Whatcom County Forest Resilience Plan

September 2025

Prepared for Whatcom County Council by Triangle Associates

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Cover photo credit: T. Abe Lloyd

The following Whatcom County Forest Resilience Plan was prepared by the Forest Resilience Task Force, Dr. Dave Peterson, and Triangle Associates for consideration by the Whatcom County Council.

Executive Summary

The Whatcom County Forest Resilience Plan (Plan) outlines a coordinated approach to strengthening forest resilience, sustaining economic benefits, and addressing climate and wildfire risks across Whatcom County's forested landscapes. Ordinance 2023-058 directed Whatcom County Council to establish a multi-departmental, multidisciplinary Forest Resilience Task Force (Task Force) to draft the Plan. The purpose of the Plan is to create a collaborative framework for local, state, federal, and tribal governments and relevant stakeholders on issues relating to forest management. The Plan emphasizes maintaining a viable timber industry while diversifying markets, developing workforce capacity, and supporting sustainable recreation that benefits local communities. In addition, the Plan identifies actions to reduce risks from wildfire, disease, and climate impacts while conserving biodiversity, protecting watersheds, and promoting ecosystem services. To achieve these goals and meet the socio-economic and ecological challenges facing Whatcom County, the Plan recommends a collaboration framework to align county, tribal, state, federal, private, and nonprofit efforts around future forest management goals, objectives, and actions. The Task Force acknowledges that some elements of the Plan were prepared with limited community input or are incomplete by necessity, primarily due to project time constraints, and the Task Force encourages the County and partners to build on this work where the Task Force could not.

1. Background

Characteristics and Value of Whatcom County Forests

The management of forests in Whatcom County has evolved over time, reflecting shifts in market demands and economic priorities, environmental understanding and conservation policies, community desires, and a changing forest ecosystem. Historically, clearcut logging dominated forest management, with private, state, and federal lands producing most of the timber. Between 1965 and 2017, private forestlands accounted for 59% of total harvested volume, while state lands contributed 26%, and federal lands produced 15% until stricter protections for old-growth forests were enacted in 1993 (Whatcom County 2025).

Currently, 68% of Whatcom forestland is federal (38% U.S. Forest Service, 30% National Park Service), 21% is private, 11% is Washington Department of Natural Resources (DNR)/County, and less than 1% is Tribal (WFPA 2007). Forest ages in Whatcom County are influenced by past disturbances, especially timber harvest with many acres in their second or third rotation. Efforts to conserve mature and old growth forests have increased, with initiatives like the Climate Commitment Act (Washington Department of Ecology 2021) funding the protection of 650 acres of mature forests in Whatcom County. Community-driven projects such as the Stewart Mountain Community Forest aim to balance sustainable forestry with watershed health and ecological benefits. Currently, about 6,400 acres of mature forests remain under DNR timber management in

the county. This highlights ongoing efforts to preserve older forests while managing younger stands for economic and environmental purposes.

Figure 1. Vaccinium membranaceum Black Huckleberry fruit on Goat Mountain. Photo credit: T. Abe Lloyd.

Whatcom County forests provide many benefits for local communities and the region, including timber production, outdoor recreation, functional watersheds, water supply and flood control, wildlife habitat, carbon sequestration, and spiritual/cultural values. These benefits are greater when forest land remains as forest, fragmentation is minimal, and forests are healthy (Haddad et al. 2015).

The economic value of forestry in Whatcom County is significant, contributing to both the local and state economy (WADNR n.d.). In 2021, Whatcom County had 1,983 direct jobs in the forest products industry. Including indirect impacts, the total job count was 4,781 (WFPA 2021). The industry paid $112,823,946 in direct wages and $254,996,195 in total wages in the County.

Whatcom County helps fund local services with revenue from timber harvests on state trust lands. In Washington, timber harvests are subject to a 5% excise tax based on the value of the wood, and counties generally receive 4% of that amount. This applies to harvests on both public and private lands. For example, the Mount Baker School District gets about $1.2 million each year from State Forest revenue, making up roughly 3 to 4% of its annual budget.

Outdoor recreation in Whatcom County enhances the quality of life for residents and visitors from the Northwest and beyond. Whatcom County residents average 72 participant-days per year (equal to about one recreation visit every 5 days), with 14 million participant-days annually for all recreation activities (Flores and Schwartz 2015). Extensive forest and mountainous landscapes enhance the reputation of this area as a good place to live, work, and recreate, attracting talented professionals to local communities.

Recreation also contributes significant economic benefits to the region. For example, residents and visitors spend over $700 million on outdoor recreation in Whatcom County each year. This spending supports over 6,500 jobs (3,700 in the County) across 280 recreation-related businesses that generate a total revenue of $500 million. Recreation in public waters accounts for $132 million in annual spending (Flores and Schwartz 2015).

Healthy forested watersheds provide a wide range of values to Whatcom County residents and beyond. These values include clean water for human consumption, irrigation, and industrial use; fish habitat in streams, lakes, and the Salish Sea; recreational uses (e.g., boating, fishing); and hydroelectric power. A commitment to long-term maintenance and restoration of healthy forest landscapes is critical to ensuring healthy watersheds. In the context of forest resilience and ensuring healthy watersheds and ecosystem/watershed services, forest management affects summer and fall streamflow. Research conducted in Oregon (Moore et al. 2004, Burt et al. 2015, Perry and Jones 2016, and Segura 2020) and Washington (Dickerson-Lange et al. 2022, Hall et al. 2018) has shown that even-aged clearcut forestry may reduce summer and fall streamflows. Therefore, promoting forest resilience in the face of climate change should consider forest management prescriptions and harvest options that may sustain and increase summer and fall streamflow. In addition, some research suggests that stream buffers in the forested environment may not be adequate to protect streams from heat loading and temperature exceedances (Butcher et al. 2016, EPA 2016), a concern in the face of climate change. Thus, buffer widths could be considered in recommendations to address consistent water temperature exceedances.

Historical Legacy and Land-Use Changes

Managing natural resources in Whatcom County involves tradeoffs among forestry, watershed conditions, fisheries, recreation, and conservation. It is widely recognized that best practices need to be used in resource management activities that affect vegetation, soil, and water to minimize impacts on natural resources, as well as social values and benefits (Cristan et al. 2016). In addition, ecological restoration of terrestrial and aquatic systems is now a major enterprise on public, private, and tribal lands in Whatcom County, thus improving ecological conditions across the landscape. Awareness of tradeoffs, potential conflicts, and opportunities for collaboration can help meet diverse community needs and values while enhancing long-term sustainability.

Figure 2. Whatcom County tree farm. Photo credit: Brandy Reed.

Whatcom County faces changing social and biophysical conditions that are challenging the resilience of forest lands and the ability to manage those lands sustainably in the future:

- The population has grown from 167,000 to 232,000 (a 39% increase) since 2000. This creates additional pressure on natural resources, potentially leading to the conversion of forest land to residential, commercial, and infrastructure uses (U.S. Census Bureau 2024).
- Climate change is likely to alter the integrity of forest ecosystems and watersheds, potentially reducing the ecological and economic value of forest resources (Raymond et al. 2014).
- Traditional timber revenue sources for the County have declined because of reduced timber harvests (Whatcom County 2024).

In addition, the historical legacy of land-use practices, primarily harvesting timber and converting forestland to other uses, has altered the productivity, diversity, and continuity of some forest

landscapes. This reduces their capacity for resilience to additional natural and human-caused stressors (Raymond et al. 2014).

Climate-Informed Forest Management

The potential effects of climate change on forests and other resources in Whatcom County are well documented, including (1) a climate change vulnerability assessment for U.S. Forest Service and National Park Service lands in the County (Raymond et al. 2014), (2) a climate change vulnerability assessment (Morgan and Krosby 2017) and hydrologic modeling (e.g. Dickerson-Lange, et al. 2022; Murphy 2016; Knapp 2018; and Truitt 2018) for Nooksack Indian Tribe Natural Resources Department, and (3) Whatcom County's 2021 Climate Action Plan (Whatcom County 2021). Additional climate change modeling in Whatcom County and its effects on watershed processes, streamflow, and stream temperature include Butcher et al. 2016, EPA 2016, Klein 2017, and WA Department of Ecology 2020. These scientific sources inform our understanding of and responses to climate change.

Projected climate-related effects on forest resilience including ecosystem services over the next few decades include the following (Mantua et al. 2010; Dickerson-Lange and Mitchell 2014; Raymond et al. 2013, 2014; Morgan and Krosby 2017; Morgan and Krosby 2020; Dickerson-Lange et al 2022):

- Health and vigor of native tree species will decline.
- Wildfires, insect outbreaks, and some pathogens will increase.
- Forest regeneration will become more difficult.
- Late-summer and early-fall streamflows will continue to decline.
- Flooding and erosion will become more common in some locations.
- The extent of old forests will decrease with more disturbances.
- The resilience of rapidly regenerating even-aged forests will be most impacted by climate change.
- Carbon storage will decrease with more disturbances.

The complex and dynamic nature of contemporary forest management is a major challenge for natural resource managers and planners. A rapidly changing social and biological environment, as discussed above, has motivated Whatcom County leadership to request a Forest Resilience Plan that provides a roadmap to (1) address near-term risks to forests, and (2) identify goals, strategies, and on-the-ground actions, including implementation and adaptive management, to help promote long-term resilience.

Today, many good options exist for addressing climate-change vulnerabilities and other challenges in forests (Raymond et al. 2014, Domke et al. 2023). Current best practices for forest management and planning provide a foundation for both public and private lands. Some practices may need to be revised in response to recent and future changes in both society and the natural environment (Raymond et al. 2022). Working collaboratively across different forest sectors and stakeholders in

Whatcom County will ensure that a Forest Resilience Plan will be effective, feasible, and equitable.

1.1 Task Force Formation and County Code

The Forest Resilience Task Force was created to develop a comprehensive Whatcom County Forest Resilience Plan to guide collaborative decision making on issues related to forest management. The Task Force was established through Ordinance 2023-058, which directed Whatcom County Council to establish a multi-departmental, multidisciplinary Forest Resilience Task Force. The Task Force was directed to consider input from diverse experts, stakeholders, and community members to develop a comprehensive Forest Resilience Plan with science-based and evidence-based strategies and actions towards:

- A prosperous timber economy
- Restoration of healthy forest ecosystems for fish and wildlife
- Functional streamflows
- Maximized carbon sequestration and storage
- Sustainable recreation opportunities
- Healthy watersheds (including Lake Whatcom)
- Resilience to wildfire, insects, and disease
- Overall resilience of Whatcom County forests to adverse effects of climate change

Whatcom County Council selected the consultant, Triangle Associates, to support development of the Plan, meeting facilitation, and Tribal, stakeholder and public engagement. Triangle Associates met regularly with the Project Team, which in addition to staff from Triangle included the Task Force Chair, Whatcom County Council staff, and a subject matter expert, Dr. Dave Peterson (professor at the University of Washington School of Environmental and Forest Sciences), whose research focuses on climate change assessments and adaptation strategies on public lands.

