



THE HOONAH NATIVE FOREST PARTNERSHIP

An Interdisciplinary, Collaborative Approach to Watershed Assessment and Resource Planning





Ch'u tleix áwé kugaagastee.

Let it exist forever.

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HOONAH

JUNEAU

CHICHAGOF ISLAND

SITKA

KETCHIKAN



Introduction

The land and the people of Alaska have been connected since time immemorial. The ocean, the forests, and the mountains all hold unique treasures that many generations of Alaska Native people have thrived upon. Though resources differ by region in this enormous state, one thing remains the same: Alaskans are hunters, harvesters, gatherers, and fishers. Huna Tlingit and local residents have cultural roots that are deeply entwined in the land and waters surrounding their community.



With access to fresh berries, wild game, and several types of salmon, the people of Hoonah have built a life around the delicious, valuable resources and the forests and streams surrounding their town. These resources are predominantly what fill the freezers and bellies of residents in Hoonah, not only because of the cultural and long-established ties to traditional harvest-based living but also because living in a remote area in Alaska requires it. They are the basis for generations of art, songs, and storytelling; provide food and jobs; and are valued as part of the community itself. With that being said, the importance of maintaining healthy watershed conditions is critical for the lives and livelihoods of local residents.

As part of the world's largest coastal temperate rainforest, collectively maintaining the lands and resources of northern Chichagof Island is important to the Hoonah community, landowners, and resource agencies. Along with commercial fishing and tourism, forest products have been

a mainstay of the local economy in the past. Addressing the impacts of widespread timber harvesting and associated road building while maintaining access to hunting, fishing, and gathering grounds will help sustain the local culture and community alike.

With this in mind, the Hoonah Native Forest Partnership (HNFP) was formed in 2015. An alliance of landowners, organizations, and stakeholders advocating for the Hoonah area, the HNFP works to assess resource conditions and identify projects intended to improve fish and wildlife habitat, ensure long-term timber production, and support sustainable watershed management. We work collaboratively to preserve valuable resources, create economic opportunities for Hoonah residents, and improve community capacity through workforce development, community involvement, and land stewardship.

Coming Together Through Common Goals

As members of the HNFP, we share a common vision: Hoonah is a thriving community with access to abundant resources and workforce opportunities that consist of members who work together to improve economic, ecological, and social conditions.



The Hoonah Native Forest Partnership members include the following:

HOONAH INDIAN ASSOCIATION
(federally recognized tribe)

CITY OF HOONAH

SEALASKA
(Southeast Alaska's Regional Native Corporation)

HUNA TOTEM
(Alaska Native Corporation for Hoonah)

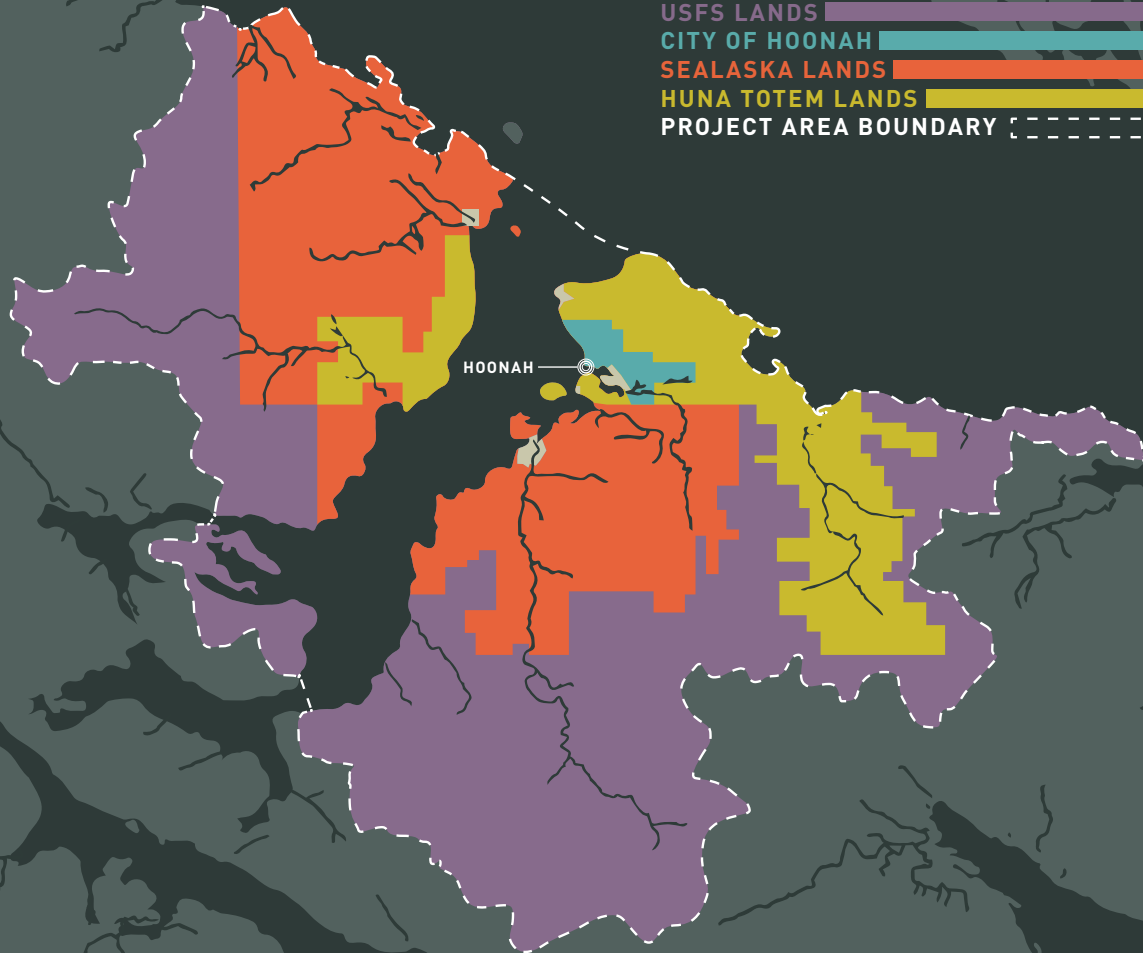
THE NATURE CONSERVANCY

ALASKA DEPARTMENT OF FISH AND GAME

UNITED STATES FOREST SERVICE

Of these, the City of Hoonah, Sealaska, Huna Totem, and the Forest Service are the primary land managers in the 205,000-acre project area.

OTHER NON-USFS LANDS
USFS LANDS
CITY OF HOONAH
SEALASKA LANDS
HUNA TOTEM LANDS
PROJECT AREA BOUNDARY



The HNFP partners all share a **common vision**—a thriving community with access to abundant resources and workforce opportunities that consists of members who work together to improve economic, ecological, and social conditions.



A Steering Committee, composed of representatives from each of the core participants, collaborates with a Technical Committee of natural resource experts that provides information about resource conditions and makes recommendations for sustainable management.

Each member brings a unique set of strengths and experiences that blends traditional knowledge and Western science. The partners understand that working together will better prepare them to collectively meet the diverse opportunities and challenges faced in sustainable community development. With substantial financial support from the Natural Resources Conservation Service (NRCS), the HNFP conducted inventory and assessment of natural resources throughout the projects area and developed management recommendations to improve fish and wildlife habitat. Concurrently, the Hoonah Indian Association took the lead in developing a local workforce who collected much of the data included in the assessment phase and has already implemented some of the recommended management projects. Community feedback on resource priorities has been sought out and incorporated into work plans for current and future projects. By utilizing the varying strengths and relationships among the HNFP members, the partnership has worked holistically and productively to meet local resource needs.

Data Collection

In order to achieve the workforce development goals set forth by the HNFP, locally hired crews were trained to collect field data, and crew members worked closely with technical experts to ensure high-quality data were collected in a positive, mentoring work atmosphere.



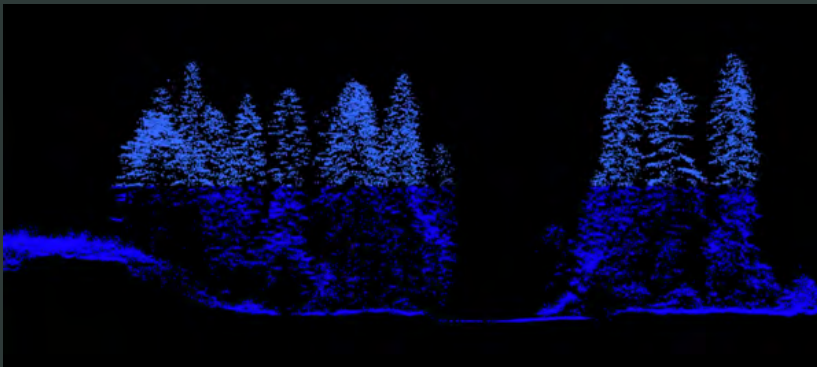
Aerial photography and LiDAR (light detection and ranging) data were combined with field data collection to produce a more accurate and detailed resource assessment than had ever been completed in Southeast Alaska. Road condition surveys, stream habitat surveys, fish and vegetation sampling, trees and forest slash measurements, and deer DNA sample collection were conducted by locally hired staff paired with experienced technical crew leaders. Computer-generated models helped identify areas with important characteristics, such as



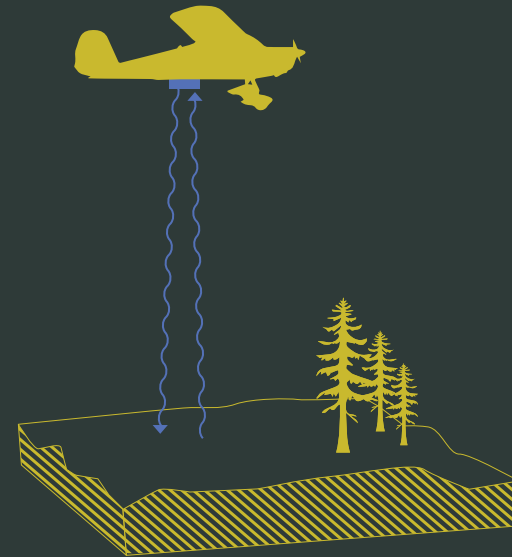
high potential for blueberry or fish production, allowing land managers and community members to prioritize project areas and manage resources to achieve specific goals. In addition, household surveys were conducted, and the collected feedback was used to help the HNFP identify and prioritize opportunities for improving resource conditions while supporting local workforce and economic development as well as traditional resource uses.

