

Returning the Yurok Forest to the Yurok Tribe: California's First Tribal Carbon Credit Project

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The Yurok Tribe's 57,578-acre land acquisition is significant for its size (one of the largest tribal conservation land acquisitions in the US), funding mechanisms (carbon offsets, State Revolving Loan fund, non-point source loans, and new market tax credits), innovation (the first forest carbon offset project under the California Compliance Offset Protocol) and partnerships (conservation, tribal, private, and state). It exemplifies the exercise of inherent tribal sovereignty to achieve economic development, land reclamation, and recognition of Indigenous ecological authority. The Yurok Tribe incorporated management of the forest to sequester carbon into its own cultural stewardship framework, and did so in a way that changed the terms of the California carbon offset program to enable tribal participation. The Tribe has exercised its status as a sovereign entity to influence natural resource policy in the state, create international diplomatic relations with Indigenous peoples in other nations considering cap-and-trade, and to insert Indigenous values into climate change policy. Focusing on the Yurok forest carbon offsets, this article highlights the possibilities of using the sale of carbon

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offsets for assertions of Indigenous traditional knowledge, self-governance, and self-determination.

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I. INTRODUCTION

Since time immemorial, Yurok people have resided along the Klamath River, in the forests of northwestern California. Today the Yurok Tribe is the largest in California. In attempts to heal from over a century of settler colonial land dispossession, the Yurok Tribe was able to leverage the provision of carbon offset credits through a specific 100-year forest management commitment to raise the funds to help buy back ancestral lands that had been out of tribal ownership for over a century. An exercise of tribal sovereignty, the Yurok Tribe's participation in California's carbon market asserts traditional land management practices on ancestral homelands, counteracts climate change, and generates economic opportunities for tribal members. The Yurok Tribe incorporated management of the forest to sequester carbon into its own cultural stewardship framework, and did so in a way that changed the terms of the California carbon offset program to enable tribal participation. The Tribe has exercised its status as a sovereign entity to influence natural resource policy in the state, create international diplomatic relations with Indigenous peoples in other nations considering cap-and-trade, and to insert Indigenous values into climate

change policy. Focusing on the Yurok forest carbon offsets, this article highlights the possibilities of using the sale of carbon offsets for assertions of Indigenous traditional knowledge, self-governance, and self-determination. Additionally, this article acknowledges the vast body of traditional Yurok knowledge and experience and demonstrates the ways in which Indigenous knowledges are critical to developing solutions to climate change.

As detailed in this article, the Yurok Tribe engaged in a multi-decade effort to re-possess its land on California's North Coast. As of 2018, the Yurok Tribe has reacquired 57,578 acres of forested land within their ancestral territory. The recent success of this acquisition effort was, in part, made possible by the Tribe's participation in California's carbon program, which (in brief) monetizes the capacity of trees to remove carbon dioxide and other greenhouse gases from the atmosphere.² The Yurok Tribe's carbon projects are part of a diversified economic portfolio that supports the return of Indigenous ecological authority over land management decision-making.³ This article is organized into three main sections. The first section provides context for tribal participation in carbon credit markets with a specific examination of the development of California's cap-and-trade program. The second section provides a cultural, geographical, and historical background of the Yurok Tribe and an overview of the history of the Yurok ancestral territory, including the Tribe's navigation of the imposition of settler colonial land dispossession and Western land management practices. This is followed by a specific discussion of the Yurok Tribe's three carbon projects. The article concludes by placing the carbon projects within the context of the Tribe's work to reacquire traditional homelands, and to contribute to advancing Indigenous leadership in international climate policy.

II. TRIBAL PARTICIPATION IN CARBON CREDIT MARKETS

Tribal participation in carbon markets⁴ writ large is relatively new,

2. CAL. AIR RES. BD., COMPLIANCE OFFSET PROTOCOL U.S. FOREST PROJECTS 11 (2015), <https://ww3.arb.ca.gov/cc/capandtrade/protocols/usforest/forestprotocol2015.pdf>.

3. As former Yurok Tribe Executive Director Javier Kinney explains, they exemplify Indigenous development principles: "Indigenous perspectives and knowledge need to be included throughout the process—from planning to facilitation to implementation It's the right of Indigenous peoples to determine how and when development in their regions should be done." PRAXIS, *Interviews: Does Development Work?*, PRAXIS: THE FLETCHER J. OF DEV. STUDIES, 1999, at 46.

4. We use the term "carbon market" here to refer to the general market-based mechanism for managing carbon. There is no single carbon market—there are many carbon markets, and the

beginning no earlier than approximately 2001.⁵ According to the United States Bureau of Indian Affairs (BIA) Pacific Region Forester Gerald Jones, the BIA Pacific Region has been aware of and planning for the carbon market since the first Indian Forest Management Assessment Team (IFMAT I)⁶ report in 1993.⁷ The second IFMAT report, issued in 2003 (IFMAT II), includes a section entitled “Opportunities for Carbon Sequestration in Tribal Forestry” that outlines the emerging market for carbon sequestration, speculates on opportunities for tribes through reforestation and afforestation projects, warns of potential incursions on tribal sovereignty via long-term contracts, and recommends proceeding with caution.⁸ Both the 2003 IFMAT II and 2013 IFMAT III reports indicate that there is potential for tribal revenue from participation in the market, given that there are 18 million acres of forestland across the US that are held in trust for tribes.⁹ While this forested trust land presents a potential opportunity for developing carbon offset projects, its trust

California Air Resources Board’s (ARB’s) specific cap-and-trade program did not begin until 2013.

5. In the 2003 Indian Forest Management Assessment Team Report (IFMAT II), the authors drew on 2001 Sustainable Forestry Initiative Precertification data to report that two tribes had funded carbon sequestration projects, three had developed projects, and three were considering developing projects. See SECOND INDIAN FOREST MGMT. ASSESSMENT TEAM FOR THE INTERTRIBAL TIMBER COUNCIL, AN ASSESSMENT OF INDIAN FORESTS AND FOREST MANAGEMENT IN THE UNITED STATES 100 (2003), https://www.itcnet.org/issues_projects/issues_2/forest_management/assessment.html [hereinafter IFMAT II]. In 2007, the Nez Perce Tribe sold carbon credits generated from 2003 to 2010 on 2205 acres on the Chicago Climate Exchange. See RACHEL MOSLEY & SCOTT TURNOY, NEZ PERCE TRIBE: CARBON SEQUESTRATION PROGRAM 2-4 (2010), http://www7.nau.edu/itep/main/tcc/docs/tribes/tribes_NezPerce.pdf.

6. Recognizing the importance of forestlands to tribal economies and lifeways, the National Indian Forest Resources Management Act directed the Secretary of the Interior to acquire an independent assessment of tribal forest resources. See 25 U.S.C. §§ 3101-3120 (2012). The Secretary of the Interior then contracted with the Intertribal Timber Council to convene a team of nationally recognized forest management experts (known as the Indian Forest Management Assessment Team) to develop these assessments, completed every decade—so far in 1993, 2003, and 2013, respectively. See INDIAN FOREST MGMT. ASSESSMENT TEAM FOR THE INTERTRIBAL TIMBER COUNCIL, AN ASSESSMENT OF INDIAN FORESTS AND FOREST MANAGEMENT IN THE UNITED STATES ES-1 (1993), https://www.itcnet.org/issues_projects/issues_2/forest_management/assessment.html.

7. Interview with Gerald Jones, Region Forester, Bureau of Indian Affairs, in Sacramento, Cal. (Aug. 11, 2016).

8. The report recommends: “Cautiously continue to pursue carbon credit trading while monitoring emerging opportunities. Continuing to build tribal expertise in carbon marketing and science will facilitate this process . . . [I]t is likely that carbon credit will become a reality in the near future.” IFMAT II, *supra* note 5, at 96-101.

9. See IFMAT II, *supra* note 5, at 5; INDIAN FOREST MGMT. ASSESSMENT TEAM FOR THE INTERTRIBAL TIMBER COUNCIL, AN ASSESSMENT OF INDIAN FORESTS AND FOREST MANAGEMENT IN THE UNITED STATES 3 (2013), available at https://www.itcnet.org/issues_projects/issues_2/forest_management/assessment.html [hereinafter IFMAT III].

status may require specific legal approaches.¹⁰ Participating in the carbon market can create positive outcomes for tribes, including a favorable conservation management regime with delayed and lengthy rotations for timber, and the generation of capital for acquiring lands and putting them back in tribal ownership. To be sure, the conservation commitment on the land does not preclude timber harvest—such harvest and associated sale must just maintain carbon baselines, follow Habitat Conservation Plan requirements, and comply with applicable regulations.

A. California's Cap-and-Trade System

California's landmark climate change legislation, the California Global Warming Solutions Act of 2006 (also known as AB 32), mandates that California reduce its greenhouse gas emissions to 1990 levels by 2020, and by forty percent below 1990 levels by 2030.¹¹ The statute specifies that the State may pursue market-based conservation mechanisms to meet that goal.¹² The Cap-and-Trade Regulation Instructional Guidance promulgated by the Air Resources Board (ARB) in 2012 explains the cap-and-trade program, which, beginning in 2013, placed a firm and decreasing cap on air pollution from covered entities.¹³ Covered entities are major polluters, which are those firms and sectors emitting eighty to eighty-five percent of air pollution in California, and include such entities as refineries, oil and gas production facilities, glass manufacturing facilities, food processing plants, and other entities that emit over 25,000 metric tons of carbon dioxide per year.¹⁴ Covered entities do not face individual emissions caps, but operate under a

10. See *Offset Project Listing Requirements for Native American Tribes*, CAL. AIR RES. BD., <https://ww3.arb.ca.gov/cc/capandtrade/offsets/offset-tribes.htm> (last visited Nov. 18, 2019) (listing the regulatory requirements for approval of a tribal offset project located on "Indian [trust] lands" under the California Compliance Offset program).

11. California Global Warming Solutions Act of 2006, CAL. HEALTH & SAFETY CODE §§ 38550, 38566 (West 2019).

12. HEALTH & SAFETY § 38570.

13. CAL. AIR RES. BD., CAP-AND-TRADE REGULATION INSTRUCTIONAL GUIDANCE: INTRODUCTION 8-11 (2012), <https://ww3.arb.ca.gov/cc/capandtrade/guidance/introduction.pdf>.

14. CAL. AIR RES. BD., CAP-AND-TRADE REGULATION INSTRUCTIONAL GUIDANCE: IS MY COMPANY SUBJECT TO THE CAP-AND-TRADE REGULATION? 19-25 (2012), <https://ww3.arb.ca.gov/cc/capandtrade/guidance/chapter2.pdf>. These covered entities have been determined based on information collected via the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions, which has required electric power entities and fuel suppliers to report their emissions from 2009 to present. See CAL. CODE REGS. tit. 17, §§ 95100-95163 (2019); see also *Mandatory Greenhouse Gas Reporting Regulation*, CAL. AIR RES. BD., <https://ww2.arb.ca.gov/mrr-regulation> (last visited Nov. 18, 2019) (providing historical versions of the mandatory reporting regulation).

statewide cap, in a system in which allowances (each for one metric ton of carbon dioxide or equivalent greenhouse gas emission) provided by ARB decrease annually, and the entities have to make reductions or purchase offsets to reduce their emissions accordingly.¹⁵ Under the cap-and-trade program, covered entities have to report emissions to ARB, and these reports have to be verified by a third party. If an entity's emissions are lower than the amount covered by their free allowances, they can sell their surplus allowances to another covered entity with high emissions.¹⁶ Covered entities may only purchase offsets to cover up to eight percent of their compliance obligation.¹⁷ In July 2018, Governor Jerry Brown signed Assembly Bill 398 into law, which extends the cap-and-trade program through 2030.¹⁸

The State also issues offset credits for verified emission reductions and greenhouse gas removal enhancement, as detailed in the Compliance Offset Protocol for U.S. Forest Projects.¹⁹ These offsets represent a reduction or removal of greenhouse gases by an activity that can be measured, quantified, and verified.²⁰ Each offset credit is equivalent to the removal of one metric ton of carbon dioxide. For regulatory compliance purposes, offset credits meet the same need as allowances. However, offset credits are subject to a quantitative uses limit, meaning that only eight percent of a covered entity's emissions can be offset by verified emissions reduction activities.²¹ Offset projects are developed by parties outside of the ARB, pursuant to ARB-approved quantification methodologies or protocols. ARB reviews projects to determine whether they are legitimate sources of offset credits. If projects meet the requirements, ARB issues offset credits. All credits must be "real,

15. CAL. AIR RES. BD., CAP-AND-TRADE REGULATION INSTRUCTIONAL GUIDANCE: WHAT DOES MY COMPANY NEED TO DO TO COMPLY WITH THE CAP-AND-TRADE REGULATION? 1-11 (2019), <https://ww3.arb.ca.gov/cc/capandtrade/guidance/chapter3.pdf>.

16. For a brief overview of California's cap-and-trade system, including an analysis of how it works alongside other California greenhouse gas reduction policies, see Ann E. Carlson, *The President, Climate Change, and California*, 126 HARV. L. REV. F. 156, 156-59 (2013) [hereinafter Carlson, *The President*]. Carlson also provides a more detailed description of cap-and-trade, and how ARB implemented the required regulatory capacity to oversee it, in Ann E. Carlson, *Regulatory Capacity and State Environmental Leadership: California's Climate Policy*, 24 FORDHAM ENVTL. L. REV. 63, 63-86 (2017).

17. CAL. AIR RES. BD., OVERVIEW OF ARB EMISSIONS TRADING PROGRAM 1-2 (2015), https://ww3.arb.ca.gov/cc/capandtrade/guidance/cap_trade_overview.pdf.

18. See Governor Brown Signs Landmark Climate Bill to Extend California's Cap-and-Trade Program, OFFICE OF GOVERNOR EDMUND G. BROWN, JR. (July 25, 2017), <https://www.ca.gov/archive/gov39/2017/07/25/news19891/index.html>.

19. CAL. AIR RES. BD., *supra* note 2, at 26-39, 47-48.

20. See CAL. HEALTH & SAFETY CODE § 38562(d).

21. CAL. AIR RES. BD., *supra* note 17, at 2.

additional, quantifiable, permanent, verifiable, and enforceable.”²² Projects must also produce environmental benefits beyond business-as-usual (therefore, “additional”).²³ Only offset projects approved under one of the six California Compliance Offset Protocols (U.S. forest projects, urban forest projects, livestock projects, ozone-depleting substances, mine methane capture, and rice cultivation) may be used to offset greenhouse gas emissions.²⁴

Once an entity develops a carbon offset project, it must create a Compliance Instrument Tracking System (CITSS) account with ARB and take the project to an approved offset project registry (such as the Climate Action Reserve, the American Carbon Registry, or the Verified Carbon Standard) for listing.²⁵ After the registry assesses that the project proponent has met the requirements, the registry issues registry offset credits (ROCs). If ARB agrees that the project has met the requirements, it will issue ARB offset credits (AROCs), and the registry will retire the ROCs. Project owners then receive a specific number of compliance offset credits that can be sold to buyers participating in the cap-and-trade program.²⁶ Anyone signed up on the official credit website—the CITSS—can buy credits. The principle buyers are the covered entities, and ARB tracks the sale, purchase, and ownership of offset credits.²⁷

For the purposes of this article, we focus on ARB’s U.S. Forest Projects Compliance Offset Protocol.²⁸ A Forest Project is defined by ARB as: “a planned set of activities designed to increase removals of [carbon dioxide] from the atmosphere, or reduce or prevent emissions of [carbon dioxide] to the atmosphere, through increasing and/or conserving forest carbon stocks.”²⁹ Three forest project types are eligible: reforestation, improved forest management (IFM), and avoided

22. CAL. AIR RES. BD., CAP-AND-TRADE REGULATION INSTRUCTIONAL GUIDANCE: HOW DOES THE CAP-AND-TRADE PROGRAM WORK? 12 (2012), <https://ww3.arb.ca.gov/cc/capandtrade/guidance/chapter1.pdf>.

23. CAL. CODE REGS. tit. 17, § 95802 (2019).

24. See *Compliance Offset Program*, CAL. AIR RES. BD., <https://ww3.arb.ca.gov/cc/capandtrade/offsets/offsets.htm> (last visited Nov. 18, 2019).

25. See CAL. AIR RES. BD., GUIDANCE FOR COMPLIANCE INSTRUMENT TRACKING SYSTEM SERVICE (CITSS) REGISTRATION FOR OFFSET PROJECT OPERATORS AND AUTHORIZED PROJECT DESIGNEES 1 (2013), <https://ww3.arb.ca.gov/cc/capandtrade/offsets/citss-guide-opo-opd.pdf> (describing generally the CITSS registration process and the role of approved offset project registries).

26. CAL. AIR RES. BD., CAP-AND-TRADE REGULATION INSTRUCTIONAL GUIDANCE: HOW DO I BUY, SELL, AND TRADE COMPLIANCE INSTRUMENTS? 27 (2012), <https://ww3.arb.ca.gov/cc/capandtrade/guidance/chapter5.pdf>.

27. *Id.* at 28.