To develop the Plan, the Task Force met 16 times from July 2024 to September 2025. Meetings were hosted virtually, with the option to join in-person, for 90 minutes, once a month. Additionally, Task Force members met in subcommittees monthly (sometimes more frequently) to develop the contents of this Plan. The subcommittees included:

- Stewardship and Land Use
- Forest Industry and Economics
- Climate Informed Management
- Forest Management and Coordination

In addition, six Task Force members participated in the Review Committee, which collaborated with the Project Team and Task Force members to review sections of the draft Plan throughout development.

The Task Force membership included:

Name	Member Type	Representing
Chris Elder (Chair)	Agency/Committee Appointed	Whatcom County
Carl Weimer (Vice Chair)	Agency/Committee Appointed	Whatcom County Parks and Recreation Commission
Frank Bob	Agency/Committee Appointed	Lummi Nation
George Swanaset Jr.	Agency/Committee Appointed	Nooksack Indian Tribe
Trevor Delgado	Agency/Committee Appointed	Nooksack Indian Tribe
Cory McDonald	Agency/Committee Appointed	Whatcom County Forest Advisory Committee
Tracy Petroske	Agency/Committee Appointed	Whatcom County Forest Advisory Committee
Kevin James	Agency/Committee Appointed	US Forest Service
Stevan Harrell	Agency/Committee Appointed	Whatcom County Climate Impact Advisory Committee
Barry Wenger	Agency/Committee Appointed	Whatcom County Wildlife Advisory Committee
Jim Hansen	Agency/Committee Appointed	Whatcom County Planning Commission
Ellyn Murphy	Appointed by County Council	Expertise in forest management and/or wood products industry
Jennifer Mackey	Appointed by County Council	Expertise in owning and/or managing forest lands for conservation purposes
Brandy Reed	Appointed by County Council	Expertise in climate, salmon recovery, and natural resources policy
Oliver Grah	Appointed by County Council	Expertise in watershed management (including Lake Whatcom) and/or land-use planning
T. Abe Lloyd	Appointed by County Council	Expertise in relevant science disciplines
Russ Pfeiffer-Hoyt	Appointed by County Council	Representative from trust land beneficiary (Mt. Baker School District)
Tom Smith	Appointed by County Council	Representative from trust land beneficiary (Commissioner, Whatcom County Fire District 16)

2. Description of Forest Assets and Challenges

2.1 Forests of Whatcom County

Forests in Whatcom County occur on land owned, administered, and managed by federal, state, county, municipal, and tribal government agencies: non-governmental organizations; industrial corporations; and small private entities. Ownership data are from WFPA (2007) and other public sources. Acreages listed below are approximate.

U.S. Forest Service (Mt. Baker-Snoqualmie National Forest) – 393,116 acres

The national forest contains many tree species, ecosystems, and forest zones ranging from low-elevation coniferous and deciduous forests to high-elevation subalpine forests that reach treeline. Age classes vary, with young trees where historical timber harvests occurred, and old trees in areas that have not been harvested (or not for a long time) (e.g., wilderness and roadless areas). Consistent with the Northwest Forest Plan, most MBSNF land is managed to increase old-forest structure, often through active restoration. Timber harvests, while less common than in the past, are conducted in some locations.

National Park Service (North Cascades National Park, Ross Lake National Recreation Area) – 312,919 acres

The National Park contains many tree species and ecosystems, ranging from low-elevation coniferous and deciduous forests to high-elevation subalpine forests that reach treeline. Historical timber harvests were rare due to steep topography and difficult access. As a result, the park contains large areas of old forest. Most of the land is managed passively to protect ecosystem integrity and facilitate low-impact recreation.

Department of Natural Resources (DNR) – 86,000 acres

DNR forests in Whatcom County consist of over 30,000 acres being managed for ecological value, including natural and riparian areas, and over 50,000 acres managed for timber value. There is a mix of age classes across the landscape with coniferous trees dominating. Both working forest and ecological areas contain structurally complex forests and permanently protected old-growth stands. DNR land management takes a multifaceted approach to balance sustainable forestry, conservation, and recreation, while generating revenue for public beneficiaries.

State Parks and other state agencies – 13,105 acres

State lands have mostly younger age classes of coniferous trees mixed with some hardwoods at lower elevations, although riparian buffers and steep slopes may contain some old trees. Some older forests have recently been protected for conservation purposes, such as wildlife habitat and carbon sequestration.

Whatcom County – 9,600 acres

Whatcom County lands contain younger coniferous and hardwood forests, a legacy of historical timber harvest. The County manages its forest lands through a combination of conservation efforts, recreational development, and sustainable forestry practices. Forest conservation is a priority, particularly in sensitive watersheds (e.g., lands in the Lake Whatcom watershed). Non-motorized recreation is also a priority on County lands (e.g., hiking, mountain biking, horseback riding, etc.). Much of the forest management activity occurs through participation in collaborative efforts associated with sustainable forest practices and regulation on state and private lands, as well as conservation strategies and climate resilience.

City of Bellingham – 3,500 acres

City of Bellingham forests are mostly young-growth conifers and hardwoods within a matrix of urban and exurban residential, business, and infrastructure development. The City owns and manages forest land primarily for conservation, watershed protection, and recreation. Urban forest management by the City encompasses active management of public lands, while being supportive of and consulting on residential and other lands occupied by trees. Bellingham is designated as a Tree City, and forest cover is relatively high compared to most urban areas. A State of the Urban Forest Report (2022) and nearly complete Urban Forestry Plan express a strong commitment to sustainable forestry.

Lummi Nation – 7, 729 acres (includes forestry land within reservation)

Forested land on the Lummi Nation Reservation is composed of mostly hardwood species, with some stands of western redcedar and Douglas-fir. These conifer species were dominant prior to timber harvests in the early 20th century. Freshwater forest wetlands and scrub-shrub wetlands provide habitat for terrestrial and aquatic wildlife. The Lummi Nation manages forest resources through the Tribal Environmental Plan, which includes protecting forests for their ecological value and cultural importance while allowing for some development. Forested areas serve as sites for traditional activities like gathering and hunting, as well as for recreation and outdoor education. The Tribe places great value in traditional-use forest lands—on trust lands and through partnerships with agencies and organizations. Priorities are to restore riparian forest habitat, preserve spiritual and cultural sites, maintain forest health and productivity, and increase climate resilience.

Nooksack Indian Tribe – Reservation 2.2 acres; total land base (including trust and fee lands) 3,134 acres; 2,400 acres held in trust by the federal government

Although the Nooksack Reservation is small, the Tribe has great interest in all traditional-use forest lands, especially on its trust lands and through partnerships with agencies and organizations. These lands are occupied by a mix of conifer and hardwood stands, including riparian forests. Stewart Mountain, part of the South Fork Nooksack watershed, contains a mix of old-growth forests, younger forests, and plantations. Restoration of riparian areas to improve fisheries habitat is a high priority. Other priorities are climate resilience, review of proposed developments and

timber sales, and healthy forests that preserve cultural resources. The Tribe has an agreement to co-manage lands within the Mt. Baker-Snoqualmie National Forest.

Industrial forest lands (Commercial Forestry Zoned) – 188,315 acres

Industrial (commercial) lands are dominated by young conifer stands, mostly Douglas-fir but with small amounts of other conifer species and hardwoods. Owners range from large corporations to individuals and families. Most forests are managed on 40- to 50-year rotations. Forests are generally healthy and productive because stand density is managed to reduce inter-tree competition (thinning). Although timber production is the primary objective, these lands also include riparian buffers and other protected areas that provide wildlife habitat and watershed protection, and some lands allow recreation. Areas where timber harvest has occurred are quickly replanted to ensure regeneration and minimize erosion.

Small forest landowner lands (Rural Forestry Zoned) – 38,058 acres[1]

Forest lands owned by small landowners are mostly low-elevation, second-growth conifer and hardwood forests and mostly in younger age classes. DNR defines small forest landowners as those who own less than 5,000 acres of forestland and harvest fewer than 2 million board-feet of timber per year on average. Small forest landowners are typically individuals and families; about 75% of their properties are 20 acres or less. Forest lands are managed for a variety of objectives including a natural setting for residence, wildlife habitat, watershed protection, recreation, timber income, and carbon sequestration. Timber management is typically a low priority except on larger properties. Forest health issues are often a concern because active management is relatively infrequent on many properties.

Nongovernmental Organizations (Whatcom Land Trust)— 6,700 acres

Whatcom Land Trust (WLT) owns and manages 6,700 acres of varying land management goals. In addition, the Stewart Mountain Community Forest (SMCF) is currently being developed through collaboration among Whatcom County, Whatcom Land Trust, Evergreen Land Trust, and Nooksack Indian Tribe to enhance watershed health and improve water quality and quantity, promote an ecological forestry-based economy for living-wage jobs, increase biodiversity and enhance fish and wildlife habitat, and expand community access for cultural uses and non-motorized recreation. At the time of the drafting this Plan, the SMCF was still in development, so the total acres were unknown. In addition to SMCF and WLT, the Evergreen Land Trust owns approximately 80 acres neighboring the SMCF.

2.2 Challenges (Identified by Task Force)

The following section outlines the key challenges to achieving the goals outlined in this Plan and ultimately forest resilience in Whatcom County. These challenges include ecological and socio-economic consequences, many of which are tied to the impacts of climate change. The Task Force

[1] This acreage figure does not include the acres of small forests or stands of trees in the rural residential zones.

identified additional information and resources needed to address each challenge and has provided a preliminary list of related goals, objectives, and actions in another section of the Plan. Any "Information/Resources Needed" in this section that remain unaddressed in the Goals, Objectives, and Actions Section can inform future development of additional actions.

1. **Climate change will cause overall declines in forest ecosystem health.**

Ecological Challenges

- Climate change will progress faster than forests can adapt, leading to increased wildfires, insects, and diseases.

  Information/Resources needed:

  - A publicly accessible County-wide mapping system that provides detailed information on different aspects of ecosystem health.
  - Recent U.S. Forest Service Forest Health Monitoring (FHM) and Forest Inventory and Analysis (FIA) data on ecosystem health.

- Climate change will reduce the availability of some ecosystem services.

  Information/Resources needed:

  - Estimate of annual damage to ecosystem services.

Socio-Economic Challenges

- Science-based support on climate change for private lands is insufficient to inform forest management and promote resilience and ecosystem services.

  Information/Resources needed:

  - Modeling of projected temperature and moisture regimes under climate change for Whatcom County forests (10- or 20-yr increments).
  - Accessible resources and incentives for managers to apply climate-resilient forest practices.
  - Increased scientific and natural resources and forest management expertise for communicating with private landowners.

- Actions that enhance ecosystem services are lacking both interest and economic incentives.

  Information/Resources needed:

  - Federal, state, and local funding for addressing damage to forest ecosystems.

2. **Climate change, including hotter and drier summers, will increase wildfire danger.**

Ecological challenges

- Wildfires modify wildlife habitat.