Light Detection and Ranging (LiDAR)

Light Detection and Ranging is a remote sensing technology that can be used to gather detailed resource data over large areas.



Using lasers aimed at the ground while flying at low elevation, computers calculate the distance from the plane to the ground and vegetation surfaces. Each calculation results in a “point,” which when used in relation to adjacent points, results in a “cloud” that can be used to create two- or three-dimensional models of the ground and what is above it (e.g., vegetation, buildings, or even cultural resources, such as canoes or historic structures, that may not be apparent during field observations). The LiDAR data are being used by the HNFP to help prioritize field work, identify potential berry production areas, evaluate forest structure and density, and determine the extent of fish habitat. Field observations are then made to validate or refine the models, with the hope that they can be used throughout the HNFP area and elsewhere in Southeast Alaska.



LiDAR allows researchers to assess large areas in a short period of time.

Here are a few ways LiDAR helped the HNFP:

- Blueberry bush locations were identified in areas as small as the size of a pickup truck with 90% accuracy.
- Coho rearing habitat is potentially 58% larger than what is represented in Alaska’s anadromous waters catalog.
- The number of trees per acre was estimated at more than 80% accuracy.

After evaluating the collected data and feedback and considering the goals of the Hoonah land managers and residents, the Hoonah Native Forest Partnership focused its resources assessments and project recommendations on five core areas: (1) forests, shrubs, and meadow plant communities; (2) roads and hydrology; (3) fish; (4) deer; and (5) subsistence.



(1) FORESTS, SHRUBS, AND MEADOW PLANT COMMUNITIES



(2) ROADS AND HYDROLOGY



(3) FISH



(4) DEER



(5) SUBSISTENCE*

**Subsistence is a term used to describe fishing, hunting, and gathering practices for personal use and traditional and cultural harvest activities.*

These were chosen because each can be actively managed to achieve land manager goals and fulfill community needs. Though these five core areas required different research methods, types of data collection, and points of consideration, they seemed to be delicately

interwoven, each requiring consideration of the other in terms of future projects and progress. For example, the people of Hoonah are highly dependent on the forests and streams in the region for traditional foods (e.g., salmon, deer, and berries), economics (e.g. timber harvest,

tourism), firewood, and cultural values. So, while the HNFP did develop a framework for determining the priority of future projects and project areas, the partners recognized the importance of balancing all of these core values.

Core Area Resources and Research



Forests, Shrubs, and Meadow Plant Communities

Forests, shrubs, and meadow plant communities play an important role for both community members and the future of the project area's land and resources.

Early uses of vegetation included wood for cooking, heat, housing, clothing, storage, and transportation as well as a wide variety of forbs, graminoids, and berries for food and medicine. In addition, individual tree selection and small-scale forest clearing of near-shore and riverine areas has occurred in the project area since the first peoples settled here. Today, residents and wildlife still heavily rely on the growth and health of forests and vegetation for harvest, habitat, and employment opportunities.

The area's dynamic geological and glacial history, heavy precipitation, and high frequency of small-scale natural disturbances, such as windthrow



and landslides, have produced a complex mosaic of plant communities that vary in age, structure, productivity, and patchiness. Most of the project area could be generally described as mixed hemlock-spruce forest. Western and mountain hemlock species (*yán*), Sitka spruce (*shéiyi*), and shore pine (*l'al*) are the primary conifer tree species, with spruce and western hemlock of interest for timber. Red alder (*shéix'w*) and black cottonwood (*dúk*) are the common nontimber tree species.

Early uses of trees included wood for cooking, heat, housing, clothing, storage, and transportation.



The range of plant communities reflects the diversity of soils, topography, and micro-climate in the Hoonah area. Beaches in this area transition upslope through extensive tidal meadows to forests, which give way to high alpine plant communities within a relatively short distance from the coast. Estuaries, riparian areas, and muskegs support water-loving vegetation throughout the study area at nearly every elevation. Common shrubs found throughout the area include blueberry (*kanat'á*), salmonberry (*was'x'aantléigu*), Devil's club (*s'áxt'*), and Sitka alder (*keishísh*), while cow parsnip (*yaana.eit*), fireweed (*lóol*), and skunk cabbage (*x'áal'*) comprise some of the common plants.

Household surveys allowed community members to voice their opinions about the values of vegetation resources, priority gathering areas, and timber harvest and its effect on wildlife. What was harvested, how much, whether that quantity was enough, and how the quantity of resources, or lack thereof, impacted their household was also surveyed. Although forests in Southeast Alaska tend to regenerate naturally after disturbance, unlike other forests that need to be planted to achieve desired tree densities, harvests and removal of trees in this area should



- _____
- _____
- _____

In a survey of 65 randomly selected Hoonah households, Hoonah residents were asked to reflect on just how large of a role these varying types of vegetation played in their daily lives.



be thoughtfully considered as a lack of large wood trees can have major impacts. For example, timber harvest can alter water resources by affecting runoff volumes and water quality, and removing trees from streamside riparian areas can destabilize banks and reduce the large wood source needed for stream and bank stability, quality fish habitat, and flood resilience.

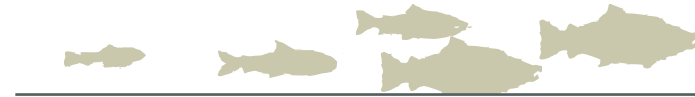
Forests in Southeast Alaska tend to regenerate naturally after disturbances, such as windthrow or clearcut timber harvesting, resulting in high tree densities that eventually shade out understory plants, which provide shelter, food, and habitat for a variety of wildlife species. Field data collection was combined with LiDAR and aerial photography to determine where and what types of management could be implemented to support the diverse plant community of trees, shrubs, forbs, and grasses that provides a variety of food sources and habitat types for wildlife and humans alike, in addition to providing recreation and tourism opportunities.



Fish

The value and use of fish, assessment and mapping of fish species and habitat, and improvement of fish habitat are important aspects of the HNFP.

Streams in the Hoonah area support anadromous populations of chum salmon (*téel'*), pink salmon (*cháas'*), coho salmon (*l'ook*), sockeye salmon (*gaat*), and steelhead/rainbow trout (*aashát*). Both anadromous and resident populations of coastal cutthroat trout and Dolly Varden char (*x'wáat'*) are common. Pink, chum, and coho are widely distributed and are the most abundant salmon in the HNFP area. Sockeye are rare and, based on local knowledge, have only been observed in Gartina Creek. Sockeye generally



occur in watersheds with lakes, which are necessary for juvenile rearing. Small populations of “river-run” sockeye, however, are known to occur in larger floodplain rivers where juveniles rear in off-channel ponds and backwater sloughs. The status of salmon populations in the Hoonah area are summarized for pink, chum, and coho, which are commonly harvested in commercial, subsistence, and sport fisheries.





In the same survey asking about vegetation harvest, Hoonah households were asked about their harvest of fish, including what types of fish were harvested, how much, through which methods, whether they received enough, and if that harvest was shared with other community members. In addition to the surveys, the HNFP considered ways in which to effectively and affordably assess habitat potential for pink, chum, and coho salmon, the most important and abundant salmonids for subsistence, commercial, and recreational harvest in the HNFP project area. Because ground surveys are labor intensive and costly for assessing habitat in remote areas and across the large number of streams in the project area, the HNFP developed and refined models of intrinsic potential (IP) for these three salmon species. Habitat IP is determined using a variety of relatively stable watershed characteristics, such as stream gradient or slope, mean annual stream flow,


and valley width, in combination with species-specific habitat and life history needs. As with the vegetation assessment work, field observation data were used to develop IP models that could predict high, medium, and low habitat values for chum and pink salmon with a high level of accuracy. Only a preliminary model for coho was developed due to the fact that only a limited number of samples were collected during a historically low flow year. These models are currently being used to help prioritize restoration efforts and road maintenance needs, and provide a basis for modeling salmon habitat IP elsewhere in Southeast Alaska.