28. See CAL. AIR RES. BD., *supra* note 2.

29. *Id.* at 4.

conversion.³⁰ All three of the Yurok carbon projects that are the focus of this article are classified as IFM. An entity interested in pursuing a Forest Project begins by preparing and developing the project to meet regulatory and protocol requirements, and ensuring that they meet the Eligibility, Requirements, and Deadlines listed in section 95830 of the Cap-and-Trade Regulation.³¹ The landowner then conducts an Initial Forest Carbon Inventory to determine the baseline carbon stocks on the project area, as well as in currently harvested wood products from the project. The intent of determining the baseline is to estimate the amount of carbon on the land and in the products harvested from the land without a carbon project, in order to extrapolate from that amount to how much carbon would remain sequestered with or without a carbon project over time.³² The baseline amount of carbon must be compared to “Common Practice,” or the average amount of carbon on similar lands in the project region.³³ Whether the baseline amount is above or below the “Common Practice” amount determines the type of equation the landowner will use to establish the Minimum Baseline Level (MBL) of carbon that must be maintained on the land.³⁴

Using the amount of carbon on the ground determined in the initial inventory, the landowner must model species composition at normal growth rates, with anticipated legal constraints (i.e., required cultural and environmental protection), under a variety of management regimes. Then, a simulation is performed incorporating the landowner’s planned management prescription—for example, with the development of the Yurok Tribe’s CKGG project, “fewer acres were assigned for harvesting due to the more stringent environmental protections being applied under tribal management.”³⁵ The average of the modeled baseline must match or exceed the MBL, which incorporates Common Practice and legal and financial constraints. Once the baseline is determined for above ground carbon, a baseline must be determined for all carbon pools (including dead and below-ground carbon stocks) in the project, and the two must

30. Reforestation projects focus on reforesting areas that have reduced (less than ten percent) tree canopy cover; improved forest management (IFM) projects employ forest management strategies to increase and maintain forest carbon in areas with over ten percent tree canopy cover; and avoided conversion projects prevent deforestation. *See id.* at 11, 13-15.

31. *See* CAL. CODE REGS. tit. 17, § 95830 (2019).

32. CAL. AIR RES. BD., *supra* note 2, at 5, 13, 34.

33. *Id.* at 3, 139-40.

34. *Id.* at 56-57.

35. YUROK TRIBE, YUROK INDIAN SUSTAINED YIELD LANDS FOREST MANAGEMENT PLAN 134 (2012). The CKGG project derives its name from the Cook-Koppala-Gerber-Gleason (CKGG) property on which it is located. *See id.* at 139.

be added together to create a final baseline.³⁶

Once the project is developed and listed with an ARB-approved offset project registry, it must be verified by a third-party ARB-accredited verifier. Once the Offset Project Registry (OPR) receives the Offset Verification Statement (OVS) from the verifier, the OPR has forty-five days to determine whether or not to issue ROCs. If ROCs are issued, it becomes an active project. If the project decides to seek issuance of AROCs, ARB has forty-five days to determine whether or not to issue credits. In order to sell AROCs, the project must have already registered in the CITSS. Once credits are issued, the crediting period under the U.S. Forest Project Protocol is twenty-five years, but the project commitment extends for 100 years after the issuance of any credit. So, if more credits are issued after twenty-five years, annual monitoring and verification must continue for 100 years from that new date of issuance of new credits.³⁷

B. Potential Benefits and Challenges Facing Tribes Considering Participation in the Carbon Market

Native entities, such as the National Indian Carbon Coalition (NICC), are working to disseminate information to tribes for their participation in the carbon market. According to NICC, carbon markets can facilitate tribal economic development, support land stewardship, contribute to offsetting climate change, showcase the benefits of traditional stewardship, and facilitate reclamation of traditional lands.³⁸ However, the relatively low level of tribal participation in the carbon credit market is due to several legal, economic, political, and ideological factors. First, participation requires that the entity providing the offset credits have authority—that is, legal ownership—over the forestland that will be managed to sequester carbon. While some tribes have jurisdiction over extensive lands, often these lands are held in trust for tribes by the federal government, and the BIA does not yet have a formal policy regarding the commitment of trust lands to carbon sequestration projects. Secondly, while viable project size varies by the ecosystem type and carbon sequestration capacity, due to the cost of project development, a landowner needs to have a large area in order to make carbon projects economically feasible.³⁹ Due to the history of non-

36. CAL. AIR RES. BD., *supra* note 2, at 55-66.

37. *Id.* at 7, 76.

38. *The Carbon Credit Market*, NAT'L INDIAN CARBON COAL., <http://www.indiancarbon.org/the-carbon-credit-market.html> (last visited Nov. 18, 2019).

39. According to Yurok Tribe Forestry Director James Erler, "To have a viable project that

ratification of treaties with California tribes, many Native California nations have small land bases, or, in some cases, no land base at all. Therefore, the number of tribes that can participate in the California cap-and-trade program, on either trust land or fee land, is limited. As will be shown in the subsequent section, the Yurok Tribe built the necessary partnerships in order to leverage multiple funding sources to sell carbon offsets on newly acquired, private forest lands within the tribe's ancestral homeland. The Yurok Tribe's carbon project forests are not held in trust for the Tribe, but are owned in fee by the Tribe.

Project owners providing carbon offsets in the California cap-and-trade program receive revenue from the sale of the carbon offset credits, guaranteeing that they are holding carbon and thus offsetting polluters' emissions (under the mandatory cap). If anything happens to the forest (such as a fire or other natural disaster, or a breach of the terms of the management agreement), the value of the carbon offset is lost. To mitigate this concern, carbon project owners must provide some "insurance" in case of lost offsets.⁴⁰ When the Tribe develops its carbon credit forest project, it is required to contribute a specific amount of credits to the Forest Buffer Account, administered by ARB.⁴¹ If credits are lost in natural disasters (unintentional reversal), the Buffer Account credits will replace those lost credits. However, if credits are lost due to actions of the project owner (i.e., overharvesting), then that owner is liable for their replacement.⁴² A tribe or other project owner thus takes a risk when it agrees to provide carbon offsets and receive revenue for carbon credits.

Another concern is capital. Entering the carbon market requires a substantial initial investment (\$200,000 to \$500,000) to establish a baseline of carbon on the landscape, define management criteria and implementation, and meet monitoring and verification standards. Analyzing the feasibility of a carbon project requires that the project be of a large enough size and have enough carbon sequestration ability to cover the costs of management and monitoring over the commitment

will break even on the north coast, you need 5,000-6,000 acres." Interview with James Erlcr, Forestry Director, Yurok Tribe, in Klamath, Cal. (Mar. 26, 2016).

40. Interview with Nathan Voegeli, former Legal Staff, Yurok Tribe, in Klamath, Cal. (Oct. 15, 2016).

41. The amount contributed is based on the project's risk rating, as determined by ARB. See CAL. AIR RES. BD., *supra* note 2, at 30-36; see also *id.* at 132-36 (providing detailed guidance for calculating reversal risk ratings); CAL. CODE REGS. tit. 17, § 95983 (2019) (listing requirements for compensating for reversals).

42. See CAL. AIR RES. BD., *supra* note 2, at 30-36; CAL. CODE REGS. tit. 17, § 95983 (2019).

period, and hopefully generate a profit. Tribes generally have smaller land bases to work with, which may make the costs of developing and implementing measuring, monitoring and verification systems extremely high, thereby “decreas[ing] the economic competitiveness of forest carbon projects and thus discourag[ing] participation.”⁴³

The tribe must be able to develop the project to meet market specifications (or contract with a carbon project developer to do this work), and commit the resources and personnel to implement and monitor the project and collaborate with external verifiers tracking their progress. Tribes, including the Yurok, have used their own forestry departments and crews, perhaps with some technical support from partnering organizations, consultants, and project developers, to measure the carbon in the system, monitor that carbon, and work with outside entities to verify the measurements of carbon sequestration over time.⁴⁴ This saves tribes on up-front costs associated with project development. However, if a tribe does not have this expertise in-house, they generally contract with a carbon project developer.

Tribes and other landowners may be cautious in entering contracts with project developers, as such contracts are typically short term, and immediately followed by the sale of the initial flush of credits. As such, there is the risk that the project developer can walk in, develop a project, take the money, and leave the tribe dealing with long-term challenges, while the Tribe has to maintain the project, do verifications regularly, and complete annual reporting requirements. Despite these concerns, the Yurok Tribe has had a positive experience working with New Forests, a sustainable investment management firm, on carbon project development. According to Brian Shillinglaw of New Forests, tribes can avoid getting caught up in deals with problematic carbon development firms by examining those firms closely—including requesting their financial records, getting an understanding of their transaction structure, and talking with other tribes about their experiences with the firm—all before committing to work with them.⁴⁵ As Shillinglaw described, New Forests’ process of project development with tribes is slow, cautious, and takes a long-term perspective. They typically talk to landowners (including tribes) for up to two years before initiating a project: “When we talk to tribes, we try to figure out what they are focused on . . . it

43. Katie Patterson, Note, Overcoming Barriers to Indigenous Peoples’ Participation in Forest Carbon Markets, 22 *COLO. J. INT’L ENVTL. L. & POL’Y* 417, 428 (2011).

44. *See id.* at 428-29 (describing the potential benefits of tribes’ partnering with project aggregators).

45. Telephone Interview with Brian Shillinglaw, Attorney, New Forests (Oct. 7, 2016).

could be a mill opening, land acquisition, allotment acquisition, etc. How does the carbon project fit in with tribes' strategic goals? Some of our competitors have aggressively marketed to tribes in a 'here's a deal' way. We work slower. There is a lot of value but it is not risk free, and there are many considerations."⁴⁶ As a timberland investment management organization, New Forests raises the capital to finance and develop projects, and then does project management and verification for at least five years after the first sale of carbon offsets.

Another set of concerns facing tribes who choose to participate in the carbon market are all of the contingencies associated with a relatively new market. Accounting for emissions averted from specific forest management activities involves a complex set of metrics to measure a dynamic system. One of the first tasks is defining the boundaries of the project. While this may seem relatively simple in terms of land ownership, atmospheric carbon dioxide is much bigger than a 30,000-acre forest, and "important processes that control atmospheric [carbon dioxide] could be outside of the system boundary but remain unknown because they are too difficult to measure."⁴⁷ Other specific issues include permanence—that is, guaranteeing that trees planted or protected under project terms are not subsequently cut, thereby eliminating the carbon offset. According to the Climate Action Reserve Protocol 3.1 (2009), this can be avoided via a permanent conservation mechanism, such as a conservation easement.⁴⁸

Attorney and legal scholar Abigail Stecker Romero has called for the formation of a new type of conservation mechanism specifically for carbon projects, a carbon sequestration easement that could be held by an entity (not necessarily the landowner) responsible for the sequestered carbon.⁴⁹ Unlike a regular conservation easement, a carbon sequestration easement would have a built-in mechanism for funding stewardship and monitoring via the sale of carbon offsets generated over the course of the project. Stecker's proposed carbon sequestration easement does not currently exist, and tribes have instead used the stipulations included in specific offset protocols to create conservation obligations over the

46. *Id.*

47. Duncan McKinley et al., *A Synthesis of Current Knowledge on Forests and Carbon Storage in the United States*, 21 *ECOLOGICAL APPLICATIONS* 1902, 1908 (2011).

48. CLIMATE ACTION RESERVE, FOREST PROJECT PROTOCOL VERSION 3.1, at 5, 8, 10 (2009), www.climateactionreserve.org/wp-content/uploads/2014/10/Errata_and_Clarifications_FPP_V3.1_102914.pdf.

49. Abigail Stecker, *Creating a Carbon Sequestration Right: A Legal Tool to Enhance the Use of Forest-Based Carbon Offsets*, 18 *HASTINGS W. NW. J. ENVTL. L. & POL'Y* 293, 296 (2012).

lifetime of carbon projects. The Yurok Tribe has been careful not to call their conservation agreements encumbrances, however—"rather, we see these projects as a contractual obligation or enforcement obligation of the tribe/project owner, not a burden on the land."⁵⁰

Previous work on tribal use of conservation easements has shown that while easements may be difficult to establish on tribal trust lands, their creation is not impossible, and there are several models available of successful tribal application of conservation easements to protect, steward, and acquire alienated ancestral lands.⁵¹ Katie Patterson notes that, while "restricted property rights can make it difficult to guarantee land use Indigenous relationships to land and continuity of stewardship lower the risks of permanence."⁵² Indigenous legal scholars Daniel Cordalis (Navajo)⁵³ and Dean Suagee (Cherokee) support this notion, arguing that tribes are already taking the lead in calling for carbon dioxide emissions reduction, and in exercising their sovereignty to implement emissions reduction targets and sustainable development on lands within their jurisdiction.⁵⁴ Indeed, Shillinglaw noted that the carbon market may be an ideal vehicle for tribes to obtain revenue for traditional management of forests: "Tribes have managed for a mix of values and are long term stewards of the land that care about all values of forest, not just cash flow; they are situated to get a lot of revenue if they want from monetizing past stewardship. [They are in] a very unique situation."⁵⁵ Indeed, in terms of carbon offsets, tribal management may generate offsets both by transitioning land mis-managed by non-Natives back to traditional tribal land management, and from land they have been able to manage using traditional techniques.

When developing carbon projects, tribes must also be attentive to avoiding leakage, in which the benefit of the carbon offset merely leads

50. Voegeli, *supra* note 40.

51. See generally BETH ROSE MIDDLETON, *TRUST IN THE LAND: NEW DIRECTIONS IN TRIBAL CONSERVATION* (2011); Mary Christiana Wood & Zachary Welcker, *Tribes as Trustees Again (Part I): The Emerging Tribal Role in the Conservation Trust Movement*, 32 HARV. ENVTL. L. REV. 373 (2008); Mary Christiana Wood & Matthew O'Brien, *Tribes as Trustees Again (Part II): Evaluating Four Models of Tribal Participation in the Conservation Trust Movement*, 27 STAN. ENVTL. L.J. 477 (2008).

52. Patterson, *supra* note 43, at 425.

53. Parenthetical references to the names of tribes indicate the expressed tribal affiliations of indigenous sources.

54. Daniel Cordalis & Dean B. Suagee, *The Effects of Climate Change on American Indian and Alaska Native Tribes*, 22 NAT. RESOURCES & ENV'T 45, 49 (2008) ("Responsibility to the seventh generation is a cultural value common among American Indian and Alaska Native tribes. People working on climate change are likely to find that some of the ideas offered by tribal representatives are truly inspirational.").

55. Shillinglaw, *supra* note 45.

to displacing the impact (in this case, forest destruction) to another area, thereby resulting in a net loss. Leakage can only be guarded against by monitoring forest management in increasingly broad jurisdictions; that is, noting not only the activities offsetting pollution within California, but being attentive to whether or not removing forests within the Yurok ancestral territory from production merely causes increased harvest and impacts elsewhere.⁵⁶ Participating in a global system of monitoring emissions and offsets, including maintaining and increasing communication with Indigenous and other forest-dependent populations worldwide, may help to reduce leakage from projects.⁵⁷

Given all of the challenges facing forest offset projects, why would a tribe choose to participate in the cap-and-trade program? In their study of the financial feasibility of designing “improved forest management” projects under the 2009 Climate Action Reserve Forest Project Protocol to reduce wildfire risk on the Navajo Nation, Huang & Sorenson found that carbon revenues generated from such projects could provide the funding to do the necessary forest thinning to protect tribal lands from fire:

[T]he effect of revenues from [carbon] sequestration on forest management is significant [T]he current poor to nonexistent timber market in northern Arizona has not provided the needed financial incentives to entice land managers to conduct necessary fuel reduction treatments to reduce fuel buildup and catastrophic wildfires. The inclusion of [carbon] revenues in forest management could change the current negative NPWs [net present worth] to positive ones [Carbon] credit revenues would play a key role in the profitability of forest management.⁵⁸

Huang & Sorenson (2011) addressed concerns of accuracy in accounting for carbon sequestration over time by examining forest conditions at three previous points in time and by developing predictions of wildfire risk based on Hugget et al.’s (2008) existing fire hazard risk

56. Patterson, *supra* note 43, at 432.

57. See, e.g., LARRY LOHMANN, CARBON TRADING: A CRITICAL CONVERSATION ON CLIMATE CHANGE, PRIVATIZATION, AND POWER 162 (2006) (regarding accepting baselines as “imprecise” with “error bars of 45 percent in either direction”); see also *id.* at 161 (noting that the Intergovernmental Panel on Climate Change accepted estimates of global carbon uptake even though they had a “factor-of-five error bar”).

58. Ching-Hsun Huang & Christopher Sorensen, *The Economic Value of Selling Carbon Credits from Restored Forests: A Case Study from the Navajo Nation’s Tribal Forests*, 26 W. J. APPLIED FORESTRY 37, 42 (2011).

classification system.⁵⁹ They noted the need for broader economic and regulatory mechanisms—including set pricing on carbon dioxide emissions, establishment of renewable portfolio standards, implementation of a cap-and-trade system, and other incentives to offset emission—in order to make it less risky for tribes and other rural land managers to begin economic development through the sale of carbon offsets.⁶⁰ Altogether, Huang & Sorenson were very positive about the potential for the Navajo Nation to participate, given broader federal and state regulatory support to stabilize the carbon market: “This approach presents a solution to reduce [carbon dioxide] emissions and mitigate global climate change while avoiding future fire suppression costs, decreasing the threat of destructive wildfires to forests, and providing income opportunities and generating regional output and employment for Arizona’s Native Americans and in rural America.”⁶¹

As Cordalis & Suagee (2008) and Suagee (2013) note, we are facing a context of human-caused climate change, and all jurisdictions—including tribal governments exercising their sovereign authorities—would be well-served to be involved in mitigating and attempting to reverse global warming.⁶² Alongside reducing emissions, tribes participating in carbon sequestration projects may be able to contribute to both climate stabilization as well as tribal economic development.

