Scott River Shackleford IFM Project

ACR 732

December 20, 2022

Version 2.1

Prepared by:

EFM Investments & Advisory

L&C Carbon

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A.
PROJECT OVERVIEW

A1. PROJECT TITLE

The project title is the "Scott River Shackleford IFM Project."

A2. PROJECT TYPE

This project is to be registered under the American Carbon Registry Standard[1] (ACR, 2020) as an Improved Forest Management (IFM) project and has been developed in compliance with an approved ACR Improved Forest Management Methodology[2].

A3. PROOF OF PROJECT ELIGIBILITY

Eligibility for this Improved Forest Management project has been determined with reference to the ACR Standard, Version 7.0. and the ACR Improved Forest Management Methodology[3]

The Project meets all relevant eligibility requirements as described in Table 1.

Table 1. Eligibility Requirements

ACR Eligibility Requirement	Method or Demonstration to Meet Requirement
Ownership Type	Provide copies of grant deeds for tax parcels within the Project Area to demonstrate ownership is non-federally owned forestland within the United States.
Project proponent's forestlands are subject to commercial timber harvest activities under an existing forest management plan	Provide a list of all tax parcels contained in the Project Boundary demonstrating all tax parcels are zoned with designations that allow for commercial forestry.
Evidence of existing and on-going forest management	Since property was purchased in 2017, the lands within the project area have been managed according to the core principles of EFM, detailed in the property's forest management plan. This includes the production of harvested wood products, protection of water quality, and improvements to fish and wildlife habitat. The project area is certified under the Forest Stewardship Council's forest management and chain of custody standards.

[1] ACR. 2020. American Carbon Registry Standard, Version 7.0. American Carbon Registry, Arlington, VA, USA.

[2], [3] ACR. 2016. *Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal Forestlands*, Version 1.3, April 2018, American Carbon Registry, Arlington, VA, USA.

Project Area meets the definition of Forestland condition as per USFS FIA program definition	Provide a copy of the 2021 forest inventory summary by stratum to demonstrate that the area within the project boundary are at least 10 percent stocked by forest trees of any size and are not currently developed for non-forest use. Also, GIS shapefiles of the Project Area will be made available that demonstrate this requirement.
Project start Date	Project start date is June 7, 2021, which is the date that the project proponent entered a contractual relationship to initiate a carbon project with project developer L&C Carbon, as per ACR Standard, Version 7.0, Appendix A. The project is being validated within three years of the June 7, 2021 start date.
Project term	The project term is 40 years, as per the ACR Standard, Version 7.0. Over the project term, EFM commits to project continuance, monitoring, and verification.
Crediting Period	The initial crediting period is 20 years, as per the ACR Standard Version 7.0.
Real	The project seeks no issuance of ex ante credits.
Direct emissions/Offset title/Land title	Greenhouse gas (GHG) emission reductions generated by the project activity are generated from forest carbon sources and sinks over which EFM has all management and ownership rights. EFM holds title to all lands in the Project Area (see Section G below) and all rights to carbon credits/offsets produced through management of forests in the Project Area.
Additional	Additionality is demonstrated in Section C of this document.
Regulatory Compliance	Regulatory compliance is met by submission to a verification body of a signed Monitoring Plan confirming regulatory compliance at each verification.
Permanent	Permanence is addressed by the project through: 1) ongoing assessment of risk using the ACR Tool for Risk Analysis and Buffer Determination v1.0 and contributions commensurate with risk, determined using the tool, to the ACR buffer pool and 2) entering

	into a legally binding *Reversal Risk Mitigation Agreement* with ACR/Winrock that details the risk mitigation option selected and the requirements for reporting and compensating reversals prior to finalization of the RP1 validation/verification.
Net of Leakage	Leakage is addressed using the ACR-approved Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands. See Section E.3. of this document.
Independently validated and verified	The project is being submitted for independent validation and verification in June 2022.
Community and environmental impacts	Net positive community and environmental impacts are demonstrated in Section F of this document.
Forest definition	All areas qualify as forestland per the methodology (Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands v1.3) definition of at least 10% stocked by forest trees of any size, and not currently developed for non-forest uses, as demonstrated by the 2021 forest inventory and GIS shapefile of the project area that may overlayed on current aerial imagery.
Eligible landownership type	All landownership types, including private as in the case of this project, are eligible per the ACR Standard Version 7.0.

Project Temporal Boundary

The project start date is June 7, 2021. EFM Investments & Advisory (EFM) began evaluating forest carbon project opportunities within their Scott River area ownership shortly after purchasing the property as one way to diversify income sources. However, EFM did not take formal action to initiate a forest carbon project until June 2021 when it executed a contract with a forest carbon project developer to assist EFM to prepare and submit a listing document to ACR. This action initiated EFMs commitment to sequestering carbon beyond all legal and regulatory requirements, as well as above and beyond Business-As-Usual activities.

The project term will be 40 years, with two crediting periods of 20 years each.

A4. LOCATION

The Scott River Shackleford IFM Project Area is in NW California. The Project Boundary contains about 12,364 acres of commercial forestland, with 100 percent of the project area denoted as forestland.

The Property runs along the western edge of the Scott River Valley, approximately 10 miles southwest of Fort Jones, California. It forms the interface between the valley bottom and high peaks of the coast range to the west. The greater landscape is dominated by the Marble Wilderness and Klamath National Forest to the west, private woodlots along the valley fringe and agricultural lands and pasture in the Scott Valley. The neighboring lands contain similar species mixes and growing conditions as those found in the Project Area.

The Project Area can be accessed through the main access routes at the east boundary of the property and run up the major drainages. The center point of the Shackleford project area is Decimal Longitude: -123.017494 Decimal Latitude: 41.569167; Degrees Minutes Seconds: 123°1'2.980"W 41°34'57.9.001"N.

Historically the area's use as a timber production dates to the early 1900's. The current forest is the result of extensive logging, grazing, and fire suppression over the past 100 years that resulted in degraded forest and water resources.

Much of the Project Area has been in private forest industrial ownership since the early 1900's. Past owners have included Fruit Growers Supply, International Paper Company, and more recently Timbervest. There have been seven Timber Harvest Plans (THP) completed on the Property since 1997. Several fuel reduction projects have been completed in the last 10-15 years in cooperation with local Fire Safe councils. EFM purchased the property in 2017 from Timbervest.

Prior to extensive timbering, gold mining was conducted on several areas in and around the property from approximately 1875 through the early 1900s. Several mining methods common to that period were employed. No known mining activity has taken place since the early 1900s. Grazing has been occurring on the property and in the adjacent Marble Mountain Wilderness Area for many decades. Concurrent with timbering over the last century, the property was used a source for water for valley agriculture and domestic use, as well as hunting and recreation, including access to the public lands to the west of the property – now the Marble Mountain Wilderness Area.

A GIS library, including a shape file of the Project Boundary will be made available to the Verification Body and the Registry. The Project Boundary shape file is based on Siskiyou County's GIS tax lot layer which is publicly available on the county's website. All relevant data sources and parameters, such as GIS projection, public roads, and water features, are detailed in Appendix A of this documents - the project inventory standard operating procedures (see Appendix D).

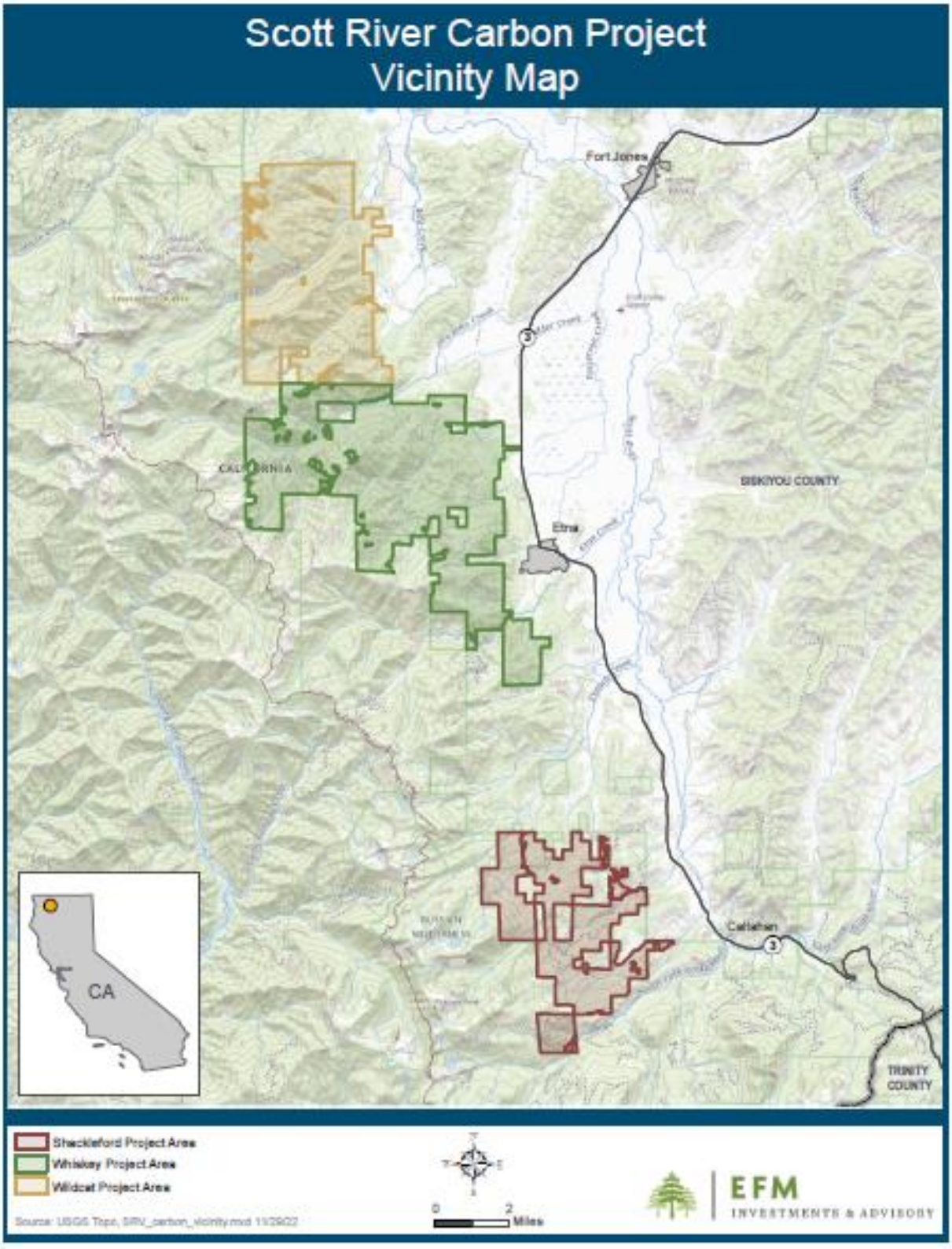

Figure 1. Vicinity Map of the Scott River Shackleford IFM Project Area

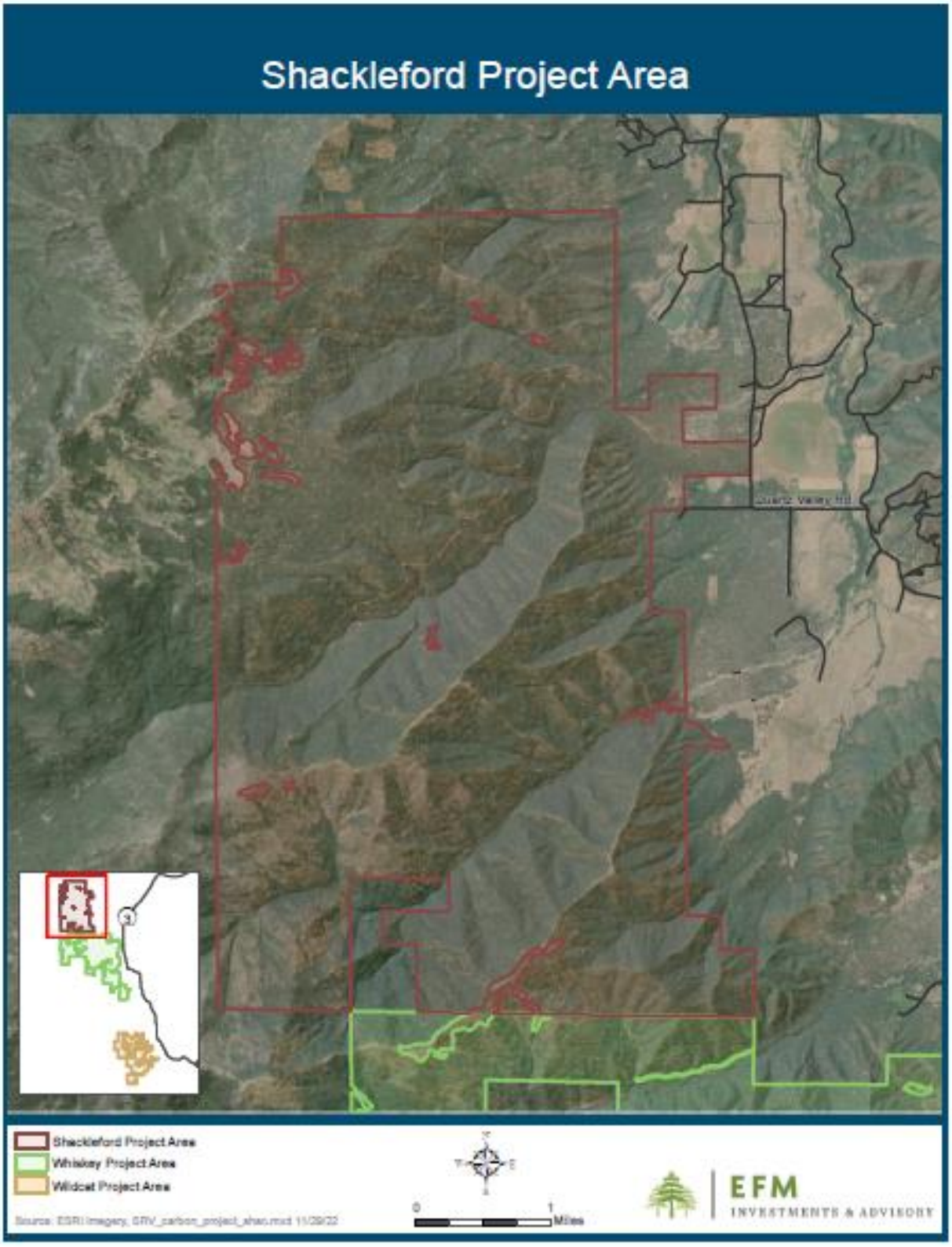

Figure 2. Scott River Shackleford IFM Project Area

A5. BRIEF SUMMARY OF PROJECT

A5.1 Description of Project Activity

The Scott River Shackleford IFM Project is composed of 12,364 acres of mixed conifer and hardwood forest that will be managed for the purpose of increasing carbon stocks by maintaining existing forest biomass and restricting harvests to less than the annual forest biomass growth over the project term. The planned harvest levels over the project term are well below the volumes permissible under federal and state laws, including California's Forest Practices Act and the implementing regulations and rules. The result of this reduced harvest regime will be an extension of rotation age, well beyond the common practice of shorter-rotation management of the neighboring forest owners. Since this project is using a conservative baseline, nearly all the credits being generated over the project term are removals.