  Information/Resources needed:

  - Synthesis of the effects of wildfire on westside wildlife habitat by animal species.

- Wildfires cause rapid changes in forest ecosystems including landslides, water pollution, loss of soil moisture infiltration, and lower late-summer and fall streamflows.

  Information/Resources needed:

  - Evaluation of slope stability and water quality and quantity in burned areas to assess damage and inform reforestation.

Socio-economic challenges

- Wildfires and higher temperatures degrade air and water quality, affecting human and wildlife health.

  Information/Resources needed:

  - Monitoring of annual health trends attributed to wildfires (smoke index) and high-heat events (County Health Department).
- Wildfires destroy economically valuable timber.

  Information/Resources needed:

  - Mapped locations of forests tentatively scheduled for timber harvest that have high wildfire risk and are adjacent to other forest lands.
  - Examples and/or economic analyses of forests affected by recent wildfires in and near Whatcom County (e.g. 2024 Bender Fire).

3. **Climate change, including warmer, wetter winters and drier summers, will increase the risk of insect and disease damage.**

   Ecological challenges

   - Insects and disease can reduce tree growth and increase tree mortality, resulting in a decline in ecosystem health and a higher fuel load.

     Information/Resources needed:

     - Annual forest area affected by insects and disease in Whatcom County.

   Socio-economic challenges

   - Insects and diseases can reduce timber revenue, recreational opportunities, and access to cultural resources.

     Information/Resources needed:

     - Assessment of economic damage in forests at a frequency sufficient to characterize trends in insects and disease.

4. **Climate change, including wetter winters and drier summers, will alter hydrology.**

   Ecological challenges

   - Warmer summer temperatures, reduced precipitation, decreased area and depth of snowpack in the snow zone, and increased evapotranspiration will reduce streamflows and subsequently alter water availability for instream and out-of-stream water uses.

     Information/Resources needed:

     - A synthesis of stream data and recent climate impacts modeling, which can be made available in a database for use by Whatcom County and scientists.
     - Periodic updates to recent hydrologic modeling of climate change impacts on streamflow.
   - Warmer summer stream temperatures and lower flows degrade habitat for fish and other aquatic species.

     Information/Resources needed:

     - Provide substantial information on the effectiveness of stream buffers to protect streams in the forested environment in Whatcom County from increased pressures and stressors associated with climate change.
   - Lower summer soil moisture during the growing season will adversely affect the soil biome (carbon sequestration, nutrient distribution, etc.).

     Information/Resources needed:

- Studies of the soil biome in multiple locations.

- More intense rainfall in the late fall and winter leads to floods, landslides, and degradation of fish habitat (including sedimentation in spawning grounds) and altered fluvial geomorphology.

  Information/Resources needed:

  - Evaluation of landslides in recently disturbed forests with respect to recent extreme weather in Whatcom County (e.g. rainfall, floods) (Knapp (2018).

Socio-economic challenges

- Drier summers may lead to more frequent water-rights disputes and restricted water availability and supply.

  Information/Resources needed:

  - Evaluation of the current direction and implications of water rights adjudication with respect to climate change, including relevance for Western water law.

- Lower stream flows may affect cultural and recreational activities such as fishing and water access.

  Information/Resources needed:

  - Synthesis of trends in recreational activities on Whatcom waterways (e.g., permits, rentals, and licenses) and tribal access.

- Lower summer precipitation may reduce tree growth, affecting ecological function and timber production.

  Information/Resources needed:

  - Summary of key ecological parameters and timber yields over time in response to changing temperature and precipitation patterns.

- Higher winter rainfall will cause more frequent floods and landslides, which can increase sediment transport and delivery to streams, alter streambeds, reduce forested land acreage, and damage infrastructure.

  Information/Resources needed:

  - Economic analysis comparing the costs of relocating or replacing infrastructure with the costs of designing infrastructure to be climate-resilient.

5. **Climate change and other factors may increase population growth, raising the likelihood of forest-land conversion to other uses**

Ecological challenges

- Pressure to expand housing developments into the wildland-urban interface (WUI) may drive land conversion, decreasing forest canopy and increasing wildfire risk.

  Information/Resources needed:

  - Number of structures not in compliance with International Building Codes in WUI areas.
  - Assessment of future developments and capacity of housing based on current zoning.

- External costs of conversion on ecosystem functions and values are not appreciated or quantified.

  Information/Resources needed:

        - Summary of how land conversion reduces the forest canopy and ecosystem functions and values, including specific geographic locations.
- Lack of canopy-friendly infrastructure in public spaces reduces the ability to expand canopy cover.

    Information/Resources needed:

        - Methods and materials for communicating with planners and the public about infrastructure compatible with trees, and the species of trees most compatible with infrastructure.

Socio-economic challenges

- Conversions and rezones can reduce the area and quality of forested areas.

    Information/Resources needed:

        - Summary of area and pace of cumulative forest cover reduction due to land conversions and rezones.
        - Ways of aligning codes, zoning, and comprehensive planning to locate additional housing in places that do not reduce forested area or ecosystem services.
- Commodity-based economic pressures drive conversion of land from forest to other uses.

    Information/Resources needed:

        - Projections of where and how land conversion will potentially occur in Whatcom County.
        - Summary of policies and processes that could provide incentives for retaining forest canopy cover in the face of economic pressures.
- More effective coordination and leadership are needed to adaptively manage government systems and processes for retaining forest canopy cover.

    Information/Resources needed:

        - Summary of options for County government to coordinate with agencies and organizations with a common interest in retaining forest lands. This could be developed at a workshop.
- Population growth creates pressure for more access to recreation, elevates wildfire risk, and increases the need for enforcement and management of forest lands.

    Information/Resources needed:

        - An assessment of population growth and priority areas for additional or converted recreational spaces.

6. **Climate change may affect harvest levels, timber volume, tree size, and other factors that influence silvicultural prescriptions.**

Ecological Challenges

- Uncertainty exists about the effects of climate change on forest growth and productivity.

    Information/Resources needed:

        - Synthesis of scientific information on the effects of climate change on tree species and forest ecosystems in northwest Washington.
        - Summary of potential forest management strategies and silvicultural prescriptions that support forest growth and productivity in a changing climate.

- Uncertainty exists about how forest recovery would proceed following long-term droughts and large wildfires.

  Information/Resources needed:

  - Compilation of disturbance scenarios developed by scientific and management experts, as well as pathways for forest recovery. This could be developed in a workshop.

Socio-Economic Challenges

- Funding for forest management research is decreasing, variable, and often subject to political influences.

  Information/Resources needed:

  - List of priority needs for scientific information on climate change effects and forest management

7. **Forest industry faces challenges with stability and sustainability in the long term**

Ecological Challenges

- None identified

Socio-Economic Challenges

- Decreasing, inconsistent access to timber sales and reduced timber volumes continues to stress an already stressed local and regional forest industry.

  Information/Resources needed:

  - Projections of future timber sales and timber volumes to improve planning by forest industry.

- Reduced forest industry infrastructure may lack alignment with supply volumes, size of harvestable trees, and other characteristics of harvested trees.

  Information/Resources needed:

  - Projections of future timber sales, timber volumes, and tree characteristics to improve planning and development of infrastructure by forest industry.

- Forest industry faces challenges associated with capital costs, taxes, and an inconsistent availability of forestry work.

  Information/Resources needed:

  - Assessment of how the forest industry in northwest Washington can maintain profitability in the short term and long term.
  - Summary of options for retaining and growing an experienced workforce.

8. **It has become increasingly difficult to balance economic objectives, management activities, environmental concerns, and regulations.**

Ecological Challenges

- Although forest roads facilitate timber harvest, active forest management, and wildfire mitigation and response, they also contribute to increased water runoff and mass wasting, especially along mid-slopes and adjacent to unmaintained culverts.
- Information/Resources needed:
  - Updated inventory in RMAP (Road Maintenance and Abandonment Plans) of existing roads and their conditions and assessment of priority road relocation and improvements.

Socio-Economic Challenges

School funding tied to timber harvest levels makes it difficult to balance harvest levels with environmental concerns.

Information/Resources needed:

- Develop alternatives to support both school funding and forest resilience.

- The limited area available for timber harvest and environmental concerns and regulations constrains planning and economic stability.

  Information/Resources needed:

  - Assessment of the annual availability of timber volume on public and private lands and likely variation from year to year.
  - Summary of the effects of environmental concerns and regulations on timber harvest, and how they can be addressed while maintaining sufficient timber volume.

- Greater public awareness is needed about the role and benefits of the timber industry in Whatcom County.

  Information/Resources needed:

  - Outline of a community education program to increase understanding of the benefits of active forest management and its influence on forest health.

- Whatcom County tax classifications and "current use" programs have not been updated since the early 1990s and are out of date, unbalanced, and limited in addressing forest management and resilience goals on private land.

  Information/Resources needed:

  - Assessment of current tax law and county regulations to ensure there is an adequate classification for each forest landowner type to incentivize appropriate forest management.

9. **Different classes of landowners have different interests and needs.**

Ecological Challenges

- Conservation goals and production goals often conflict.

  Information/Resources needed:

  - A regular forum for dialogue among different classes of landowners.

Socio-Economic Challenges

- Classes of owners have different priorities and forest management goals.

  Information/Resources needed:

  - A regular forum for dialogue among different classes of landowners.

- Law enforcement against vandalism and destructive recreation is inadequate.

  Information/Resources needed:

  - Assessment of the capacity of law enforcement to be effective, and of priority setting for allocating effort.

10. **Different classes of landowners have differential access to resources**

Ecological Challenges

- Economic imperatives often conflict with sustainable management goals, especially for small private landowners.

  Information/Resources needed:

  - Survey of Washington Farm Forestry Association members or another sample of non-industrial forest landowner concerns.

Socio-Economic Challenges

- Funding for forest management is often inadequate for smaller forest operations.
  Information/Resources needed:
  - Summary of current funding sources and priorities for additional funding.
- Tribes lack resources to meet goals on owned and ceded lands.
  Information/Resources needed:
  - List of organizations that can provide expertise and work at low cost or provide other partnership opportunities.
- Infrastructure for timber production is inadequate or threatened.
  Information/Resources needed:
  - Financial analysis of logging and road contractors, mills, truckers, and other infrastructure providers and workers.

11. **Different classes of landowners have differential access to information**

Ecological Challenges

- External costs and benefits of stewardship activities at different spatial scales are not being quantified adequately.
  Information/Resources needed:
  - Summary of how active management strategies and actions influence ecosystem functions and values.
- Geographic distribution of wildfire risks is poorly understood.
  Information/Resources needed:
  - Map of the geographic distribution of wildfire risks.