III. THE YUOK TRIBE

The Yurok Tribe’s “identity, subsistence, religion, and law are deeply entwined with the mountains and rivers, forests and prairies, of northwest California.”⁶³ The Yurok homeland spans ninety miles of Pacific coast, and follows the Klamath River inland forty-four miles. The Yurok people have always been careful stewards of the lands and waters in which they were created. Within Yurok epistemology, the

59. *Id.* at 39 (citing R.J. Huggen et al., *Efficacy of Mechanical Fuel Treatments for Reducing Wildfire Hazard*, 10 *FOREST POL. & ECON.* 408, 408-09 (2008)).

60. *Id.* at 44.

61. *Id.*

62. Cordalis & Suagee, *supra* note 54, at 45; Dean Suagee, *Tribal Climate Crisis Tax-Exempt Bonds*, 28 *NAT. RESOURCES & ENV'T* 57, 57-58 (2013); *see also* T.M.B. Bennett et al., *Indigenous People Lands and Resources*, in *CLIMATE CHANGE IMPACTS IN THE UNITED STATES: THE THIRD NATIONAL CLIMATE ASSESSMENT* 297 (J.M. Melillo, Terese Richmond & G.W. Yohe eds., 2014) (detailing investigations of the extent and impacts of global warming and other climate change impacts on indigenous communities).

63. Amy Bowers & Kristen Carpenter, *Challenging the Narrative of Conquest: The Story of Lyng v. Northwest Indian Cemetery Protective Association*, in *INDIAN LAW STORIES* 489, 492 (Carole Goldberg, Kevin K. Washburn & Philip P. Frickey eds., 2011).

natural world is composed of living beings; the river, the trees, and the salmon are intimately connected to Yurok culture—they are relatives.⁶⁴ Pre-contact population estimates range from fifty-four villages to seventy⁶⁵ with a population of at least 2600 people.⁶⁶ According to Yurok General Counsel Amy Cordalis (Yurok) and professor Kristen Carpenter, “[Yurok] traditional way of life reflects a deep connection between the people and their lands.”⁶⁷ Today, the Yurok Tribe is the largest tribe in California, with more than 5000 enrolled members.⁶⁸

Yurok culture and religion are directly tied to the land base, which forms what Lakota theologian and legal scholar Vine Deloria, Jr. calls a “sacred geography.”⁶⁹ This geography includes villages, family fishing holes,⁷⁰ hunting areas, gathering areas, and the “High Country,” a region considered “so sacred that humans could not interfere with the creator’s natural intention The most important aspects of the religion—the medicine and communication with the sacred—could only be accomplished by a doctor visiting the High Country in its pristine condition.”⁷¹ The lands on which the Yurok have executed their carbon credit project and which are the focus of this article include portions of the Blue Creek watershed, which flows from the Yurok High Country. Like many sites sacred to the Yurok, this area fell outside of the boundaries of the reservation that the federal government had demarcated for the Tribe, and thus until the recent reacquisition of these lands described in this article, the area remained outside of Yurok jurisdiction. As former Yurok Tribal Chairman Thomas O’Rourke explains, “The Blue Creek watershed is not only a significant salmon stronghold, it contains the path to our spiritual center, a sacred place

64. *See id.*

65. TONY PLATT, GRAVE MATTERS: EXCAVATING CALIFORNIA’S BURIED PAST 13 (2017).

66. A. LINDGREN, *Introduction* to ROBERT FLEMING HEIZER & JOHN E. MILLS, *THE FOUR AGES OF TSURAI: A DOCUMENTARY HISTORY OF THE INDIAN VILLAGE ON TRINIDAD BAY*, at v, v (Virginia L. Waters & James F. Waters eds., 1991).

67. Bowers & Carpenter, *supra* note 63, at 492.

68. *History/Culture*, YUROK TRIBE, <https://www.yuroktribe.org/culture/culture.htm> (last visited Nov. 19, 2019).

69. VINE DELORIA JR., *GOD IS RED: A NATIVE VIEW OF RELIGION* 122 (1994) (describing Indigenous “sacred geography” as a combination of history and geography, such that “every location within their original homeland has a multitude of stories that recount the migrations, revelations, and particular historical incidents that cumulatively produced the tribe in its current condition.”); *see also* Kristen A. Carpenter & Angela R. Riley, *Indigenous Peoples and the Jurisgenerative Moment in Human Rights*, 102 CALIF. L. REV. 173, 202 (2014) (“For Native people, every component of their personhood is tied up in and defined by the land from which they originated.”).

70. Bowers & Carpenter, *supra* note 63, at 494.

71. *Id.*

where our medicine makers have travelled since time immemorial to bring the world back into balance."⁷²

Yurok people have a profound obligation to care for and steward their lands responsibly. Within Yurok epistemology, the natural world is composed of living relations with agency and embodied by spirit. Yurok traditional knowledge conceptualizes the ecosystem as interconnected, and forest health as key to the vitality of the entire ecosystem. The Yurok people have explicitly incorporated this traditional knowledge into the Constitution of the Yurok Tribe, which describes a reciprocal and interactive relationship between humans and other species, including trees.⁷³

Rather than isolating a single species as profitable and managing the forest for maximum production of that species, the Yurok people effectively promoted habitat heterogeneity and maintained high levels of biodiversity through their land management practices.⁷⁴ Through a combination of traditional forest management practices such as gathering, transplanting, burning, and habitat modification, the Yurok Tribe and its citizens actively manage their forests to provide wood, food, and other forest products.⁷⁵ Such bodies of knowledge are often referred to as traditional ecological knowledge (TEK).⁷⁶ Ecologist M. Kat Anderson, a leading scholar of California Indian environmental practices, describes TEK as a collective storehouse of information about the natural world developed over generations.⁷⁷ Far from the stereotypes of savage hunters and gatherers, Yurok people have a highly

72. *Tribe Completes Blue Creek Purchase: The Entire Watershed Is Now a Permanently Protected Salmon Sanctuary*, YUOK TODAY: THE VOICE OF THE YUOK PEOPLE (Yurok Tribe, Klamath, Cal.), Mar. 2018, at 1, 3-4.

73. See YUOK TRIBE CONST. pmbl., <https://www.yuroktribe.org/government/councilsupport/documents/Constitution.pdf> ("In times past and now Yurok people bless the deep river, the tall redwood trees, the rocks, the mounds, and the trails We have also practiced our stewardship of the land in the prairies and forests through controlled burns that improve wildlife habitat and enhance the health and growth of the tan oak acorns, hazelnuts, pepperwood nuts, berries, grasses and bushes, all of which are used and provide materials for baskets, fabrics, and utensils.").

74. M. KAT ANDERSON, *TENDING THE WILD: NATIVE AMERICAN KNOWLEDGE AND THE MANAGEMENT OF CALIFORNIA'S NATURAL RESOURCES* 5 (2005).

75. LYNN HUNTSINGER ET AL., UNIV. CAL. AT BERKELEY, *A YUOK FOREST HISTORY* 57 (1994); see also ANDERSON, *supra* note 74, at 4 ("[This] rich knowledge of how nature works and how to judiciously harvest and steward its plants and animals without destroying them was hard-earned; it was the product of keen observation, patience, experimentation, and long-term relationships with plants and animals."); Lynn Huntsinger & Sarah McCaffrey, *A Forest for the Trees: Forest Management and the Yurok Environment, 1850 to 1994*, 19 AM. INDIAN CULTURE & RES. J. 155, 159 (1995).

76. ANDERSON, *supra* note 74, at 4.

77. *Id.*

sophisticated and complex understanding of the ecology and natural resources throughout their territory.⁷⁸ Indigenous land and water stewardship facilitated sustainable economies and enhanced the growth and diversity of California's resources.⁷⁹ In general, California Indians stewarded their lands in a way that maximized available resources; such practices were based on deep understandings of California's ecology.

For the Yurok, fire traditionally has been—and continues to be—an important tool for land stewardship. The use of fire in maintaining the Yurok landscape requires vast amounts of knowledge of plant communities and their cycles. Fire is useful in maintaining and regenerating “wood, acorns, game, grass seed, spiritually important plants, and basketry materials.”⁸⁰ Fire is also used to preserve or increase the spatial and temporal extent of grassland, oak woodland, and shrub communities, which are utilized as a rich source of plant materials and game, for hunting and trapping, and for protecting villages from larger fires.⁸¹ Through controlled burning, the Yurok create hunting grounds for elk and deer, prevent diseases and pests, and encourage the growth of hazel sticks and willow shrubs for use in medicines and basketry, as well as the production of nuts, seeds, grains, greens, fruits, and roots.⁸² “Long before the United States Forest Service or California Department of Fish and Game existed, the Tribes managed these resources according to a complex set of societal rules founded in Indigenous science, technology, religion, and law that produced a landscape quite different from the appearance of the Klamath River Basin today.”⁸³

78. See *id.* at 1 (“The first European explorers, American trappers, and Spanish missionaries entering California painted an image of the state as a wild Eden providing plentiful nourishment to its native inhabitants without sweat or toil. But in actuality, the productive and diverse landscapes of California were in part the outcome of sophisticated and complex harvesting and management practices.”).

79. *Id.* at 2.

80. HUNTSINGER ET AL., *supra* note 75, at 57; Huntsinger & McCaffrey, *supra* note 75, at 163-67.

81. Huntsinger & McCaffrey, *supra* note 75, at 163; see also *id.* at 166 (“[U]nder Indigenous management, shrub lands, oak woodlands, and prairies were more widespread in the Yurok forest and in northwestern coastal California, in general, than at present.”).

82. *Id.* at 166.

83. Bowers & Carpenter, *supra* note 63, at 493. Within Indigenous worldviews, there is a concept of natural law or original instructions. See Melissa K. Nelson, *Introduction to ORIGINAL INSTRUCTIONS: INDIGENOUS TEACHINGS FOR A SUSTAINABLE FUTURE* 1, 2 (Melissa K. Nelson ed., 2008) (“Original Instructions refer to the many diverse teachings, lessons, and ethics expressed in the origin stories and oral traditions of Indigenous Peoples. . . . They are natural laws that, when ignored, have natural consequences.”). Indigenous worldviews contrast with that of settler colonial societies, which consider human beings able to decide the laws of the land. See C. F. BLACK, *THE LAND IS THE SOURCE OF THE LAW: A DIALOGIC ENCOUNTER WITH INDIGENOUS*

The Yurok Tribe's ability to steward and care for their lands and waters was impacted by processes of settler colonialism. Cutcha Risling Baldy (Yurok, Hupa, and Karuk), building upon the work of Patrick Wolfe, describes settler colonialism as "a continuous set of structures designed to claim land and to do whatever is necessary to erase Indigenous claims to land, territory, and even history."⁸⁴ When Euro-Americans invaded the Klamath region in the mid-nineteenth century, they perpetrated genocide against Native peoples and their homelands and developed mining, timbering, irrigation, and other extractive industrial projects that dramatically altered both the Yurok forest and Yurok ways of life.⁸⁵ Today, tribes including the Yurok face the dual challenges of recovering ancestral lands and reintroducing Indigenous forestry management and ecological practices in a sustainable fashion.

A. Attempts to Colonize the Yurok Forest

Non-Native settlement and expansion within California were largely driven by desires for timber, gold, and land.⁸⁶ Settlers attempted to contain Yurok peoples and erase their claims to ancestral territory. In an attempt to sequester Yurok populations, make way for hordes of incoming settlers, and quell conflict over outright land theft, President Pierce established the approximately 25,000 acre Klamath River Reservation on November 16, 1855, by executive order.⁸⁷ The Reservation included the lower twenty miles of the Klamath River, extending one-mile wide on each side of the riverbank⁸⁸—a mere fraction of the more than 400,000 acres of Yurok ancestral territory.⁸⁹ In

JURISPRUDENCE 107 (2011) ("The central focus of the law is thus not humans and their rights, but the maintenance of a sustained place in the pattern of the web.").

84. CUTCHA RISLING BALDY, *WE ARE DANCING FOR YOU: NATIVE FEMINISMS & THE REVITALIZATION OF WOMEN'S COMING-OF-AGE CEREMONIES* 10 (2018); see Patrick Wolfe, *Settler Colonialism and the Elimination of the Native*, 8 J. GENOCIDE RES. 387 (2006).

85. See generally BENJAMIN MADLEY, *AN AMERICAN GENOCIDE: THE UNITED STATES AND THE CALIFORNIA INDIAN CATASTROPHE* (2016); BRENDAN C. LINDSAY, *MURDER STATE: CALIFORNIA'S NATIVE AMERICAN GENOCIDE, 1846-1873* (2012); KIMBERLY JOHNSTON-DODDS, *EARLY CALIFORNIA LAWS AND POLICIES RELATED TO CALIFORNIA INDIANS* (2002); JACK NORTON, *WHEN OUR WORLDS CRIED: GENOCIDE IN NORTHWESTERN CALIFORNIA* (1979) (describing at length the nature and the extent of the genocidal acts perpetrated against Native communities in Northern California by Euro-American settlers).

86. NORTON, *supra* note 85, at 3-5.

87. HUNTSINGER ET AL., *supra* note 75, at 126.

88. See *Short v. United States*, 486 F.2d 561, 562-66, 566 n.4 (1973), *superseded by statute*, *Hoopa-Yurok Settlement Act*, 25 U.S.C. § 1300i (1988), *as recognized in Karuk Tribe of California v. Ammon*, 209 F.3d 1366, 1372 (Fed. Cir. 2000) (describing historical Hoopa Valley Reservation territory and providing full text of 1876 and 1891 executive orders).

89. Lynn Huntsinger & Lucy Dickmann, *The Virtual Reservation: Land Distribution*,

1864, the Hoopa Valley Reservation—referred to as “the Square”—was informally designated by Austin Wiley, Superintendent of Indian Affairs for the State of California, and was later formally recognized in an 1876 executive order issued by President Grant.⁹⁰ In 1891, President Harrison, also through executive order, combined the Klamath River Reservation and the Hoopa Valley Reservation into a single reservation boundary that encompassed approximately 56,000 acres known as the Hoopa Valley Reservation Extension.⁹¹

Meanwhile, Congress’s passage of both the Free Timber Act and the Timber and Stone Act⁹² in 1878 facilitated the theft and dispossession of Yurok lands and resources by Euro-American settlers.⁹³ The Free Timber Act allowed settlers the right to cut timber for domestic and mining purposes.⁹⁴ The Timber and Stone Act (applicable only to California, Nevada, Oregon, and Washington) allowed homesteaders to claim timberlands of 160 acres of land “valuable chiefly for timber and stone”—land that had been deemed unfit for agriculture—in addition to their homesteads.⁹⁵ A decade later, the Dawes Act (or, the General Allotment Act) of 1887 further decreased the amount of land owned by Indian people. Under the Allotment Act, tribal land bases were divided into parcels held in trust for individual tribal citizens; after twenty-five years, these lands were held in fee and thereby subject to federal taxation. Parcels not allotted to tribal citizens were opened for sale to settlers.⁹⁶ In 1934, Commissioner of Indian Affairs John Collier estimated that over ninety million acres of land were stolen from Indian

Natural Resource Access, and Equity on the Yurok Forest, 50 NAT. RESOURCES J. 341, 341 (2010)

90. *Short*, 486 F.2d at 562; see also *id.* at 563 n.3 (providing the full text of the 1876 executive order).

91. *Mattz v. Arnett*, 412 U.S. 481, 493, 494 n.16 (1973); see also *id.* at 484 n.2 (providing citation to full text of the 1891 executive order); *Huntsinger & Dickmann*, *supra* note 89, at 341 (describing the extent of the post-1891 Reservation).

92. Free Timber Act, ch. 150, 20 Stat. 88 (1878) (codified as amended at 16 U.S.C. §§ 604-606 (2012)); Timber and Stone Act, ch. 151, 20 Stat. 89 (1878) (codified as amended at 43 U.S.C. §§ 311-313 (2012)) (repealed 1955).

93. See *HUNTSINGER ET AL.*, *supra* note 75, at 26 (“These laws, particularly the Timber and Stone Act, were used by land speculators to illegally acquire redwood lands in northwest California.”).

94. Free Timber Act, ch. 150, 20 Stat. at 88.

95. Timber and Stone Act, ch. 151, 20 Stat. at 89; see *HUNTSINGER ET AL.*, *supra* note 75, at 26 (regarding additionality of Timber and Stone Act acreage).

96. General Allotment (Dawes) Act, ch. 119, 24 Stat. 388 (1887) (codified as amended at 25 U.S.C. §§ 331-333 (1994)) (repealed 2000); see *HUNTSINGER ET AL.*, *supra* note 75, at 68 (discussing the implications of the Dawes Act on the Yurok Reservation and the assessment of federal taxes on allotted lands held in fee simple).

ownership across the nation due to the Allotment Act.⁹⁷

This trend also occurred in northwestern California. The specific allotment of the approximately 25,000-acre Klamath River Reservation was authorized in 1892.⁹⁸ From 1893 to 1894, 9760 acres of the original Klamath River Reservation were allotted and 70 acres were set aside for “village reserves”; the rest was deemed “public domain” and opened up to non-Native settlement.⁹⁹ From 1898 to 1899, 19,357 acres of the Extension were allotted, leaving only 3350 acres as unallotted trust lands.¹⁰⁰ Yurok people lost much of their acreage during the allotment era, and much of the lands lost were the highest quality and considered some of the most developable and useful.¹⁰¹ As a result of these federal Indian law policies, much of the land within the Yurok Reservation boundary remains in non-Indian ownership, making coordinated and centralized ecological management especially difficult.¹⁰²

97. See Comment, *Tribal Self-Government and the Indian Reorganization Act of 1934*, 70 MICH. L. REV. 955, 957 (1972) (explaining that Indian ownership of land fell from approximately 138 million in 1887, when the Dawes Act was enacted, to 48 million acres in 1943, when the Indian Reorganization Act ended allotment); see also S. James Anaya, *Report of the Special Rapporteur on the Rights of Indigenous Peoples on the Situation of Indigenous Peoples in the United States of America*, 32 ARIZ. J. INT’L & COMP. L. 52, 56-57, 61-62 (2015) (describing the historical acquisition of Native land by federal legislation, executive order, and treaties, and the continuing effects of this process on contemporary Native American land rights).