A5.2 Background Information

The Klamath Mountains in Northwestern California supports some of the most ecologically diverse forests in North America. The Scott River Shackleford IFM Project Area is a good example of a diverse forest in Northwestern California containing dozens of conifer and hardwood species. The site productivity within the project area is nearly all site classes IV and V, with a small percentage of site class III.

EFM's management of the Scott River Shackleford IFM Project Area is independently third-party certified under the Forest Stewardship Council.

A conservation easement is being negotiated for the project area; however, it will not be recorded until sometime in 2023. The proposed conservation easement would restrict some forest management activities within special habitat management zones (SHMZs), including harvesting, beyond the legal requirements contained in the California Forest Practices Act and the California Forest Practice Rules. The SHMZs are being designed to protect streams and wetland areas, meadows, and wildlife habitat. SHMZ restrictions are modeled in the baseline and project scenarios on a voluntarily basis by the project proponent (see Section E1.2), to contribute to conservatism of the baseline scenario.

This is a new project to be registered under the American Carbon Registry (ACR). All properties that make up the Project Boundary has never been included in a forest carbon project. Neither verified emissions reductions nor any underlying emissions reduction and/or carbon attributes to be registered on the ACR generated by this project have been serialized, registered, or retired or otherwise transacted on another registry and/or under another standard or program.

A5.3 Project Purpose and Objectives

The purpose of this improved forest management carbon project is to increase the forest carbon stocks during the project term by extending the rotation age of the standing timber. This will be accomplished by harvesting less timber volume as compared to growth over the project term. Also, this management regime will improve the overall forest health and resiliency of the Project Area.

The objective of this project is to sequester carbon and generate non-timber revenue over the project term. The carbon revenue will replace some forgone timber harvest revenue over the project term.

A6. PROJECT ACTION

The physical condition of the area prior to the initiation of the Scott River Shackleford IFM Project was a state of forest cover of varying forest types and stand conditions. A new forest inventory was completed in the fall of 2021 and the data collected during this process provides detailed information about the type of trees, the trees per acre and the basal area of the existing forest cover. The forest inventory summary report will be provided to the Verification Body upon request.

The Scott River Shackleford IFM Project will achieve GHG removals by maintaining existing forest cover and by growing substantially more biomass cubic volume than will be harvested over the project term, in effect extending the rotation age of the forest stands within the Project Area. The forest within the project boundary will sequester atmospheric carbon dioxide (CO2) in live above-ground biomass and below-ground biomass.

EFM is committed to sustainably managing its forestland. This commitment is and will continued to be demonstrated by maintaining certification under the Forest Stewardship Council and operating under a forest management plan. EFM utilizes internal staff and contractors to manage its forest property, including regular surveillance of the roads and forestland, forest management planning, and timber harvest activities under the supervision of a California Registered Professional Forester.

The project will produce several products and services through ongoing forest management activities, including commercial harvesting, consistent with the project activity. The products will include harvested wood products for local mills and services will include increased carbon storage, improved wildlife habitat, and improved water quality due to fewer harvest entries and reduced harvesting in riparian management zones (RMZs). The expected level of project activity will be light touch forest management activities consistent with EFM's goals.

A7. *EX ANTE* OFFSET PROJECTION

Estimates of GHG emission reductions and removal enhancements (before buffer contribution) for the first 20-year crediting period are 903,012 $mtCO_2e$. Annual values for the first 20-year crediting period are stated in Table 2 (derived in Section E). This project does not seek to register any non-carbon environmental benefits at this time.

Project year refers to the year at the end of the annual interval, i.e. project year 2021 is from June 7, 2021 to March 31, 2022. This convention is followed hereafter. However, reporting of tons on the ACR registry will be done according to ACR's rules that require tons be reported based on tons generated in each calendar year.

Table 2. Estimate of ERTs by Year

Project Year	Annual GHG emission reductions (t CO2)	Cumulative emission reductions earned (t CO2)
2021	41,116	41,116
2022	39,813	80,929
2023	40,013	120,942
2024	41,422	162,364
2025	42,341	204,705
2026	43,203	247,908
2027	43,779	291,687
2028	44,752	336,439
2029	46,165	382,604
2030	150,703	533,307
2031	37,736	571,043
2032	37,535	608,578
2033	37,557	646,135
2034	37,780	683,915
2035	37,779	721,694
2036	37,825	759,519
2037	37,158	796,677
2038	35,552	832,229
2039	35,410	867,639
2040	35,373	903,012

A8. PARTIES

The project was developed by EFM, in consultation with several partners. Project parties' roles and responsibilities are elaborated in the Table 3.

Table 3. Project Partners & Responsibilities

Project Parties	Personnel/Point of Contact	Roles & Responsibilities	Contact Information
EFM Investments & Advisory	Amrita Vatsal Managing Director, Business Development	Project proponent	EFM Investments & Advisory 721 NW 9th Avenue, Suite 230 Portland, OR 97209 503-467-0801 amrita@efmi.com
L&C Carbon	David Ford, President	Lead contractor – project development	L&C Carbon 710 SW Carmen Heights Dr Dundee, OR 97115 503-449-6957 david@lccarbon.com
Latta Forestry	Greg Latta, Ph.D.	Sub-contractor to L&C Carbon – carbon baseline and project scenario modeling	Latta Forestry 1009 Birdsong Lane Moscow, ID 83843 541-619-9212 lattaforestry@gmail.com
TerraCarbon LLC	David Shoch, Director, Forestry and Technical Services	Sub-contractor to L&C Carbon - GHG Plan advisor, and inventory design	TerraCarbon LLC 700 Harris Street, #201B Charlottesville, VA 22903 434-326-1144 david.shoch@terracarbon.com

B.
METHODOLOGY

B1. APPROVED METHODOLOGY

This project uses the approved ACR *Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands*, Version 1.3, April 2018, together with the following procedures and tools:

- ACR Tool for Risk Analysis and Buffer Determination v1.0
- US Department of Energy Section 1605b Forestry Appendix[4]

B2. METHODOLOGY JUSTIFICATION

This methodology was chosen for this project for the following reasons:

1. The methodology used for this project, *Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands*, Version 1.3, April 2018, is approved by ACR;
2. The project meets the applicability requirements of the methodology, as detailed in Table 4; and
3. The project is an IFM project and the methodology is for IFM projects.
4. The *Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands*, Version 1.3, April 2018 was chosen because it is the only ACR IFM methodology approved for use for forestlands in the U.S.

The project meets the applicability conditions under Section A2 of the methodology, as per Table 4.

Table 4. Applicability Conditions

Applicability Conditions	**Demonstration of compliance**
Applicable only on non-federally owned forestland within the United States	The Project Area is in the state of California within the United State and is on private forestland owned by EFM. Evidence is provided in copies of the title reports for tax parcels within the Project Area, as available, and an accompanying declaration of parcel ownership (See Section G1.)
Applicable to lands that are subject to commercial timber harvest activities by entities owning and controlling timber rights on forestland under an existing forest management plan	The Project Area is under the ownership and control of EFM and subject to commercial timber harvest in accordance with existing management plan documents. Further evidence is the county property zoning designation which demonstrates all EFM owned tax lots within the Project Area zones allow commercial forest activities.

[4] US DOE Forestry Appendix: http://www.eia.gov/survey/form/eia_1605/gdlins.html

Private or non-governmental organization ownerships must be certified by FSC, SFI, or ATFS, or become certified within one year of the project Start Date	EFM holds a current Forest Stewardship Council "Forest Management" certificate for all its forest property. A copy of the certificate will be provided to the Verification Body.
Use of non-native species is prohibited where adequately stocked native stands were converted for forestry or other land uses after 1997	The Project Area is composed entirely of native forest types, demonstrated in the 2021 inventory, and no non-native species are used in any post-harvesting plantings.
Project proponent must demonstrate its ownership or control of timber rights for a period not less than 12 months prior to the project Start Date	The Project Area has been under EFM's ownership since 2017, which is more than 12 months prior to the project start date. Evidence is provided in copies of the available land title reports, as well as the accompanying declaration, for all tax parcels within the Project Area (see Section G1).
Project must demonstrate an increase in on-site stocking levels above the baseline by the end of the Crediting Period	The project is projected to increase on-site stocking levels above the baseline condition by the end of the Crediting Period, documented in Section E6 below.
Prohibition on draining or flooding of wetlands	The project activity does not involve any hydrological manipulation of wetlands.

A forest carbon inventory was completed in August and September 2021 and the data is being submitted for validation and verification.

B3. PROJECT BOUNDARIES

B3.1 Physical Boundary

The center point of the Scott Valley Shackleford IFM Project is located approximately 10 miles southwest of Fort Jones, California.

The Project Area is delineated in a shape file archived in the project database and illustrated in Figure 2 and is based on Siskiyou County's GIS tax lot layer (Siskiyou County Open Data | Siskiyou County California). The project boundary qualifies as forestland per the methodology definition of >10 percent stocking, and not currently developed for non-forest uses. This includes some forest areas temporarily un-stocked (e.g. recently harvested) and some minor non-forest land fragments which are part of the inventory sample frame.

Non-forest areas, defined as land that has been altered from a forested state to a non-forest land use (i.e. agriculture or structures), are not included in the project's geographic boundary. All potentially non-

forested areas were identified through a review of information contained in the forest management plan and a visual inspection of aerial imagery using Esri's world imagery service. Areas that were deemed to have been altered from a forested state to a non-forest land use are not included in the project boundary.

Siskiyou County's publicly available GIS database was reviewed to determine the existence of public roads within the project area. All public roads identified were buffered with a 60-foot right-of way and the area contained in the right-of-way was removed from the project area. Roads not removed were included in the project boundary. These road segments are within the inventory sample frame and were available to be selected for inventory plot locations. Figure 3 show the location of the road network. Figure 4 shows the location of the streams, waterbodies, and topography. Figures 5 show county tax parcels boundaries.