Socio-Economic Challenges

- Educational and technical assistance in forest management is inadequate for smaller forest operations.
  Information/Resources needed:
  - List of organizations and people who provide guidance on science-based forest management that is relevant for non-industrial forest landowners.
- A culture of irresponsible forest use exists in some places, including illegal or irresponsible burning.
  Information/Resources needed:
  - Public education about wildfire risks and ecosystem damage.
  - Geographic distribution of “hot spots” of irresponsible use.
- Landowners perceive that County government provides inadequate support for forest management.
  Information/Resources needed:
  - Consultation with relevant forest landowner groups and County staff.
  - Information on how other west-side counties support their forest landowners.
  - A common repository of maps and educational and technical assistance information in forest management that can be easily accessed online by a diverse set of forest landowners.
  - Assess and ensure parity in support for the Whatcom County forest management sector with other important County economic sectors (agriculture, fisheries, etc).

12. **Resources for disaster response are unequally distributed**

Ecological Challenges

- Danger to people and infrastructure is highest and evacuation is most difficult in areas that are highly vulnerable to disasters.

  Information/Resources needed:

  - Updated evacuation plans and maps of evacuation routes.
- Fire prevention efforts are inadequate.

  Information/Resources needed:

  - Assessment of fire prevention needs and funding mechanisms.
- State resources for wildland fire response and resources needed to identify and train response entities are declining.

  Information/Resources needed:

  - Assessment of the funding and funding mechanisms needed to improve fire response.

Socio-Economic Challenges

Disaster-associated communications are most difficult in areas that are most vulnerable to disasters

Information/Resources needed:

Plans for improving access to the Internet and cell provider services in Eastern Whatcom County.

Plans for emergency response are inadequate.

Information/Resources needed:

Updated hazard response plan. (Should be completed in late 2025.)

3. Approach/Methodology

3.1 Plan Development Approach

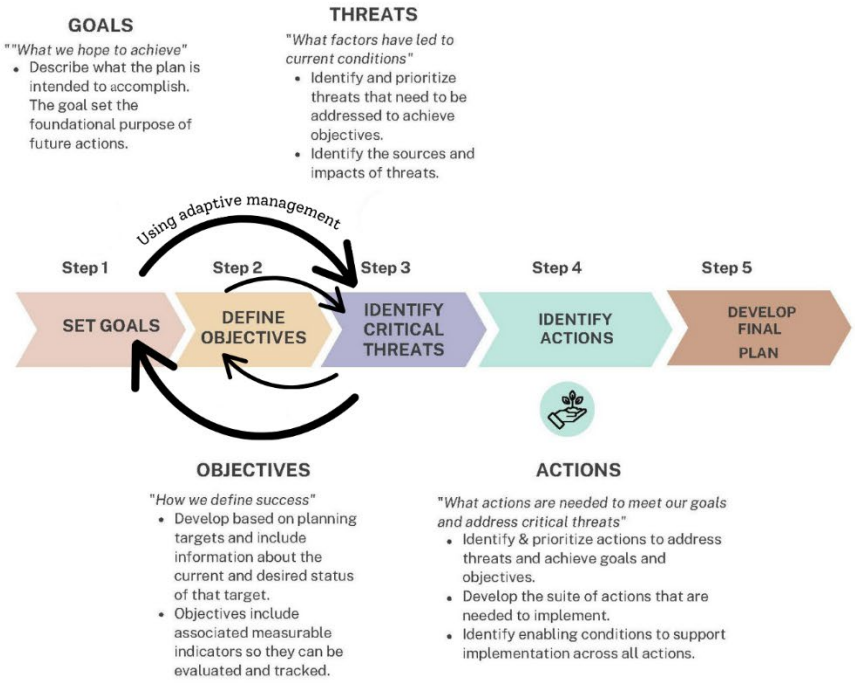

Figure 3. The five steps to develop the Plan collaboratively with the Whatcom Forest Resilience Task Force used adaptive management principles to inform Goals, Objectives and Critical Threats iteratively.

The Whatcom County Forest Resilience Task Force was primarily responsible for developing key components of the Plan including the Goals, Objectives, Actions, and Challenges identified in the following sections of the document. The Task Force received facilitation support from the Project Team, including a subject-matter expert with knowledge in forest management and climate resilience. Through monthly Task Force meetings and regular subcommittee meetings, Task Force members developed the content of this Plan (see Figure 1).

In addition, the Project Team led community engagement to inform the Community Values section of the Plan. The Project Team led two phases of community engagement, which included 11 assessment interviews with key stakeholders and a county-wide online survey completed by 372 respondents. The purpose of this outreach was to incorporate community values into the Plan and solicit input on the process to develop the Plan. The results of this outreach are summarized in Appendix A.

To guide the background and conceptual framework of this Plan, the Project Team reviewed scientific literature and federal, state, and local policies and regulations; this review is detailed in Appendix B.

3.2 Conceptual Framework

Definition of Forest Resilience

For the purposes of this plan, the Task Force defines forest resilience as the capacity of a forest ecosystem to adapt to and recover from natural and anthropogenic disturbances (e.g., temperature and precipitation changes, wildfires, insect and pathogen outbreaks, logging, economic development, policy changes, and changes in cultural perception) and retain basic ecosystem structures, functions, and services. *Structures* are horizontal and vertical distribution of layers of trees, shrubs, and ground cover, including living and non-living elements (vegetation, woody debris, soils). *Functions* are ecological processes provided by forests, including vegetative productivity, nutrient (including carbon) cycling, hydrologic cycling, water supply, and habitat provision for biodiversity. *Ecosystem services* are benefits provided to people, including timber, food, water supply and purification, flood control, soil conservation, climate regulation, carbon sequestration, clean air, recreation opportunities, and spiritual values.

Importance of Forest Resilience

Forest resilience is a key component of long-term sustainable forest resource management, ranging from short-rotation even-aged harvest forestry to preservation (Innes and Tikina 2017, Falk et al. 2022), especially as the effects of climate change become more prominent (Thompson et al. 2009). The continual presence of forested landscapes and the ecosystem services they provide can occur across a broad range of management objectives (Churchill et al. 2013). Both public and private forests are subject to laws and regulations that support resilience and sustainability.

Several scientific principles are relevant for developing a strategic approach to forest resilience:

- Due to climate change, future resilient forests will differ from pre-colonial Pacific Northwest forests.
- Forests are dynamic — Species abundance and distribution, age classes, structures, and spatial patterns change over space and time (Churchill et al. 2013, McDowell et al. 2020).
- Ecological disturbance is an inherent component of forest ecosystems — Droughts, native insects and pathogens, and (occasional) wildfires are a normal occurrence in forests on the west side of the Cascade Range (Halofsky et al. 2020).
- Biophysical stressors are an inherent component of forest ecosystems — Low soil moisture, extreme temperatures, high winds, and inter-tree competition can reduce tree vigor and growth at various temporal scales. Non-native insects, pathogens, and plant species that are well-established can exacerbate stress.

- Connectivity promotes integrity and resilience — Continuity of forest habitat across the landscape is beneficial for native vegetation, wildlife, and hydrologic function. Fragmentation of forests by timber harvest, urban development, agriculture, and infrastructure (e.g., utilities) has reduced resilience at both large and small spatial scales (Haddad et al. 2015).

- Diversity and complexity are prominent features of forests — Multiple tree species (and other flora and fauna) across topographically and hydrologically diverse landscapes are the norm. Genetic diversity within native species has facilitated survival over thousands of years, contributing to current levels of biodiversity.

- Functional diversity may be more important than species diversity — Variability in forest structure (age classes, stem density, canopy patterns) promotes resilience to stressors. Although ecological restoration often focuses on species, structural characteristics are often the key habitat features for flora and fauna, regardless of dominant species (Domke et al. 2023, Chen et al. 2025).

Forest resilience can be maintained and improved through conservation of biodiversity in protected areas (Thompson et al. 2009), restoration of degraded forest landscapes, application of less-damaging forest management prescriptions, use of best practices in timber harvest (Cristan et al. 2016), implementation of agroforestry and urban forestry systems, and community-based forest management (Innes and Tikina 2017). The benefits of resilience include preservation of biodiversity (Thompson et al. 2009), production of wood products and other resources (Nabuurs et al. 2007, Malmsheimer et al. 2011, WADNR n.d.), soil and water conservation (Domke et al. 2023), water supply, carbon sequestration and climate change mitigation (Ganguly et al. 2020, Nabuurs et al. 2007, FCDV n.d.), sustainable recreation opportunities (Sgroi 2020), and financial support for local communities (Allen et al. 2025).

Figure 4. A view of Baker River in Whatcom County. Photo credit: T. Abe Lloyd.

Goals, Objectives, and Actions

The following goals, objectives, and actions identify a range of priorities to address the challenges identified in this Plan and strengthen the resilience of Whatcom County forests. Recommendations include providing economic benefits, maintaining ecological health while facing climate change, helping land managers steward forests, and expanding wildfire risk management and emergency response activities. Due to time constraints, the recommendations included here are not prioritized, nor are they exhaustive. Some challenges identified in the Challenges section have not been addressed in this section. The Task Force encourages the County and partners to build on this work by prioritizing these and other recommendations that may come later.

Goal 1: The Whatcom County forest management community works to strengthen forest resilience and provide direct and indirect economic benefits.

Objective 1: Maintain a prosperous timber industry, working forest land base, and associated socioeconomic benefits.

1. **Action**: Conduct assessments to characterize the economic sustainability of Whatcom County's timber industry and implement sustainability-focused policies and incentives. Assessment elements include the state of the timber base in Whatcom County, understanding and responding to forest land-conversion pressures, and building a vision

for a sustainable Whatcom County forest industry that is innovative and comprised of traditional and non-traditional forest products.

2. **Action**: Identify and recommend investments to maintain a robust and competitive forest industry, including diversified opportunities for workforce development and timber industry infrastructure. (Also see Goal 1, Objective 3, and Goal 4.)
3. **Action**: Explore and implement creative approaches to diversifying the harvestable forest land base, including non-industrial lands, to sustain Whatcom County forest industry.
4. **Action**: Consider emerging wood-product technologies by partnering with Skagit and Snohomish Counties and the Darrington Wood Innovation Center to develop and implement value-added wood products. Set an example by using locally-sourced lumber for all County building projects and, where appropriate, replace steel with mass timber.
5. **Action**: Hire forest-industry vendors, consultants, and businesses to inventory timber, plan forest treatments, and assess associated infrastructure (e.g., roads) on Whatcom County public lands. Explore and support industry diversification to provide these services to landowners and communities managing non-industrial forest land.
6. **Action:** Assess how proposed changes to forest management may negatively impact school funding, and work with other entities and legislators to find methods to equitably address those impacts.

Objective 2: Maintain, improve, and develop sustainable recreation opportunities that deliver economic and health benefits to local communities.

1. **Action**: Assess current and proposed recreational opportunities dependent on forest lands, the spiritual, health and economic benefits they provide, and potential conflicts with other forest-related benefits.
2. **Action**: Assess current impacts of allowing open access on forest lands for recreation (dumping, fires, unauthorized trails and encampments) and identify possible solutions and actions in collaboration with local tribes and stakeholders.
3. **Action**: Partner with tribes on identifying and reducing impacts of recreation to tribal treaty rights in usual and accustomed grounds and stations, including shared increase in enforcement and planning, developing a social media campaign, and identifying priority public recreational areas across the county.
4. **Action**: Identify and create funding mechanisms and invest in recreational development and maintenance to manage the growing demand for recreational access in Whatcom County in a sustainable way.
5. **Action**: Develop a long-term management plan for recreational use and impacts, including a framework for continued coordination, establishing milestones, adapting to changes, and ensuring transfer of knowledge during staff or landowner changes.