98. Act of June 17, 1892, ch. 120, 27 Stat. 52 (1892); HUNTSINGER ET AL., *supra* note 75, at 30.

99. HUNTSINGER ET AL., *supra* note 75, at 30.

100. *Id.*

101. See *id.* (explaining that, pursuant to the agricultural intent of the Dawes Act, the Yurok people did not receive much in the way of forestlands and timber prospects).

102. See Dan Morain, *Timber, Fishing Money at Stake: Hoopa-Yurok Tribal Fued Rages on in N. California*, L.A. TIMES (Nov. 26, 1988), <https://www.latimes.com/archives/la-xpm-1988-11-26-mn-90-story.html> (noting that while the portion of land designated as the Yurok Reservation in 1891 encompassed approximately 56,000 acres, only 4000 acres were owned by the Tribe, with the remainder largely owned by members of the timber industry); see also Huntsinger & Dickmann, *supra* note 89, at 341-42, 353-61 (describing at length the progressive dispossession of Yurok lands and the current fragmentation of Tribal land ownership within the Reservation boundaries).

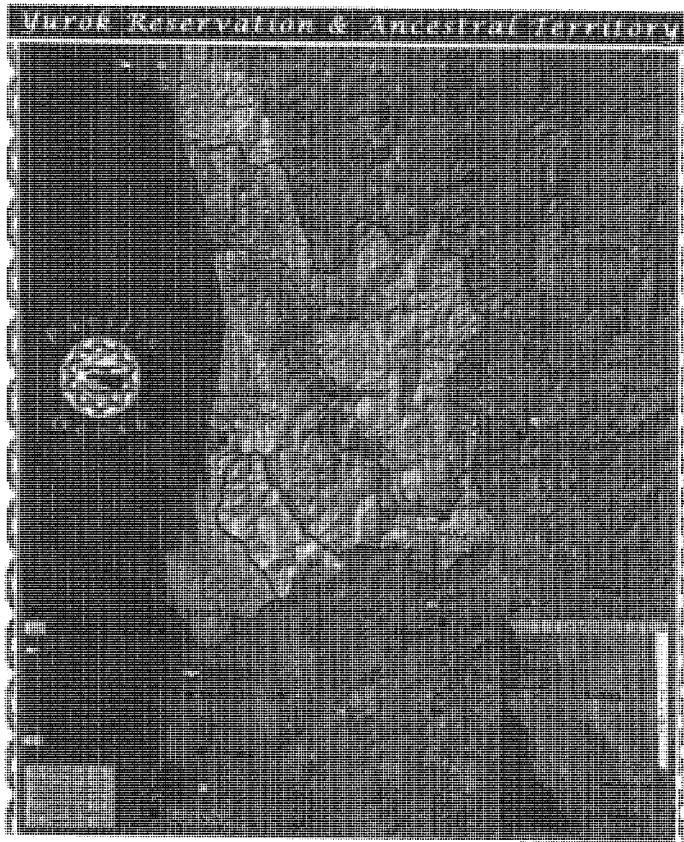


Figure 1: Yurok Reservation & Ancestral Territory. Map created by Yurok Tribe GIS Department, August 2014

The settler state took a two-pronged approach to colonizing the Yurok forest. In addition to decreasing the Yurok land base, the federal government divested Yurok people of their authority and ability to manage their forest resources. Forestry management in tribal homelands was delegated to federal entities such as the United States Forest Service (USFS) and the BIA.¹⁰³ The “creation of the Forest Service in 1905 and the BIA’s Division of Forestry in 1910 provided the administrative vehicles through which scientifically trained foresters were placed in

103. This marked an important historical shift in the role of the Bureau of Indian Affairs. An apt metaphor likens the BIA during the allotment era to a real estate agent, whereas the twentieth century BIA acted as a landlord: involved, surveillant, and focused on the protection of their investment, not their tenant. *See generally* HUNTSINGER ET AL., *supra* note 75, at 31-36, 68-89 (describing the shifts in the BIA’s treatment of the Yurok Tribe and Reservation with respect to land ownership and forest management).

charge of public timberlands and Indian reservation forests.”¹⁰⁴ Scientific forestry—the epistemological basis for USFS and BIA management—was originally developed from 1765 to 1800 in Prussia and Saxony, spread to the rest of Europe and to the United States, and was then imposed across the developing world.¹⁰⁵ Prioritizing fiscal revenue, state-run scientific (fiscal) forestry transformed “the actual tree with its vast number of possible uses [and] replaced [it with] an abstract tree representing volume of lumber or firewood.”¹⁰⁶ On the other end of the spectrum, even the non-tribal conservation ethics of turn-of-the-century environmentalists, such as Gifford Pinchot, John Muir, and Theodore Roosevelt, depended on the removal and dispossession of Indian peoples from their Indigenous territories.¹⁰⁷

The imposition of scientific forestry practices by the USFS and later the BIA radically altered the landscape of ancestral Yurok territory. Much of the Yurok forest was claimed by the federal government when the Klamath and Trinity Forest Reserves were established via presidential proclamation in 1905.¹⁰⁸ Through its narrow focus on production and profit and its blindness to the interconnectedness of life and the forest, scientific forestry failed to recognize that forests are a complex web of relationships¹⁰⁹—something Indigenous peoples have always known and tried to explain.¹¹⁰ Not only were the results of a

104. Huntsinger & McCaffrey, *supra* note 75, at 172.

105. JAMES C. SCOTT, *SEEING LIKE A STATE: HOW CERTAIN SCHEMES TO IMPROVE THE HUMAN CONDITION HAVE FAILED* 14 (1989); *see also* Louise P. Fortmann & Sally K. Fairfax, *American Forestry Professionalism in Third World: Some Preliminary Observations* 24 *ECON. & POL. WKLY.* 1839, 1840 (1989) (“Scientific forestry . . . was a characteristic example of the new technological age which emphasized large-scale long-term planning and management in both private and public affairs.”).

106. SCOTT, *supra* note 105, at 12.

107. *See* DINA GILIO-WHITAKER, *AS LONG AS GRASS GROWS: THE INDIGENOUS FIGHT FOR ENVIRONMENTAL JUSTICE, FROM COLONIZATION TO STANDING ROCK* 92 (2019) (“Born from the Manifest Destiny ideologies of western expansion, the preservation movement was deeply influenced by a national fixation on the imagined pre-Columbian pristine American wilderness and the social Darwinist values of white superiority.”); *see also* MARK DAVID SPENCE, *DISPOSSESSING THE WILDERNESS: INDIAN REMOVAL AND THE MAKING OF THE NATIONAL PARKS* (1999).

108. *See* HUNTSINGER ET AL., *supra* note 75, at 31-32.

109. *See* SCOTT, *supra* note 105, at 11-22 (describing how scientific forestry failed in its goals because it turned a diverse forest into a uniform one by clearing underbrush, reducing the number of species, and planting the desired plant species in rows to create a monoculture, thereby upsetting conditions for every plant species in the forest, including those few deemed profitable).

110. *See generally* FIKRET BERKES, *SACRED ECOLOGY* 225-49 (2nd ed. 2008) (explaining the development of and challenges to Indigenous environmental knowledge within the United States and internationally); ANDERSON, *supra* note 74, at 1-5 (describing the forest management practices and principles of the Yurok, which generally promoted the heterogeneity of forest species and landscapes).

monocropped forest a disaster for those who stewarded the forest for subsistence, but scientific forestry did not achieve its own objectives, as scientific standardization of the forest fundamentally upsets a natural ecological balance that allows the forest to flourish.¹¹¹ The significance in the example of scientific forestry is that it powerfully “illustrates the dangers of dismembering an exceptionally complex and poorly understood set of relations and processes in order to isolate a single element of instrumental value.”¹¹²

One manifestation of scientific forestry that has particularly affected the Yurok homeland is the doctrine of fire suppression that has dominated the last 150 years of BIA and USFS forest management.¹¹³ According to the Yurok Indian Sustained Yield Lands Forest Management Plan (2012), “[t]he single most significant influence on current stand structure besides past logging, is the exclusion of fire (both prescribed and wildfire) since the early 1900s. This condition has resulted in a conversion of many open prairie areas to Douglas-fir stands”¹¹⁴ The contemporary Yurok landscape therefore lacks the mosaic of grassland, oak woodland, shrubland, and conifers upon which the Tribe’s traditional ways of life depended and which the Yuroks’ historical, fire-dependent management practices actively promoted. Such a shift in landscape was not accidental; rather, it mirrored the historical visions of the Euro-American settler in regards to how the forest ought to be, and what it ought to produce. This ideological imposition was reflected in—and perpetuated by—the Euro-American settler vocabulary: useful plants became crops and the species that competed with them were weeds; insects became pests; tall, straight trees became timber; some animals became game or livestock, while others were relegated to predators or varmints that could be eliminated (i.e., with pesticides and insecticides).¹¹⁵ In this framework, trees are lumber, and devoid of complex relationships with humans and other living things, while fire is a uniformly destructive event, rather than a necessary ecosystem function.

111. In Germany, for example, scientific forestry altered the nutrient cycle so much that there was a twenty to thirty percent production loss after only the *second* planting. SCOTT, *supra* note 105, at 20.

112. *Id.* at 21.

113. HUNTSINGER ET AL., *supra* note 75, at 33. By contrast, fire was the primary mechanism by which the Yurok people historically maintained their forest and thereby the continuance of cultural lifeways and land-based management practices. *Id.* at 33, 54-55; YUROK TRIBE CONST. pmbl.

114. YUROK TRIBE, *supra* note 35, at 52.

115. SCOTT, *SEEING LIKE A STATE*, *supra* note 105, at 13; *see* HUNTSINGER ET AL., *supra* note 75, at 60 (discussing the practice of herbicide spraying).

B. *Reacquisition of Yurok Lands*

The borders that designate the present-day Yurok Indian Reservation were established in 1988 upon Congress's enactment of the Hoopa-Yurok Settlement Act (Settlement Act), prior to which the Yurok had been sharing a single land base with the Hupa Indians.¹¹⁶ The partitioning of the Reservation via the Settlement Act largely arose out of a conflict over timber revenues.¹¹⁷ The BIA had been issuing timber revenues from the joint reservation only to the Hoopa Valley Tribe and its members, as the Hoopa Valley Tribe had an established, formal tribal government recognized by the federal government, whereas the Yurok Tribe did not.¹¹⁸ In 1963, Yurok tribal members challenged this uneven revenue distribution in *Short v. United States*.¹¹⁹

The *Short* case was still in court when the 1988 Settlement Act was drafted, debated, and passed. To clarify the distribution of timber proceeds between the Yurok Tribe and the Hoopa Valley Tribe, the Settlement Act utilized the Bissel-Smith survey line to physically divide the Yurok and Hoopa Valley tribes, establishing the Hoopa Valley Reservation and Yurok Reservation as separate entities.¹²⁰ The Settlement Act thereby delineated the boundaries of the reservation in which the Yurok people live in today. To further manage the distribution of the tribal timber proceeds, the Act created the Hoopa-Yurok Settlement Fund to hold the escrow funds from the formerly joint reservation land.¹²¹ Escrow funds are defined as the monies derived from the previously joint reservation that are held in trust by the Secretary of the Interior for the Indians of the combined Reservation. The legislation outlines the three-way division of portions of the Settlement Fund—a Hoopa Valley Tribe portion, a Yurok Tribe portion, and a federal share.¹²²

116. Hoopa-Yurok Settlement Act, 25 U.S.C. § 1300i (1988).

117. *Id.*; see also *Hoopa Valley Tribe v. United States*, 597 F.3d 1278, 1280-83 (Fed. Cir. 2010) (recounting the history of the Settlement Act and subsequent litigation).

118. See *Short v. United States*, 661 F.2d 150 (Cl. Ct. 1981), *aff'd* 719 F.2d 1133 (Fed. Cir. 1983); see also *Hoopa Valley Tribe*, 597 F.3d 1278. For a discussion of BIA forest management on the Hoopa reservation, see Richard Harris et al., *Tribal Self-Governance and Forest Management at the Hoopa Valley Indian Reservation, Humboldt County, California*, 19 AM. INDIAN CULTURE & RES. J. 1 (1995).

119. *Short*, 661 F.2d at 152-53.

120. 25 U.S.C. § 1300i-1.

121. 25 U.S.C. § 1300i-3.

122. The distribution is based on enrollment. See 25 U.S.C. §§ 1300i-3, -4(a)(1). According to a 2002 hearing on the Act, the fund apportioned seventy percent of Hoopa reservation timber revenues from 1974-1988 for Yurok tribal members, thirty percent for Hoopa tribal members, and \$10 million to the federal government. *Oversight Hearing on the Department of the Interior*

To address ongoing land management for the newly divided Yurok and Hoopa Valley Reservations, the Act states: “The Secretary [of the Interior] shall be responsible for the management of the unallotted trust land and assets of the Yurok Reservation until such time as the Yurok Tribe has been organized pursuant.”¹²³ The Yurok Tribal Government formed just five years after the passage of the Settlement Act, adopting a Constitution in 1993.¹²⁴ Major initiatives of the Yurok Tribal Government since its formal organization include natural resource protection, sustainable economic development, preservation of cultural lifeways, and land acquisition.¹²⁵

The Tribe’s first large land purchase occurred in 1998. Referred to as the Cook-Koppala-Gerber-Gleason (CKGG) acquisition in reference to the names of the sellers, the acquisition amounted to 8909 acres of timberland that had been harvested in the 1980s or earlier.¹²⁶ The CKGG lands are located within and adjacent to the boundaries of the southern end of the Yurok reservation, north of the confluence of the Trinity and Klamath Rivers at Weitchpec.¹²⁷ The Yurok Indian Sustained Yield Lands Forest Management Plan (FMP) designates the CKGG lands as a sustained yield unit; management goals for these parcels include providing sustainable forest products, protecting and restoring water quality and salmon habitat, and increasing biodiversity and cultural resources.¹²⁸ In 2011, the Tribe completed a second large purchase of 22,737 acres of forestland from the Green Diamond Resource Company (GDRC).¹²⁹ This \$18.75-million purchase, referred to as Phase 1, encompasses the Pecwan, Cappell, and Weitchpec tracts and has more

Secretary’s Report on the Hoopa Yurok Settlement Act, 107th Cong. 3-5 (2002) (statement of Neal McCalcb, Assistant Sec’y, Bureau of Indian Affairs).

123. 25 U.S.C. § 1300i-2(c).

124. See YUROK TRIBE CONST., <https://www.yuroktribe.org/government/councilsupport/documents/Constitution.pdf>.

125. History/Culture, YUROK TRIBE, <http://www.yuroktribe.org/culture/culture.htm> (last visited Nov. 19, 2019).

126. YUROK TRIBE, *supra* note 35, at 139.

127. For maps of the CKGG parcels, see NEW FORESTS – FOREST CARBON PARTNERS, L.P., ANNUAL OFFSET PROJECT DATA REPORT FOR YUROK TRIBE/FOREST CARBON PARTNERS CKGG IMPROVED FOREST MANAGEMENT PROJECT 2 (2015).

128. The implementation period of the FMP is from 2012-2022. Its objectives include a long-term, sustained yield of timber products, income generation, and the protection of cultural and biological diversity. YUROK TRIBE, *supra* note 35, at 12, 13.

129. *Id.*; see also YUROK TRIBE ET AL., YUROK ACQUISITION DRAFT COOPERATIVE AGREEMENT (2010), https://www.waterboards.ca.gov/board_info/agendas/2010/dcc/121410_6b.pdf (describing the background and proposed terms of the purchase); YUROK TRIBE ET AL., YUROK ACQUISITION COOPERATIVE AGREEMENT (2011), <https://www.yuroktribe.org/departments/forestry/Documents/YurokAcquisitionCooperativeAgreement.pdf> [hereinafter YUROK TRIBE ET AL., FINAL AGREEMENT].

than doubled the amount of timberland the Tribe owns.¹³⁰

By reclaiming Yurok ancestral territory, the Tribe is simultaneously extending the reach of Yurok land management practices, and, by utilizing those practices, the Tribe is seeking to restore the land and recreate balance in the world.¹³¹ As Bowers and Carpenter explain, “The tribal worldview acknowledged a natural order, perpetuating the well-being of all creation—and that tribal people had a role in maintaining this order. If they were good stewards of the land, prayed and held ceremonies, the world would live in peace and prosper.”¹³² The Yurok Tribe has recently supported community-based reimplementation of cultural burns, and the Tribe and its Natural Resources Division are working with partners¹³³ to develop a tradition-based, comprehensive fire management strategy that utilizes prescribed fire as a management tool on newly acquired tribally-owned or managed lands.¹³⁴ As part of this effort, the Tribe has partnered with the nonprofit Cultural Fire Management Council, an organization founded by Yurok tribal member Margo Robbins to “facilitate the practice of cultural burning on the Yurok Reservation and ancestral lands” as a means of providing a healthier ecosystem for all plants and animals, long term fire protection

130. YUOK TRIBE, *supra* note 35, at 139.

131. See YUOK TRIBE CONST. pmbl.

132. Bowers & Carpenter, *supra* note 63, at 495.

133. Partners include the Culture Fire Management Council, the Indigenous Peoples Burning Network, USFS, the California Department of Forestry and Fire Protection (CalFire), the Nature Conservancy, and others.