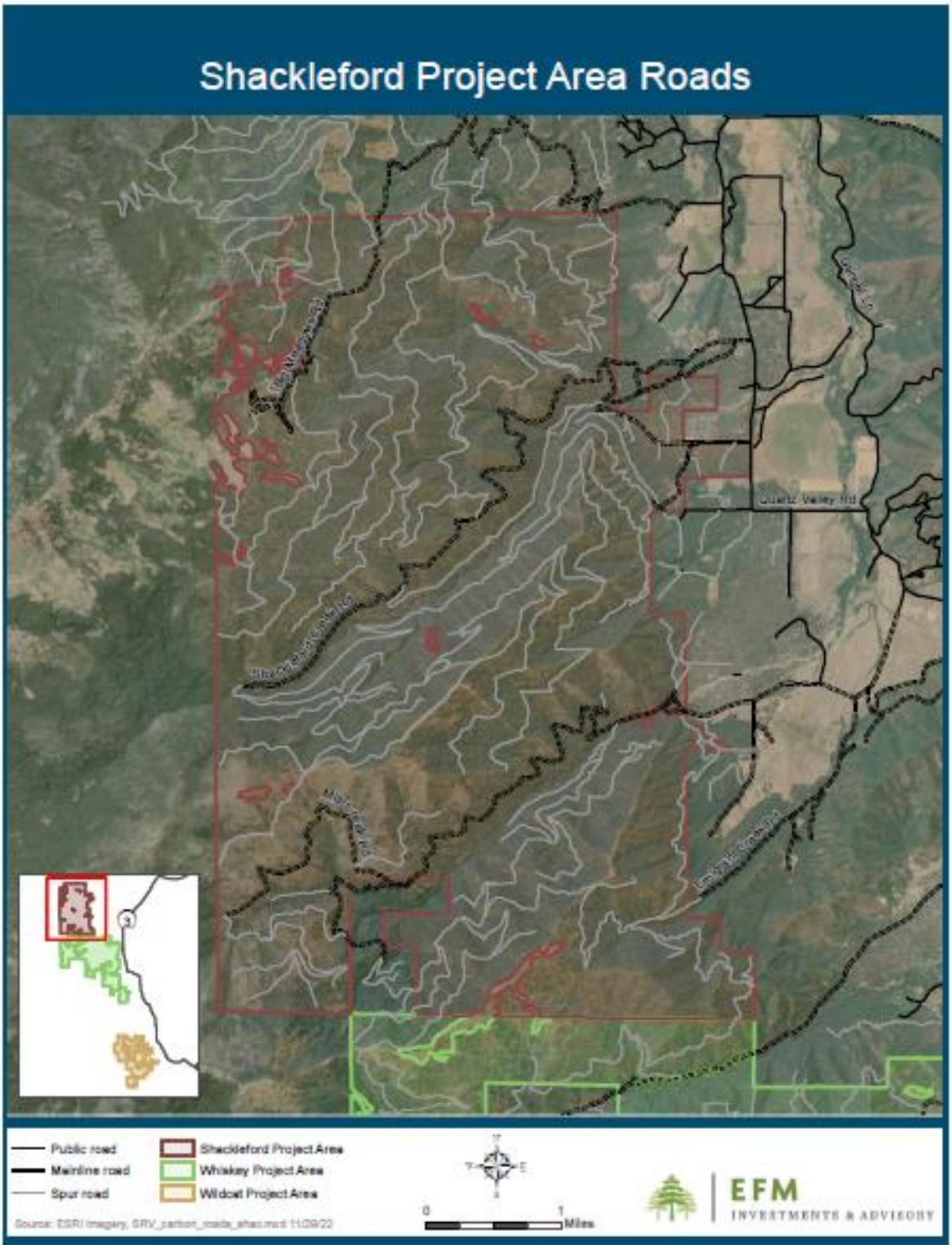

Figure 3. Scott River Shackleford IFM Project - Project Location, Roads

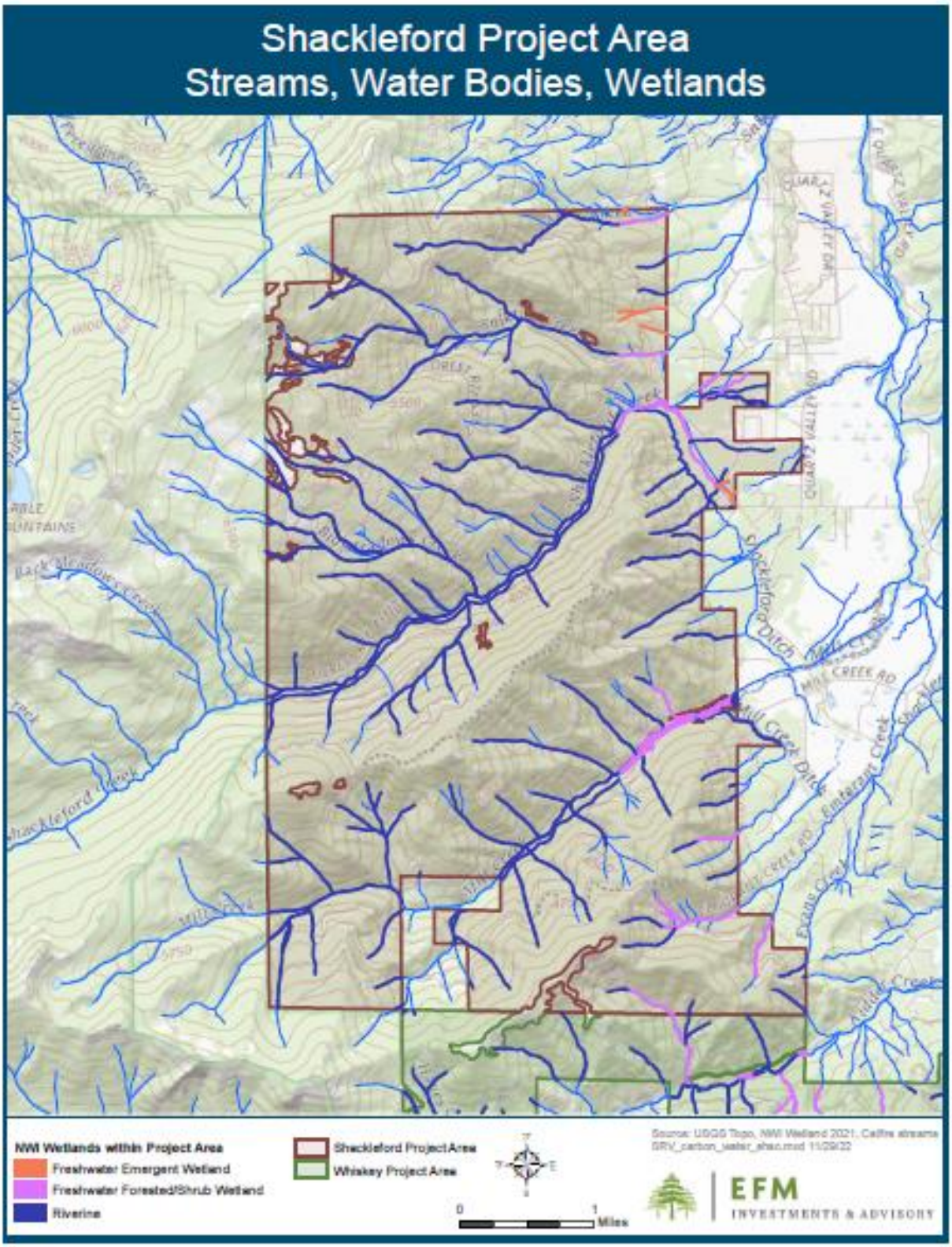

Figure 4. Scott River Shackleford IFM Project – Streams, Waterbodies and Topography

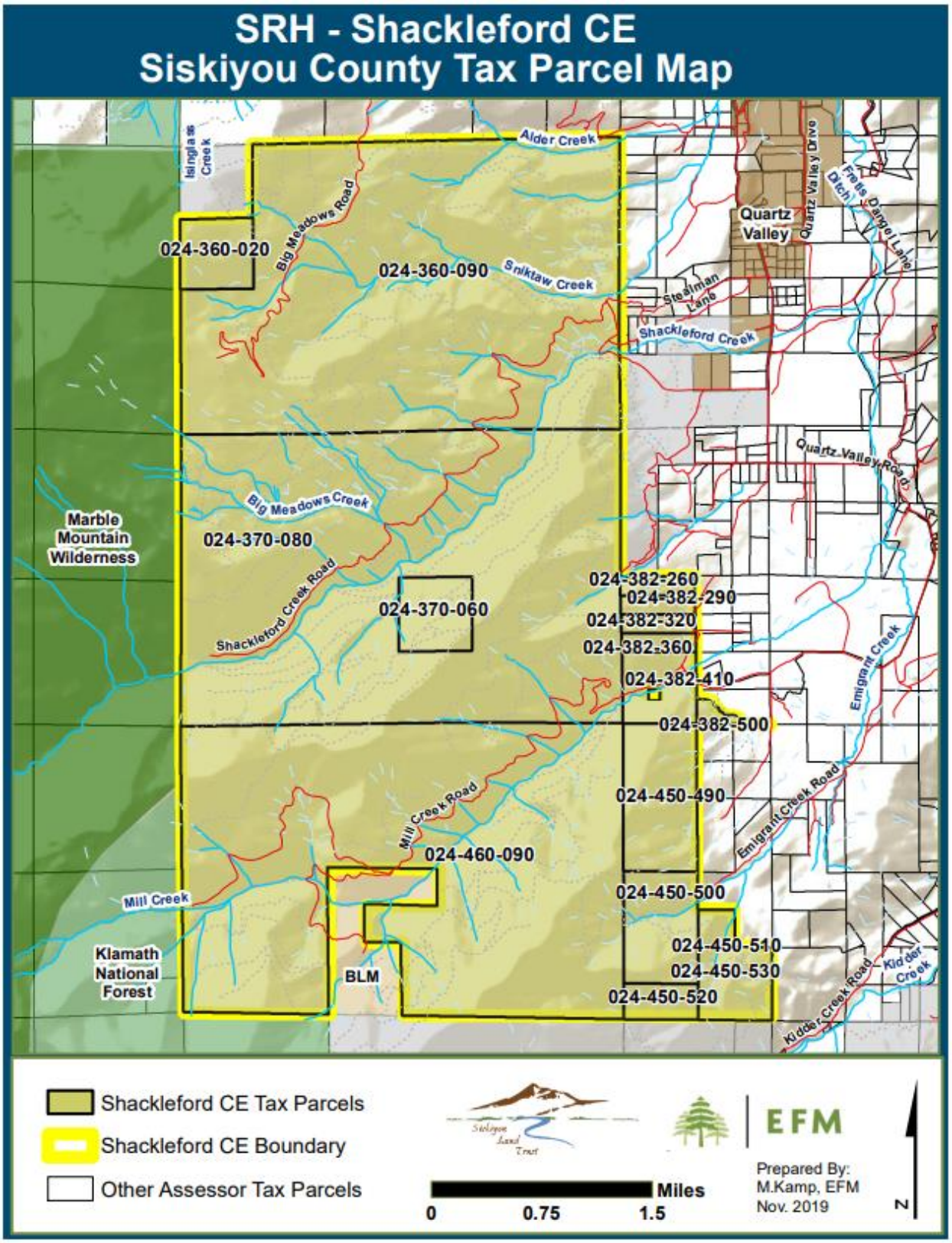

Figure 5. Scott River Shackleford IFM Project – County Tax Parcel Boundaries

B3.2 Project Spatial Boundary

The total property within the Project Area is 12,364 acres. The project boundary consists of lands designated and managed as commercial forest. The Project Area was stratified into six unique strata as an initial step of the inventory process. Appendix A contains a list of all strata. A description of the strata is contained in the Scott River Shackleford IFM Project Inventory Report (see Appendix C). A map of the stratum boundaries can be found in Figure 6 and a map of the inventory plot location can be found in Figure 7. The strata boundaries and inventory plot locations are available in the project GIS library.