Objective 3: Support economic development that benefits both industrial forest and small forest landowners by attracting investments, maintaining a skilled workforce, and supporting ecological sustainability and human well-being.

1. **Action**: Assess the economic sustainability of forest management on all forest land in Whatcom County that is subject to industrial forestry. Assessment should focus on short-term and long-term industry sustainability outcomes.
2. **Action:** Diversify forest economic and cultural benefits, including non-timber forest products such as harvesting by the floral industry.
3. **Action:** Develop and fund community forests on private forest lands that can be specifically managed for forest resilience, economic activity, and innovative forest products.
4. **Action:** When appropriate, promote and expand the use of local forest management and logging businesses on Whatcom County land and on non-industrial forest lands.
5. **Action:** Explore and develop forest-industry careers through training, internships, job-skills development, and other employment opportunities.

Goal 2. Whatcom County forest landowners actively manage forest land for resilience to climate-related impacts to provide healthy forests and sustainable ecosystem services.

Objective 1: Prioritize and incentivize forest health treatments on landscapes with the highest risk from wildfires, insects, and diseases.

1. **Action:** Identify areas currently damaged by insects and diseases and develop a management plan to address them.
2. **Action:** Develop wildfire risk maps for the County using advanced modeling techniques on fire behavior that include climate forecasts for Whatcom County, in addition to site-specific information such as soil type, fuel load, aspect, etc., to identify areas of high risk of wildfire initiation and spread. Provide an updated risk map to forest land managers and residents every 10 years.
3. **Action:** Design harvests and reforestation to increase diversity in tree species and age, and to create natural firebreaks to reduce wildfire spread and damage.

Objective 2: Conserve biodiversity and enhance the habitats of native fauna, flora, and fungi in Whatcom County forests.

1. **Action:** Create and maintain wildlife-corridor connectivity.
2. **Action:** Incorporate greater diversity in forested riparian and wetland habitats to allow for shifts in species distribution and ensure ecosystem resilience.

3. **Action:** Minimize impacts on forest soil resources to promote a diverse and healthy fungal community during harvest, slash management, and replanting.

4. **Action:** Reinvest staff time and resources in the County's Wildlife Advisory Committee so they can regularly meet and advise.

Objective 3: Manage forest structures to promote adaptation to climate change.

1. **Action:** Manage the structure of Whatcom forests as appropriate to increase resilience to climate change and maintain production of ecosystem services.

    a. Tailor reforestation plans to the specific climate risks of Whatcom County, focusing on the use of species and populations that can withstand local future conditions.
    b. Use predictive climate modeling to select specific genetic strains of trees that are better suited for future warmer and drier conditions.
    c. Where possible, move away from monoculture plantations and toward diverse, native species that are naturally better suited to changing conditions.
    d. Where appropriate, accelerate natural regrowth by thinning and removing competing invasive species and preparing the site to encourage native tree seedlings to thrive on their own.

2. **Action:** Designate high-value habitat areas, corridors that enable climate-induced species migration, and critical areas of habitat connectivity to maintain larger, undisturbed tracts of intact ecosystems and connections between them.

3. **Action:** Include carbon storage, sequestration capacity, and key ecosystem services when considering climate resilience and developing management plans for specific forest tracts.

Objective 4: Enhance forest watershed health to (1) maximize soil moisture and dry-season stream flows and (2) reduce wet-season peak streamflows and floods.

1. **Action:** Conduct a feasibility study to evaluate the economic costs/benefits and climate resiliency of silvicultural systems that can increase late summer and fall streamflows. Examples may include studying rotation ages based on site quality and species, conserving mature and old-growth stands, and using uneven-aged management, thinning, and/or gap cuts in the snow zone. Include an analysis of the economic value of increased water availability for instream and out-of-stream water uses.

2. **Action:** Develop forest policy and silvicultural and harvest practices to promote dry-season stream flow and reduce impacts from winter peak-flow events.

3. **Action:** Use tools including thinning and gap cuts in the snow zone, and uneven-aged management to facilitate late-season streamflows.

4. **Action:** Maintain mature forest cover on and around wetlands and headwater areas and significant watershed features that promote climate resiliency.

5. **Action**: Monetize (and/or provide economic incentives) to increase summer streamflow actions through a payment for watershed services (PWS) program to provide incentives for the forest landowners to adopt changes in forest harvests that are less damaging to ecosystem services. (Also see goal 3, objective 3, action 4. Consider applying financial incentives to other ecologically beneficial practices.)
6. **Action**: Where possible, reconnect floodplain areas to reduce peak flows.
7. **Action**: Promote management of lowland and upland forested areas and road infrastructure to minimize the impacts of increased frequency and magnitude of winter flood events and mass wasting. Reconnect floodplain areas to reduce peak flows.
8. **Action:** Work with landowners to install and manage effective stream buffers to offset the increased heat loading and temperature exceedances caused by climate change, considering factors such as buffer width, tree height, etc.

Objective 5: Create a Whatcom County forest management program.

1. **Action:** Describe the capabilities and limitations of the County to manage forest lands under climate change and recommend how the County can address climate impacts.
2. **Action:** Develop a revenue stream from forestry practices or recreation on County-owned lands to support a forest ecologist/forest manager to provide stewardship activities of these forests and advise small forest landowners. This person will work closely with watershed planning and climate action activities.
3. **Action:** Use science-based knowledge and projections of climate change for Whatcom County as a basis for managing County forests.
4. **Action:** Set aside some County-owned forestlands and community forests as laboratories to explore innovative management strategies that facilitate forest resilience and ecosystem services.

Objective 6: Increase active management of forests across Whatcom County to promote climate resilience.

1. **Action:** Protect and conserve forested areas with structures and ecosystem services that support forest and community resilience to climate change.
2. **Action:** Fund community forests on private forest lands that can be specifically managed for forest resilience.
3. **Action:** Where appropriate, encourage managed forests with older average tree ages.
4. **Action**: Discourage clearcut harvests in the forested areas associated with development actions such as short plats and long plats.

Goal 3: All sectors of forest landowners manage forests for resilience while meeting their individual needs and priorities.

Objective 1: Develop a framework for engagement and coordination across all sectors—local, state, federal, and tribal governments; industry representatives, including foresters, harvesters, and producers; and other stakeholders on forestry issues. The framework will include protocols and guidelines for implementing active forest land stewardship, management, and resilience strategies.

1. **Action**: Coordinate forest stewardship activities with Nooksack Indian Tribe and Lummi Nation and support their priorities associated with treaty rights and ongoing access to usual and accustomed areas and stations.
2. **Action**: Coordinate forest stewardship activities with the WA DNR Forest Health Advisory Committee and implement actions aligned with recommendations from the Western Washington Forest Resilience Division.
3. **Action**: Collaborate with state and federal forest land management agencies, large forest landowners, and tribes to align land management policies for large-scale forest resilience and ecosystem services.
4. **Action**: Coordinate additional shared enforcement for landowners to manage and mitigate negative human impacts on forests and navigable waterways adjacent to forest lands.
5. **Action:** Develop a study to assess potential impacts of cumulative pesticide use on forest health.

Objective 2: Build an alliance between Whatcom County and the Nooksack Indian Tribe and Lummi Nation to align the priorities of the Plan to honor treaty rights and support ongoing access and use of usual and accustomed areas and stations.

1. **Action**: Convene and facilitate an annual summit with forest landowners and tribes to ensure access to usual and accustomed places and coordinate land management activities.
2. **Action**: Ensure a communication framework for regular and ongoing coordination and timely responsiveness on critical resource management issues.
3. **Action**: Integrate science-based knowledge and indigenous knowledge (i.e. two-eyed seeing) in Whatcom County-led forest management programs and projects to support and protect cultural landscapes for biodiversity, including fish and wildlife corridors, open and forested wetlands, spawning and nesting areas, and foraging and canopy habitat.
4. **Action**: Coordinate and develop a shared Plan to ensure appropriate enforcement of rules and regulations across jurisdictions.

Objective 3: Retain forest land in a forested condition and increase forest cover through stewardship and incentive programs and by reducing conversion and rezoning to other uses.

1. **Action**: Reduce conversion and rezoning of forested areas that result in cumulative loss of forest cover in Whatcom County.
2. **Action**: Explore and develop a diverse range of incentive systems to broadly encourage stewardship-focused practices and promote long-term sustainability and resilience across the Whatcom County forested landscape
3. **Action**: Promote and provide education, technical assistance, and cost-share services to forest landowners on retaining and managing forests and increasing forest cover where practicable.
    a. Partner with the Whatcom Conservation District and WA Dept of Natural Resources Small Forest Landowner Office to deliver stewardship programming and assistance to forest landowners.
    b. Identify high-priority areas for small forest landowner technical assistance and financial incentive programs and market services to landowners not already accessing currently available programs.
    c. Bring Washington State University Puget Sound Extension Forestry programming to Whatcom County landowners.
4. **Action**: Update the Whatcom County Open Space Policy and Criteria and Public Benefit Rating System (PBRS 1995) to increase enrollment of non-industrial private forest land, small-acreage forest land, and small-acreage wooded open space in Whatcom County PBRS.
    a. Add new “Approval” and “Basic Value” criteria to the Whatcom County PBRS Open Space/Open Space category for “forest stewardship land” and “rural open space.”
    b. Create a new fee for these new categories. The fee will be lower than the current PDS fee for “Open Space and Farm & Ag Conservation Land,” and the fee for “Open Space and Farm & Ag Conservation Land” will be lowered for parity.
    c. Add new “Public Benefit Value Criteria” to award points for “conservation easement”, “contiguous parcels under separate ownership”, and “resource restoration.”
    d. Add other PBRS categories, as needed, to promote enrollment of more small-acreage resource lands and forested land that are not eligible for “Agricultural” or “Designated Forest Land” current use.
    e. Modify the Whatcom County Public Access Policy to encourage broader enrollment in PBRS, such as including a range of public access options that earn points, and where

the range could be “unlimited” access with the maximum points, to “limited” access or “education” access with lower points, to “no” access with zero points.

5. **Action**: Develop and make available local, state, and federal ecosystem-service and carbon-market programs and empower forest landowner participation. Explore building on current pilot projects, such as the Janicki Logging/Carbon Lock Down Carbon Vault Project, and Bonneville Environmental Foundation/Whatcom Conservation District City Forest Credits project.
6. **Action**: Provide educational materials and incentives to landowners who Plan to develop their properties to preserve forest cover on the developed properties (e.g., short plats, long plats, residential development on single lots in rural-zoned areas).
7. **Action**: Assess, describe, and mobilize private-sector industry expertise and assets to support non-industrial forest land management.

Goal 4: Wildland-fire responders, managers, and service providers collaborate to direct community wildland-fire prevention, risk reduction, and emergency response.