134. See, e.g., Ginger Strand, *Carbon Cache*, NATURE CONSERVANCY MAG., Oct.-Nov. 2016, at 42-48 (describing how carbon offset funding will be applied to fire-based management practices); see also Kilihi Yüyan, *The Quiet, Intentional Fires of Northern California*, WIRED (Oct. 26, 2019, 7:00 AM), <https://www.wired.com/story/the-quiet-intentional-fires-northern-california/>; April Ehrlich, *Weaving Culture into Fire Management Helps Tribes Reclaim Suppressed Heritage*, OR. PUB. BROADCASTING (Sept. 24, 2019, 8:59 AM), <https://www.opb.org/news/article/tribal-culture-western-fire-management-heritage/>; Rob Jordan, *Native Approaches to Fire Management Could Revitalize Communities, Stanford Researchers Find*, STANFORD NEWS (Aug. 27, 2019), <https://news.stanford.edu/press-releases/2019/08/27/traditional-fire-indian-cultures/>; *Fire Council Ignites Long Term Burn Plan: Yurok Fire Crew Trains to Conduct Cultural Burns on Tribal Lands*, YUOK TODAY: THE VOICE OF THE YUOK PEOPLE (Yurok Tribe, Klamath, Cal.), June 2014, at 2-4 [hereinafter *Fire Council*] (announcing the kickoff of a five-year cultural burn initiative). See generally Jonathan W. Long et al., *Restoring California Black Oak to Support Tribal Values and Wildlife*, in PROCEEDINGS OF THE SEVENTH CALIFORNIA OAK SYMPOSIUM: MANAGING OAK WOODLANDS IN A DYNAMIC WORLD 113-22 (2015), https://www.fs.fed.us/psw/publications/documents/psw_gtr251/psw_gtr251.pdf; Frank K. Lake & Jonathan W. Long, *Fire and Tribal Cultural Resources*, in SCIENCE SYNTHESIS TO SUPPORT SOCIOECOLOGICAL RESILIENCE IN THE SIERRA NEVADA AND SOUTHERN CASCADE RANGE 173-86 (Jonathan W. Long et al. eds., 2014), https://www.fs.fed.us/psw/publications/documents/psw_gtr247/chapters/psw_gtr247_chapter4_2.pdf.

for residents, and a platform that will in turn support the traditional hunting and gathering activities of the Yurok.¹³⁵

IV. THE YUROK CARBON PROJECTS

The Yurok Tribe was the first tribe to participate in selling California ARB-issued offset credits in California's mandatory cap-and-trade program, which provides a market mechanism for reducing carbon dioxide emissions from California's largest polluters.¹³⁶ Attorney Brian Shillinglaw of the sustainable investment management firm New Forests¹³⁷ describes the forest carbon market as premised on the idea that forests deliver additional values to society besides wood products: "[W]ater quality, carbon, all these values are real, [and] as they become more scarce they become priced on markets."¹³⁸ By adapting their management to focus on carbon sequestration, the Tribe recovered ancestral homelands using ecosystem service markets; according to Shillinglaw, this was "unprecedented in the world."¹³⁹ Moreover, the Tribe's participation in the carbon market and resulting re-acquisition of their homelands provides "economic development, contributes to [a] diversified portfolio, and acknowledges Indigenous rights not only in the state of California, but worldwide."¹⁴⁰

Traditional stewardship strategies are compatible with managing forest land for carbon sequestration. For example, advocates of carbon offset programs also support investment in traditional burning: In a 2016 article in the *Nature Conservancy Magazine*, author Ginger Stroud reported:

[C]arbon offset money will be used to train Yurok wildland fire crews in traditional fire management. A cultural practice dating back

135. *Fire Council*, *supra* note 134, at 2; see MARGO ROBBINS, ET AL., INDIGENOUS PEOPLES BURNING NETWORK (2016), <http://www.conservationgateway.org/ConservationPractices/FireLandscapes/FireLearningNetwork/RegionalNetworks/Documents/IPBN-Poster-Apr2016.pdf>; CULTURAL FIRE MANAGEMENT COUNCIL, <http://culturalfire.org/> (last visited Nov. 19, 2019).

136. The California program covers industrial sources of greenhouse gas emissions, which constitute approximately eighty-five percent of all emissions in the State. Covered entities can offset up to eight percent of their compliance obligation with ARB-approved offset credits. See CAL. AIR RES. BD., *supra* note 14, at 19-25; CAL. AIR RES. BD., *supra* note 17, at 2.

137. New Forests worked closely with the Yurok Tribe to develop and maintain the CKGG Carbon Project.

138. Shillinglaw, *supra* note 45.

139. *Id.*

140. Interview with Javier Kinney, then-Executive Director, Yurok Tribe, in Klamath, Cal. (July 20, 2018).

millennia, burning regenerates fire-adapted plants, protects trees from invasive pests, maintains open areas for wildlife and reduces the forest's fuel load, decreasing the chances of catastrophic wildfires—which would release more carbon than small, periodic fires.¹⁴¹

Traditional burning is but one of the many traditional stewardship strategies and other routes that the Yurok Tribe is pursuing to achieve its long-term tribal objectives, which include integrated natural resources planning, increased natural resource protection and restoration, endangered and threatened species conservation, sustainable economic development, and further land acquisition. The Tribe's participation in the cap-and-trade program directly or indirectly advances each of these goals, while also not precluding—and even encouraging—the Tribe's use of traditional management practices.

As Yurok Natural Resources Program Manager Tim Hayden explains, the Tribe has developed unique, conservation-oriented management strategies for each of its carbon project forests.¹⁴² Forest carbon sequestration projects also must show additionality; that is, that they go beyond “business as usual” for the particular tract of forest to increase its carbon sequestration capacity or protect against any reduction in carbon storage.¹⁴³ The Yurok Tribe was well-placed to show that their carbon projects provided an additionality, not only because the projects incorporated traditional Indigenous stewardship and fuels reduction policies to avoid catastrophic fires, but also because the Tribe purchased the project land from a timber company that would have continued aggressive harvest. The initiation of the Tribe's carbon project thus shifted the management of the forest lands from timber harvest to carbon sequestration.

While Yurok tribal citizens have a range of opinions on cap-and-trade, tribal leadership have determined that cap-and-trade is a tool that has supported tribal jurisdiction, tribally-led management, and tribal self-governance, and that cap-and-trade participation will therefore bring long-term benefits to the Yurok people and the Yurok homeland.

141. Strand, *supra* note 134, at 46.

142. Interview with Tim Hayden, Natural Resources Division Program Manager, Yurok Tribe, in Klamath, Cal. (July 17, 2018).

143. CAL. CODE REGS., tit. 17, § 95802 (2019); CAL. AIR RES. BD., CALIFORNIA AIR RESOURCES BOARD'S PROCESS FOR THE REVIEW AND APPROVAL OF COMPLIANCE OFFSET PROTOCOLS IN SUPPORT OF THE CAP-AND-TRADE REGULATION 4, 7-8 (2013), <https://ww3.arb.ca.gov/cc/capandtrade/compliance-offset-protocol-process.pdf>.

A. Phase 1

GDRC is a significant timberland owner in northwestern California; it holds 373,724 acres in Del Norte and Humboldt counties, including much of the Yurok ancestral territory on the north side of the Klamath River.¹⁴⁴ GDRC received much of the Yurok homeland from its predecessor, Simpson Timber Company. Simpson had steadily acquired lands in the Lower Klamath area starting in the mid-1940s, consolidating lands from non-tribal owners who had purchased land following the allotment and opening up of the Klamath River Reservation to settlement in the early twentieth century.¹⁴⁵ When the Yurok Tribe became formally organized in 1993, its list of reasons for adopting a tribal constitution included “[r]eclaim[ing] the tribal land base within the Yurok Reservation and enlarge[ing] the Reservation boundaries to the maximum extent possible within the ancestral lands of our tribe and/or within any compensatory land area.”¹⁴⁶ Consequently, the Yurok Tribe had been in mutual conversations with GDRC about buying GDRC lands within their ancestral territory since at least the mid-1990s.¹⁴⁷ Around this same time, GDRC adapted to increasing environmental regulation by working with partners to develop plans to protect fish and wildlife. For example, in 1992, the Company became the first to receive approval for a Habitat Conservation Plan (HCP) for the Northern Spotted Owl.¹⁴⁸ This was followed by a second, aquatic HCP (AHCP) in 2007 for salmonid species listed under the federal Endangered Species Act (ESA).¹⁴⁹

While Yurok tribal lands border GDRC lands, it took many years of staff level discussions, the development of shared objectives regarding natural resources management, and commitments from both parties to finding an effective path forward to Yurok re-acquisition of ancestral

144. GREEN DIAMOND RES. CO., CALIFORNIA TIMBERLANDS FOREST MANAGEMENT PLAN 9 (2017), https://www.greendiamond.com/responsible-forestry/certification/FSC/reports/FMP_Final_11-8-17_20180322.pdf.

145. HUNTSINGER ET AL., *supra* note 75, at 89.

146. YUROK TRIBE CONST. pmbl.

147. For example, a “Tribal Park Concept Plan” prepared by consultants and the Yurok Tribal Park Task Force in 2005 notes that the Tribe was at that time in ongoing discussions with GDRC to acquire 47,000 acres of ancestral lands. See T. DESTRY JARVIS, DRAFT TRIBAL PARK CONCEPT PLAN 2 (2005), <http://www.yuroktribe.org/government/selfgovern/YUROK%20TRIBAL%20PARK%20%20final%20lori%20edits%2013106.pdf>.

148. See *California: Maintaining Essential Habitat*, GREEN DIAMOND RES. CO., <https://greendiamond.com/responsible-forestry/california/> (last visited Nov. 19, 2019).

149. See *California Aquatic Habitat Conservation Plan*, GREEN DIAMOND RES. CO., <https://www.greendiamond.com/responsible-forestry/research/california-aquatic-hcp/> (last visited Nov. 20, 2019).

lands in order to develop a productive working relationship. GDRC California Timberlands Division Manager for Forest Policy and Communications Gary Rynearson reported that GDRC and the Tribe currently “have a good working relationship,” which includes collaborating on restoration projects and monitoring illegal activities (i.e., poaching, marijuana grows, and illegal dumping).¹⁵⁰ GDRC and the Tribe have expressed a shared intent to “maintain a strong relationship that is built on mutual respect and trust.”¹⁵¹ Over the course of their relationship, the Tribe and GDRC engaged in frequent discussions and negotiations over terms in the HCPs, habitat restoration, road decommissioning, and other activities on GDRC lands within the Yurok’s ancestral territory. During those conversations, *Aawok*¹⁵² Troy Fletcher, as the Yurok Fisheries Director and later Executive Director, and in other leadership roles for the Tribe, frequently suggested to GDRC that the Yurok acquisition of Blue Creek would solve many of the challenges the two parties faced at the negotiating table.¹⁵³ Non-Native conservationists also recognized the ecological value of Blue Creek. According to professor and fisheries biologist Peter Moyle, due to its location, hydrogeography, and temperature, Blue Creek hosts the “entire lower Klamath fish fauna.”¹⁵⁴ A deep, cold pool is often created where Blue Creek meets the Klamath, establishing a vital refuge for salmon and other fish (especially females carrying eggs) moving upriver in the late summer or early fall, when water temperatures in the Klamath are generally warmer.¹⁵⁵ Sue Doroff of Western Rivers Conservancy refers to Blue Creek as “critical to the survival of salmon on the Klamath.”¹⁵⁶

As negotiations progressed between the Yurok Tribe and GDRC, the timber company eventually increased the amount of land it was offering for sale to 47,000 acres, including lands on the north side of the Klamath River from its confluence with the Trinity River downriver to the Blue

150. E-mail from Gary Rynearson, Spokesperson, Green Diamond Resource Company, to author (Nov. 16, 2016) (on file with author).

151. *Id.*

152. A term of respect used when referring to Yurok elders that have passed on.

153. Telephone Interview with Cam Tredennick, former Legal Staff, Western Rivers Conservancy (Aug. 27, 2015).

154. Interview with Peter Moyle, Professor Emeritus of Wildlife, Fish, and Conservation Biology, University of California, Davis, in Davis, Cal. (Apr. 10, 2016).

155. REBECCA M. QUIÑONES & PETER B. MOYLE, CALIFORNIA’S FRESHWATER FISHES: STATUS AND MANAGEMENT 15 (2015), <https://watershed.ucdavis.edu/files/biblio/Qu%C3%B1ones-Moyle%20Fish%20Med.pdf>.

156. Telephone Interview with Sue Doroff, President, Western Rivers Conservancy (Aug. 26, 2016).

Creek watershed.¹⁵⁷ While the Tribe was young as a federally-recognized governmental entity and lacked sufficient funds for a 47,000-acre land transaction that would eventually be valued at sixty million dollars, it had gathered significant leverage through the collaborative relationship it had built with GDRC over the previous two decades. The Tribe also had an intimate, centuries-old knowledge of the Lower Klamath landscape, a well-respected fisheries department that could make a strong case for Blue Creek as an excellent conservation investment, sophisticated negotiators like *Aawok* Fletcher, and an abiding determination to reacquire ancestral lands.

Understanding both the conservational and cultural values of the available land, the Tribe began seeking a conservation partner to raise the funds. Potential conservation partners saw the legal-cultural incentive for conservation embedded in the Tribe's own Constitution,¹⁵⁸ the Tribe's track record in fisheries management, and the Tribe's trust relationship with the federal government as advantages in deciding whether to help fund the Tribe's purchase of its ancestral lands.¹⁵⁹ The Tribe reached out to several conservation organizations, and was introduced to Western Rivers Conservancy (WRC) by GDRC. WRC is a Portland, Oregon based conservation nonprofit founded in 1988 with a focus on protecting river lands by facilitating conservation transactions.¹⁶⁰ GDRC had previously worked with WRC to sell its lands along Goose Creek within the Smith River watershed so that they could be incorporated into the Six Rivers National Forest.¹⁶¹ WRC understood the conservation values of Blue Creek, and knew both the Yurok Tribe and GDRC through the Goose Creek transaction.

After a series of negotiations between the Tribe, WRC, and GDRC, WRC and GDRC entered into a purchase-and-sale agreement for the available 47,000 acres of forested land, which included Blue Creek as the last parcel to be purchased. WRC and the Tribe entered into a

157. Tredennick, *supra* note 153.

158. The Preamble to the Yurok Tribal Constitution explicitly states that part of the Tribe's basis for adopting the Constitution is the obligation and desire to "[r]estore, enhance, and manage the tribal fishery, tribal water rights, tribal forests, and all other natural resources." YUROK TRIBE CONST. pmbl.

159. The trust relationship with the federal government was seen as a positive in part because it was thought to include additional federal resources and support for tribal land conservation and management. Telephone Interview with Cam Tredennick, former Legal Staff, Western Rivers Conservancy (Sept. 3, 2015).

160. WESTERN RIVERS CONSERVANCY, <http://www.westernrivers.org/about/> (last visited Nov. 20, 2019).

161. E-mail from Gary Ryncarson, Spokesperson, Green Diamond Resource Company, to author (Oct. 1, 2018) (on file with author).

separate agreement by which those same lands would be transferred to the Tribe once they were acquired by WRC. Due to multiple factors, including competition among conservation groups seeking grants statewide, a 2007 recession, State agency reluctance to facilitate a perceived expansion of the Yurok Reservation,¹⁶² and the varying conservation value of the parcels, the funding of the purchase was not immediate.¹⁶³ WRC employed a multi-year approach to acquiring lands and then selling them to the Yurok Tribe. According to Moyle, who is also a WRC board member, the organization's willingness to use creative financial mechanisms to accomplish conservation outcomes contributed to the success of the transaction:

Most of the environmental groups . . . start out as a group of biologists saying, 'We need to protect this habitat and how do we do it?' WRC comes to it from real estate[;] . . . they know how to make deals. They know of all these odd programs: carbon, New Market Tax Credits, etc. They have knowledge that most environmental groups don't have. They are strategic; they find critical parcels that tie together several other parcels of land.¹⁶⁴

WRC and the Yurok Tribe identified a possible funding source in the California State Water Resources Control Board (SWRCB) Clean Water State Revolving Fund (SRLF). The SRLF is a multi-billion dollar fund out of which the State of California can make low interest loans to projects that improve water quality.¹⁶⁵ Almost ninety-five percent of the loans derived from the now over ten billion dollar fund go to wastewater treatment projects, but the State of California is unique in that it also funds "non-point source" projects that improve water quality through forestry and restoration projects.¹⁶⁶ Thus, the SRLF is considered by some conservationists to be an "under the table," or roundabout,

162. There were myriad potential reasons for the State's reluctance to facilitate the transfer, but one primary concern may have been the loss of future tax revenues, as once the Tribe gained fee simple title to the land, it would then have the option of applying to put the land into federal trust status; if accepted into federal trust, the land would be exempt from state and local taxation. See Keith E. Wilson, Note, *State Jurisdiction to Tax Indian Reservation Land and Activities*, 44 WASH. U. J. URB. & CONTEMP. L. 99, 99-100 (1993).

163. E-mail from Cam Tredennick, former Legal Staff, Western Rivers Conservancy, to author (Apr. 19, 2018) (on file with author).