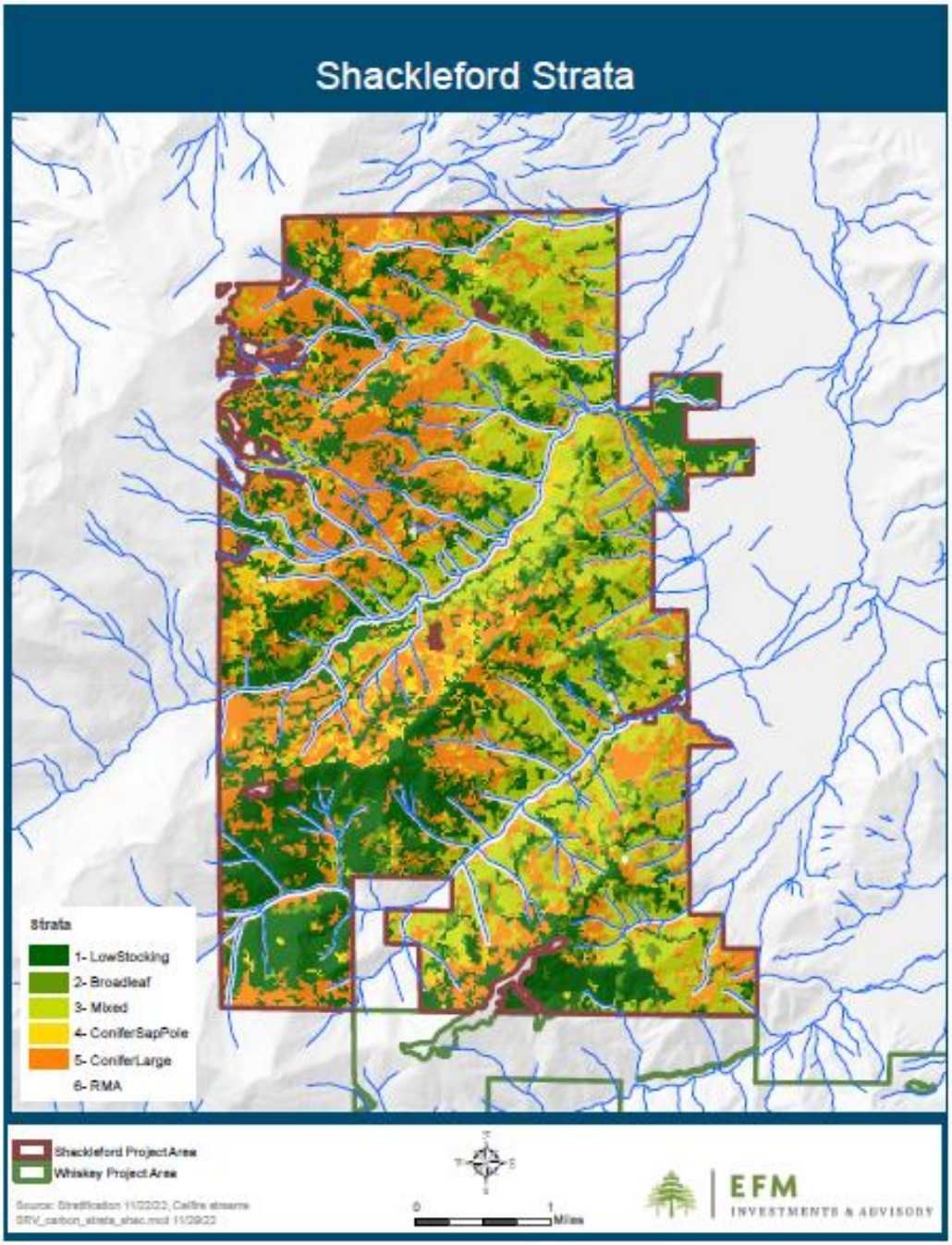

Figure 6. Scott River Shackleford IFM Project – Stratum Boundaries

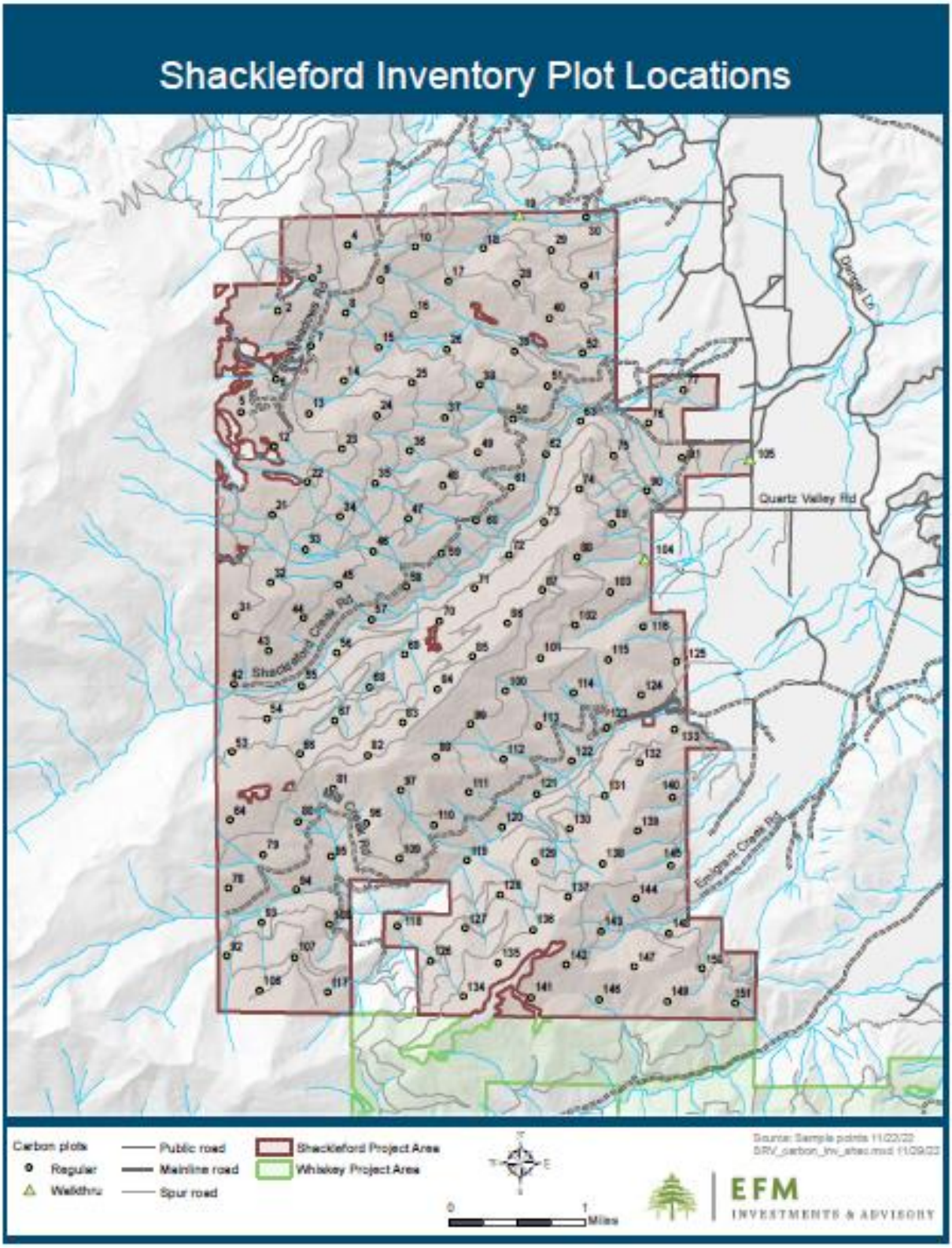

Figure 7. Scott River Shackleford IFM Project – Inventory Plot locations

B3.3 Project Temporal Boundary

The project start date is June 7, 2021. The initial crediting period is from June 7, 2021 to June 6, 2041. The project term will be 40 years, with two crediting periods of 20 years each. The project term is from June 7, 2021 to June 6, 2061.

Although EFM began evaluating a forest carbon project on its forest property upon purchase of the property in 2017, it did not take formal action until June 2021, when it entered into a project development agreement with L&C Carbon on June 7, 2021. This action signaled EFM's commitment to land management practices that will increase carbon stocks above and beyond Business-As-Usual activities within the Project Area over the forty-year Project Term.

B4. IDENTIFICATION OF GHG SOURCES AND SINKS

Identification of GHG sources and sinks follows ACR's *Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands*, version 1.3, April 2018.

Selection of GHG sources and sinks in the project boundary is summarized in Table 5.

Table 5. GHG Sources/Sinks & Justification for Inclusion/Exclusion

GHG source/sink	Included / Optional / Excluded	Justification
Above-ground biomass carbon	Included	Major carbon pool subjected to the project activity. The project employs a minimum diameter at breast height (dbh) of 5.0 inches.
Below-ground biomass carbon	Included	Major carbon pool subjected to the project activity. The project employs a minimum dbh of 3.0 inches.
Harvested wood products	Included	Major carbon pool subjected to the project activity.
Standing dead wood	Included	Major carbon pool subjected to the project activity. The project employs a minimum dbh of 5.0 inches.
Lying dead wood	Excluded	Lying dead wood is an optional pool under the IFM methodology and is excluded for this project.
Litter / Forest Floor	Excluded	Changes in the litter pool are considered *de minimis* as a result of project implementation.

Soil organic carbon	Excluded	Changes in the soil carbon pool are considered *de minimis* as a result of project implementation.
CH4 Emissions from Biomass Burning	Included	This pool is included. It is conservatively assumed to be zero in the baseline. No logging slash is burnt in either the baseline or with-project cases as part of management practices. Burning of slash is rarely done because of fire risk.
Market Leakage	Included	As more wood is harvested in the baseline than in the project scenario, market leakage is accounted for, which reflects that wood supply elsewhere increases in response to project activity—attributable reductions, assuming demand is constant.

B5. BASELINE

The IFM baseline is project-specific and a legally permissible harvest scenario that maximizes Net Present Value (NPV) of perpetual wood products harvests. The baseline management scenario selected represents an industrial harvest regime that maximizes NPV of perpetual wood products harvested over a 100-year modeling period as required by the Methodology utilized by this project.

The discount rate assumption for calculating NPV for this project is 6%, per the IFM methodology for private lands. Maximizing NPV revenue from perpetual wood product harvests in the baseline modeling scenarios results in a harvest schedule used to establish baseline stocking levels through the first 20-year baseline period.

The baseline management regime harvest stands to achieve an uneven age management condition. The baseline silvicultural practices involve thinning stands to the legally required minimum basal area per acre stocking levels as prescribed by the California Forest Practice Rules 2022[5] (Title 14, California Code of Regulations, Division 1.5, Chapter 4, Subchapter 5, Article 3[6]). The baseline modeling includes a constraint that leaves at least 75 square feet per acre of basal area for site class III and 50 square feet per acre of basal area for site class IV and V as per the California Forest Practice Rules 2022, Section 933.2. Further, the baseline modeling includes a constraint which prohibits any harvest within all Riparian Management Zones (RMZs) and Special Habitat Management Zones (SHMZs) identified in a

[5] CALIFORNIA Forest Practice Rules
[6] View Document - California Code of Regulations (westlaw.com)

proposed conservation easement anticipated to be recorded in 2023. The Project Area is within California's Northern District as per the California Forest Practice Rules 2022.

B6. PROJECT SCENARIO

EFM has committed to a reduction in harvest levels below annual growth, with longer rotations resulting in greater carbon storage.

B7. REDUCTIONS AND ENHANCED REMOVALS

The project activity produces net emission reductions by increasing stocking relative to the baseline, via improved forest management practices previously described in Sections A5, A6, and B6.

B8. PERMANENCE

The project addresses permanence by application of the *ACR Tool for Risk Analysis and Buffer Determination v1.0* to assess risk of reversal and withhold from issuance a commensurate percentage of ERTs to be held in reserve in the ACR buffer pool.

1. Management and Governance Risks: All project types must select one value form each risk category that applies:

A	Financial	• 4% Default Value • 3% US Public and Tribal Lands
B	Project Management	• 4% Default Value • 3% US Public and Tribal Lands
C	Social/Policy	• 2% Default Value • 5% if project is located outside of the US • 3% if project is located outside of the US and demonstrates community engagements through ACR-approved mechanism
D	Conservation Easement Deduction	• -2% Default value • -3% if there is regular onsite monitoring of activities related to carbon-specific conservation activities

2. Natural Disaster Risks: Select one value from each risk category that applies:

E	Fire	• 8% if project is located in an area where fire greater than 1000 acres has occurred within 30 mile radius of project area in prior 12 months • 4% if project is located in high fire risk region • 2% if project is located in low fire risk region (verifiable evidence must be provided) • 1% for agriculture and grassland projects only
F	Diseases and Pests	• 8% if epidemic disease or infestation is present within project area, or within 30 mile radius of project area • 4% Default Value
G	Levee Failure and Water Table Changes	• 2% Default for all wetland projects (and for forest projects where more than 60% of the project area is a forested wetland)
H	Other Natural Disaster Events	• 2% Default Value for all sequestration projects

All Project types must claim a value from risk categories A, B and C. Additional values that must be selected by project type include:

Forestry projects claim one value from each:
D Conservation Easement (if applicable)

E Fire
F Disease/pest
G Levee failure/water table changes (required only if forested wetlands comprise more than 60% of project area)
H Other natural disaster risk scores.

Calculated Risk Score

Section 1 (A + B + C + D) + Section 2 (E + F + G + H) = Total Risk score %

Section 1 (4 + 4 + 2 + 0) + Section 2 (8* + 4 + 0 + 2) = 24%

* A determination was made that the project is located within 30 miles of a wildfire greater than 1,000 acres that burned in summer and fall of 2021. The River Complex fire burnt nearly 200,000 acres across the Shasta-Trinity and Klamath National Forests. Numerous fires, ignited by lightning strike at the end of July 2021, burnt together into the River Complex. The fire was contained in mid-October 2021. The final perimeter of the fire was within 30 miles of the Scott River Shackleford IFM Project Area.

Buffer Pool Contribution

Total Risk score % * Total ERTs generated for reporting period = Buffer pool contribution in ERTs at time of issuance.

24 % * 41,116 = 9,868 credits of buffer pool contribution (rounded up)

For Reporting Period 1, ERT and Buffer credits for each vintage are displayed in Table 6.

Table 6. Reporting Period 1 ERTs and Buffer Contribution

Reporting Period	ERTs			Buffer Contribution			Net ERTs		
	Vintage 2021	Vintage 2022	Total	Vintage 2021	Vintage 2022	Total	Vintage 2021	Vintage 2022	Total
1	28,698	12,418	41,116	6,888	2,980	9,868	21,811	9,437	31,248

C.
ADDITIONALITY

To meet the ACR's Standard Version 7.0 requirement that the Scott River Shackleford IFM Project GHG removals are additional, the three-prong additionality test is applied to demonstrate project additionality. The three-prong additionality test demonstrates that the project activity is additional, as detailed below.

C1. REGULATORY SURPLUS TEST

Management of the commercial forestland within the boundary of the Scott River Shackleford IFM Project is governed by the following federal and state laws.

- Federal Endangered Species Act
- Federal Clean Water Act
- United States Department of Labor OSHA Logging Safety Standards
- Archaeological Resources Protection Act
- California's Z'berg Nejedly Forest Practices Act
- California Forest Practice Rules
- California's Porter Cologne Water Quality
- California Fish and Game Code
- California Endangered Species Act
- California Environmental Quality Act (CEQA)

The State of California Forest Practices Act and the California Forest Practices Rules sets specific requirements regarding forest management activities. California requires that before any forest management activity is initiated, the forest owner must file with the California Department of Forestry and Fire Protection (CAL FIRE) a Timber Management Plan (TMP) signed by a California Registered Professional Forester (RFP). The TMP must demonstrate compliance with California Forest Practices Rules and be approved by CAL FIRE before operations may begin. This requirement ensures that all applicable legal requirements are addressed in the planned operations, including timber harvesting. Under certain conditions, the forest owner may conduct limited harvest activities under an emergency exemption permit as per CAL FIRE rules.

The Federal Clean Water requirements are met through compliance of the water protection requirements of the California Forest Practices Rules.

The Federal Endangered Species Act requirements are met through compliance of the California Forest Practices Rules.

The project activity, characterized by extending rotations beyond the economic optimum, is not mandated by any state or federal law, or any legally binding commitment under which the Project Boundary is subject.

The initial Monitoring Report includes EFM's attestation that the Forest Project and associated project lands have met and been in material compliance with all local, state, or federal regulatory requirements during the reporting period. Thus, the project activity passes the regulatory surplus test.

C2. COMMON PRACTICE TEST

The project activity passes the common practice additionality test as described in the ACR Standard Version 7.0 based on several factors; including exceeding the common practice rotation age for stands in northwestern California, being penalized on price by local sawmills for growing and harvesting larger diameter logs which is being partially offset by carbon revenue, and exceeding the average metric ton of CO_2e value per acre across the Project Area as compared to other private forestlands across the region.

The common silvicultural practice in northwestern California (west of the Cascade Range) is managing conifer stands to a minimum rotation age as specified in the California Forest Practice Rules (depending on site class), clearcutting, and replanting with native conifers – predominately Douglas-fir, white fir, cedar, and pine species.

Forestlands across the Northern California region are now predominately held by Real Estate Investment Trusts (REITs) and Timber Investment Management Organizations (TIMOs). These organizations are managed to generate a higher rate of return for their investors over a shorter time period than traditional forestland owners return targets. For example, most REITs and TIMOs operate on a 10 to 15-year fund cycle, as compared to traditional forestland owners who generally have a longer-term return on investment timeframe.[7]

Sawmills in the region have followed this trend and have retooled their primary log breakdown equipment and now seek smaller diameter logs to maximize production rates. For example, the primary buyers of timber from the Project Area pay less money per thousand board feet for oversized logs as demonstrated by recent log prices. In addition, the export market is now paying a premium for smaller diameter logs as foreign sawmills are being retooled to accommodate smaller diameter wood. This has the effect of reinforcing the downward trend in stand rotation ages.

EFM plans to manage the Project Area towards an uneven-aged management regime. The project activity is projected to harvest less than the annual growth. By limiting annual harvests, the average stand age will increase resulting in increasing CO_2e reductions over the project term.

As the project activity is designed to achieve an uneven-aged stand structure, it cannot be characterized as common practice which is typically an even-aged silvicultural system with clearcutting and replanting.

C3. IMPLEMENTATION BARRIERS TEST

The project activity faces a financial barrier. Net present values were calculated referencing the baseline and project scenarios outlined in Sections E1 and E6 below, using a 6% discount rate over the 20-year crediting period from 2021 to 2041. Property taxes were ignored, as they are equal in the two scenarios.

The project activity without carbon revenue is expected to generate an NPV (in 2021$) of $748,132. This is a substantially lower return than the NPV maximization scenario that would yield an expected NPV (in

[7] http://www.dovetailinc.org/report_pdfs/2007/dovetailtimoreit0507wo-1.pdf

2021 $) of $18,214,409. Thus, the project activity is clearly not the most profitable forest management; however, revenue from the sale of carbon offset is an important incentive to project implementation.