Objective 1: Assess and summarize the roles and responsibilities of local wildfire responders and identify information gaps that affect public safety.

1. **Action**: Identify information gaps to improve wildfire response and public safety.
2. **Action**: Build on existing landowner assistance and other programs to support at-risk communities to improve public safety and coordinate risk reduction and emergency-action planning.
3. **Action**: Assess, describe, and mobilize private-sector industry expertise and assets to prepare for and respond to wildfires
4. **Action**: Complete and implement the Whatcom County *Wildfire Response Plan*.
5. **Action**: Continue developing a Whatcom County *Community Wildfire Prevention Plan* for implementation.

Objective 2: Reduce the risk of more frequent and widespread wildfires.

1. **Action**: Educate forest landowners on treatments that buffer forests and aquatic ecosystems from wildfires, increasing vertical and horizontal separation where possible, reducing fuels around homes and other structures and along roads and stand edges, and managing riparian zones.
2. **Action**: Review county ordinances involving building setbacks and lot sizes to ensure compliance with defensible-space best practices and to ensure alignment with the FireWise USA program. Ordinances should be updated where appropriate.

3. **Action**: Ground-truth new Whatcom County DNR WUI maps for accuracy when applying the latest International Building Codes for WUI.
4. **Action**: Use County wildfire risk maps to prioritize stewardship and fire-resilience planning and wildfire resources to decrease response times and minimize economic damage.
5. **Action**: Implement forest stewardship and community wildfire resilience planning on all forested lands in Whatcom County. Coordinate planning across different land uses and ownership boundaries.
6. **Action**: Inventory and analyze road access on Whatcom County public lands and in WUI areas for fire response readiness and potential fire breaks in vulnerable and priority areas.
7. **Action**: Utilize forest industry businesses to plan and implement fire risk management practices on Whatcom County public lands and explore and promote similar industry-delivered fire risk management services to small forest landowners and high-risk communities.
8. **Action**: Explore using proceeds from forestry activities on Whatcom County-administered public land to implement fire-risk assessments and invest in risk-management infrastructure.
9. **Action**: Update the Whatcom County Comprehensive Plan to include maps that address wildfire risks.

Figure 5. Understory tree planting. Photo credit: Brandy Reed.

Existing Forest Management Resources in Whatcom County

Existing forest management in Whatcom County depends on collaborative management among a wide range of programs and landowners to sustain the ecological health of local forests, respond effectively to emerging management concerns and support the commercial timber industry. The County forest management landscape is shaped by a wide range of resources and partners, including programs and services provided by Whatcom County government, tribal governments, municipal governments, state and federal agencies, other government agencies and entities, private landowners, and nonprofit organizations. Together, these entities bring diverse expertise, tools, and strategies that help balance ecological, cultural, economic, and recreational priorities in stewarding the region's forested lands.

5.1 Whatcom County Departments and Advisory Committees

- **Forestry Advisory Committee** —The Forestry Advisory Committee (FAC) provides review and recommendations to the Whatcom County Council on issues that affect the forestry industry. The Forestry Advisory Committee also provides a forum for all sectors of the forestry community to contribute to discussions on the future of forestry in Whatcom County. There are 17 FAC members. Ten members are appointed by the County Council, representing citizens with forestry experience, commercial forest landowners, forest product manufacturers, harvesters, and small forest landowners. The remaining seven members represent agencies.
- **Planning Commission** —The Planning Commission works with County Planning and Development Services to provide recommendations on implementation of the Comprehensive Plan. The Commission includes representatives from the development, environmental, business and industry, agricultural, forestry, mineral and/or aquatic resources industries.
- **Wildlife Advisory Committee** —The Wildlife Advisory Committee advises County Planning and Development Services on topics related to wildlife and habitat management as they relate to the Comprehensive Plan. The goal of the committee is to integrate wildlife management and protection into existing planning processes. The committee last met on February 9, 2024.
- **Climate Impact Advisory Committee** —The Climate Impact Advisory Committee advises the Whatcom County Council and Executive on topics related to climate impacts, adaptation and mitigation strategies, and educates the public about climate change and climate action. Committee representatives include those with educational and/or professional expertise in subjects related to climate change, renewable energy

development, energy conservation, human health, forestry, farming, fisheries, food security, land-use planning, and flood mitigation and planning.

- **Lake Whatcom Management Interjurisdictional Coordinating Team** —The Lake Whatcom Management Interjurisdictional Coordinating Team (ICT) is a collaborative group that coordinates activities and programs among the three jurisdictions responsible for managing Lake Whatcom: the City of Bellingham, Whatcom County, and the Lake Whatcom Water and Sewer District. The ICT plays a critical role in the implementation of the Lake Whatcom Management Program (LWMP), which aims to protect and enhance the lake's water quality, manage water quantity, and address environmental challenges in the watershed. The ICT roles and responsibilities are coordination across jurisdictions, development of work plans, monitoring and progress review, policy implementation support, and promotes consistency across agency programs and public engagement efforts.
- **County Parks and Recreation** —The Whatcom County Parks and Recreation Department is actively involved in forestry issues, particularly in the management and stewardship of thousands of acres of forested parklands and natural areas. Key roles and activities include forest management planning, stewardship of forest preserves, and providing a balance between recreation and conservation on forest lands.
- **Conservation Futures Fund** —The Conservation Futures Fund, managed by the County Executive's Office, plays a significant role in addressing forestry issues by funding the acquisition, preservation, and management of forestlands. Primary forestry-related activities include protecting working forest lands, supporting conservation easements, enhancing climate resilience, promoting public use and recreation, and balancing economic and conservation (e.g., restoration) goals.
- **Conservation Easement Program** —The Whatcom County Conservation Easement Program (CEP) protects lands, including working forestlands and wildlife habitat. The program reduces the conversion of forestlands to non-forestry uses, supports forestry enterprises, enhances ecosystem integrity and health, provides compensation to voluntary participants based on the appraised value of the easement, and works with partners, such as the (e.g., Whatcom Land Trust) to annually conduct monitoring that ensures compliance with terms.

5.2 Whatcom County Regulations and Policies

- **Comprehensive Plan** — The Forest Resource Lands section of the Resource Lands chapter covers a broad planning context relative to forest lands in Whatcom County, including designation and conservation of forest resource lands, long-term commercial significance of different lands, historical information, current-use taxation programs, trends in the forest land base, diverse management goals by different owners, county goals for retention of forest lands, and opportunities to promote working forest lands and timber

production. The chapter includes many goals and policies intended to maintain the diverse character of forest lands in the County.

- **Critical Areas Ordinance** — This ordinance is a set of regulations designed to protect environmentally sensitive natural resources within the County. It is enacted under the Growth Management Act (GMA) and codified in Whatcom County Code (WCC) Title 16.16. It applies to geologically hazardous areas, frequently flooded areas, critical aquifer recharge areas, wetlands, and fish and wildlife habitat conservation areas. The ordinance aims to preserve the ecological functions and values of natural environments while protecting public health, safety, and welfare. It regulates land-use and development activities that occur within or near designated critical areas to prevent adverse environmental impacts.
- **Shoreline Management Program** —This is a set of local policies and regulations, codified as Whatcom County Code Title 23, that governs the use, development, and protection of shorelines within the County. It implements the goals and requirements of the Washington State Shoreline Management Act at the county level. The program aims to protect and preserve the ecological functions and values of shorelines, including marine, lake, and stream shorelines as well as associated wetlands and floodways. It seeks to balance environmental protection with public access, recreation, and responsible economic development along shorelines. The program is designed to prevent unregulated or inappropriate development that could harm shoreline resources and public welfare.
- **Class IV Conversion regulations** — The Class IV Conversion process in Whatcom County involves obtaining a permit to convert forestland to non-forestry uses, such as residential or commercial development. This process is regulated under the Washington State Forest Practices Act (Chapter 76.09 RCW) and Whatcom County local codes. Key steps in the process are applicability, permit requirements, critical area regulations, and coordination with agencies.
- **Climate Action Plan** — The Climate Action Plan guides the County government and informs stakeholders and the public about measures that need to be taken to mitigate greenhouse gas emissions and adapt to current and projected climate change. The Forests chapter of the Plan provides specific information about how forest practices can store and sequester carbon and about how forests can be managed to adapt to climate change.

5.3 Tribal Governments in Whatcom County

- The **Lummi Nation** and **Nooksack Indian Tribe** are the original stewards of Whatcom County lands. The Point Elliot Treaty of 1855 ensures the tribes the right to participate in regional forest planning, restoration, and climate adaptation. As sovereign nations, the tribes should be engaged as Co-Managers in forest-related decision making. Tribes outside of Whatcom County can engage in decision making based on their interests.

5.4 Other Government Agencies and Entities

- **City of Bellingham** —The City of Bellingham (City), which manages over 9,000 acres of urban forest canopy and over 3,500 acres of forest canopy in the Lake Whatcom Watershed, is a proud Tree City USA. The City recognizes the importance of forests in the *Comprehensive Plan* as well as goals set in Bellingham's *Climate Protection Action Plan*. The City participates in the Lake Whatcom Watershed Management Program, and in 2001 began the *Lake Whatcom Land Acquisition and Preservation Program* to purchase and steward available land in Lake Whatcom Watershed. The levy-funded *Greenways Program* started in 1990 to acquire, protect, and steward City greenways. Several other City programs support forest resilience, including the Restoration, Stewardship, and Mitigation Programs. In 2021, the City began creating an Urban Forest Plan to manage the City's urban forest and has initiated early actions, including creating a Landmark Tree Ordinance and a Community Tree Program. https://cob.org/
- **Port of Bellingham** — The Port of Bellingham manages properties with street trees, wooded parks, and forested open spaces. The Port's Climate Action Strategy includes supporting healthy natural systems in and around Port properties. The Port's recent partnership with the Whatcom Conservation District, with funding from the WA DNR Urban and Community Forestry Program, completed a tree canopy assessment and tree inventory, which the Port will use to develop a plan for managing the long-term health and maintenance of these green infrastructure assets. https://www.portofbellingham.com/
- **US Forest Service (USFS) and National Park Service (NPS)** — The USFS and NPS manage the largest sections of forest in Whatcom County. https://www.fs.usda.gov/ and https://www.nps.gov/index.htm
- **USDA Natural Resources Conservation Service (NRCS)** — The NRCS provides technical support and cost-share to support conservation of natural resources on agricultural and forest lands. https://www.nrcs.usda.gov/
- **WA Department of Ecology** — The Department of Ecology evaluates whether forest practices rules protect fish, wildlife, and water quality by conducting effectiveness monitoring studies on industrial timberlands, delivers science-based recommendations and technical assistance to the *Forest Practices Adaptive Management Program*, monitors air quality, and forecasts wildfire-associated smoke levels. https://ecology.wa.gov/
- **WA Department of Fish and Wildlife (WDFW)** — WDFW actively manages healthy forests to ensure Washington's natural resources continue to support wildlife populations and local communities for generations to come. Through local partnerships and with support from the state legislature, WDFW uses different management tools to restore forests to historic conditions. https://wdfw.wa.gov/about/wdfw-lands/working-lands/forest-management