Deer



Similarly to the fish, forest, shrub, and meadow plant community surveys, Hoonah households were surveyed about their deer harvest, how much was harvested, during what months, the impact of not receiving enough, and adaptations made (if any) to accommodate a lack of this resource. While Hoonah households rely on several types of big game, Sitka black-tailed deer (*guwakaan*) make up the majority of the large land mammals harvested. In order to help measure deer presence and evaluate habitat, HNFP crew and researchers observed the frequency and location of deer pellets and collected samples for DNA analysis. This “mark-recapture” study allows researchers to assess the location, numbers, and sex ratios of the local deer population as well as determine their use of different habitat or management features on the landscape.

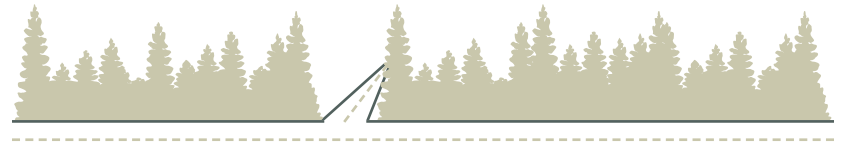
Sitka black-tailed deer are found throughout the study area, following the availability of forage and avoiding areas of deep snow.

A Reconyx trail camera is mounted on a tree trunk. The camera is a rugged, rectangular device with a camouflage pattern. It has a lens in the center and a sensor array above it. The brand name 'RECONYX' is visible on the top of the camera. The background is a blurred forest scene with tree trunks and branches.

Understanding the relationship between forest management and deer response will help ensure full freezers for Hoonah residents.

Deer are foragers and thrive on a varied diet of evergreen herbs, shrubs, lichens, and even some tree foliage. Forage quantity, quality, and availability are important for maintaining healthy deer populations, in addition to other habitat characteristics such as shelter and access to water. Mating typically occurs in the fall, with fawns born in spring, so high-quality winter habitat is critical for survival. Tree thinning is a common post-clearcut forest management strategy to help improve future timber production and understory plant growth. While tree thinning helps provide more light, water, and nutrients for the shrubs and forbs that make up the majority of deer forage, the fallen trees, called “slash,” can impede wildlife and human travel through the forest. To better understand how thinning affects deer, slash depth was measured in several areas over time to estimate the rate of woody debris decomposition and the frequency of deer use in thinned areas. From this, HNFP researchers were able to hypothesize the effects of post-clearcut forest management on deer populations. Land managers and resource agencies can use this information and similar research to better plan and schedule harvest and treatment activities to help support wildlife populations.

Roads and Hydrology



Roads extend across 363 miles of the project area in various conditions and levels of access. Most of this system is open and maintained by landowners or public agencies. Of these developed roads, 127 miles have been “stored” or closed. Stored roads are generally in a condition where culverts have been removed and waterbars have been dug into the road to accommodate water across the road, prevent erosion, and restrict vehicle access. There are currently 237 miles of open road in the project area, and land managers are in the process of determining how much of this road system will remain open and maintained.

Hoonah residents extensively use road systems throughout the project area for hunting, harvesting, and fishing.

Just as residents were asked about resource harvesting, feedback about road usage was gathered, including which roads were used and during which months they are used most frequently. In addition to the household surveys, field data were collected to identify problem areas along both open and closed roads. The road condition surveys included observations and measurements of erosion, water ponding, landslides, locations where



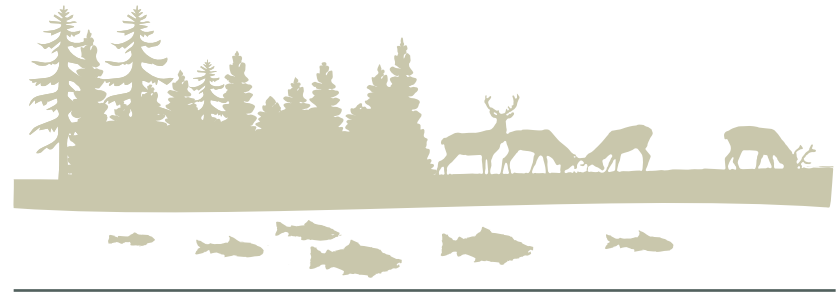
roads interrupt downhill flow of water, or culverts that were preventing fish from passing through roads to access habitat. In addition, culverts, bridges, and other water conveyance feature locations were recorded on GPS and mapped. More than 2,400 culverts were measured and evaluated for blockage or damage, and fish presence was determined using electrofishing, minnow traps, and/or visual observation. On fish streams, culverts were

also evaluated for fish passage conditions, including slope and perch (or drop distance) at the outlet. These data allowed the HNFP to better prioritize locations within the project area, to map resource and habitat areas, and to estimate habitats that could be at risk due to erosion, sedimentation, and other natural occurrences, such as landslides.

Subsistence

Subsistence is a term used to describe fishing, hunting, and gathering of wild foods, but the practice of subsistence goes beyond food consumption—it is a way of life that is passed from one generation to the next through tradition, teaching, stories, art, and songs.

The people of Hoonah are highly dependent on the forests and streams in the region for food and health. Deer, fish, berries, and medicinal plants, however, provide more than just subsistence for many households, as the land and water are part of the traditions and culture of the community. Consequently, there are significant concerns about the availability and condition of these resources since deer forage, berries, and other understory plants could be suppressed by the dense young-growth forests for decades. Previous logging in riparian areas resulted in streambank instability and has delayed the addition of large wood that provides in-stream fish habitat features.



Along with past commercial logging efforts, over 360 miles of road with more than 2,400 culverts were constructed to access and transport timber to the mill or port. The roads are both important to and a concern for residents and land managers. While roads provide access to resources for subsistence, recreation, and economic activities, such as tourism and charter businesses, they can impact those same resources by contributing sediment to streams, blocking fish passage, and reducing landscape connectivity. By integrating resource assessments with information gathered through subsistence and community surveys, the HNFPP is working to balance resource uses and economic development opportunities with subsistence values.



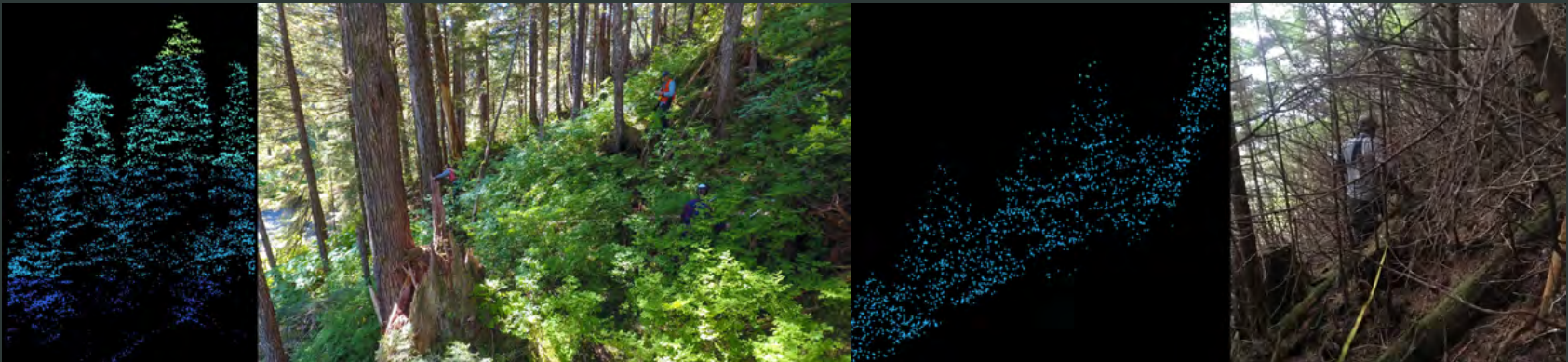
Bringing It All Together

While each of the core research areas were assessed individually, they are interrelated on the landscape and within the local culture.