C4. PERFORMANCE STANDARD TEST

The Scott River Shackleford IFM Project uses the three-pronged approach; therefore, this step is not required.

D.
MONITORING PLAN

D1. MONITORED DATA AND PARAMETERS

Live and dead tree stocks will be monitored via forest inventory conducted every 5 years or less, with field measurement and estimation procedures consistent with those outlined in Section E1.

The data and parameters to be used for monitoring the project activity are described in Table 7. Further details on measurement and calculation of carbon stocks are discussed in Section E.

Table 7. Data and parameters to be monitored

Data or Parameter Monitored	$C_{P,TREE,t}$
Unit of Measurement	Metric tons CO_2e
Description	Carbon stored in above and below-ground live trees at the beginning of year *t*
Data Source	Forest inventory
Measurement Methodology	Consistent with SOPs detailed in Appendix B
Data Uncertainty	To be calculated as the mean +/-10% at the 90% confidence interval
Monitoring Frequency	Every 5 years or less, at request of ERT issuance
Reporting Procedure	Initially reported in the GHG plan for the project. Project proponent annually monitors harvest amounts and natural events that impact standing tree inventory and reports changes in the ACR project monitoring report.
QA/QC Procedure	Follow SOP procedures for data analysis and reporting detailed in Appendix B
Notes	

Data or Parameter Monitored	$C_{P,DEAD,t}$
Unit of Measurement	Metric tons CO_2e
Description	Carbon stored in standing dead trees at the beginning of year *t*
Data Source	Forest inventory

Measurement Methodology	Consistent with SOPs detailed in Appendix B
Data Uncertainty	To be calculated as the mean +/-10% at the 90% confidence interval
Monitoring Frequency	Every 5 years or less, at request of ERT issuance
Reporting Procedure	Initially reported in the GHG plan for the project. Project proponent annually monitors harvest amounts and natural events that impact standing tree inventory and reports changes in the ACR project monitoring report.
QA/QC Procedure	Follow SOP procedures for data analysis and reporting detailed in Appendix B
Notes	

Data or Parameter Monitored	$BS_{P,t}$
Unit of Measurement	Metric tons CO_2e
Description	Carbon stock in logging slash burned in the project year *t*
Data Source	EFM staff
Measurement Methodology	Carbon stock calculation for logging slash burned shall use the method described in Section 3.1.1 of the Methodology for bark, tops and branches.
Data Uncertainty	None assessed
Monitoring Frequency	Annually, during any timber harvest activities
Reporting Procedure	Annual estimates tracked internally by spreadsheet. None reported in the initial GHG plan for the project, as no slash was burned in the initial reporting period. Out-year values reported in the ACR project monitoring reports.

QA/QC Procedure	Project proponent annually confirms with company staff prior to submission of annual monitoring report to ACR.
Notes	

Data or Parameter Monitored	$C_{p,\ HWP,t}$
Unit of Measurement	Metric tons CO_2e
Description	Carbon remaining in stored wood products 100 years after harvest for the project in year *t*
Data Source	Monitored from recorded harvest volumes
Measurement Methodology	Annual log scale records for timber sold and removed from the Project Area
Data Uncertainty	None
Monitoring Frequency	Annually, during timber harvest activities and by collection of log scale records for logs sold and delivered to mills
Reporting Procedure	Project proponent to incorporate actual annual harvest volumes into updated ERT worksheet calculations to be filed with ACR monitoring report
QA/QC Procedure	Project proponent to review ERT HWP values and ensure they are consistent with reported timber harvest removals from based log scale records
Notes	

Data or Parameter Monitored	Project Area
Unit of Measurement	Acres
Description	Area of IFM project
Data Source	Validated project GHG Plan

Measurement Methodology	Not re-measured – area remains fixed through crediting period. Determination of project area documented in Section B3 of the project GHG Plan.
Data Uncertainty	None
Monitoring Frequency	Not monitored
Reporting Procedure	Reported in GHG Plan and all monitoring reports
QA/QC Procedure	Project area boundary verified with aerial imagery.
Notes	

Data or Parameter Monitored	Sample plot area
Unit of Measurement	Acres (variable)
Description	Area (variable) of forest inventory sample unit
Data Source	SOP in Appendix B
Measurement Methodology	As per SOP detailed in Appendix B. Note that the inventory employs variable radius plots and nested fixed radius plot.
Data Uncertainty	None
Monitoring Frequency	Sample plot area is not monitored. Sample plots are to be re-measured every 5 years or less.
Reporting Procedure	Reported in project monitoring reports in years that a new inventory is completed
QA/QC Procedure	As per SOP requirement in Appendix B
Notes	

Data or Parameter Monitored	Tree species
Unit of Measurement	Taxon (to species level)

Description	Species of tree measured in forest inventory sample unit
Data Source	Forest inventory
Measurement Methodology	As per SOP detailed in Appendix B
Data Uncertainty	None
Monitoring Frequency	Sample plots are to be measured every 5 years or sooner
Reporting Procedure	Reported in project monitoring report
QA/QC Procedure	As per SOP requirement in Appendix B
Notes	

Data or Parameter Monitored	$GHG_{P,t}$
Unit of Measurement	Metric tons CO_2e
Description	Greenhouse gas emission resulting from the implementation of the project in year (t)
Data Source	Calculated using equation 13 of the methodology
Measurement Methodology	Not measured (calculated from monitored parameter $BS_{P,t}$)
Data Uncertainty	None
Monitoring Frequency	Every 5 years or less, or at request for ERT issuance
Reporting Procedure	Reported in project monitoring reports
QA/QC Procedure	As per SOP requirement in Appendix B
Notes	

E.
QUANTIFICATION

E1. BASELINE

E.1.1 Inventory Development

Baseline analysis began with a forest carbon inventory of the project area, conducted during August and September 2021. The inventory used systematic grids with random start points and random orientation developed in ArcGIS to identify 146 sample points. The sample points were permanently installed and measured as per the project Standard Field Operating Procedures (SOPs) version 2.0 dated November 2022.

The attribute of interest is mean live (≥ 3" DBH) and dead (≥ 5" DBH) above and belowground tree biomass carbon. The sample point design is:

- Large trees (live and dead trees ≥ 5" DBH): 20 ft^2/ac BAF variable radius plot
- Tree heights (live trees ≥ 5" DBH): 62.5 ft^2/ac BAF variable radius plot
- Small trees (live trees 3.0" - 4.9" DBH): 11.8 ft fixed radius (1/100th acre) plot

Stratification was completed post inventory. The final stratification is illustrated in Figure 6 and detailed in Table 8.

Table 8. Scott River Shackleford IFM Project Stratification

StratumName	StratumNum	Acres
LowStocking	1	3,620.65
Broadleaf	2	636.14
Mixed	3	2,886.93
ConiferSapPole	4	682.76
ConiferLarge	5	3,309.53
RMA	6	1,228.22
		12,364.23

Total aboveground biomass carbon was estimated from the inventory data applying species group specific allometric equations sourced from Jenkins et al 2003[8]. For all trees, total aboveground biomass was adjusted to deduct any portion observed missing (referencing defect assessments for the top, middle and bottom thirds of the total aboveground biomass of inventory trees). Deductions for defect were incorporated by multiplying total aboveground biomass by weighted average overall percent sound (1 minus recorded percent defect) referencing the proportions of aboveground tree biomass represented in each of three assessed thirds (table 9 referenced from Climate Action Reserve 2012).

[8] Jenkins, J.C., Chojnacky, D.C., Heath, L.S. and R.A. Birdsey. 2003. National-scale biomass estimators for United States tree species. Forest Science 49:12-35

Table 9. Allocation of total aboveground biomass in top, bottom, and middle thirds

Tree Portion	Percent of Tree Biomass
Top 1/3	10%
Middle 1/3	25%
Bottom 1/3	65%

Root biomass was estimated from total aboveground biomass using component ratios from Jenkins et al 2003, to produce total live tree biomass. Total live tree biomass was multiplied by 0.5 to estimate carbon fraction, then multiplied by 3.664 to calculate CO_2 equivalent.

Carbon in standing dead wood was estimated in the same way as for live trees, with deductions for decay class recorded in the field. For all standing dead wood with methodology decay class 4, only stem wood (and defect recorded in bottom and middle portions) was included in carbon calculations.

Table 10. Decay class descriptions & deductions for standing dead wood, as per ACR IFM methodology

ACR IFM methodology decay class	Deduction	ACR IFM meth decay class description
1	0.97	Tree with branches and twigs that resembles a live tree (except for leaves)
2	0.95	Tree with no twigs but with persistent small and large branches
3	0.90	Tree with large branches only
4	0.80	Bole only, no branches

Total live and standing dead forest carbon stocks at the project start date is estimated to be 1,933,243 $mtCO_2e$.

E.1.2 Baseline Description

As described in Section B (page 12) of the *Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands*, Version 1.3, April 2018 "*baseline determination is project-specific and must describe the harvesting scenario that would maximize NPV of perpetual wood products harvests over a 100-year modeling period*".

The discount rate for calculating NPV varies by ownership class. In the case of this project, the discount rate used for the EFM Scott River Shackleford IFM Project in the baseline calculation was 6% (private

industrial). Further conditions for the baseline and project scenarios are described below. Justification for the baseline case is described in Table 11.

Table 11. Baseline carbon stocks and model projections

Applicability Conditions	Demonstration of compliance
"The baseline management scenario shall be based on silvicultural prescriptions recommended by published state or federal agencies to perpetuate existing onsite timber producing species while fully utilizing available growing space". (Section C1-page 14)	The baseline management scenario was based on typical overstory removal subject to California Forest Practices Rules 2020 (CFPR) basal area retention as summarized in CFPR published Title 14, California Code of Regulations Chapters 4, 4.5 and 10. [9]
"Required inputs for the project NPV calculation include the results of a recent timber inventory of the project lands, prices for wood products of grades that the project would produce, costs of logging, reforestation and related costs, silvicultural treatment costs, and carrying costs". (Section C1-page 14)	NPV calculation was done based on the most recent timber inventory of project lands (2021). Stumpage prices reflect values from timber value area 4 in California Department of Tax and Fee Administration Harvest Values Schedule, effective July 1, 2021 through December 31, 2021.
"Project Proponents should use a constrained optimization program that calculates the maximum NPV for the harvesting schedule while meeting any forest practice legal requirements".	NPV maximization model was programmed to consider constraints such as harvest flow, net revenue flows, and average harvest level accounting parameters (documented in model output runs that are available for inspection).
"Wood products must be accounted" {in the baseline calculation}.	Harvested wood products are accounted for in the baseline calculations (documented in the ERT calculation worksheets).
"Consideration shall be given to a reasonable range of feasible baseline assumptions and the selected assumptions should be plausible for the duration of the baseline application".	A total of 7 baseline modeling runs were simulated as part of the analysis using different assumptions for harvest levels to maximize NPV. Model run records are available for inspection.
"The ISO 14064-2 principle of conservativeness must be applied for the determination of the baseline scenario. In particular, the conservativeness of the baseline is established with reference to the choice	All baseline model runs were established using published variables, the expertise of local forest managers and other natural resource professionals in the region. Choice of assumptions, parameters, data sources and other

[9] CALIFORNIA FOREST PRACTICE RULES 2018. Title 14, California Code of Regulations Chapters 4, 4.5 and 10

of assumptions, parameters, data sources and key factors so that project emission reductions and removals are more likely to be under-estimated rather than over-estimated, and that reliable results are maintained over a range of probable assumptions".	key factors follow the principle of conservativeness. Evidence includes: 1) Exclusion of any harvest activity in riparian management zones, forest reserve areas, and meadow areas with >10% tree cover in the baseline modeling runs which leads to a more conservative projection of ERT 2) Basal area retention limitations that better reflect stand-level variation in site productivity as opposed to strata-level average in accordance with CA Forest Practice Rules

E1.2 Model inputs

Required inputs for the project NPV calculation include the results of the 2021 timber inventory of the project lands, growth and yield under a range of silvicultural treatments, prices for wood products of species that the project would produce, non-logging and hauling costs of harvest and basal area retention as required by the California Forest Practices Rules 2022 (CFPR 913.2, 933.2, 953.2 (a)(2)(A)), other management costs, and carrying costs. Harvesting and hauling costs are excluded as appropriate due to the use of California Department of Tax and Fee Administration stumpage values.

Forest stands were modeled in the baseline case using the Forest Vegetation Simulator (FVS) Inland California and Southern Cascades (CA) Variant for growth and yield followed by use of the Generalized Algebraic Modeling System (GAMS) for a linear programming harvest schedule maximizing NPV. Both models were run for a 100-year timeframe using a 1-year time period for the first 21 years and then 5-year periods throughout the remainder of the modeling time horizon.

The linear programming model results provide the values for the basic baseline calculation given in Equation IFM5. The three basic carbon pools considered are live tree, dead tree, and harvested wood products. The baseline average carbon stocking level is derived by two distinct steps. In the first step Equation IFM5 is used to calculate the 20-year average carbon stocking level for live and dead trees and harvested wood products.

$$C_{BSL,AVE} = \frac{\sum_{t=1}^{20}(C_{BSLTREE,t}+C_{BSLDEAD,t})}{20} + \frac{\sum_{t=1}^{20}(C_{BSL,HWP,t})}{20} \quad \text{(IFM5)}$$

where:

t	Time period (in years)
$C_{BSL,AVE}$ (5)	20-period, 20-year average baseline carbon stock (in metric tons CO_2e)
$C_{BSL,TREE,t}$ (1)	Baseline value of carbon stored in above and below ground live trees (in metric tons CO_2e) at point in time *t.*
$C_{BSL,DEAD,t}$ (2)	Baseline value of carbon stored in above and below ground dead trees (in metric tons CO_2e) at point in time *t.*
$C_{BSL,HWP,t}$ (3)	Baseline value of carbon remaining in wood products 100 years after being harvested in time period *t* (between point in time, *t-1*, and point in time *t*, in metric tons CO_2e)

Once the 20-year average stocking level is obtained a separate periodic carbon flux for the baseline is calculated using Equation IFM6. This periodic carbon stocking value is comprised of the actual periodic live and dead tree carbon flux and the 20-year average HWP flux.

$$\Delta C_{BSL,t} = \Delta C_{BSL,TREE,t} + \Delta C_{BSL,DEAD,t} + \bar{C}_{BSL,HWP} \quad \text{(IFM6)}$$

where:

t	Time in years
$\Delta C_{BSL,t}$	Change in the baseline carbon stock (in metric tons CO_2e) for period *t* (stock change between point in time *t-1* and point in time *t*).
$\Delta C_{BSL,TREE,t}$	Change in the baseline carbon stock stored in above and below ground live trees (in metric tons CO_2e) for period *t*(stock change between point in time *t-1* and point in time *t*).
$\Delta C_{BSL,DEAD,t}$	Change in the baseline carbon stock stored in above and below ground dead trees (in metric tons CO_2e) for period *t*(stock change between point in time *t-1* and point in time *t*).
$\bar{C}_{BSL,HWP}$	Twenty-year average value of annual carbon remaining stored in wood products 100 years after harvest (in metric tons CO_2e).