- **WA Department of Natural Resources (DNR)** — DNR manages nearly 89,000 acres of forested state land in Whatcom County for multiple objectives, such as habitat conservation, water protection, and providing recreation opportunities while maintaining sources of sustainable revenue in perpetuity. On private, tribal, and public (non-federal) lands throughout Washington, DNR administers the Forest Practices Rules (e.g., timber harvests, road building). DNR supports small landowners through multiple avenues including the Small Forest Landowner Office, Family Forest Fish Passage Program, Urban and Community Forestry program, and a riparian easement program. DNR also serves as the state's largest on-call fire department, collaborating with landowners, fire districts, and the public to prevent and respond to wildfires. https://dnr.wa.gov/

- **WA State Parks** — WA State Parks comprises over 2,900 acres of land in Whatcom County that are managed for outdoor recreation and public enjoyment. https://parks.wa.gov/

- **WA State University Extension Forestry (WSU Extension)** — WSU Extension provides science-based education and resources for owners of forested and wooded property in participating counties. The program offers forestry classes, publications, and online resources that are designed for people with just a few acres of wooded property as well those with larger forested properties and tree farms. https://forestry.wsu.edu/

- **Whatcom Conservation District (Whatcom CD)** — Whatcom CD helps jurisdictions, landowners, and residents steward their forests, street trees, and open space to foster long-term forest health, manage wildfire risk, reduce stormwater runoff, steward wildlife habitat, and improve human health and well-being. WCD Forest Stewardship and Community Wildfire Resiliency programs provide technical assistance, forest stewardship plans, and wildfire safety evaluations; implement forest health projects, fuels reduction projects, and green-infrastructure projects; and help land managers secure other implementation resources. https://whatcomcd.org/programs.

5.5 Private and Non-profit Entities

- **Kulshan Carbon Trust** (KCT) — KCT is a Bellingham-based 501(c)(3) nonprofit that advances natural climate solutions through collaborative carbon conservation and sequestration projects in Northwest Washington. KCT forestry efforts center on its Community Biochar Program, which promotes wildfire hazard fuel reduction thinning and the use of biochar as a safe, low-emission method for woody debris disposal. The program also supports the integration of biochar in replanting efforts, improving soil health, water retention, and seedling survival. By turning excess biomass into a long-lasting soil amendment, KCT helps reduce wildfire risk, sequester carbon, and regenerate local forest ecosystems https://www.kulshancarbontrust.org/

- **Nooksack Salmon Enhancement Association (NSEA)** — NSEA creates partnerships with landowners, tribes, local businesses, volunteers, agencies, and other non-governmental organizations to lead the Whatcom County community in successful restoration, education, and monitoring projects. NSEA is a 501 c(3) community-based, non-profit organization focused on reversing the trend of declining salmon runs in Whatcom County. Salmon are essential to our environment, culture, and economy, nourishing ecosystems and supporting communities for generations. NSEA enhances rivers, creeks, and riparian habitat while educating people of all ages to provide Pacific salmon and steelhead the best chance at survival. https://www.n-sea.org/about-nsea

- **RE Sources** — RE Sources is a 501(c)(3) nonprofit working with community members and decision makers to advance regionally-focused policies and partnerships that build community and climate resilience. RE Sources forests and watersheds programs provide grassroots advocacy tools and technical and legislative support, convene collaborative efforts, and secure funding for community-driven pilot projects related to watershed and forest resilience, a sustainable living-wage economy, and waste diversion and reuse. www.re-sources.org/program/forests-and-watersheds/

- **Sierra Club, Mt. Baker Group (MBG)** — The Sierra Club, started in 1892, is the country's oldest grassroots, volunteer-based environmental protection organization. The Washington State Chapter includes seven local groups. The Mt. Baker Group (MBG) encompasses San Juan, Skagit, and Whatcom Counties. MBG works with regional Sierra Club members and supporters to encourage regionally focused policies and activities that build community, environmental awareness, and climate resilience, including endorsing elected office candidates that work with Sierra Club to address local environmental concerns. Recent forestry efforts include MBG working with other concerned organizations to protect legacy forests, urban forests, and Lake Whatcom drinking water while maintaining trustee funding from local timber sales (e.g., Whatcom schools). MBG also engages in community education efforts, such as its annual documentary film festival at Bellingham's Pickford Theatre, which in 2024 featured "Forests in Focus," four short films regarding forest preservation. https://www.sierraclub.org/washington/mount-baker-whatcom-skagit-sanjuan

- **The Nature Conservancy (TNC)** — The Washington Chapter of TNC partners with local groups to conserve forests and other natural areas throughout Washington. https://www.nature.org/en-us/

- **Whatcom Land Trust (WLT)** — Whatcom Land Trust is a 501(c)(3) nonprofit and nationally accredited land trust working to conserve and care for Whatcom County's wild and working lands forever. WLT protects vulnerable lands, preserves intact working farmland, forests, and functioning habitat; restores degraded habitat; adaptively manages lands; and engages community members and partners in conservation actions and stewardship. https://whatcomlandtrust.org/

- **Whatcom Million Trees Project (WMT)** — WMT spurs positive action for trees and forests that will enhance community health, equity, biodiversity, and resilience in this era of rapid climate change. WMT plants native tree seedlings in public-purposed land and at-risk neighborhoods that other entities do not restore. WMT protects mature trees in urban neighborhoods and key watersheds via advocacy, awareness, and removal of invasive species. https://whatcommilliontrees.org/

Collaboration Framework

The success of any forest resilience strategy will depend on strong, sustained collaboration across all sectors. The Task Force recommends that the County establish a collaboration framework to leverage and effectively engage all partners with an interest in sustainable and resilient forest management. This Plan recommends several actions for collaborating across the many partners involved in forest management in Whatcom County. (See Goal 1, Objective 2, Action 3; Goal 3, Objective 1, Actions 1 through 4; and Goal 3, Objective 2, Actions 1 through 2.)

Collaboration is most effective when it builds upon existing expertise, authorities, and community infrastructure. All partners described under the *Existing Resources in Whatcom County* section of this Plan can play an active role in the on-the-ground implementation of a collaboration framework. By leveraging existing County programs and building strong multi-sector partnerships, Whatcom County is well-positioned to lead a collaboration framework in forest resilience planning and management that supports people and ecosystems for the long term.

The Task Force recommends using adaptive management processes such as regular evaluation of progress, opportunities to revise strategies, and integration of new data and stakeholder input to ensure successful collaboration outcomes over time.

6.1 Mechanisms for Collaboration

The following are some of the available mechanisms to effectively collaborate across the partners described under the *Existing Resources in Whatcom County* section of this Plan.

1. **Forest Resilience Working Group**:
   Organize a cross-sector forum with representatives from diverse forest interests such as private forestry, recreation development, and conservation to align goals, share information, develop joint funding proposals, and coordinate implementation efforts.
2. **Formal Agreements and MOUs**:
   Develop legal agreements among governments, tribes, and organizations to formalize roles and collaborative commitments.

3. **Technical and Capacity Support**:
   Utilize County staff, advisory committees, and programs to support implementation, permitting, monitoring, and landowner outreach.
4. **Community Forest Partnerships**:
   Evaluate, and when appropriate, promote and expand models like the Stewart Mountain Community Forest to provide accessible, co-managed forest lands with shared social, ecological, and economic benefits.
5. **Data Sharing and Monitoring**:
   Strengthen monitoring networks and transparency in reporting to support adaptive management and public accountability.
6. **Integrated Planning**:
   Align forest resilience goals with climate, water, hazard mitigation, species recovery, recreation, and land-use plans to maximize synergy and avoid conflict.
7. **Public Engagement and Outreach**:
   Ensure residents, landowners, and community groups are informed and invited to participate in shaping forest futures.

Proposed Next Steps

Figure 6. View of Douglas Fir forest understory habitat at Blanchard Mountain. Photo credit: T. Abe Lloyd.

The Forest Resilience Plan is designed as a guide to future steps that the County, Tribes, and Stakeholders can take to promote the resilience of Whatcom County forests. Additional input and collaboration are recommended to implement the recommendations in the Plan. The Task Force suggests the following steps to begin that work:

- Solicit comments from interested commissions and advisory committees that have not commented so far, including the Planning Commission, Parks and Recreation Commission, Wildlife Advisory Committee, and Climate Impacts Advisory Committee.
- Continue government-to-government consultation with the Lummi Nation, Nooksack Tribe and other Tribes with interest in Whatcom County forest management practices and planning.
- Establish a mechanism and time frame to receive comments from the public on the Plan.
- Seek comments and recommendations from the County Executive's Office.
- Establish a new committee focused on Plan implementation. Committee composition should include representatives from County Staff, the Task Force, and the Forest Advisory Committee. Subject to the availability of funds, the committee should:
    1. Review and incorporate appropriate comments from commissions and committees, Tribes, the public, and the Executive's Office.
    2. Identify and prioritize early actions that will contribute significant progress toward implementation of the plan.
    3. Complete a review of available staffing and funding resources to advance recommended early actions.
    4. Recommend governance and management mechanisms to advance early-action forest management priorities by County government.
    5. Draft an implementation Plan and budget for the recommended early actions.
- Formally adopt the Plan through a Council resolution.
- Publish and distribute the Plan and any associated reports.

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Appendices

Appendix A. Community Values:

This appendix documents the key findings of the two-phased, community engagement approach, which included 11 assessment interviews with stakeholders and partners, and a county-wide online survey completed by 372 respondents.

Situation Assessment Interviews

The purpose of the situation assessment interviews was to collect input on core values and interests related to Whatcom County forests and solicit feedback on the process for developing the Plan. Triangle staff completed interviews with 11 stakeholders identified by County staff, Task Force members, and interviewees. These results from the interviews helped shape the questions for the Forest Resilience Community Survey.

Values and Interests of Interviewees

Interviewees noted that the values and purposes of forest in Whatcom County include supporting employment through the timber industry, contributing to healthy ecosystems, including wildlife habitat, conservation of healthy ecosystems, and providing recreation opportunities for residents. Some interviewees spoke specifically of a "love for the land" tied to multi-generational management of private timber land in the County. In addition, some interviewees spoke about the importance of forests to Tribal members who have been present in the Whatcom County region from time immemorial.

"We invest our time and money in the farm on trees that we will never see the financial return on in my generation. I am not doing it for me, I am doing it for future generations, not just my own but for the benefits to society too."
- Assessment Interviewee

Challenges to Achieving Forest Resilience

When asked about how to achieve forest resilience in Whatcom County, interviewees highlighted key challenges, including fragmentation of forest land, recreation misuse, lack of adaptive management, and climate change impacts and risks. Some interviewees also expressed concern about the role of the County in forest management in general, given the County's limited capacity and expertise. Interviewees identified fragmentation and changes in land use as threats to preserving existing forest land and increasing canopy cover. With the growing interest in forest recreation (hiking, biking, running, walking, gathering, etc.), interviewees noted that land managers need to proactively regulate these activities to reduce potential harm to forest ecosystems. Some interviewees expressed support for adaptive management to help manage the impacts of climate

change, noting that strategies such as diversification of plantings and longer rotation periods are tools to build resilience to fire risk, drought, and rising temperatures associated with climate change.