When trees are harvested in Southeast Alaska, the forests tend to regenerate naturally at a much higher density than what was removed during logging operations. An old-growth forest stand may have 100 to 150 trees per acre, with an “open” canopy that allows light to feed the plants growing closer to the forest floor. Under these conditions, there are a variety of different habitat types and food available for insects, birds, deer, bear, and people. Once clearcut harvesting is completed, the same area will regrow more than 2,000 trees per acre. The advantage of high natural regeneration is that usually there is no need to plant trees in order to reestablish the forest after clearcutting. Without active management, however, the tree branches

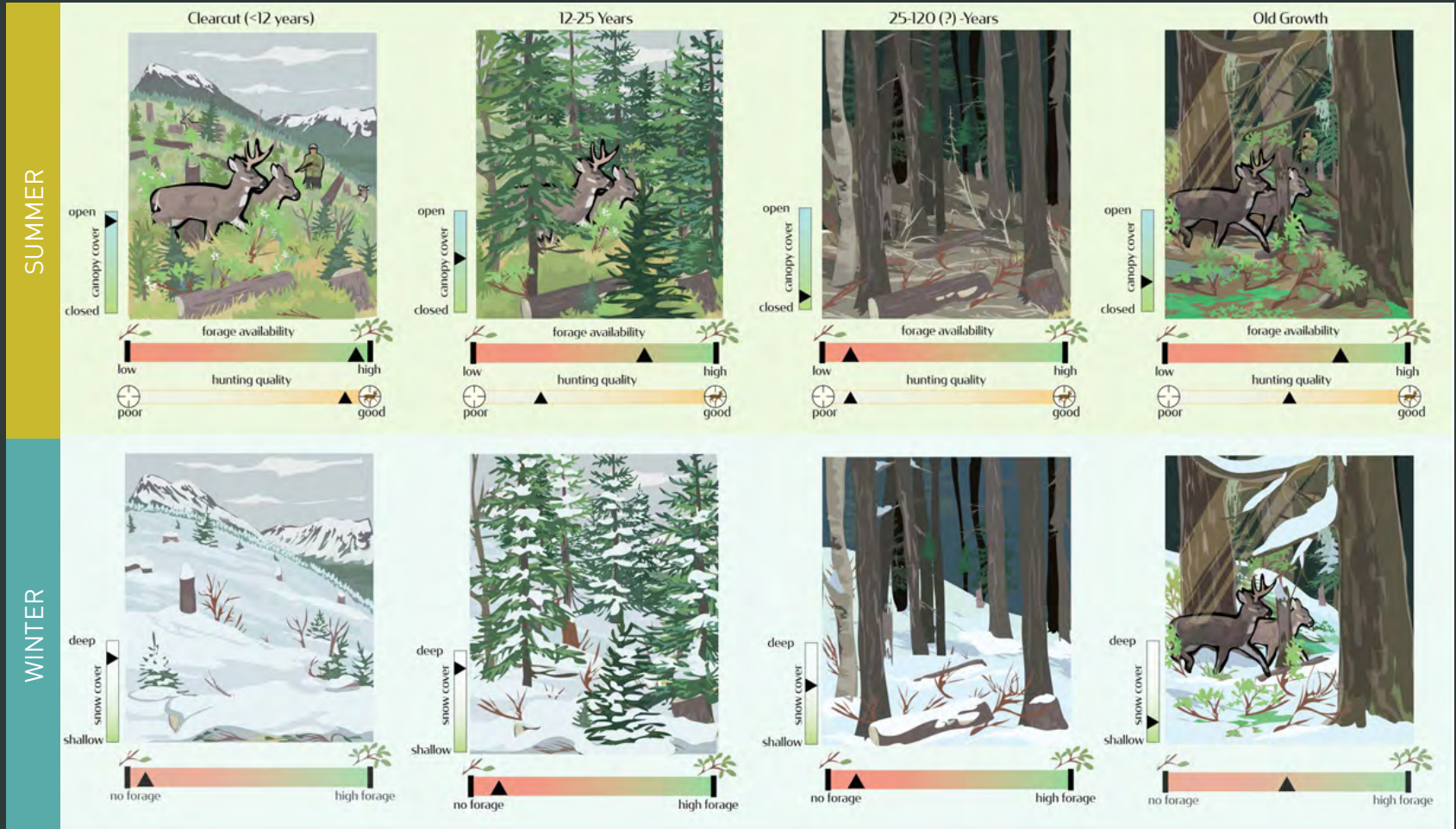
begin to touch and then eventually overlap, creating a canopy that shades light from the shrubs, forbs, and grasses that provide wildlife habitat and forage. In “closed” canopy conditions, these understory plants decline and eventually disappear.

Active management is intended to have positive outcomes across multiple resource areas. It can help improve some post-harvest forest conditions that are detrimental to wildlife as well as decrease the amount of time required to produce marketable timber. Forests with canopies that are closed or beginning to close are typically thinned to reduce the number of trees per acre. Known as pre-commercial thinning, this practice involves cutting or killing some of the trees in a forest stand to create space for both the uncut trees and smaller plants to grow. The cut trees, known as “slash,” are usually too small to be used for wood products and are often left on site. While thinning improves growing conditions for understory plants as well

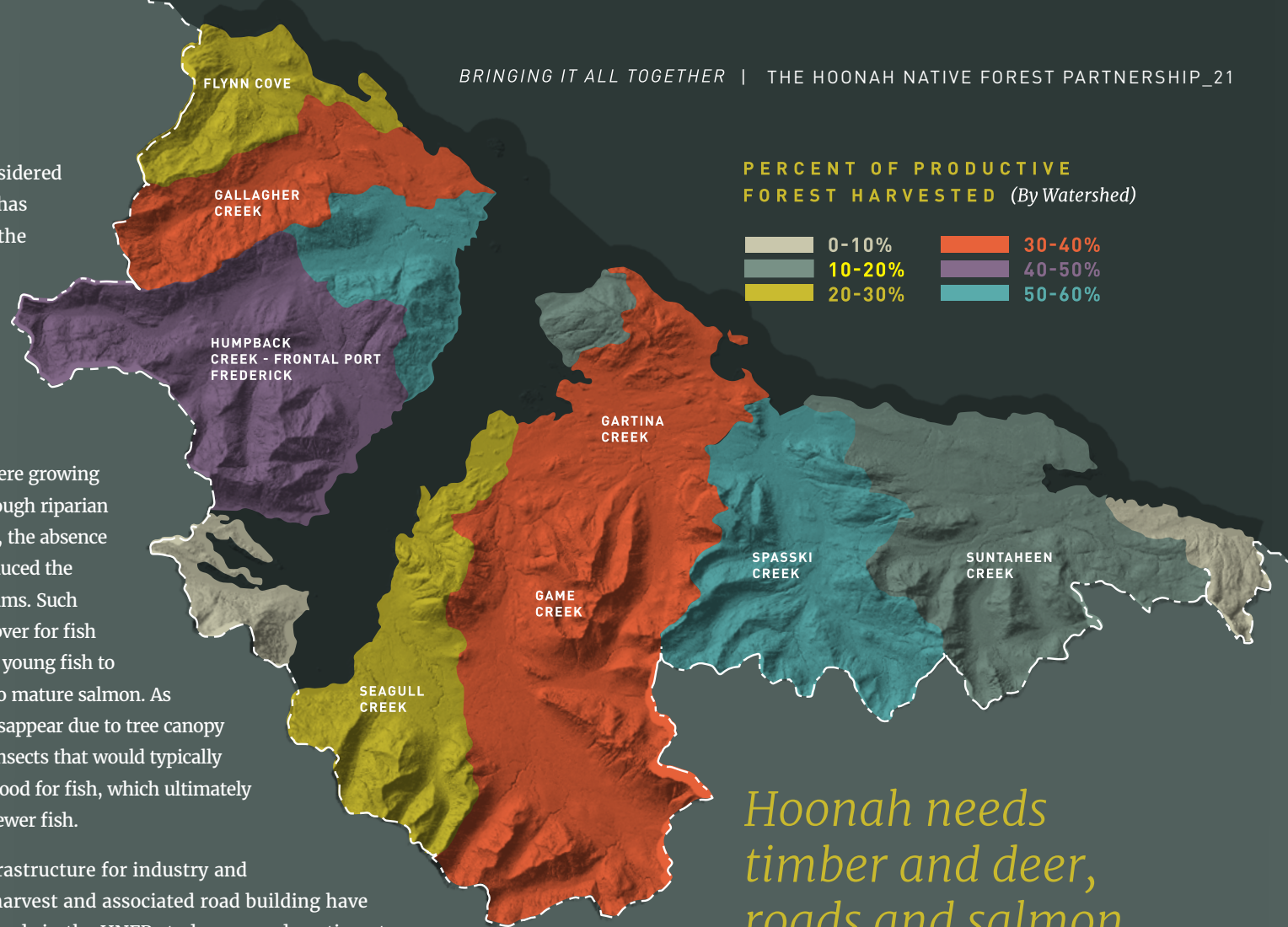
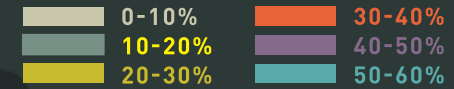


as the trees that are left standing, slash can obstruct pathways used by both people and wildlife until it decays. **The infographic below helps illustrate different development stages of managed forests and the potential effects on deer and hunting.**

The entire HNFP project area is considered coastal temperate rainforest, though there are variations in the amount and quality of trees as well as other features that make up the landscape including wetlands, muskegs, and rock outcroppings. “Productive” forest types have sufficient canopy



PERCENT OF PRODUCTIVE
FOREST HARVESTED (By Watershed)



*Hoonah needs
timber and deer,
roads and salmon,
wildlife and **people.***

cover and tree height to be considered merchantable. Timber harvest has occurred to varying degrees in the HNFP watersheds, with Spasski and Halibut Creek drainages having the greatest percentage of productive forest harvest.

Past timber harvest has included cutting trees that were growing close to or on streambanks. Although riparian harvesting is no longer practiced, the absence of large, streamside trees has reduced the number of dead trees in the streams. Such “large woody debris” provides cover for fish and helps create pools that allow young fish to survive over winter and grow into mature salmon. As the understory plants begin to disappear due to tree canopy closure, there is less habitat for insects that would typically live near streams and end up as food for fish, which ultimately results in declining habitat and fewer fish.