This $\Delta C_{BSL,t}$ value is then used as the baseline value for all periods prior to the point in time *T* in which the baseline stocking level reaches the 20-year average, after which $\Delta C_{BSL,t}$ is set equal to 0.

The linear programming model equations, variables, and parameterization used to populate values for Equations IFM5 & IFM6 is presented below. The model maximizes NPV accounting for constraints such as harvest flow and maximum harvest area, while accounting for detailed silvicultural activity timing, revenues, and costs across the project area.

The objective function used in the linear program is:

$MAX \quad \sum_{t<t^n}[R(t)-C(t)]\,(1+i)^{-(d(t)-2021)}$ Allocation of all available area (LP1)

Subject to the constraints:

$\sum_t X(p,t,m) = a(p) \quad \forall p$ Allocation of all available area (LP2)

$\sum_{t*>t}\sum_m N(p,t,t^*,m) = \sum_m X(p,t,m) + \sum_{t*<t}\sum_m N(p,t^*,t,m) \quad \forall p, t<t^n$ Allocation of regenerated area (LP3)

$$\sum_p \sum_m X(p,t,m) * y^X(p,t,m,x) * (1-f) +$$
$$\sum_p \sum_{o=t-t^*} \sum_m N(p,t^*,t,m) * y^N(p,o,m,x) * (1-f) = H(t,x) \quad \forall x, t<t^n$$ Harvest accounting (LP4)

$\sum_s H(t,s) * v(s) = R(t) \quad \forall t < t^n$ Revenue accounting (LP5)

$\sum_m \sum_p \sum_{t*>t} \sum_{c_{acre}} k(c_{acre}) * N(p,t,t^*,m) = C(t) \quad \forall t < t^n$ Cost accounting (LP6)

$\sum_s H(t,s) = h * e_t \quad \forall t > 1 \; and \; t < t^n$ Maximum annual harvest (LP7)

$u * \sum_{t=1}^{20}\sum_s H(t,s) = \sum_{t=1}^{20}\sum_s \left(\sum_p \sum_{m_{ulow}} {}^{X(p,t,m_{ulow})} * y^X(p,t,m_{ulow},x) * (1-f)\right)$ ULow proportion (LP8)

$$\sum_{t\geq t^n}\sum_p\sum_m X(p,t,m) * y^X\left(p,t^n,m,x_{c\_lt}\right)$$
$$+ \sum_{t^*<t^n}\sum_{t\geq t^n}\sum_p \sum_{o=t^n-t^*}\sum_m N(p,t^*,t,m) * y^N\left(p,o,m,x_{c\_lt}\right)$$

$\geq \sum_p \left(a(p) * y^X\left(p,t^0,m_{grow},x_{c\_lt}\right)\right)$ Revenue accounting (LP9)

$\sum_s H(t,s) \geq z(p) \quad \forall p$ No harvest conservation easement (LP10)

Sets:

c the set of cost types (harvest admin, road, site prep, planting, and brush control)
c_{mbf} the subset of per mbf cost types (harvest admin, road)
c_{acre} the subset of one-time per acre cost types (site prep, planting, brush control)
l the subset of the yield item set *x* which includes log products in board foot volumes for use in revenues and cost accounting.
m the set of all silvicutural prescriptions. The management options for existing strata forest include a no thinning option as well as two basal area retention overstory removal prescriptions (one set to at least 50 ft^2/acre basal area retention and the other to 75 ft^2/acre basal area). The final set of managements include a 33% thinning option removing trees proportionally across all diameter classes.
m_{grow} the subset of silvicutural prescriptions including only the grow with no harvest option.
m_{ulow} the subset of 50 ft^2/acre basal area retention silvicutural prescriptions.
p the set of strata to be scheduled for management.
s the set of species (Douglas-Fir DF, Ponderosa Pine PP, Other Pine Op, Cedar CD, Hemlock and True Fir HF, Oak OK and Other OT)
t the set of time periods or years over which the model will be run with $t = 1,\ldots,t^n$ with t^n representing the option to never harvest a stand therefore $\sum_{t<t^n} 1$ is the number of periods which is 38. The first 21 time periods are one year in length and the remaining periods are five years in length
x the set of yield items which include species, board foot volumes and carbon accounts.
x_{c_lt} the subset of yield items which include only aboveground live tree carbon.

Parameters:
a(p) the acreage of strata *p*
d(t) the date of time period *t*
e(t) the length in years of time period *t* (1 for the first 20 years and 5 thereafter)
*f*reduction for defect and breakage (10%)
h the maximum annual harvest in mbf (6,120 in the baseline and 100 in the project scenario)
i the discount rate (6%)
k(c) Forest management costs:

Harvest Administrations	$15/mbf
Roads	$8/mbf
Site Preparation	$85/acre
Planting	$320/acre
Brush Control	$135/acre

U the proportion of 50 ft^2 basal area harvest (90%)
v(x) the California Department of Tax and Fee Administration stumpage values in $/mbf for yield item log product *l* are:

Species	DF	PP	OP	CD	HF	OA	OT
Stumpage Price ($/mbf)	350	140	140	240	250	20	10

$y^N(p,o,m,l)$ the volume of log product *l* in stand *s* under prescription *m* at age *o*
$y^X(p,t,m,l)$ the volume of log product *l* in stand *s* under prescription *m* in time period *t*
z(p) the acres of no harvest due to conservation easement in each strata *p*

Forest management costs (above) were based on Diaz et al. (2018) Table 3 values. These costs do not have a temporal basis so we assumed that they would be similar to the log price values of Table 2 which were noted to be from February 2018. To adjust the costs from February 2018 dollars to that of the project start date (June 2021) we use the U.S. Bureau of Labor Statistics Producer Price Index (PPI) monthly series for the logging industry titled: "PPI industry data for Logging, not seasonally adjusted". To inflate the February 2018 dollars to June 2021 we simply take the February 2018 PPI value of207.0 and divide by the June 2021 PPI value of 214.5 giving an inflator of (207.0/214.5) or 1.036. The original February 2018 cost values were multiplied by the 1.036 inflator to provide a more up-to-date cost estimate for use in the NPV calculations.

Variables:

C(t) the costs in a time period *t*
H(t) the harvest volume of yield item *x* in a time period *t*
$N(p,t,t^*,m)$ acres of regenerated strata *p* planted in time period *t* and to be harvested in time period t^*allocated to management *m*
R(t) the revenues in a time period *t*
X(s,t,m) the acres of existing strata *p* to be harvested in time period *t* assigned to management *m*

The baseline average was calculated using (Equation IFM5 above) is 136.5 metric tons of CO_2e/acre over the project's 12,364 net acres which amounts to 1,687,686 metric tons of CO_2e

$$C_{BSL,AVE} = \frac{\sum_{t=1}^{20}\left(C_{BSLTREE,t} + C_{BSLDEAD,t}\right)}{20} + \frac{\sum_{t=1}^{20}\left(C_{BSL,HWP,t}\right)}{20} = 1{,}687{,}686 \ \ mtCO_2$$

The baseline scenario's initial stocking level of 1,975,895 metric tons of CO_2e is above $C_{BSL,AVE}$ and thus the actual baseline periodic tree carbon flux $\Delta C_{BSL,t}$ should be used until baseline stocks drop below $C_{BSL,AVE}$ (when T=1). The change in baseline carbon stock calculated using (Equation IFM6 above) for year 1 was -14,025 metric tons of CO_2e, or -1.1 metric tons of CO_2e/acre.

Reporting Period 1:

$$\Delta C_{BSL,t} = \Delta C_{BSL,TREE,t} + \Delta C_{BSL,DEAD,t} + \bar{C}_{BSL,HWP} = \quad -14{,}025 \ \mathrm{mtCO_2e}$$

Estimated values for each of these project baseline parameters over the 20-year project time frame can be found in the EFM Scott River Shackleford IFM Project ERT worksheet.

E1.3. In consideration of legal restraints

We used a constrained optimization program that calculates the maximum NPV for the harvesting schedule while meeting all forest practice legal requirements (for example, stream buffers).

Per the ACR Forest Project Standard, and the IFM methodology requirements baseline activities within the project area were modeled to comply with all national, state, and local laws. The legal restraints modeled as part of the baseline are contained in the California Forest Practices Rules 2022 that regulates management practices on forest lands to protect resources such as water, timber, fish and wildlife. In particular, no harvesting entries of any kind are allowed in the baseline scenario within stream and spring buffer areas (Straum 6), and within meadows and forest reserve areas identified in the proposed Conservation Easement (see table 12).

Stratum 6 – Stream and Spring Buffer Areas

The publicly available CalFire stream layer[10] was used as a basis for delineating streams and springs to be buffered based on the CalFire Forest Practices Rules. The streams and springs, including their associated buffers, make up Stratum 6.

The CalFire steam layer includes stream class designations. However, within the project area, the CalFire stream layer lists various stream mileage as unclassified perennial and unclassified intermittent. Californian Registered Professional Forester, Dewey Robbins of Jefferson Resources, was consulted and his opinion sought on a conservative method to assign stream width buffers to the unclassified streams contained in the CalFire stream layer. The Verification Body will be provided a copy of the opinion letter upon request.

Based on the opinion and recommendation of RFP Robbins, a weighted average buffer width was assigned to the unclassified perennial and intermittent streams as follows:

Unclassified perennial – use a 125-foot buffer width (each side of the stream course), which is the average using an assumption of 50% of the stream mileage as Class 1 (150') and 50% of the stream mileage as Class 2 (100').

Unclassified intermittent – use a 51.25-foot buffer width (each side of the stream course), which is the average using an assumption of 35% of the stream mileage as Class 2 (100') and 65% of the stream mileage as Class 3 (25').

According to the California Forest Practice Rules (Article 6; § 916.4, 936.4, 956.4), the WLPZ is measured from the "Watercourse Transition Line". To account for the various channel widths associated with the stream courses within the project area that require buffers, we used a conservative buffer width for classes I through 3 as follows:

[10] https://forest-practice-calfire-forestry.hub.arcgis.com/search?tags=forest%20practice%20hydrology%20ta83

Class 1 – PP used 150’; however, the rules require a variable buffer width based on slope and yarding technique (<30% 75'; 30-50% 100'; [>50% 150' (-50' for cable yarding)])

Class 2 – PP used 100’; however, the rules require a variable buffer width based on slope and yarding technique (<30% 50'; 30-50% 75'; [>50% 100' (-25' for cable yarding)])

Class 3 – PP used 25’; however, the rules do not restrict harvesting, rather buffers are to define an equipment limitation zone (25' <30% and 50' >30%) where ground-based equipment must be excluded.

Class 4 – PP did not buffer, as the rule do not require any buffer as these are man-made features.

Springs – PP used a 150-foot radius buffer around each spring identified outside the stream buffer layer.

Further, basal area retention limits of the California Forest Practices Rules 2022 (CFPR 913.2, 933.2, 953.2 (a)(2)(A)) are applied in the uneven aged management scenarios based on the proportion of each site class land area contained across the project area in the baseline scenario (LP8). The California Forest Practices Rules require that 75 square feet of basal area be retained for site class II and III, while 50 square feet of basal area be retained for site class IV and V. As a further assurance of conservatism, we constrain the baseline model to require at least 10% of the uneven-aged harvest must meet 75 square feet of basal area retention requirement even though we determined that only 6 percent of the project area contains site class II and III.

A constraint limiting aboveground live tree carbon stocks to be at, or above current stocks is also imposed in the baseline scenario to address long-term sustainability (LP9).

Table 12. Baseline Harvest Constraints

Stratum Number	RMA acres Forest Practice Rules	NSO Forest Reserve acres Conservation Easement	Meadow (CE) acres Conservation Easement
1		37.22	207.31
2		1.91	
3		7.78	53.08
4			45.27
5		17.33	309.57
6	1228.22	1.22	13.53
Total Acres	**1228.22**	**65.46**	**628.76**

E2. PROJECT SCENARIO

The EFM Scott River Shackleford IFM Project will achieve GHG removals by maintaining existing forest cover by growing substantially more biomass cubic volume than will be harvested over the project term. This section describes the basic modeling conducted to estimate the expected amount atmospheric CO_2e sequestered in live aboveground biomass, belowground biomass, and wood products in the project scenario. Equation IFM14 is used compute change in project carbon stock for each time period:

$$\Delta C_{P,t} = \Delta C_{P,TREE,t} + \Delta C_{P,DEAD,t} + C_{P,HWP,t} \quad \text{(IFM14)}$$

where:

t	Time in years
$\Delta C_{P,t}$	Change in the project carbon stock (in metric tons CO_2e) over time period t.
$\Delta C_{P,TREE,t}$	Change in the project carbon stock stored in above and below ground live trees (in metric tons CO_2e) over time period t.
$\Delta C_{P,DEAD,t}$	Change in the project carbon stock stored in dead wood pools live trees (in metric tons CO_2e) over time period t.
$C_{P,HWP,t}$	Carbon remaining stored in wood products 100 years after harvest (in metric tons CO_2e) for the project over time period t.