164. Moyle, *supra* note 154.

165. CAL. STATE WATER RES. CONTROL BD., 2018 ANNUAL REPORT: CLEAN WATER STATE REVOLVING FUND AND THE WATER QUALITY INFRASTRUCTURE AND IMPROVEMENT ACT OF 2014, at 3 (2018), https://www.waterboards.ca.gov/water_issues/programs/grants_loans/docs/cwsrf_annual_report_1718.pdf.

166. *Id.* at 3-4.

approach to conservation.¹⁶⁷

In order to qualify for the SRLF loan, the Tribe had to show first that it would improve water quality through a sustainable harvest regime. Working with Arcata-based Western Timber Services and Portland-based EcoTrust, it took over one-and-a-half years to make the case to SWRCB as to how the Tribe's specific management would improve water quality. This included the adoption of GDRC's federally-approved Aquatic Habitat Conservation Plan (AHCP) in the form of a new Yurok HCP and federal incidental take permit covering forest management activities and ESA-protected aquatic species.¹⁶⁸ The Tribe's success in establishing these safeguards and showing that it would improve water quality through sustainable forestry was facilitated by building a respected tribal forestry department. Yurok Tribal Forestry combines innovative and appropriate Western scientific methods with long-term Indigenous knowledge of Yurok forests.¹⁶⁹ According to Yurok tribal attorney Daniel Cordalis (Navajo):

[The Yurok Tribe] does not treat the forests as a crop like the US Forest Service did throughout the 1900s. We manage our forests for multi-age levels that will support diverse habitats and have a balanced age structure. The old guard chopped all the trees, regrew them, then chopped them all again. We are engaged in restoration and ecological forestry.¹⁷⁰

Second, the Tribe had to show that it had a revenue source sufficient to pay back an \$18.75 million loan (equal to the full price of the Phase 1 tract) at zero percent interest and over twenty to twenty-five years. Also significantly, the policy governing the SRLF requires the first payment be made one-year from loan disbursement and annually thereafter.¹⁷¹

167. Tredennick, *supra* note 153.

168. YUROK TRIBE, *supra* note 35, at 82-83. In addition, GDRC's Forest Management Plan notes that GDRC may not alienate large parts of their land base without federal review and approval unless the new landowner is also required to manage the land at or above the standards established in the ACHP. GREEN DIAMOND RES. CO., *supra* note 144, at 25.

169. See *Yurok Tribe Forestry*, YUROK TRIBE, <http://www.yuroktribe.org/departments/forestry/> (last visited Nov. 5, 2019); see also YUROK TRIBE, *supra* note 35 (describing at length the Tribe's forest management practices).

170. E-mail from Daniel Cordalis, Legal Staff, Yurok Tribe, to author (Nov. 18, 2019) (on file with author).

171. See CAL. STATE WATER RES. CONTROL BD., POLICY FOR IMPLEMENTING THE CLEAN WATER STATE REVOLVING FUND 19 (2018), https://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/final_policy_1118.pdf ("The first annual payment will be due no later than one year following the completion of planning/design.").

Consequently, the Tribe would need to harvest excessively from a still-immature forest. It was an impossible task to accelerate harvest in a forest not then slated for any significant harvest for ten years, much less to show improvements in water quality resulting from sustainable management. Indeed, to show improved water quality results, the Tribe would actually have to reduce harvest, but they would still have to generate revenue from growing the forest.¹⁷² AB 32 had recently passed, so WRC proposed a carbon project that could generate the needed revenue from the sale of carbon offsets once ARB had created a mandatory market and an approved forestry protocol for documenting and valuing carbon sequestration.

WRC hired Ecotrust and EcoPartners to analyze the carbon sequestration potential of the Phase 1 acquisition area to show how revenues from the acquired area could be high enough under certain scenarios to pay back the loan.¹⁷³ Despite the positive results, SWRCB was unsure that a market would evolve from the AB 32 process.¹⁷⁴ SWRCB required the Tribe to not only show the potential for receipts, but also to have a buyer for the projected carbon credits in contract at a specific price before they would approve the loan.¹⁷⁵

In response, the Tribe worked with WRC to find a buyer and engage in negotiations on an appropriate price for carbon under very speculative conditions. The buyer would have to take significant risk to purchase during a time when the mere existence of a market was in question, and this resulted in a lower price than what was available only one year after negotiations.¹⁷⁶ With the carbon contract in place, accepted revenue estimates that included a combination of carbon and harvest, established water quality benefits, and proof of sufficient reserves for two years of payments, the Tribe and WRC had satisfied the State Water Board's requirements.¹⁷⁷ On April 15, 2011, WRC executed its contract with GDRC to purchase the Phase 1 property and the Tribe purchased the land from WRC using the SRLF Loan. When Phase 1 closed in April 2011, the Tribe had committed to sell carbon credits from the project (in order to pay back the loan), but still had to

172. Tredennick, *supra* note 163.

173. See YUOK TRIBE, ECOTRUST FOREST MGMT., INC. & ECOPARTNERS, YUOK TRIBE SUSTAINABLE FOREST PROJECT, CAR 777, PROJECT DESIGN DOCUMENT (2013), <http://www.yuroktribe.org/departments/forestry/Documents/PDDCAR777v86-27-13.pdf>.

174. Telephone Interview with Cam Tredennick, former Legal Staff, Western Rivers Conservancy (Sept. 10, 2015).

175. *Id.*; Voegeli, *supra* note 40.

176. Voegeli, *supra* note 40.

177. Tredennick, *supra* note 163.

develop the carbon project within contract-mandated timelines. Because the Tribe did not have a forestry director, it fell to the legal office and then-Staff Counsel Nathan Voegeli to bridge the gap between forestry crews and consultants.¹⁷⁸ Given that Phase 1 was the Tribe's first carbon project, they outsourced the work to complete the inventory, baseline, and project carbon modeling to EcoPartners, a consulting firm that helps landowners develop carbon credit projects internationally.¹⁷⁹

The Tribe, WRC, and the purchaser developed the carbon project under the Climate Action Reserve (CAR) voluntary protocol before the State rolled out its cap-and-trade program.¹⁸⁰ The intent was to develop under the CAR voluntary protocol, provided that the purchaser would require the Tribe to move it to ARB protocol, anticipating that ARB would come out with Forest Project protocol in the near future.¹⁸¹ CAR was working with ARB and knew that ARB protocols would be similar to existing CAR protocols,¹⁸² and that ARB's cap-and-trade program would offer more revenue than the voluntary market.¹⁸³ ARB came out

178. Voegeli, *supra* note 40.

179. For descriptions of EcoPartners' diverse projects, see ECOPARTNERS, <http://www.cpcarbon.com/> (last visited Sept. 4, 2018).

180. CAR is a nonprofit organization formed by the State of California in 2001 to develop, advance, and implement market-based reduction of greenhouse gas emissions. Firms and entities work with the CAR to develop voluntary emissions reductions projects. When the statewide cap-and-trade program began in 2012, it accepted qualifying CAR-issued Early Action Offset Credits and transitioned them to ARB Offset Credits. See *California Compliance Offset Program*, CLIMATE ACTION RESERVE, <http://www.climateactionresrcvc.org/how/california-compliance-projects/> (last visited Nov. 20, 2019); see also CAL. AIR RES. BD., GUIDANCE FOR TRANSITIONING EARLY ACTION PROJECTS TO THE CALIFORNIA AIR RESOURCES BOARD'S COMPLIANCE OFFSET PROTOCOL, US FOREST PROJECTS (2015), https://ww3.arb.ca.gov/cc/capandtrade/protocols/usforest/transition_guidance_document.pdf; CAL. AIR RES. BD., EARLY ACTION PROGRAM GUIDANCE (2013), <https://www.arb.ca.gov/cc/capandtrade/offsets/notice1.pdf>; Carlson, *The President*, *supra* note 16, at 72.

181. Voegeli, *supra* note 40.

182. See CAL. AIR RES. BD., FINAL REGULATION ORDER: CALIFORNIA CAP ON GREENHOUSE GAS EMISSIONS AND MARKET-BASED COMPLIANCE MECHANISMS 309-10, 322-23, 346 (2014), <https://ww3.arb.ca.gov/regact/2013/capandtrade13/ctreg.pdf> (clarifying that ARB may issue early action offset credits, pursuant to various stipulations, to projects that predated the ARB regulations and that use CAR forest project protocol versions 2.1 and 3.0 through 3.2).

183. Typically, the prices of offsets on voluntary markets are lower than the prices on compliance markets. For example, in 2011, the average price of voluntary offsets was \$6 per ton of carbon dioxide. See MOLLY PETER-STANLEY ET AL., ECOSYSTEM MARKETPLACE & BLOOMBERG NEW ENERGY FIN., BACK TO THE FUTURE: STATE OF THE VOLUNTARY CARBON MARKETS 2011, at iv (2011), https://www.forest-trends.org/wp-content/uploads/imported/svcm-2011_final-draft_6-2-11_update-5_small-pdf.pdf. By comparison, when California issued its first offset credits on its new compliance market in 2013, the average price for carbon offsets was \$9. Rory Carroll, *California Issues First Forestry Offset Credits for CO2 Market*, REUTERS, Nov. 18, 2013, <https://www.reuters.com/article/california-carbon-market/california-issues-first-forestry->

with regulations in 2013. By this time, the Yurok carbon project already had one-and-a-half years developing under CAR. In the period just before ARB was set to officially adopt its Forest Project protocol, the Tribe worked with both ARB and CAR staff on interpretations, coordinating between the two entities to ensure that the Tribe and ARB had the same interpretation of the new protocol.¹⁸⁴ There was also significant timber inventory work when the project transitioned from the CAR protocol to the (similar) ARB protocol, which requires third party verifications to ensure that the ARB-offset protocol was followed.¹⁸⁵ While consultants did this work on the Phase 1 carbon project, now the Tribe has internalized much of this work. Tribal crews also conduct the inventory, which must be updated for each project phase.

The Phase 1 land, formally entitled the Yurok Tribe Sustainable Forest Project (CAR777), is an IFM project registered under version 3.1 of the CAR Forest Project Protocol (FPP).¹⁸⁶ GDRC and its predecessor in interest Simpson Timber had managed the Phase 1 land for timber for at least the previous fifty years.¹⁸⁷ Tribal review of past State Timber Harvest Plans filed on the land purchase showed harvest rotations of forty-five to sixty years; this information helped to establish how the Yurok management prescriptions would increase carbon sequestration on the project site. In their Final Project Description for Phase 1, the Tribe specifically noted that their ongoing management activities to increase carbon stocks include “extension of rotation age to increase the average age of the forest.”¹⁸⁸

In 2011, the Yurok Tribe entered into the Yurok Acquisition Cooperative Agreement with California State Water Resources Control Board, California North Coast Regional Water Quality Control Board, California Department of Forestry and Fire Protection (CalFire), and the BIA’s Pacific Regional Office. The objective of the agreement was to establish cooperative and coordinated monitoring to ensure that beneficial uses of water would be protected on the 22,737 acres of

offset-credits-for-co2-market-idUSL2N0IY2HG20131113.

184. Voegeli, *supra* note 40.

185. *Air Resources Board Approves First Cap-and-Trade Forestry Compliance Offset Project in California*, CAL. AIR RES. BD. (Apr. 9, 2014), <https://ww2.arb.ca.gov/news/air-resources-board-approves-first-cap-and-trade-forestry-compliance-offset-project-california>.

186. See CLIMATE ACTION RESERVE, *supra* note 48.

187. YUOK TRIBE, *supra* note 35, at 139; see also GREEN DIAMOND RES. CO., *supra* note 144, at 13 (providing a brief overview of GDRC’s and Simpson Timber’s history in the region); HUNTSINGER ET AL., *supra* note 75, at 88-89 (describing the management practices of timber companies in the region).

188. YUOK TRIBE, ECOTRUST FOREST MGMT., INC. & ECOPARTNERS, *supra* note 173, at 15.

forestland newly purchased by the Yurok Tribe from GDRC.¹⁸⁹ As required by the Cooperative Agreement, the Yurok Tribe updated its FMP in 2012; the FMP covers both the Phase 1 and CKGG lands.¹⁹⁰ The purpose of the FMP is to describe the management strategies that the Yurok Tribe intends to implement between 2012 and 2022 on all Yurok managed forestlands, including the two carbon projects. The FMP addresses significant purchases of forestland and the future management of these lands, as well as the forest carbon credit program, which is the product of an agreement between the Yurok Tribe, the State Water Board, the Regional Water Board, and other parties. The 2012 FMP outlines expected carbon production over the next one hundred years, and describes the then-pending purchase of approximately 25,000 acres of additional GDRC lands to the north and west of Phase 1, referred to herein as the Phase 2 lands.¹⁹¹

By developing and following a BIA-approved, comprehensive FMP, the Yurok Phase 1 project meets one of the three IFM criteria, that “[t]he Forest Owner must adhere to a renewable long-term management plan that demonstrates harvest levels which can be permanently sustained over time and that is sanctioned and monitored by a state or federal agency.”¹⁹² On the Phase 1 lands, the Tribe prohibited clearcutting,¹⁹³ but planned to engage in some timber harvest after 2015, always leaving a minimum amount of carbon stocks (25,000 tons of carbon dioxide equivalent) on the land.¹⁹⁴ The Tribe will also engage in management activities to geared toward increasing carbon stores, namely through “the extension of rotation ages and creating cultural and ecological reserves.”¹⁹⁵ The land will also be protected by a Yurok Aquatic Habitat Conservation Plan (YAHCP), largely modeled on the previous AHCP adopted by GDRC.¹⁹⁶

Management for fuels reduction will be highly significant on the carbon project lands in order to protect carbon stocks from destruction

189. *Id.*; see also YUROK TRIBE ET AL., FINAL AGREEMENT, *supra* note 129, at 1-5 (listing the terms of the ratified purchase agreement).

190. YUROK TRIBE, *supra* note 35, at 115-35; see also YUROK TRIBE ET AL., FINAL AGREEMENT, *supra* note 129, at 2-3 (requiring that the Phase 1 acquisition be managed in compliance with the Tribe’s existing FMP and imposing additional forest management and water quality guidelines as a condition of the agreement).

191. YUROK TRIBE, *supra* note 35, at 16.

192. *Id.* at 116.

193. *Id.* at 48.

194. *Id.* at 107, 116.

195. *Id.* at 119.

196. *Id.* at 82; see GREEN DIAMOND RES. CO., *supra* note 149 (describing the scope and provisions of the GDRC AHCP).

by catastrophic wildfire.¹⁹⁷ While forest thinning for fire safety removes carbon in the short term, it is generally assumed to have an overall carbon benefit because it reduces the risk of catastrophic fire, which would remove a much larger amount of carbon.¹⁹⁸ The Yurok Forestry Department is planning approximately 770 acres of shaded fuel breaks¹⁹⁹ along twenty-one miles of ridgeline in the Phase 1 Pecwan portion of the carbon project.²⁰⁰

To make the Phase 1 purchase, the Tribe and WRC had to take financial risks together. The risks included banking on future carbon proceeds as a way to pay for conservation land. The model of paying back a loan by selling a commodity is a common financial practice. In this case, that commodity was a natural process, or ecosystem service, by which trees sequester carbon. While engaging with a system that commodifies natural processes may be seen as neocolonial, it may also be viewed as a sophisticated way to use colonial, capitalistic frameworks to achieve de-colonial goals of bringing land back into sustainable tribal stewardship and jurisdiction.

B. Phase 2

The second phase of the Yurok carbon projects includes five sub-phases of progressive land purchases from GDRC of over 25,000 acres, in collaboration with WRC.²⁰¹ While a discussion of each of the sub-phases is beyond the scope of this article, Phase 2 includes portions of both the Bear Creek and Blue Creek watersheds and will be managed over a long rotation cycle to generate old growth stands.²⁰² As part of this management strategy, there will be no clear cutting, and the Tribe will work to support wildlife habitat and enhancement of culturally important species, such as oaks.²⁰³

Perhaps the most important component of Phase 2 plan is the salmon sanctuary at Blue Creek. "Through partnerships, mutually beneficial agreements and sheer determination, the Yurok Tribe is on the path to reclaiming its rightful role as steward in one of the most culturally and

197. YUOK TRIBE, *supra* note 35, at 17, 102-03.

198. McKinley et al., *supra* note 47, at 1913.

199. Shaded fuel breaks are created when brush and downed woody material are removed, while mature trees are left standing and spaced to discourage understory growth. See YUOK TRIBE, *supra* note 35, at 102-03.

200. *Id.*

201. See GREEN DIAMOND RES. CO., *supra* note 144, at 25.

202. YUOK TRIBE, *supra* note 35, at 16.

203. *Id.*

ecologically important watersheds in the Klamath Basin.”²⁰⁴ As previously discussed, Blue Creek is an important salmon sanctuary because the mouth of Blue Creek, on average, runs about fifteen degrees cooler than the Klamath main stem.²⁰⁵ According to the Yurok Tribe newspaper, *Yurok Today*, the collaboration with WRC to complete these land transactions, culminating in Blue Creek, represents the successful implementation of “an ambitious land recovery plan.”²⁰⁶ Blue Creek, specifically, is of paramount cultural significance to the Yurok Tribe: As described by former Yurok Chairman O’Rourke, “it contains the path to our spiritual center, a sacred place where our medicine makers have travelled since time immemorial to bring the world back into balance.”²⁰⁷ According to Yurok resource program managers, the newly developed salmon sanctuary is “devoted . . . to enhancing and restoring the healthy, resilient riparian and old growth forests” and to “restor[ing] aquatic and terrestrial habitat conditions.”²⁰⁸ It is being celebrated by environmentalists and tribal members alike as an initiative that will contribute to healing both the land and the people.²⁰⁹

To purchase Phase 2, WRC employed a number of financing strategies, including securing funds from private and public sources,²¹⁰ developing carbon offsets, and using New Market Tax Credits (NMTCs). NMTCs are part of a federal tax program under which

204. *Tribe Reclaiming Rightful Role in Blue Creek: Creative Deal Designed to Put Land Back Under Tribal Management*, YUROK TODAY: THE VOICE OF THE YUROK PEOPLE (Yurok Tribe, Klamath, Cal.), Jan. 2015, at 3-4 [hereinafter *Tribe Reclaiming Rightful Role*].