Roads are a critical piece of infrastructure for industry and subsistence activities. Timber harvest and associated road building have occurred in most of the watersheds in the HNFP study area and continue to provide local jobs, but roads effect the landscape in a variety of ways. Roads may block fish from passing up- or downstream, or degrade water quality and fish habitat by contributing sediment to streams if they begin to erode. Without maintenance, long-term, negative impacts can occur. Road maintenance issues are especially pertinent as recreational uses are growing—fueled in part by tourism development—and will continue to be a critical part of both Hoonah’s subsistence and economic vitality.

A man with a goatee, wearing a black baseball cap and a black t-shirt, is crouching in a forest. He is looking directly at the camera with a slight smile. The forest is lush with green foliage, including small evergreen trees and bushes. The background is slightly blurred, showing more trees and a bright sky.

80-Year Vision and 5-Year Action Plan

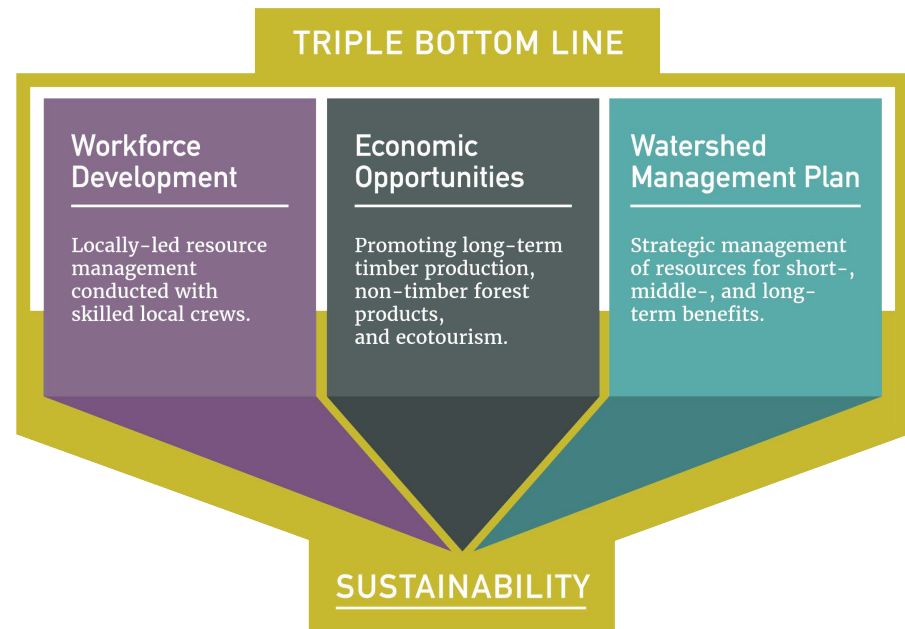
The work conducted through the Hoonah Native Forest Partnership has resulted in a multitude of opportunities to improve forest health, restore streams, generate employment, and serve the needs of the community. Creating an effective short-term land management strategy and long-term vision of the partnership and land management objectives is critical to ensure the essence of this work is carried out.

Now and through the next century, the lands surrounding Hoonah will provide abundant resources that support our culture, economy, and community. The Hoonah Native Forest Partnership (HNEFP), which includes public and private land managers, will promote sustainable economic development, local workforce employment, ecological restoration, and resource management, with the goal of ensuring the conservation of fish, wildlife, and forest resources. Through involvement in this partnership, today's citizens of Hoonah as well as succeeding generations will have improved potential to benefit from subsistence resources, such as blueberries, fish, wildlife, and future employment opportunities afforded by sustainable management of these lands.

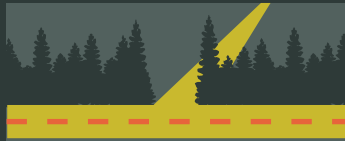
Collaborative Methodology

The intersection of social, environmental, and economic well-being is the basis for achieving the “Triple Bottom Line” of HNFP’s vision: a sustainable balance of people, planet, and profit.

To ensure the success of its vision, the HNFP uses the Triple Bottom Line (TBL) framework to guide decision making and project development. The TBL incorporates social, environmental, and economic values to ensure the sustainability of natural resources and communities. The HNFP aspires to create employment and business opportunities that are balanced with the ecosystems upon which Hoonah residents depend and thrive. Working strategically and geographically by watershed, the HNFP is guided by community surveys and regular communication between Technical and Steering Committee members. Priorities are set based on values, sustainability, and ecological benefits.



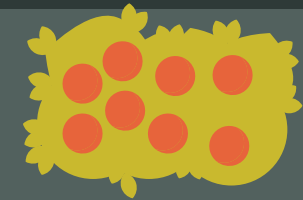
Community discussions and meetings helped the HNFP identify the following needs:



BRUSH ROADS FOR ACCESS AND MAINTAIN ACCESS WHILE IT IS STILL POSSIBLE/CHEAPER



CREATE SCHOOL CURRICULUM AND INTEGRATE STUDENTS INTO THE WORK



ACHIEVE WORKING BERRY PATCH AND STAND MANAGEMENT



ESTABLISH ACCESS FOR MEDICINAL PLANT GATHERING AND CREATE EDUCATION AROUND MEDICINAL HERB USAGE



CULTIVATE YELLOW CEDAR AND SPRUCE ROOTS FOR TRADITIONAL USAGE



BALANCE HUMAN BENEFITS AND ECOLOGICAL RESILIENCE



CREATE POSTINGS REGARDING LITTER AND BAD BEHAVIOR



INTEGRATE SEASONAL AVAILABILITY FOR BERRIES INTO MANAGEMENT PLAN/ACCESS



PROMOTE TRADITIONAL ECOLOGICAL KNOWLEDGE CAMPS FOR YOUTH



INVENTORY TRADITIONAL PLACE NAMES

Using the TBL framework and other prioritization strategies set forth by the committees within the HNFP, these needs will help develop work plans with quantifiable actions.

Evaluating Success

Evaluating progress and accomplishments is critical for determining success and learning to overcome challenges. The HNFP established quantifiable metrics to help determine if priorities are being met and identify opportunities for improvement. These metrics were derived from partner priorities. Most of them are directly measurable, though some may require interviews and/or further investigation with partners to determine benefits achieved. Many of the metrics overlap with US Forest Service metrics, which are used to evaluate project successes on public lands. The partner priority metrics are as follows:



- Number of community members involved in land management projects
- Number of local workforces trained and the amount of money put into local economy
- Number of trainings for technical skills, life skills, and entrepreneurial skills attended annually
- Number of jobs created annually
- Number of businesses created from land management activities and amount of money inserted into economy annually from timber and non-timber resource businesses
- Number of community meetings held each year to assess needs
- Number of new collaborators or partners established to complete management goals
- Number of projects that meet their stated goals and are completed in their stated timeline
- Quantification of funding stream to implement projects
- Annual assessments are conducted to quantify benefits accruing to multiple groups/interests/stakeholders
- Projects are evaluated to determine if they meet the triple bottom line
- Analysis is completed to determine if projects are cost effective and create a positive gain when considering ecosystem service, human capital, and business capital gains
- The ecological benefit of the projects is quantified
- Amount of in-kind and other resources are leveraged from multiple resources

Management Opportunities, Strategies, and Recommendations

Field and community surveys were combined with data analysis to identify project opportunities and further assessment/research needs. Recommendations were listed, mapped, and prioritized geographically, with some smaller, ocean-frontal watersheds summarized as part of adjacent larger watersheds. In addition, projects that improve resource conditions as well as support local workforce development or economic opportunities are being considered for long-term sustainability of the HNFP. Possible projects include trail creation for better subsistence or tourism access, forest management to improve blueberry production for personal and commercial harvesting, and stream habitat improvement projects to support salmon and other fish. Additional road surveys, landslide investigations, and more detailed stream condition surveys are desirable for establishing detailed work plans for all watersheds in the HNFP.

The following pages highlight project opportunities by watershed, using these terms and definitions:

STREAM OPPORTUNITIES

Restoring these sites will create better habitat for fish.

YG 50 RESIDENT AND ANADROMOUS PROJECT OPPORTUNITIES

Potential riparian restoration projects for streams with resident and anadromous fish.

ROAD OPPORTUNITIES

Culverts that have been identified as opportunities for improvement in the project area related to water quality, fish habitat, or fish passage.

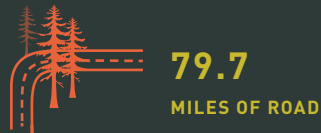
BRIDGE OPPORTUNITIES

Abutment or railing failure, damaged or missing bridge decking were found at these locations. (Bridge surveys were very preliminary and not intended to replace engineering-level bridge inspections.)

HABITAT IMPROVEMENT POTENTIAL

These areas have been harvested for timber and will benefit from pre-commercial thinning practices that promote habitat for deer and bears.