With the change in the project carbon stock stored in above and below ground live trees for year t calculated using Equation IFM11.

$$\Delta C_{P,TREE,t} = \left(C_{P,TREE,t} - C_{P,TREE,t-1}\right) \quad \text{(IFM11)}$$

where:

t	Time in years
$\Delta C_{P,TREE,t}$	Change in the project carbon stock stored in above and below ground live trees (in metric tons CO_2e) over time period t.
$C_{P,TREE,t}$	Change in the project value of carbon stored in above and below ground live trees at the beginning of the year t (in metric tons CO_2e) and t-1 signifies the value in the prior year.

Dead tree above and belowground stocks are held constant at 2021 inventoried levels until remeasurement occurs. The modeling to get values for input into Equations IFM11 & IFM14 for the project scenario uses the same initial inventory and growth and yield data as described above for the baseline scenario. The linear programming model described in Equations LP1 through LP9 are used with the following changes and additions.

- The set of silvicultural options, p, is constrained to allow only the 33% proportional thin silvicultural regimes.
- The maximum annual harvest level (in mbf/year) parameter, *h*, used in Equation LP7 is lowered reflecting the project scenario reduced harvest level of 165 mbf/year compared

to the 6,120 mbf/year averaged in the baseline scenario over the 100-year modeling time horizon.

The change in project carbon stock calculated using (Equation IFM14 above) for time period 1 was 54,502 metric tons of CO_2e, or 4.4 metric tons of CO_2e/acre across the 12,364-acre project area.

Reporting Period 1:

$$\Delta C_{P,t} = \left(C_{P,TREE,t} - C_{P,TREE,t-1}\right) + \left(C_{P,DEAD,t} - C_{P,DEAD,t-1}\right) + C_{P,HWP,t} = \quad 54{,}502 \ \mathrm{mtCO}_{2e}$$

Estimated values for each of these project parameters over the 20-year project time frame can be found in the Appendix C - Scott River Shackleford IFM Project – ACR ERT Worksheet.

E3. LEAKAGE

Per the IFM methodology (Section D6), "If the project decreases wood product production by >5% relative to the baseline then the Project Proponent and all associated landowners must demonstrate that there is no leakage within their operations – i.e., on other lands they manage/operate outside the bounds of the ACR carbon project." This is termed activity shifting leakage.

Due to the project activity, there will be more than a 5% decrease in wood product production relative to the baseline. However, the project area represents the entirety of forest timber lands that the project proponent owns. Furthermore, the project proponent has an "entity-wide management certification" that covers all lands with active timber management programs.

For market leakage per Section D7 (equation IFM17) of the IFM methodology, the project activity will decrease total wood products produced by 25% or more over the Crediting Period, hence the assigned market leakage deduction (*LK*) is 40%.

E4. UNCERTAINTY

Estimation of baseline uncertainty for pools and emissions sources for each measurement pool are calculated using Equation IFM10. In all cases uncertainty is expressed as the 90% confidence interval as a percentage of the mean. Per Equation IFM10, the uncertainty in the baseline scenario is defined as the square root of the summed errors in each of the measurement pools included. Our modeled baseline results for tree and wood products carbon use the above-described confidence interval of the input inventory data.

$$UNC_{BSL} = \frac{\sqrt{\left(C_{BSL,TREE,1} \cdot e_{BSL,TREE}\right)^2 + \left(C_{BSL,DEAD,1} \cdot e_{BSL,DEAD}\right)^2 + \left(\bar{C}_{BSL,HWP} \cdot e_{BSL,TREE}\right)^2}}{C_{BSL,TREE,1+} + C_{BSL,DEAD,1+} + C_{BSL,HWP}} \qquad \text{(IFM10)}$$

where:

UNC_{BSL} Percentage (in %) uncertainty in the combined carbon stocks in the baseline.

$C_{BSL,TREE,1}$ Carbon stock in the baseline stored in above and below ground live trees (in metric tons CO_2e) for the initial inventory in year *1*.

$C_{BSL,DEAD,1}$ Carbon stock in the baseline stored in above and below ground dead trees (in metric tons CO_2e) for the initial inventory in year *1*.

$\bar{C}_{BSL,HWP}$ Twenty-year baseline average value of annual carbon (in metric tons CO_2e) remaining stored in wood products 100 years after harvest.

$e_{BSL,TREE}$ Percentage uncertainty (in %) expressed as 90% confidence interval percentage of the mean of the carbon stock in above and below ground live trees (in metric tons CO_2e) for the initial inventory in year *1*.

The 2021 inventory of the property area achieved a live tree sampling standard error of +/-8.89% at the 90% Confidence Interval for mean $mtCO_2e$ per acre dead tree sampling standard error of +/-26.38% at the 90% Confidence Interval for mean $mtCO_2e$ per acre. Inserting this error estimate along with values of 1,975,895 for $C_{BSL,TREE,1}$ and 19,230 for $\bar{C}_{BSL,HWP}$ puts the value of UNC_{BSL} at 8.4%.

$$UNC_{BSL} = \frac{\sqrt{\left(C_{BSL,TREE,1} \cdot e_{BSL,TREE}\right)^2 + \left(C_{BSL,DEAD,1} \cdot e_{BSL,DEAD}\right)^2 + \left(\bar{C}_{BSL,HWP} \cdot e_{BSL,TREE}\right)^2}}{C_{BSL,TREE,1} + C_{BSL,DEAD,1} + \bar{C}_{BSL,HWP}} = 8.4\%$$

Given that the initial inventory along with its sampling standard error serves as the starting point for both baseline and project scenarios, the resulting uncertainty is identical as well. Project scenario uncertainty at time period *t*, $UNC_{P,t}$, is calculated using Equation IFM18:

$$UNC_{P,t} = \frac{\sqrt{\left(C_{P,TREE,t} \cdot e_{P,TREE}\right)^2 + \left(C_{P,DEAD,t} \cdot e_{P,DEAD}\right)^2 + \left(C_{P,HWP,t} \cdot e_{P,TREE}\right)^2}}{C_{P,TREE,t} + C_{P,DEAD,t} + C_{P,HWP,t}} \quad \text{(IFM18)}$$

where:

$UNC_{P,t}$ Percentage (in %) uncertainty in the combined carbon stocks in the project in year *t*.

$C_{P,TREE,t}$ Carbon stock in the project stored in above and below ground live trees (in metric tons CO_2e) in year *t*.

$C_{P,DEAD,t}$ Carbon stock in the project stored in above and below ground dead trees (in metric tons CO_2e) in year *t*.

$C_{P,HWP,t}$ Annual carbon (in metric tons CO_2e) remaining stored in wood products in the project 100 years after harvest in year *t*.

$e_{P,TREE}$ Percentage uncertainty (in %) expressed as 90% confidence interval percentage of the mean of the carbon stock in above and below ground live trees (in metric tons CO_2e) for the last remeasurement of the inventory prior to year *t*.

Inserting this error estimate along with values of 1,915,880 for $C_{P,TREE,1}$, and 113,800 for $C_{P,DEAD,1}$ and 717 for $C_{P,HWP,1}$ puts the value of $UNC_{P,1}$ at 8.51%.

$$UNC_{P,1} = \frac{\sqrt{\left(C_{P,TREE,1} \cdot e_{P,TREE}\right)^2 + \left(C_{P,DEAD,1} \cdot e_{P,DEAD}\right)^2 + \left(C_{P,HWP,1} \cdot e_{P,TREE}\right)^2}}{C_{P,TREE,1} + C_{P,DEAD,1} + C_{P,HWP,1}} = 8.51\%$$

Combined baseline and project uncertainty for time period *t*, UNC_t, is calculated using Equation IFM19

$$UNC_t = \frac{\sqrt{\left(\Delta C_{BSL,t} \cdot UNC_{BSL}\right)^2 + \left(\Delta C_{P,t} \cdot UNC_{P,t}\right)^2}}{\Delta C_{BSL,t} + \Delta C_{P,t}} = 6.99\% \quad \text{(IFM19)}$$

Where:

UNC_t Total project Uncertainty in year *t*, in %

$\Delta C_{BSL,t}$ Absolute change in the baseline carbon stock and GHG emissions (in metric tons CO_2e) for year *t*. (Section E1)

UNC_{BSL} Baseline uncertainty, in % (Section E4)

$\Delta C_{P,t}$ Absolute change in the project carbon stock and GHG emissions (in metric tons CO_2e)for year *t*. (Section E2)

$UNC_{P,t}$ With-project uncertainty in year *t*, in % (Section E4)

If calculated UNC_t in equation (IFM19) is <10%, then UNC_t shall be considered 0% in Equation IFM20e below.

E5. REDUCTIONS AND REMOVAL ENHANCEMENTS

Determining additional annual net greenhouse gas emission reductions requires calculation of the difference in changes in carbon stocks between the project and baseline and accounting for required adjustments. Annual net greenhouse gas emission reductions ($ERT_{NETRP,t}$) are calculated using Equation 20e by adjusting the difference between the project and baseline carbon stock changes for leakage and uncertainty then multiplying by a non-permanence buffer deduction:

$$\boldsymbol{ERT_{NETRP,t} = \left(\Delta C_{P,t} - \Delta C_{BSL,t}\right) \cdot (1 - LK) \cdot (1 - UNC_t) \cdot (1 - BUF)}$$
(IFM20e)

where:

$ERT_{NETRP,t}$	Reporting period net greenhouse gas emission reductions (in metric tons CO_2e) at time *t*.
$\Delta C_{P,t}$	Change in the project carbon stock and GHG emissions (in metric tons CO_2e)for year *t*. (Section E2)
$\Delta C_{BSL,t}$	Change in the baseline carbon stock and GHG emissions (in metric tons CO_2e) for year *t*. (Section E1)
LK	Leakage discount (Section E3)
UNC_t	Total Project Uncertainty, (in %) for year *t* (Section E4). UNC_t will be set to zero if the project meets ACR's precision requirement of within 10% of the mean with 90% confidence. If the project does not meet this precision target, UNC_t should be the half-width of the confidence interval of calculated net GHG emission reductions
BUF	The non-permanence buffer deduction as calculated by the ACR Tool for AFOLU Non-Permanence Risk Analysis and Buffer Determination.

The change in project carbon stock calculated using (Equation IFM14 above) for time period 1 was 54,502 metric tons of CO_2e. The change in baseline carbon stock calculated using (Equation IFM6 above) for time period 1 was -14,025 metric tons of CO_2e respectively. *LK* from Section E3 was determined to be 40%, UNC_t from Section 4 is 0%, and *BUF* is 24.0% resulting in $ERT_{NETRP,t}$ values for time period 1 of 31,248 metric tons of CO_2e.

Time Period 1:

$$ERT_{NETRP,1} = \left(\Delta C_{P,1} - \Delta C_{BSL,1}\right) \cdot (1 - LK) \cdot (1 - UNC_1) \cdot (1 - BUF) = \ 31{,}248 \ \mathrm{mtCO_2}e$$

E6. EX-ANTE ESTIMATION METHODS

E6.1 Ex-ante estimates of above and belowground biomass

Ex-ante estimates of carbon sequestered in aboveground and belowground live tree biomass over time are sourced from the US Forest Service Forest Vegetation Simulator[11] specifically the Inland California and Southern Cascades (CA) Variant. Carbon calculations of above and belowground biomass by species

[11] USDA Forest Service, Forest Vegetation Simulator http://www.fs.fed.us/fmsc/fvs/software/

are provided by USFS within the FIADB and BioPak. All tree species within project lands are native tree species appropriately modeled with the Inland California and Southern Cascades (CA) Variant of the FVS model.

E6.2 Projected carbon sequestered

Carbon sequestered for the project area is modeled in Figure 8 for the first crediting period.

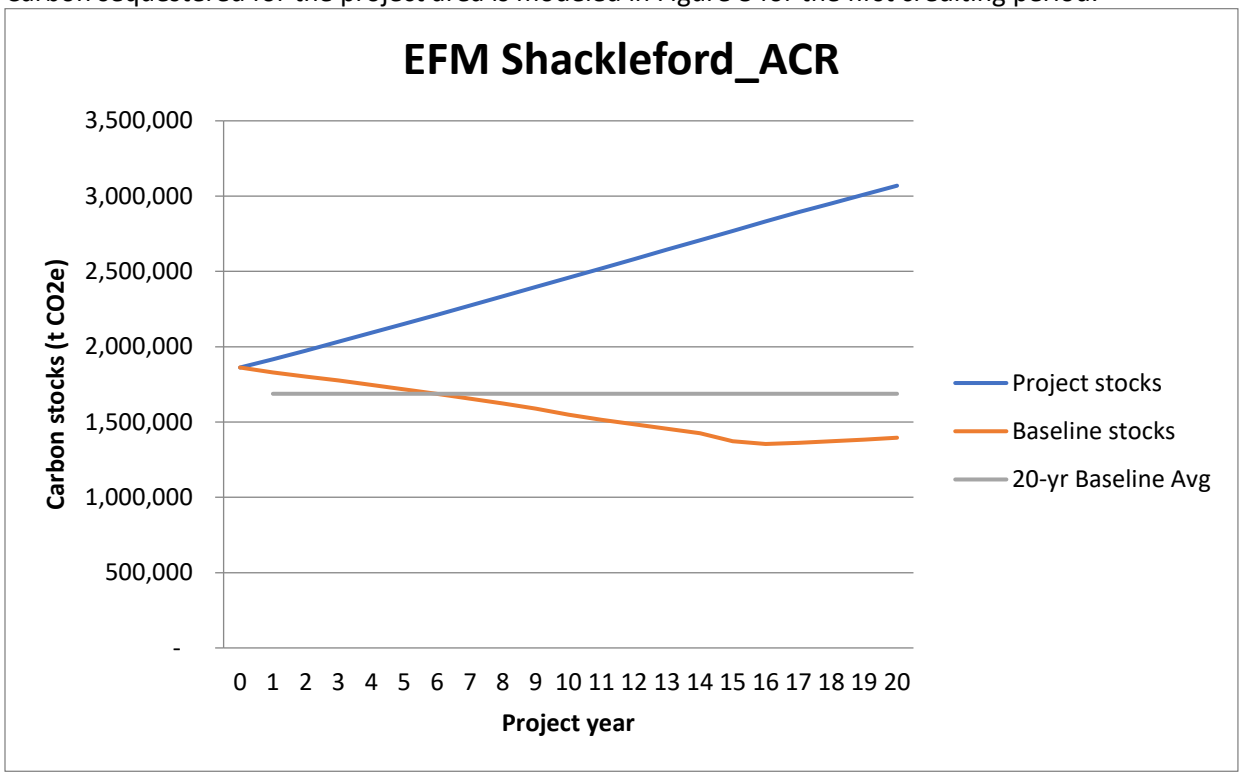

Figure 8. Projected carbon sequestration for the project.