205. Strand, *supra* note 134, at 48.

206. *Tribe Completes Blue Creek Purchase: The Entire Watershed Is Now a Permanently Protected Salmon Sanctuary*, YUROK TODAY: THE VOICE OF THE YUROK PEOPLE (Yurok Tribe, Klamath, Cal.), Mar. 2018, at 3-4.

207. *Id.* at 4.

208. TIM HAYDEN, MATT MILLENBACH & SARAH BEESLEY, BLUE CREEK FOREST SANCTUARY: RESTORING OLD GROWTH FOREST ECOSYSTEM FUNCTION, PROTECTING SALMON, WILDLIFE, AND TRADITIONAL LIFE WAYS AND CULTURE IN THE FACE OF CLIMATE CHANGE 11-12 (2017), http://www.rtnw.org/wp-content/uploads/8.2_Blue-Creek-Forest-Sanctuary_RRNW_2017_v3.0.pdf.

209. *Id.*; see YUROK TRIBE, CLIMATE CHANGE ADAPTATION PLAN FOR WATER AND AQUATIC RESOURCES 2014-2018, at 2.6 (2018), http://www.yuroktribe.org/departments/ytep/documents/Yurok_Climate_Plan_WEB.pdf (“[T]he Yurok Tribe’s Blue Creek Salmon Sanctuary project to restore and protect cold water will act as a strength countering climate change effects and thereby increasing the adaptive capacity of salmon in terms [of] coping with warmer waters.”); *History Made on California’s Klamath River*, WESTERN RIVERS CONSERVANCY (Feb. 28, 2018), <http://www.westernrivers.org/blog/entry/newhopefortheklamathriveranditssalmon/> (“The project is unprecedented and will create a salmon sanctuary unmatched by any in the United States.”).

210. See WESTERN RIVERS CONSERVANCY, *supra* note 209 (listing the Phase 2 project’s financial supporters).

federally-approved Community Development Entities (CDEs) allocate loans to low-income and/or distressed communities.²¹¹ The CDEs receive tax credits from the Treasury, sell these credits to investors (who also receive equity in the investment), and allocate investors' funding via low- or no-interest loans to support economic development projects.²¹² The CDEs must select projects that provide both significant benefits to low-income census tracts, and provide a return on investment to investors.²¹³ The CDE is also responsible for ensuring that the government objectives are met in terms of jobs created and other positive economic impacts on the community.²¹⁴

By investing in a CDE, an investor purchases a tax credit that, after a seven-year compliance period, is equal to thirty-nine percent of the total investment.²¹⁵ Following the compliance period, the investor can generate economic return simply on the value of the tax credit.²¹⁶ The purpose of the tax credit is to pass the tax benefit on to the borrowing community so that they do not have to repay the loan, and so that they receive interest rates that do not reflect the actual risk (which could be eleven to twelve percent for high-risk borrowers), as the bank is the entity receiving the tax credit.²¹⁷ If the investor (i.e., the bank) finds leverage investors to contribute to the project, the bank can still receive all of the tax credit. As such, the bank shifts from looking at the project as the investment to looking at the tax credit as the investment.²¹⁸

Each year, the Yurok NMTC project must demonstrate the economic and other benefits to the community, including jobs created. According to Yurok legal counsel Daniel Cordalis, a key aspect of the use of NMTCs "is that the Tribe is able to prove economic development using the lands, as required by the NMTC program. The ability of the

211. See *id.*; DANIEL GARCIA-DIAZ ET AL., U.S. GOV'T ACCOUNTABILITY OFFICE, COMMUNITY DEVELOPMENT FINANCIAL INSTITUTIONS AND NEW MARKETS TAX CREDIT PROGRAMS IN METROPOLITAN AND NONMETROPOLITAN AREAS 1-2 (2012), <https://www.gao.gov/assets/600/590432.pdf>; Michael Eickhoff & Steve Carter, *Accessing Capital Through the New Markets Tax Credit Program*, 29 J. ST. TAX'N 17, 76 (2011).

212. Dimitri Pappas, *A New Approach to a Familiar Problem: The New Market Tax Credit*, 10 J. AFFORDABLE HOUS. & CMTY. DEV. L. 323, 325-27 (2000).

213. *Id.*

214. See *id.* at 325, 350 n.115, 351 n.128 (noting other potential positive impact metrics, which may include number of workers re-trained, various community-specific performance objectives, revenues generated, impact on local tax base, and increase in educational attainment).

215. GARCIA-DIAZ ET AL., *supra* note 211, at 2.

216. Eickhoff & Carter, *supra* note 211, at 77.

217. Telephone Interview with Matthew Bland, Asset Manager, Travois (Sept. 30, 2016); Telephone Interview with Cam Tredennick, former Legal Staff, Western Rivers Conservancy (Sept. 22, 2015).

218. Bland, *supra* note 217; Tredennick, *supra* 217.

[partners] to coalesce around that idea was really important and allowed this deal to happen.”²¹⁹ Further, as Yurok Tribe Natural Resources Program Manager Tim Hayden explained, “This is a forever project. The jobs this year and next year are important, but bringing the land back and recovering the habitat will benefit all Yurok.”²²⁰ The Tribe receives the indirect benefit of an improved fishery flowing from improved land stewardship, as well as direct benefits of monitoring. The jobs created are numerous, in multiple sectors including natural resources and service, and they “wouldn’t happen without the project.”²²¹

In the process of developing NMTC funding, WRC and the Tribe also worked with Travois, a consulting firm that focuses on economic development in Native American, Alaska Native, and Native Hawaiian communities, and which uses NMTCs as a tool to leverage funds for housing and community infrastructure.²²² Together, WRC, Travois, and the Tribe showed that NMTCs could be used to support a tribal forestry and land acquisition project.²²³ According to Travois Asset Manager Matthew Bland, the use of NMTCs as a funding mechanism for conservation was unique in several aspects. First, the Yurok project was quite distinct from Travois’ usual NMTC projects, which are buildings with standard lease structures.²²⁴ In contrast, the Yurok project was purchasing a forest, and the revenue was to come from the sale of carbon offsets. Travois had to ensure that the shared goals of WRC and the Yurok Tribe to place the land in conservation ownership were compatible with the structure of an NMTC transaction, in which the land needed to be owned by WRC for at least seven years before transference to the Tribe.²²⁵ WRC formed the supporting nonprofit Western Rivers Forestry (WRF) to hold the land, with the explicit intent to transfer the land to the Yurok Tribe at the end of the seven-year period.²²⁶

Underscoring the rarity of using NMTCs as debt or gap financing to purchase lands generating revenue through the sale of carbon offsets, Bland expressed Travois’ enthusiasm at the potential for future,

219. Interview with Daniel Cordalis, Legal Staff, Yurok Tribe, in Klamath, Cal. (July 17, 2018).

220. Hayden, *supra* note 142.

221. *Id.*

222. Bland, *supra* note 217; see also *Our Story*, TRAVOIS, <https://travois.com/our-story/> (last visited Nov. 20, 2019).

223. Bland, *supra* note 217; Tredennick, *supra* note 217; Cordalis, *supra* note 219,

224. Bland, *supra* note 217.

225. *Id.*

226. See WESTERN RIVERS CONSERVANCY, WESTERN RIVERS FORESTRY & CAL. WILDLIFE CONSERVATION BD., BLUE CREEK PROJECT NOTICE OF UNRECORDED GRANT AGREEMENT 1-5 (2015), <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=94779>.

similarly innovative projects: “I think it’s exciting; it’s not your typical NMTC project. I think it’s fantastic that it’s part of this overall strategy of purchasing these ancestral lands. We hope to spread the story and see if other tribes are interested as well. We are looking at ways we can use NMTCs to work on other climate change issues.”²²⁷ Bland’s advice to others exploring the NMTC tool for use in conservation purchases is to start as early as possible. It may take months or even years to identify multiple sources of project funding and to plan a project financing structure.²²⁸ The use of NMTCs alongside carbon markets illustrate the Tribe’s and collaborators’ creative use of financial and legal tools to bring lands back into Tribal ownership.

C. From the Forest Manager’s Perspective

The costs of a carbon project begin in the project development phase, when the landowner has to determine a carbon baseline and then model carbon production under different management regimes. To determine the carbon baseline in Phases 1 and 2, the Tribe established over one thousand nested fixed circular plots on 47,000 acres and used a portion of these to estimate carbon stocks throughout the project.²²⁹ The Tribe then used equations developed by CAR to determine the amount of carbon in the project. The Tribe’s Forest Manager had to ensure that his department had the funding and trained personnel to do the precision inventory work over the next century. The five-man inventory team was split into two crews to examine height, diameter, crown closure, and standing/lying dead wood on designated plots.²³⁰

Like Phases 1 and 2, CKGG is an IFM project under the ARB Compliance Offset Protocol-U.S. Forest Project. Purchased in 1998 from the five landowners (Cook, Koppala, Gerber, Gleason, and Williams), the Tribe developed the 8909 acres into the CKGG carbon project in 2012. Varying prescriptions of uneven-aged and even-aged management, depending upon existing characteristics of timber plots in the CKGG, are planned to increase carbon stocks over time.²³¹ The

227. Bland, *supra* note 217.

228. *Id.*

229. YUOK TRIBE, *supra* note 35, at 120.

230. Erler, *supra* note 39; *see also* YUOK TRIBE, ECOTRUST FOREST MGMT., INC. & ECOPARTNERS, *supra* note 173, at 15 (detailing the Tribe’s carbon inventory methodology and processes).

231. *See* YUOK TRIBE, *supra* note 35, at 131-33 (providing additional information on the inventory methodology for tracking carbon sequestration on the plots over time); *see also* YUOK TRIBE, ECOTRUST FOREST MGMT., INC. & ECOPARTNERS, *supra* note 173, at 25-30 (describing techniques for measuring baseline carbon stocks of the timber plots within the CKGG).

CKGG project is characterized by a higher level of detail in monitoring design, which results in both a greater amount of documented carbon sequestration, as well as a higher workload for monitoring teams.

For Phase 1 and CKGG, the Tribe set up inventory plots using a grid and flagging system, and registered locations via GPS. For Phase 2, the Tribe inputted specific parameters (including distance from roads) into a computer software package to generate random locations for the plots.²³² More precise monitoring allows for more carbon sequestration to be detected, resulting in increased carbon credits per land area, but it also means more plots and more crew hours. The Tribe has to conduct modeling in the development phase in order to determine whether they have the funding and trained staff to complete the inventory, and whether or not the project will earn a profit or at least pay for the cost of inventory and maintenance. The profit margin remains highest if the Tribe does as much of the work in-house as possible; according to Yurok Natural Resources Division Lead Tim Hayden, doing the carbon project monitoring in-house also results in living wage jobs for tribal members and a strong “sense of pride and self-determination in actively managing our own lands.”²³³

When a project manager sets project baselines, it becomes clear what the project can legally and financially produce under existing markets. Then, when the project manager develops what can be sold, the difference between that and the number of credits maintained is captured in the first year, because the largest amount of credits is produced initially. As the project continues over time, trees grow and carbon sequestration thus increases incrementally, but there are fewer credits produced on an annual basis due to the relatively slow growth rate.

As part of project development for ARB-approved projects, the Tribe has to show that it is going to either implement new techniques to manage the land in a way that enhances carbon sequestration (IFM), avoid a change in land use that would reduce the forests’ carbon sequestration (avoided conversion), or replant a forest (reforestation). By adopting a longer-term and more reduced-cut harvesting cycle than the previous owner (GDRC) had employed, the Tribe is conducting IFM.²³⁴

acquisition).

232. See YUROK TRIBE, *supra* note 35, at 120-21; Erlcr, *supra* note 39 (describing the random plot generation process under Phase 2).

233. E-mail from Tim Hayden, Nat. Res. Div. Program Manager, Yurok Tribe, to author (June 6, 2018) (on file with author).

234. See CAL. AIR RES. BD., *supra* note 2, at 39-42 (listing the various types of greenhouse gas sources, sinks, and reservoirs for IFM projects, and the means of accounting for greenhouse gas reductions).

The Tribe has to abide by all of ARB's rules and regulations for forest carbon projects, including the requirement that they not remove existing species and replant with species that sequester carbon at higher rates (species conversion).²³⁵ In the mixed conifer forest and redwood forest of the northern California coast, tan oak, madrone, maple, redwood, and Douglas fir sequester carbon at different rates, and the Tribe has to work with the existing mix of species on any given plot area. This means that some projects result in greater carbon credit yield just by virtue of their species mix and ecological condition—for example, the CKGG project has more tan oak, and, as such, more tonnage per acre that sequesters carbon.²³⁶

The management and inventory of the carbon project does not appear to hinder tribal citizens' access to the land for cultural purposes. Tribal citizens have access to the project land, except under certain conditions—for example, no one is supposed to enter specific sensitive areas on non-rocked roads during the rainy season under the YAHCP on Phases 1 and 2.²³⁷ Following appropriate site preparations, low-intensity cultural burns may still occur and are, in fact, encouraged to reduce fuel loading, if implemented safely and responsibly, and as part of an integrated forest management strategy.²³⁸ Traditional tending and harvesting of culturally important plants, as well as traditional hunting, are also welcomed by the Tribe on project lands.²³⁹ The Tribe is transitioning this forest away from a forest producing solely trees and timber revenue, to a forest for people with multiple recognized uses. As exemplified by the Yurok projects, Indigenous leadership in forest management can incorporate sequestering carbon as a productive co-benefit of holistic Indigenous forest stewardship.

D. Bureau of Indian Affairs: Anticipating the Carbon Market

Within the broad contours of the trust responsibility that the U.S.

235. See *id.* at 16; see also CAL. AIR RES. BD., ARB COMPLIANCE OFFSET PROGRAM U.S. FOREST OFFSET PROTOCOL: FREQUENTLY ASKED QUESTIONS 11 (2013), https://ww3.arb.ca.gov/cc/capandtrade/protocols/usforest/resources/faq_102913_post.pdf (noting that all projects must demonstrate continuous progress toward mixed species composition, and that no single species can surpass a certain threshold of prevalence within a project forest).

236. See Erlcr, *supra* note 39; see also YUOK TRIBE & NEW FORESTS – FOREST CARBON PARTNERS, L.P., CKGG IMPROVED FOREST MANAGEMENT PROJECT OFFSET PROJECT DATA REPORT 16, 22 (2014) (noting the high proportion of tan oak in the forest project area relative to other tree species).

237. Erlcr, *supra* note 39.

238. YUOK TRIBE, *supra* note 35, at 24.

239. *Tribe Reclaiming Rightful Role*, *supra* note 204, at 3-4.

government has toward Indian tribes, the BIA has a specific responsibility to assist and support tribes in managing their forest lands to achieve sustainable yield in accordance with tribal management objectives.²⁴⁰ According to BIA Regional Forester, Pacific Region, Gerald Jones, the Agency typically works with a tribe to establish a sustainable yield—the amount of timber that can be harvested after tribal and federal regulations are considered.²⁴¹ The tribe and the BIA subtract the area legally restricted from harvest from the biological yield (the total amount available) to arrive at an estimated annual yield. The tribe usually proposes to harvest below that estimated annual yield.²⁴²

In the process of developing the Yurok carbon offset projects, the California ARB asked the BIA to establish the amount restricted from harvest, but, according to Jones, “carbon is an outlier on how the rules are written in Indian Country, as our rules governing Indian trust products have generally dealt with extraction and harvest to gain values for beneficiaries.”²⁴³ For the BIA, ARB’s request amounted to asking for a projection of the yield that is not available to the Tribe, and, according to Jones, they had not approached the calculation that way before.²⁴⁴ ARB wanted to know the restricted amount of timber (because that amount that would not be part of an estimate of possible timber-generated revenue) in order to determine the number of credits the tribe could *not* sell (because certain amounts of trees would be required to be left standing anyway). However, tribal timber harvest plans fall under the NIFRMA, which is a nationwide rule developed to be implemented

240. The trust doctrine is a federal responsibility to support tribal self-governance stemming from guaranteed treaty rights; this includes an obligation to provide services and protect tribal lands. See *United States v. Mitchell*, 463 U.S. 206, 238 (1983). While the National Indian Forest Resources Management Act (NIFRMA) does not specifically reference the trust responsibility, it echoes the centuries of decisions that created the trust responsibility. See 25 U.S.C. §§ 3101-3120 (2012). NIFRMA neither diminishes nor expands the United States’ trust responsibility toward Indian tribes; it does, however, respond to an important gap in federal law that does not adequately protect the management of Indian forest lands. NIFRMA allows the Secretary of the Interior to take part in the management of Indian forest lands consistent with trust responsibilities. See CAL. AIR RES. BD., ARB COMPLIANCE OFFSET PROGRAM TRIBAL PROJECT BASELINE LEGAL CONSTRAINTS DETERMINATION 2-3 (2016), <https://ww3.arb.ca.gov/cc/capandtrade/offsets/nifrma.pdf> (clarifying the BIA’s position on the application of NIFRMA to carbon offset forest management projects on tribal trust lands, noting both that NIFRMA’s sustainable yield mandate does not inherently preclude tribal participation in these projects, but also that NIFRMA does not impose uniform legal constraints across all tribes).