Spasski Creek Watershed:

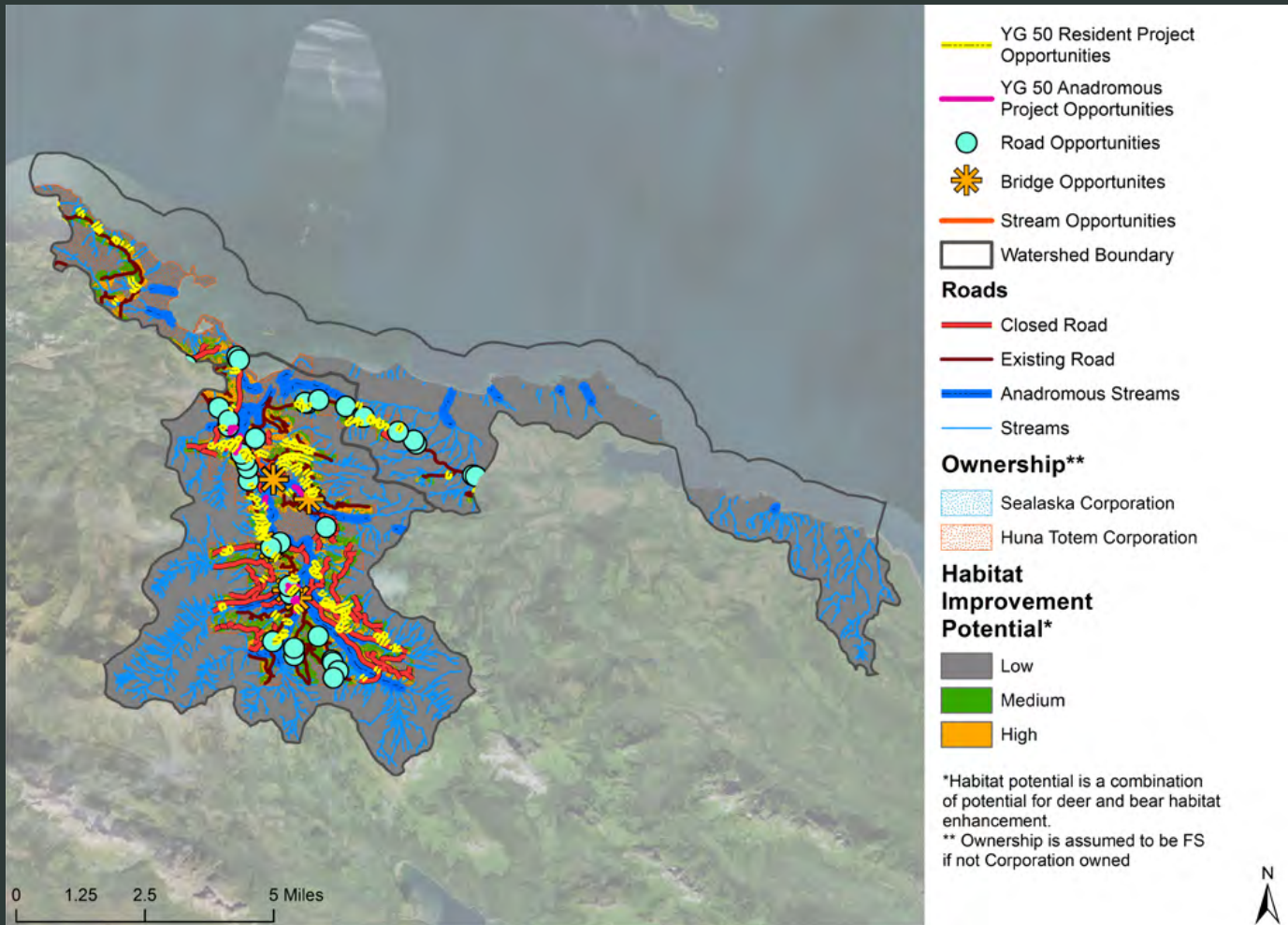


Using the opportunities, geographic, and community needs assessment described earlier, Spasski Creek Watershed was identified as the area of greatest conservation need for the HNFP. The Spasski Creek Watershed has extensive anadromous and resident fish habitat, large areas of dense blueberries, high densities of brown bears, and is frequented by locals and visitors alike. Valuable fish habitats are located in the lower floodplain reaches of the watershed, but previous timber harvest, landslides, and road erosion have put this area at risk. The HNFP has identified specific areas of need within the Spasski Creek Watershed and has outlined a five-year action plan to improve and conserve fish and wildlife habitat. Included in these actions are removing or replacing certain road crossings to improve fish passage and drainage across roads, which will in turn protect water quality and fish habitat; implementing pre-commercial thinning and slash treatment in target areas to improve forest condition, blueberry production,

and deer and bear habitat; and conducting further resource assessment work to evaluate infrastructure needs and potential stream habitat improvement projects.

Work on some of these projects has already begun, and HNFP researchers and community members are seeing the benefits. For example, forest management near the Spasski Creek Bridge has improved conditions for blueberry production and habitat for brown bear and deer. A pilot stream restoration project that was implemented in 2018 included the addition of large woody debris to Spasski Creek tributaries. The stream channel in these locations has shifted as a result, creating more complex habitat for fish and improved riparian habitat for a variety of wildlife species.

MANAGEMENT OPPORTUNITIES: *Spasski Creek Watershed*



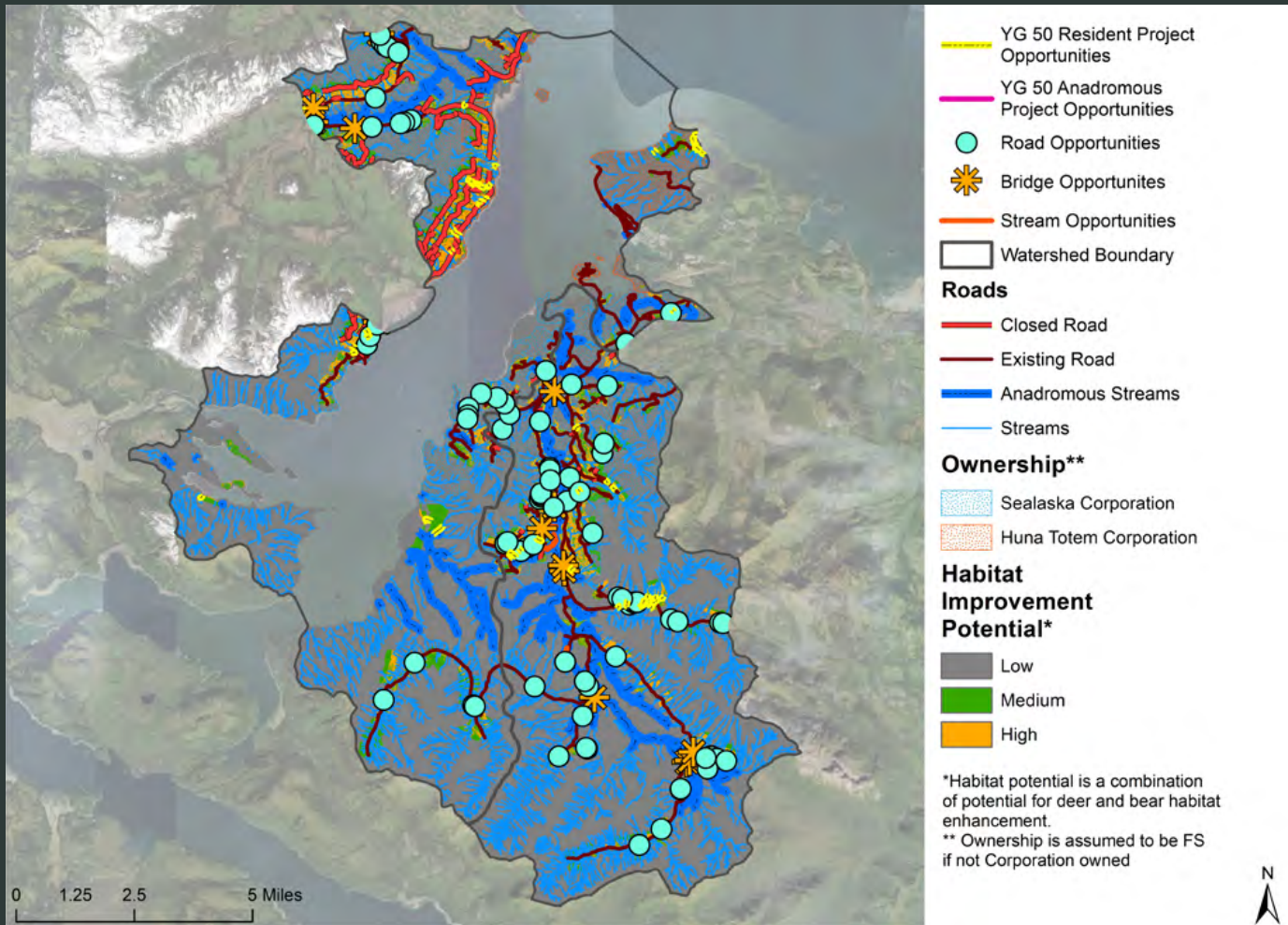
Game Creek/ Port Frederick Frontal Watershed