F.
COMMUNITY & ENVIRONMENTAL IMPACTS

F1. NET POSITIVE IMPACTS

The environmental and community impacts of the Project Activity have been assessed in accordance with the requirements specified in the ACR Standard 7.0. The five ACR requirements for environmental and community impact assessments are addressed below. Net positive community and environmental impacts have been identified. No negative community or environmental impacts are foreseen.

The Project Activity will have a positive effect on the local communities due to maintaining local jobs and generating tax revenues from forest management activities, including harvesting. In addition, the positive environmental benefits generated by the Project Activity will result in positive benefits to the local community's citizenry.

The Property is managed according to the core principles of EFM, which seek to build both conservation and social values, while providing adequate risk-adjusted financial returns to its investors. Core goals and objectives include maintaining roads and protecting the property from risks. Habitat-related goals and objectives will be enacted as external funding allows. Other goals include contributing to the local economy and engaging community members and stakeholders to seek input and involvement in management and monitoring activities across the property.

The five ACR "Environmental and Community Impact Assessment Requirements" are addressed below. Each ACR requirement is listed in italics.

1. *An overview of the Project Activity and geographic location.*

The project activity will increase carbon stocks by maintaining existing forest biomass and restricting harvests to less than the annual forest biomass growth over the project term. This reduced harvest regime will result from an extension of rotation age, well beyond the common practice of shorter-rotation management of the neighboring forest owners. The planned harvest levels over the project term are well below the volumes permissible under federal and state laws, including California's Forest Practices Act and California's Forest Practice Rules 2022.

The Project Area is located in northwestern California approximately 10 miles southwest of Fort Jone, California and contains 12,364 acres. It forms the interface between the valley bottom and high peaks of the coast range to the west, with elevation ranging from 2,900 to 7,200 feet. The greater landscape is dominated by the Marble Mountain Wilderness and Klamath National Forest to the west, private woodlots along the valley fringe and agricultural lands and pasture in the Scott Valley. See additional location information and Project Boundary maps in Section A4.

2. *Applicable laws, regulations, rules, and procedures and the associated oversight institutions.*

National Laws, Regulations and Policies:

- Federal Clean Water Act
- Endangered Species Act
- Archaeological Resources Protection Act
- United States Department of Labor OSHA Logging Safety Standards

State and Local Laws and Programs:

- California's Z'berg Nejedly Forest Practices Act
- California Forest Practice Rules
- California's Porter Cologne Water Quality
- California Fish and Game Code
- California Endangered Species Act
- California Environmental Quality Act (CEQA)

None of the above or any other existing law, regulation, statute, legal ruling, or other regulatory framework in effect as of the start date in 2021 effectively require the proposed forest carbon project activity and its associated GHG emissions reductions/removal enhancements. Consequently, the project passes the Regulatory Surplus test

3. *A description of the process to identify community(ies) and other stakeholders affected by the project and, as applicable, the community consultation and communications plan.*

No formal stakeholder consultation was conducted in advance of the project, nor was any required because the Project Area is privately held property. If EFM is contacted by any persons regarding the project, EFM staff will provide references to the publicly available documentation for the project.

EFM has conducted informal community and stakeholder outreach about its interest and plans to develop an Improved Forest Management carbon project. Formal community and stakeholder outreach will be done as part of EFM's Forest Stewardship Council forest management certification.

4. *An assessment of the project's environmental risks and impacts, including factors such as climate change mitigation and adaptation, biodiversity, air quality, water quality, soil quality, and ozone quality, as well as the protection, conservation, or restoration of natural habitats such as forests, grasslands, and wetlands. The assessment shall: 1) identify each risk/impact; 2) categorize the risk/impact as positive, negative, or neutral and substantiate the risk category; 3) describe how any negative impacts will be avoided, reduced, mitigated, or compensated; 4) detail how risks and impacts will be monitored, and how often and by whom; and 5) describe how positive impacts contribute to sustainable development goals.*

(1) Risk/impact factor	**(2) Risk category (positive, negative, neutral)**	**(3) Measure(s) to avoid, reduce, mitigate, or compensate negative impacts** **(4) Monitoring approach**	**(5) Sustainable Development Goals**
Climate Change Mitigation and adaptation	Positive – The project activity will increase carbon stocks by maintaining existing forest	Positive Impact, therefore, mitigation	*SDG 13 – Take urgent action to combat climate change and its impacts.*

(1) Risk/impact factor	(2) Risk category (positive, negative, neutral)	(3) Measure(s) to avoid, reduce, mitigate, or compensate negative impacts (4) Monitoring approach	(5) Sustainable Development Goals
	biomass and restricting harvests to less than the annual forest biomass growth over the project term.	measures not applicable Changes in carbon stocks will be monitored by EFM staff on an annual basis and verified at minimum every 5 years during the initial 20-year crediting period.	This project is storing and sequestering carbon beyond the common practice for similar forest types across the Pacific Northwest, contributing to climate mitigation.
Biodiversity	Positive - The project activity will increase biodiversity of forest cover (age and stand structure) over the project term by extending harvest rotation age beyond common practice and evolving management of stands to uneven-aged regimes. This will help promote healthy forest ecosystems and habitats for local wildlife and fish.	Positive Impact, therefore, mitigation measures not applicable Project carbon stocks monitoring requires a tree stocking inventory every 10 years to accurately assess and monitor changes in carbon stocks. EFM staff will contract and manage a forest inventory firm to complete this work.	*SDG 15 - Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.* This project is employing sustainable forestry management principles, which are verified through maintenance of third-party certification under the Forest Stewardship Council, as well as comply with California Forest Practice Rules.
Air Quality/ Ozone Quality	Neutral – The project boundary will remain in a forested condition. Thus, the project activity will	No Impact, therefore, mitigation measures not applicable	N/A

(1) Risk/impact factor	(2) Risk category (positive, negative, neutral)	(3) Measure(s) to avoid, reduce, mitigate, or compensate negative impacts (4) Monitoring approach	(5) Sustainable Development Goals
	not materially affect air quality or ozone quality.		
Water Quality	Positive – The project activity will increase carbon stocks by maintaining existing forest biomass and restricting harvests to less than the annual forest biomass growth over the project term. Reducing overall tree harvest volume and managing stands using uneven-age management regimes will reduce soil exposure and soil erosion as compared to the common practice of clearcutting under an even-age management regime, creating a positive impact on water quality. The project activity will eliminate all tree harvesting in the RMAs. This management change will reduce disturbance streams within the project boundary and will contribute to better water quality within those streams and downstream	Positive Impact, therefore, mitigation measures not applicable Water quality monitoring will be done in conjunction with implementation of forest management activities by EFM staff and contractors and through random regulatory inspections by CAL FIRE employees.	*SDG 6 – Ensure availability and sustainable management of water and sanitation for all*. This project activity is in the Scott River watershed, a tributary to the Klamath River, that delivers clean and safe water for a variety of wildlife and aquatic species, as well as for agricultural uses. By maintaining annual harvest levels below annual growth and legal limits and using uneven-age management regimes, water quality and quantity from these watersheds is improved.

(1) Risk/impact factor	(2) Risk category (positive, negative, neutral)	(3) Measure(s) to avoid, reduce, mitigate, or compensate negative impacts (4) Monitoring approach	(5) Sustainable Development Goals
	from the project boundary.		
Soil Quality	Neutral – The project boundary will remain in a forested condition. Thus, the project activity will not materially affect soil quality.	No Impact, therefore, mitigation measures not applicable	N/A
Natural Habitat	Neutral – The project boundary will remain in a forested condition. Thus, the project activity will not materially affect natural forest habitat. Neutral – There may a reduction in early successional habitat compared to baseline management. However, the industrial forest land adjacent to the project boundary is intensively managed and maintains an abundance of early successional habitat.	No Impact, therefore, mitigation measures not applicable	N/A

5. *For community-based projects, an assessment of the project's community risks and impacts, including factors such as land and natural resource tenure, land use and access arrangements, natural resource access (e.g., water, fuelwood), food security, land conflicts, economic development and jobs, cultural heritage, and relocation. The assessment shall: 1) briefly describe the process to identify community risks/impacts; 2) identify each risk/impact; 3) categorize the*

risk/impact as positive, negative, or neutral, and substantiate the risk category; 4) provide detailed information regarding the community stakeholder consultation process (e.g., meeting minutes, attendees), including documentation of stakeholder comments and concerns and how those are addressed; 5) provide evidence of Free, Prior and Informed Consent for the Project Activity, as applicable; 6) provide evidence of no relocation or resettlement (voluntary or involuntary), as applicable; 7) describe how any negative project impacts will be avoided, reduced, mitigated, or compensated; 8) detail how risks/impacts will be monitored, and how often and by whom; 9) describe the mechanism for ongoing communications with the community and grievance mechanisms, as applicable; and 10) de-scribe how positive impacts contribute to sustainable development goals (optional).

The project is a not a community-based project.

F2. STAKEHOLDER ENGAGEMENT

EFM's Scott River Headwaters Property Management Plan includes a community engagement goal that contains four elements.

1) Seek public input and involvement in management activities by key stakeholders, such as tribes, resource agencies, neighboring landowners, and local land trusts and watershed councils.
2) Consult periodically with community members, indigenous peoples, forest researchers, neighboring landowners, and wood production facilities.
3) Provide opportunities for public involvement and collaboration.
4) Consult with tribes with interests in the property and codevelop access or monitoring programs where indicated.

Community and stakeholder engagement is accomplished through several means.

First, EFM management and staff regularly engage community and stakeholder members, including tribes, resource agencies, neighboring landowners, and local land trusts and watershed councils.

Second, as part of EFM's Forest Stewardship Council certification, stakeholder groups consulted as part of the evaluation include EFM management and staff, consulting foresters, contractors, lease holders, adjacent property owners, local and regionally-based social interest and civic organizations, purchasers of logs harvested on EFM forestlands, recreational user groups, tribal members and/or representatives, members of the FSC National Initiative, members of the regional FSC working group, FSC International, local and regionally-based environmental organizations and conservationists, and forest industry groups and organizations, as well as local, state, and federal regulatory agency personnel and other relevant groups.

Third, community members and stakeholders are provided opportunity to comment on forest management activities planned and implemented by EFM through CAL FIRE or directly to the company. Under California's Forest Practices Act, EFM is required to file a Timber Management Plan (TMP) that includes information on planned forest management operations, such as harvesting, slash burning,

herbicide application, and silvicultural treatments (i.e. planting and thinning). Each TMP is made available to the public and is reviewed and approved by CAL FIRE prior to the initiation of the operation(s).

If a stakeholder or the public requests more information or provides a comment through the CAL FIRE TMP process, EFM's policy is to contact and directly engage the individual requesting information or providing the comment for the purpose of satisfying any concern raised about its forestry operations.

G.
OWNERSHIP AND TITLE

G1. PROOF OF TITLE

All lands contained within the Scott River Shackleford IFM Project Area are currently titled to Onion Peak, LLC, which is a wholly owned subsidiary of Ecotrust Forests II, LLC. EFM Investments and Advisory, Inc. has an operating agreement with Ecotrust Forests II, LLC to manage all activities and operations of the properties contained in the Project Area.

EFM will provide copies of grant deeds for tax parcels within the Project Area to demonstrate ownership is non-federally owned forestland within the United States.

G2. CHAIN OF CUSTODY

Not Applicable – no offsets have been bought or sold previously, nor has the project entered into any forward option contracts.

G3. PRIOR APPLICATION

The project proponent, EFM, has never applied for GHG emission or removal credits for this Project Area through any other GHG emissions trading system or program.

H.
PROJECT TIMELINE

H1. START DATE

The project Scott River Shackleford IFM Project has a project start date of June 7, 2021, the date. This date meets the eligibility criteria for a Start Date as per Appendix A of the ACR Standard, Version 7.0

H2. PROJECT TIMELINE

The schedule of project activities in chronological order for important aspects of the Scott River Shackleford IFM Project is displayed in Table H-1.

Table 13. Schedule of Project Activities

Project activity	Date	Source/Notes
Project start date and start of the initial crediting period	June 7, 2021	The date that the project proponent entered a contractual relationship to initiate a carbon project with project developer L&C Carbon, as per ACR Standard, Version 7.0, Appendix A.
Forest inventory	2021	The inventory was completed over a two-month period August – September 2021.
Validation and first verification of project	Anticipated 2022	
Registration of the project	Anticipated 2022	
End date of first project crediting Period	June 6, 2041	20 years as required by ACR Standard – Version 7.0.
Second crediting period	June 7, 2041 – June 6, 2061	Baseline re-evaluated in 2041, as well as revisions to comply with any revised ACR standards.
End date of project Term	June 6, 2061	40 years as required by ACR Standard – Version 7.0.

Frequency of Monitoring, Reporting and Verification - Annual Attestation - New ERT Issuance - Full Verification by an ACR-approved third-party verifier	2021-2041	As required by ACR Standard – Version 7.0. Annually Desk-based verification prior to issuance of new ERTs. Every five years
Relevant Project Activities - Re-inventory Project Area		At minimum every 10 years

APPENDICIES

These appendices are provided as separate documents and are available on the ACR project page.

A. **Scott River Shackleford IFM Project Inventory Stata List-Inventory Plot List**

B. **Scott River Shackleford IFM Project Inventory SOPs**

C. **Scott River Shackleford IFM Project – ACR ERT Worksheet**