241. Jones, *supra* note 7; see also CAL. AIR RES. BD., *supra* note 240, at 3 (describing the general process of deriving a sustainable yield); General Forestry Regulations, 25 C.F.R. § 163 (2019).

242. Jones, *supra* note 7.

243. *Id.*

244. *Id.*

within each tribe's specific land management approach. As trustee, the BIA issued a letter that said the Yurok carbon agreement is not subject to review because the Agency deals only with presently held trust lands and the land the project would be located on was not held in trust.²⁴⁵ However, the BIA currently views the Yurok carbon offset projects as "Indian Land" supporting Indian forestry units.²⁴⁶ The carbon project lands are managed as Indian forestry units in accordance with the Tribe's land management plan approved by the Tribe and the Secretary.²⁴⁷

According to Jones, the BIA's involvement in carbon sequestration projects requires the Agency to see not just timber, but carbon, and requires an increased commitment to inventory forest development to assess growth of various species over time, and thus the species' carbon sequestration capacity. Part of that commitment is encouraging tribes to treat carbon similarly in terms of depositing a percentage of income from sales into an account for monitoring, maintenance, and ongoing work.²⁴⁸ While the BIA has not formally released any carbon rules or guidelines, Jones and others have been working to provide tribes with technical support and advice as they consider participating in the carbon market. Jones and his staff assist tribes in their decisions to engage in the market by helping determine yield and restrictions on yield in coordination with the tribe and ARB, developing publications and outreach, and creating forums for tribes to share their work with one another and with broader audiences. Jones feels that BIA engagement is important because, regardless of the absence of rules, the BIA is still the tribes' trustee, and it is thus the BIA's responsibility to support the tribe in managing its assets—including forest carbon—in a way that will bring the highest benefit to the tribe now and into the future.²⁴⁹

E. Reflection: Opportunities and Challenges

Although each sovereign Indigenous nation will have different perspectives on and approaches to the carbon market, the examples

245. See CAL. AIR RES. BD., *supra* note 240, at 2-3 (reproducing the BIA letter).

246. See 25 U.S.C. § 3103(10) (defining "Indian Land" to include both land held in federal trust and land, "title to which is held by . . . an Indian, an individual of Indian ancestry . . . who is not a member of a federally recognized tribe, or an Indian tribe subject to a restriction by the United States against alienation").

247. See 25 U.S.C. § 3103(15) (defining "tribal integrated resource management plan" as a comprehensive natural resources management plan that must be approved by both the Tribe and the Secretary of the Interior).

248. Jones, *supra* note 7.

249. *Id.*

shared above of Yurok participation in the California cap-and-trade program offer several points of reflection that may be useful to other tribes considering carbon projects.

First, as Lyons et al. (2018) acknowledge, work by the Yurok Tribe to ensure government-to-government tribal consultation on, and participation in, ARB's cap-and-trade program opened the door to other tribes to participate in the program.²⁵⁰ Because the program is mandatory for the State's largest polluters, providers of offsets in the California cap-and-trade program access higher prices than on voluntary markets. Thus, although the program falls within a State regulatory scheme, choosing to participate is a business decision. Consultation between ARB and the Tribe led to the development of regulations that simultaneously recognize tribal sovereignty, value Indigenous conservation practice, and follow State programmatic guidelines.²⁵¹ As Kinney explained:

The state of California and the Yurok Tribe have not always been partners; there was a genocidal effort at the time of statehood, and direct warfare was waged against the indigenous peoples of the state, but tribes are survivors, and will continue to be here. The state is realizing that, and . . . recognizing the legal, political, cultural and economic value of working together. The first step is acknowledging the tribal government's inherent sovereignty to manage resources and ancestral territories: Governor Brown has done that as well as his staff We are in the business of changing people's consciousness in terms of recognizing Indigenous rights at state tribal, local, state, and national global levels.²⁵²

Tribes that want to develop IFM projects and sell carbon offset credits on the California cap-and-trade program must have access to significant acreage of forested lands. The Yurok Tribe already had a forested land base, but it chose to undertake the majority of its carbon projects (Phase 1 and 2) on adjacent private forest lands that it wanted to purchase in order to bring back into tribal holdings. In order to develop a multifaceted project that includes land acquisition, land stewardship, restoration, conservation, carbon sequestration, and economic development goals, the Tribe had to use many creative financing

250. Colleen M. Scanlan Lyons et al., *Negotiating Climate Justice at the Substantial Scale: Challenges and Collaborations Between Indigenous Peoples and Subnational Governments*, in ROUTLEDGE HANDBOOK OF CLIMATE JUSTICE 431, 437 (Tahseen Jafry ed., 2018).

251. *Id.* at 435.

252. Kinney, *supra* note 140.

mechanisms, including loans, NMTCs, phased purchases, and conservation transactions. According to legal scholar Laurie Graham, this nimble, cross-sectoral work is unfortunately the norm for tribes with access to natural resources, but numerous jurisdictional, legal, and institutional development constraints.²⁵³

The fact that ARB is willing to work with tribes on developing viable carbon projects represents an opportunity for tribal economic development and, possibly, land reacquisition. Both ARB and CAR were supportive of the Yurok project and assisted with project development to make the credits generated more financially attractive to potential buyers. One specific beneficial step the ARB regulators and voluntary market leaders took with the tribal projects revolved around the financial risk rating associated with the buffer account. For each carbon project, the project owner doesn't get all the credits produced. Rather, each project sets aside a certain number of credits (fifteen to twenty percent) into a buffer account or a common insurance pool for all forest projects to deal with natural disasters (involuntary reversals). Instead of an individual landowner having to replace those credits, the buffer account covers those credits. In discussions with CAR and ARB, when the Tribe was calculating its buffer percentage, they examined a handful of different risk factors including financial risk, wildfire risk, and organizational capacity. One major factor is the financial risk rating of the landowner, and there are two possibilities: a one percent risk rating for governmental entities, and a five percent risk rating for private entities (corporations). ARB and CAR agreed that a tribal government is just as secure as a local government, if not more secure, and applied the one percent risk rating to the Yurok Tribe. That decision meant that more credits can go to tribes than to corporate entities. On a one-million-ton project like the Yurok Project, that apparently small percentage difference in fact represents a significant number of credits, and translates into a lot more money to recapture for the Tribe (up to \$400,000 in the first year based on 2015 prices). Those relatively small considerations by the regulators helped to make tribal projects more viable and beneficial to tribes than if the tribes had been subject to the terms applied to standard corporate entities, and helped to bring much more revenue into Indian country that would not have otherwise been there.

Another consideration for tribes weighing entry into the carbon market is whether they develop projects in-house, or contract out to

253. Lorie M. Graham, *An Interdisciplinary Approach to American Indian Economic Development*, 80 N.D. L. REV. 597, 625-27 (2004).

carbon project development firms. Looking back over the last five years of project development, the Yurok Tribe is quite reflective about when it did or did not have the in-house capacity to do the required work. At the outset of the project, the Tribe was concerned that it did not have the in-house capacity to do the technical modeling work, which involves translating inventory data from the property into the projected storage amount (continued storage over time) and baseline amount (the amount it is financially and legally possible to harvest, based on forest practice rules). Unless a Tribe is doing a very large project or multiple small projects, it may make more sense for the Tribe to contract out for that work, rather than bring that capacity in-house.

On their Phase 1 project, Yurok tribal staff coordinated with contractors to do the modeling, then sent the results to CAR to be verified. The Tribe could have also chosen to hire a firm to serve as an umbrella project manager, directing the Tribe's own forestry crew to acquire certain data. A third option the Tribe explored was to hire a project developer to take care of every aspect of building the project, including bringing in an outside inventory crew and conducting project modeling. In the latter model, the firm lays out all of the initial capital and, after the project is developed, gets a percentage of the credits.

In sum, a Tribe can either pay on its own up front and recapture all of the revenue, hire outside contractors to manage the project, or pay a project developer to do it all. The Yurok have adopted a combination of two of the three models: On the CKGG project, the Tribe worked with New Forests/Forest Carbon Partners, who took care of all aspects of the project and got a percentage of the credits; on Phase 1, by comparison, the Tribe oversaw the contractors and carried out the project management itself. On the latter project, the Tribe paid costs up front. The Tribe transitioned over time to doing more project development as they developed more in-house capacity. Tribes that have forestry departments and crews are better positioned to develop a project on their own. Tribes must ask themselves how much money are they willing to spend up front, because there is some risk of investing in initial project development, only to find out that the project will not be legally or economically viable in the long run. Some of these questions can only be answered by experience or by consulting with other tribes that have engaged in the market.

V. CONCLUSION: CREATIVE APPROACHES TO LEGAL BARRIERS – THE YUOK WAY

The Yurok Tribe has been successful in navigating multiple legal barriers and creatively applying diverse programs (i.e., carbon offset projects) to re-acquire ancestral lands. The carbon market is an environmental policy strategy that the tribe is applying in this instance to achieve repatriation of ancestral lands. While the commodification of carbon can be seen as a neoliberal market solution that is contrary to traditional tribal values, after weighing the costs and benefits of participating in the California cap-and-trade program, the Yurok Tribe decided to manage the majority of their newly acquired land for carbon.²⁵⁴ According to Hayden, “The ability to actively manage the Tribe’s own lands is extremely important, and meaningful both economically and culturally. [It] is a means to make self-determination more meaningful and real.”²⁵⁵

However, when tribes engage with structures like carbon offset programs, which involve third-party verifiers and state regulations, they must also address legal challenges of encumbrance and perceived (if not actual) incursions on tribal authority. While some tribes have embraced the use of conservation easements as a legal mechanism that enables either tribal stewardship of ancestral lands (with the Tribe as a holder of an easement) or funding of the purchase of ancestral lands (with the easement held by a third party and the Tribe as the owner),²⁵⁶ the Tribe has not granted external parties conservation easements over tribally-owned lands, nor negotiated its own conservation easements on non-Tribally held lands. While the carbon offset projects may be interpreted as including a type of conservation encumbrance on the land, as they require project owners to follow certain management, monitoring, and verification protocols over the life of the project, the Tribe interprets these agreements as contracts, with a time horizon of 100 years, and with specific, limited objectives in terms of management for carbon sequestration.²⁵⁷ These terms by the Tribe are assertions of its inherent

254. The Yurok Tribal Cultural Committee specifically assessed concerns about the validity and morality of the concept of marketing carbon offsets, and the countervailing project benefits of reacquiring large portions of the ancestral land base, during a September 18, 2015 meeting at the Yurok Reservation’s Weitchepc Tribal Office.

255. Hayden, *supra* note 233.

256. See MIDDLETON, *supra* note 51 (providing numerous examples of tribes’ uses of conservation easements); see also Wood & Welcker, *supra* note 51; Wood & O’Brien, *supra* note 51 (discussing additional ways in which tribes have used conservation easements).

257. Interview with Tim Hayden, Natural Resources Division Program Manager, Yurok Tribe, Javier Kinney, then-Executive Director, Yurok Tribe & Daniel Cordalis, Legal Staff, Yurok

responsibility to (in a Yurok framework) or jurisdiction over (in a non-Indian framework) their homeland. This Yurok authority reaches back prior to colonization, and extends into the future, long after the conclusion of the carbon offset projects.

The Tribe is engaging in decolonization and asserting its inherent sovereignty through multiple policy and legal tools, including the cap-and-trade program. By navigating the bureaucratic market structures with alternative values, goals and visions for the future, the Tribe has reacquired large areas of its homeland that were seized by the state a century ago. The Tribe's actions must not be understood through the lens of Western capitalist expansion; rather the Tribe engages with market structures under a radically different relationship to Mother Earth—not one that seeks to commodify her resources, but one that prioritizes a “social and ecological balance, thousands of years old.”²⁵⁸

As Tribal Nations determine whether they want to enter the carbon market, they should look at the landscape and examine their assets and the hurdles they may have to overcome. Assets include long-term orientation to management; a deep commitment to the land that encompasses cultural, spiritual, historical, and economic perspectives; and centuries of knowledge about local land stewardship. Hurdles to overcome include perceptions by outsiders—particularly funders—of limited “capacity,” historically acrimonious relationships with the state and with private companies, and internal resistance to accept any incursions on tribal sovereignty. The Yurok carbon projects provide a powerful example of a tribe willing to take multiple risks—from committing to follow a management plan for 100 years and accepting state protocols for that time period, to collaborating with numerous non-Native partners in conservation and financing—in order to restore over 50,000 acres of ancestral land back to tribal ownership after nearly 100 years.

In many ways, the Yurok Tribe's leadership at the local, state, federal, and international levels exemplifies the importance of supporting Indigenous sovereignty, including participation and/or leadership in natural resource management and economic development. According to legal scholar Sarah Krakoff's analysis of what enables tribes to thrive in changing political and legal environments, key factors are “political and legal independence” and “*de facto* exercise of tribal self-governance.”²⁵⁹ The Yurok Tribe asserted both of these in ongoing

Tribe, in Klamath, Cal. (July 17, 2018).

258. See YUROK TRIBE CONST., pmbl.

259. Sarah Krakoff, *Racial Adaptation, Justice, and American Indian Nations*, 4 ENVTL.

negotiations with the state and external partners to establish their carbon projects within a framework of Yurok tribal objectives. Similarly, scholars have repeatedly found that tribal economic development is more sustainable when the tribal government is in the driver's seat,²⁶⁰ and supported by strong tribal institutions that match tribal cultural values.²⁶¹

In the spring of 2017, the Yurok Tribe hosted Indigenous delegations from the Amazon and Indonesia. These actions were premised on a 2012 Yurok Tribal resolution supporting the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).²⁶² The Yurok Tribe has been working with other Indigenous nations throughout the world, sharing experiences on protecting territories, advancing rights, and simultaneously increasing economic development while participating in global strategies to reduce the impacts of climate change. Reflecting on his experiences as part of a Yurok delegation to the United Nations Framework Convention on Climate Change of Parties 23 in Bonn, Germany, the Coordinador de las Organizaciones Indígenas de la Cuenca Amazonica Annual Meeting in Macapa, Brazil, the Forest Summit in Oslo, Norway, and with a delegation of California legislators and California Agency Directors to Acre, Brazil in the summer 2018, Kinney explained:

The Yurok Tribe is a leader in the climate space and resiliency programs, but also strong supporter of self-determination and nation building. The ways we share our experiences and help other Indigenous communities is key. We are Reddening the Green movement . . . we recognize that we can live within working forests; our traditional villages included participation decision-making and management of Yurok communities within natural resources. We want to dispel that in order to be involved in effective conservation you have to exclude Indigenous peoples who have been living [in the forest] since time immemorial.²⁶³

JUST. 207, 210, 211-12 (2011) (assessing key traits based on the experiences of the Cherokee Nation from the late eighteenth through the mid-nineteenth century).

260. See Graham, *supra* note 253, at 609 ("The assumption and exercise of tribal authority appears to be an important first step in the development process.").

261. See Stephen Cornell & Joseph P. Kalt, *Reloading the Dice: Improving the Chances for Economic Development on American Indian Reservations*, in WHAT CAN TRIBES DO? STRATEGIES AND INSTITUTIONS IN AMERICAN INDIAN ECONOMIC DEVELOPMENT 1 (Stephen Cornell & Joseph P. Kalt eds., 1994).

262. Indigenous nations throughout the Americas asserted their sovereignty by joining nation states in formally affirming the UNDRIP. See Carpenter & Riley, *supra* note 69, at 217.

263. Kinney, *supra* note 140.

The Yurok Tribe's carbon projects exemplify what UN Special Rapporteur James Anaya observed in his work across the United States: that the solutions to addressing Indigenous issues with land rights, economic development, and cultural vitality lie in strengthening the exercise of tribal self-governance.²⁶⁴ The Tribe's exercise of self-governance in multiple arenas involves the use of diverse tools (including market-based greenhouse gas reduction mechanisms such as carbon offsets) to reclaim traditional lands and steward them based on traditional values. Through asserting its sovereignty and expertise, and developing partnerships with state agencies on a government-to-government basis, the Tribe not only developed the first approved IFM project in the California cap-and-trade system, but also opened the door for other tribal carbon offset projects by leading to the articulation of specific offset project listing requirements for Tribes.²⁶⁵ As of October 2019, seven other tribes have developed approved carbon offset projects in the California cap-and-trade system.²⁶⁶ Former Yurok Tribal Chairman Thomas O'Rourke, who was in office throughout the Yurok carbon offset transactions, described why the Tribe has chosen to participate in the carbon market: "To not only do our part with global warming, but to preserve our way of life so that our future generations can see the pristine forest that our parents' grandparents saw."²⁶⁷

264. Anaya, *supra* note 97, at 64 ("Indigenous leaders stressed to the Special Rapporteur . . . that the solution lies fundamentally in further strengthening indigenous peoples' ability to develop and implement their own programmes for economic development and job creation, education, preservation and development of cultural expressions and knowledge, and public order . . .").

265. See CAL. AIR RES. BD., *supra* note 10.

266. See *id.* (listing the Round Valley, White Mountain Apache, Passamaquoddy, Warm Springs, Colville, Spokane, and Mescalero Apache projects as having satisfied the tribal offset project requirements).

267. Tony Barboza, *Yurok Tribe Hopes California's Cap-and-Trade Can Save A Way of Life*, L.A. TIMES (Dec. 16, 2014), <http://www.latimes.com/science/la-me-carbon-forest-20141216-story.html#page=1>.