to manage the forest for benefit of OSU research objectives
- OSU leases forest to subsidiary non-profit with specific terms for management of the forest to support research program goals.
- Lease agreement is enforceable, and can be as specific or general as needed.
- Oversight by appointed Board of Directors responsible for day-to-day management and staffing.

Considerations:

- Allows discretion to manage the forest to support research program goals via both Charter, and terms of a Lease Agreement.
- University appoints Board of Directors who will be directly responsible for management decisions.
- OSU would not have control or oversight of day-to-day management of the forest, but more control than Option 2 via enforcement of lease agreement.
- Flexibility to establish and appoint stakeholder advisory committee(s) for input.
- May qualify the forest under the “private protocol” designation in carbon markets with associated implications for market value.
- Net revenues flow to OSU.