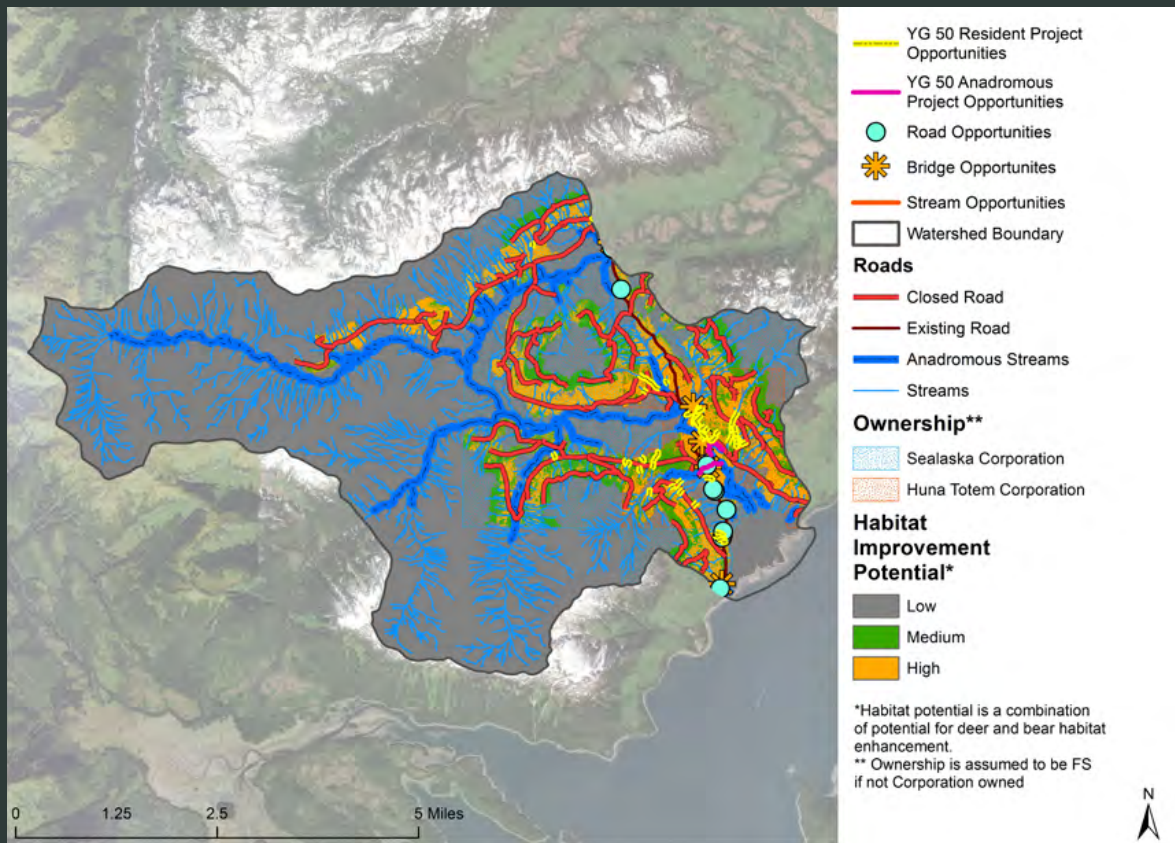
Like Spasski Creek Watershed, Game Creek Watershed has an extensive road system that is frequently used for hunting, gathering, fishing, and recreational activities. Some early timber harvest occurred in streamside areas, reducing the amount of wood in streams over time. Localized climate conditions sometimes create windthrow, meaning areas where trees are damaged or killed by high winds. Windthrow has created some timber harvest opportunities in the past, but it has also complicated long-term management on the landscape as wind-caused damage to riparian areas or unharvested timber adjacent to clearcuts can occur.

Some of the land included in this geographic study area is on the western side of Port Frederick, which many Hoonah residents access by boat and then use the road system that was initially built for timber harvest. While maintaining an open road system on the west side of Port Frederick is a priority for some, forest and road management activities can be expensive and complicated by the logistics of accessing this area.

MANAGEMENT OPPORTUNITIES: Game Creek/ Port Frederick Frontal Watershed

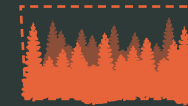
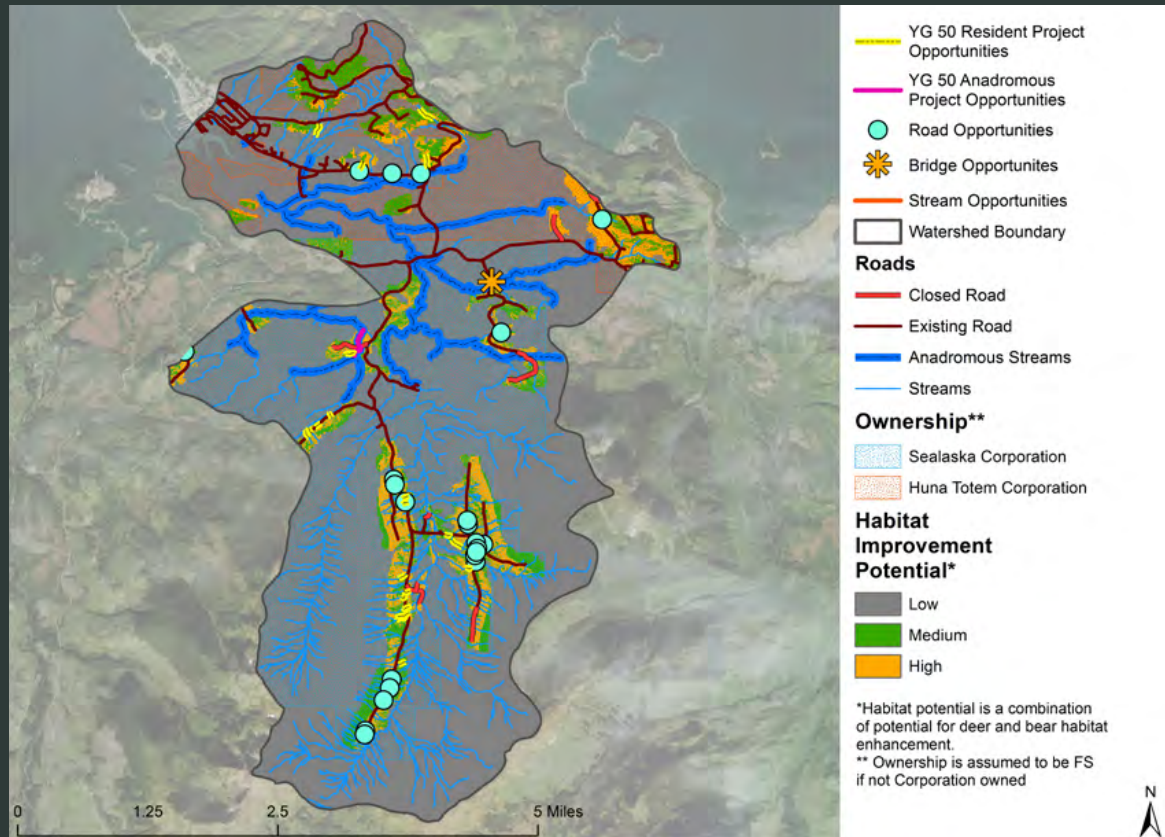


Humpback Creek Watershed



MANAGEMENT OPPORTUNITIES: *Humpback Creek Watershed*

Gartina Creek Watershed



13,338
ACRES IN SIZE



42
MILES OF ROAD



>30% OF DEER
WINTER RANGE
HARVESTED



1,960 ACRES
OF TIMBER HARVEST,
>30% OF
PRODUCTIVE TIMBER
HARVESTED



10.5 MILES OF
HIGH-QUALITY PINK
AND CHUM HABITAT



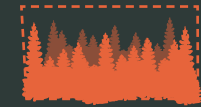
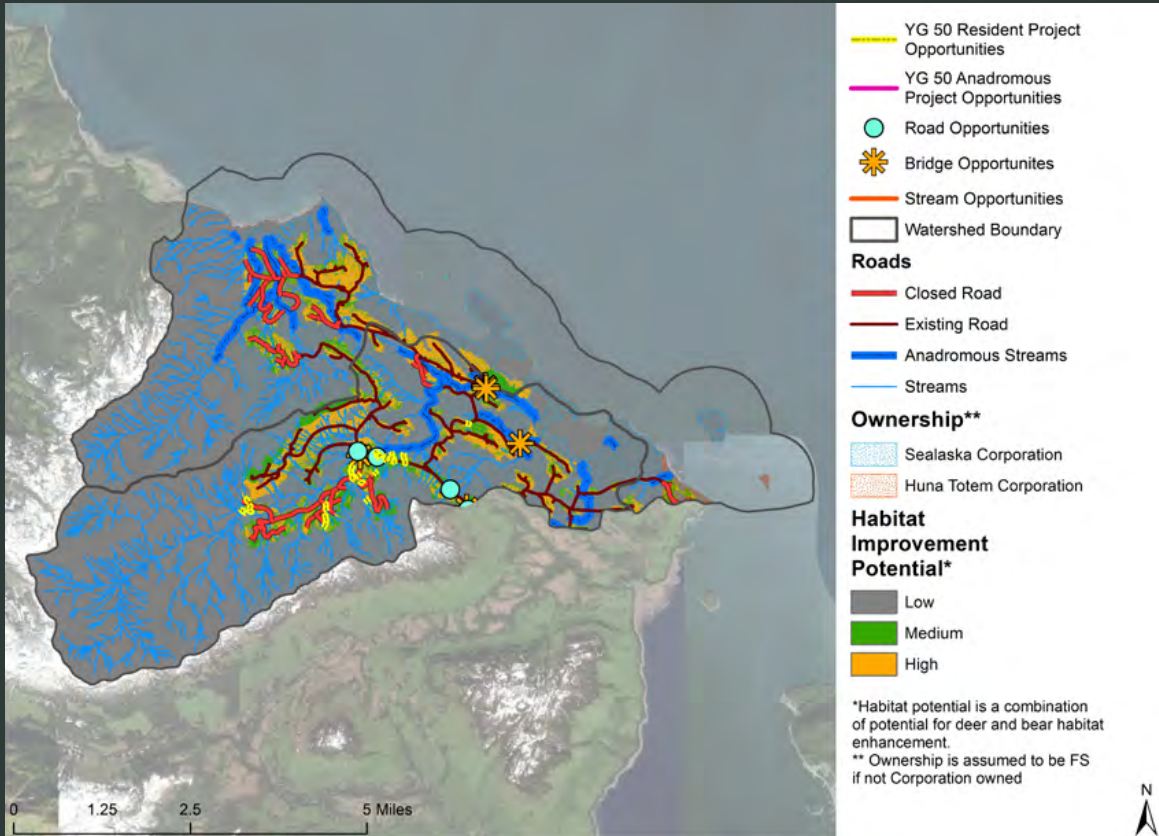
LAND MANAGEMENT:



21.4% FOREST SERVICE
18.1% HUNA TOTEM
53% SEALASKA
7.5% CITY OF HOONAH

MANAGEMENT OPPORTUNITIES: Gartina Creek Watershed

Gallagher Creek/ Flynn Cove Watershed



20,267
ACRES IN SIZE



49
MILES OF ROAD



>50% OF DEER
WINTER RANGE
HARVESTED



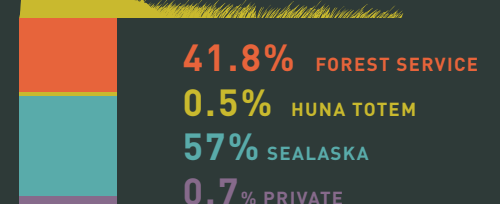
2,526 ACRES
OF TIMBER HARVEST,
>40% OF
PRODUCTIVE TIMBER
HARVESTED



4.6 MILES OF HIGH-
QUALITY PINK AND
CHUM HABITAT

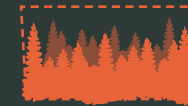
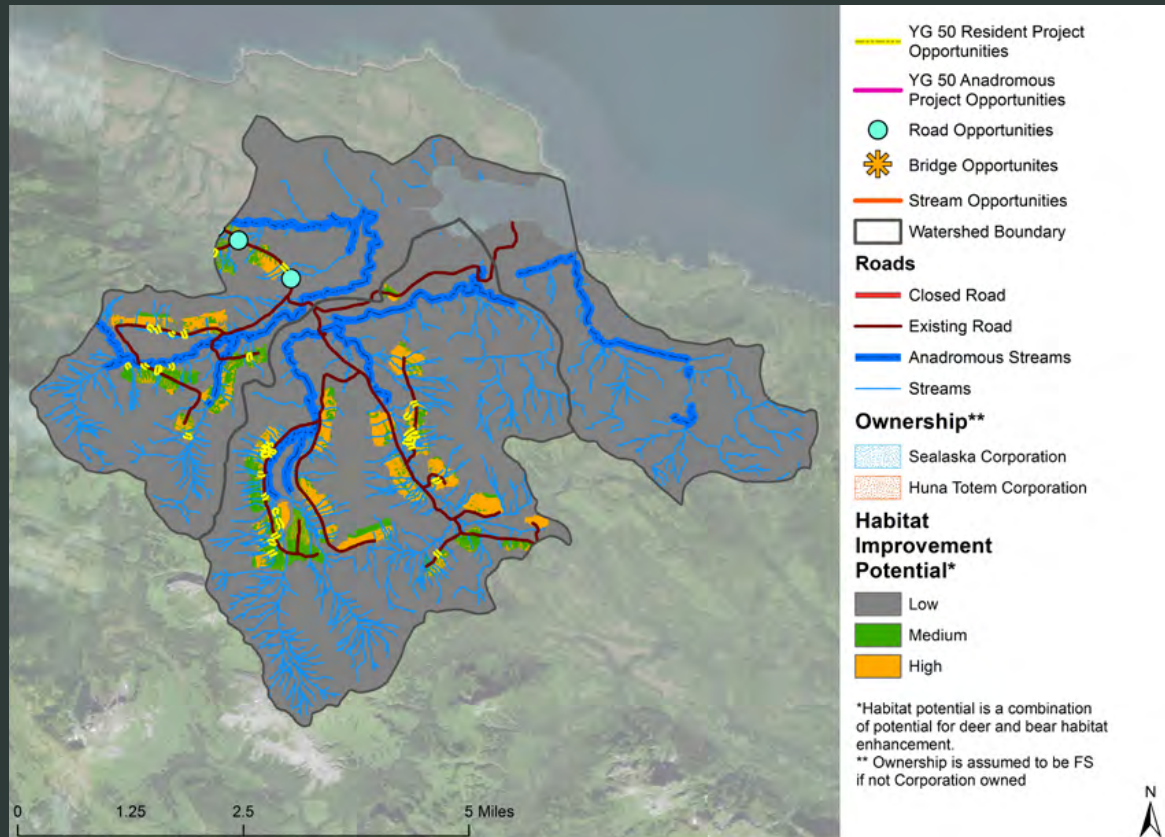


LAND MANAGEMENT:



MANAGEMENT OPPORTUNITIES: Gallagher Creek/ Flynn Cove Watershed

Suntaheen Creek/Whitestone Harbor Watershed



17,748
ACRES IN SIZE



22
MILES OF ROAD



>20% OF DEER
WINTER RANGE
HARVESTED



466 ACRES OF
TIMBER HARVEST,
>10% OF
PRODUCTIVE TIMBER
HARVESTED



8.3 MILES OF HIGH-
QUALITY PINK AND
CHUM HABITAT



LAND MANAGEMENT:

100% FOREST SERVICE

MANAGEMENT OPPORTUNITIES: *Suntaheen Creek/Whitestone Harbor Watershed*

HNFP Workforce

The HNFP employs local workers who are trained and supported by the partners.

Employing local people is integral to the HNFP's vision of boosting community and economic development while improving and protecting the natural resources that are so valued by Hoonah residents and visitors. Crew members are hired and employed by the Hoonah Indian Association and benefit from training and mentoring provided by a variety of different



partners and entities, including The Nature Conservancy, the Sustainable Southeast Partnership, University of Alaska, US Fish and Wildlife Service, and private consulting firms. The US Forest Service contributes safety and field skills training each year, and staff are frequently found working alongside HNFP crew. Since 2015, the crew has been trained and worked with technical mentors on vegetation surveys; stream condition and fish habitat assessment; deer DNA sample collection; road condition surveys; forest treatment techniques, including thinning and girdling; forest assessment for carbon markets; and data collection in multiple platforms. In 2017, they began implementing some of the management recommendations that were based on their own data collection by assisting with installation of woody debris in a tributary to Spasski Creek. In 2018 and 2019, they continued to install in-stream fish habitat improvement features in addition to improving forest conditions by thinning and creating gaps, or open areas, for structural habitat diversity.

While the original crew only consisted of a few members, the goal is for these future projects to generate more employment and management opportunities for community members while also promoting forest and vegetation growth as well as resource preservation. Each of the HNFP watersheds has opportunities for improved resource conditions through multiple projects, such as bridge or culvert repairs, road maintenance or closure, forest treatment, or stream habitat improvement. These projects will benefit the resources and the community, and will continue to provide training and employment opportunities for local residents. With the creation of more jobs and the completion of projects that protect and encourage subsistence living, the residents of Hoonah have taken a hands-on, proactive approach to improving and sustaining the ecological, social, and economic well-being of their community.

Conclusion

With future projects prioritized and set to take place over the course of the next few years, the HNFP is seeking to create a lasting, positive effect on Alaska's resources and the people living within the community. By establishing a collaborative, community-driven approach to resource management, we have engaged voices across the Hoonah community and inspired similar efforts elsewhere in Southeast Alaska and across the state. Work being done by the HNFP will help sustain resources, provide opportunities for employment and training for local residents, and encourage economic growth for the community. Though the HNFP members recognize this will be an ongoing process of learning, communication, data collection, and project implementation, members remain steadfast and eager to see the positive changes that will take place in Hoonah. Most importantly, the HNFP is looking forward to continuing this new approach of working together, of encouraging stewardship not only for the land but for the relationships among the people. Our people, our land. Ch'u tleix áwé kugaagastee. Let it exist forever.





Ch'u
tleix
áwé
kugaagastee

PARTNERS



HUNA TOTEM CORPORATION



THE HOONAH NATIVE FOREST PARTNERSHIP