In general, interviewees supported maintaining a sustainable timber industry in Whatcom County. Interviewees spoke of challenges facing the timber industry, including a lack of local mill capacity, skilled workforce, and transportation infrastructure.

"The 'timber basket' of our region is limited by mill capacity [not] by raw materials."
- Assessment Interviewee

Recommendations for Policy and Management Solutions

Interviewees lacked consensus on their recommendations for policy and management solutions to the challenges noted above. Generally, interviewees approached policy recommendations differently based on how they engage most with forests (primarily professionally, recreationally, culturally/spiritually, etc.). For example, some interviewees highlighted a need for shorter timber rotations (35 years) to maintain profitability and meet market demand. Alternatively, interviewees who did not work in industrial timber were more likely to advocate for longer rotations (70 years or more) to support ecosystem benefits, and carbon sequestration.

Similarly, interviewees in the timber industry were more likely to note that the existing environmental regulations in Washington are some of the strongest in the world and are successfully supporting healthy ecosystems. Specifically, interviewees spoke of DNR Forest Practices Rules, which regulate timber harvest in Washington state. Other interviewees expressed a desire for additional protection to preserve old-growth forests, reduce clean cuts, and encourage structural complexity.

Interviewees suggested potential policy solutions including:

- Financial incentives such as conservation easements or carbon credits to landowners who adopt management practices such as delaying harvests or preserving mature forests.
- Tax incentives or subsidies for landowners who commit to longer rotations to (e.g., 70+ years) to improve timber quality, increase carbon sequestration, and promote forest health.
- Policies that encourage investment in local timber infrastructure, including mills, transportation, and skilled workforce training. This will reduce costs and increase local processing capacity.

- Policies that manage recreational access, including off-road vehicles, mountain biking, and trail building.
- Policies that encourage thinning, controlled burns, and insects/disease management to enhance forest resilience to climate change, insects/disease, and wildfire.

Many of these themes are consistent with, and further supported by, the results of the Community Survey. The following section elaborates on the results of the Community Survey.

Whatcom County Forest Resiliency Community Survey

The purpose of the Community Survey was to expand the scope of input on the development and contents of the Plan beyond the assessment interviews and recommendations of the Task Force members. The online survey was open for 32 days and received 372 total responses. Survey questions were informed by the results of the assessment interviews and drafted in collaboration with Task Force members to incorporate their expertise. The survey relied on a convenience sample, relying on publicity and personal networks to recruit any willing participants. A convenience sample does not rely on probability or random selection of participants and thus is not demographically representative of Whatcom County's population or of stakeholders in the County's forests.

Survey Demographics

Overall, the demographics of the survey respondents skewed older, whiter, and more female-identifying than the population. Respondents were also asked about the general area of the county they live in (suburban, rural, urban, or other). Respondents were nearly equally divided among suburban, rural, and urban areas.

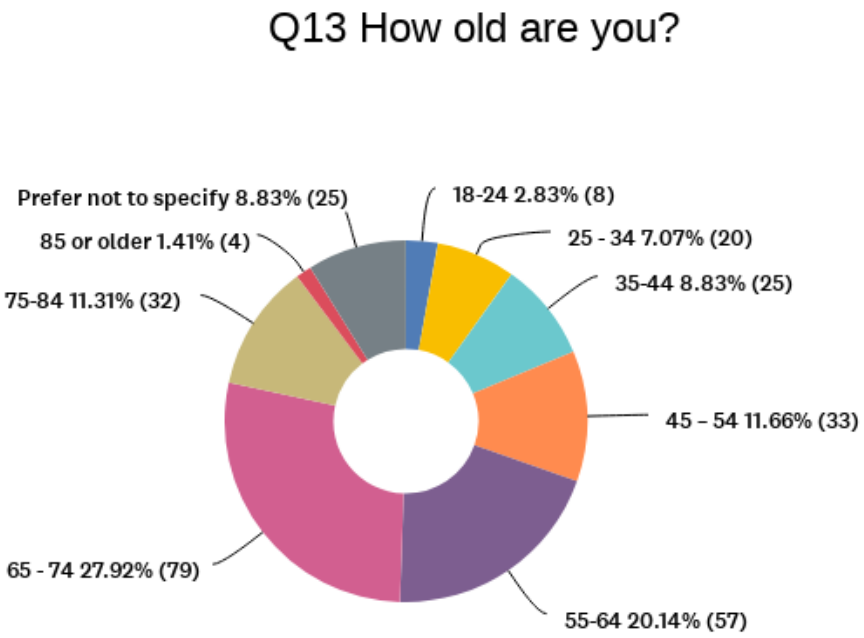

Figure 7. Most respondents, 59%, were 65 years old or older. One fifth, 20%, of respondents were between 55-64 years old. The remaining 20% of respondents were 54 or younger.

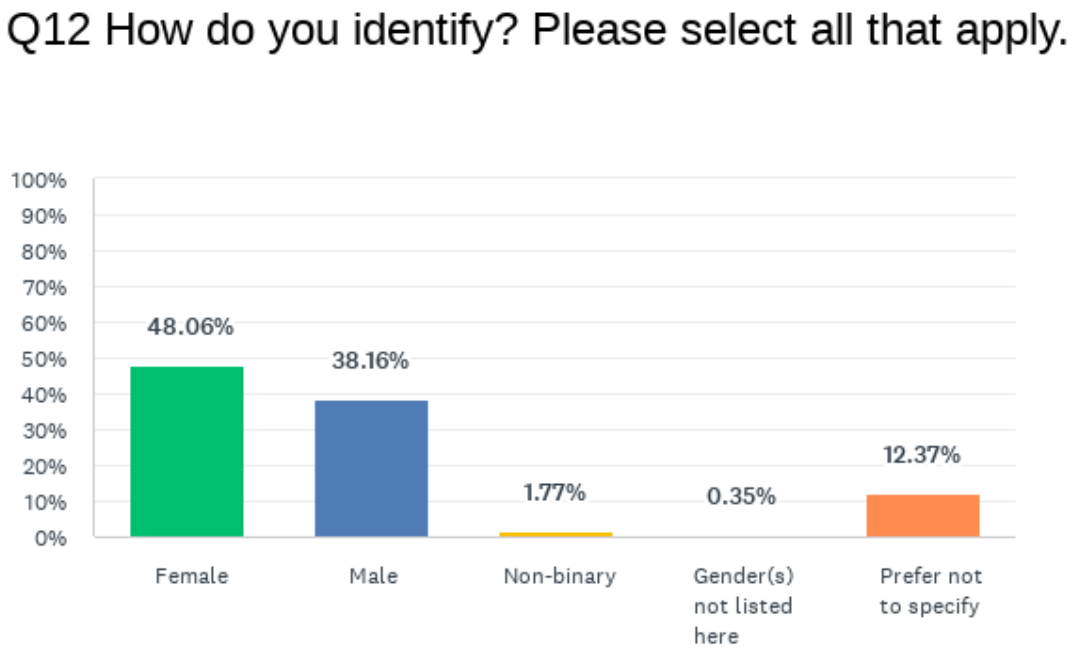

Figure 8. Of the respondents who choose to specify, most identified as female, 48%. 12% of respondents chose not to specify their gender identity.

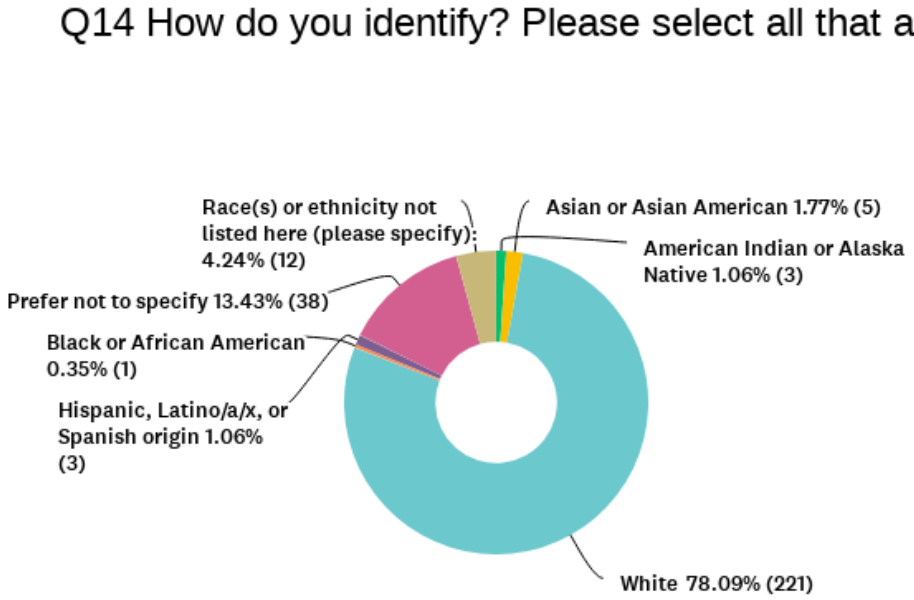

Figure 9. Of the respondents who chose to specify, most identified as white, 78%. 13% of respondents choose not to specify their race/ethnicity.

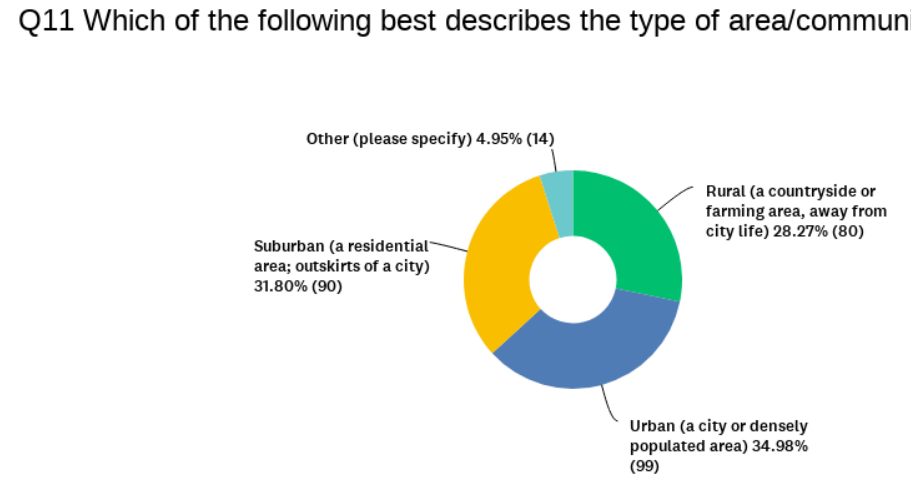

Figure 10. Respondents were nearly equally distributed among suburban, rural, and urban areas when asked where they live in Whatcom County, with the most in urban areas (35%).

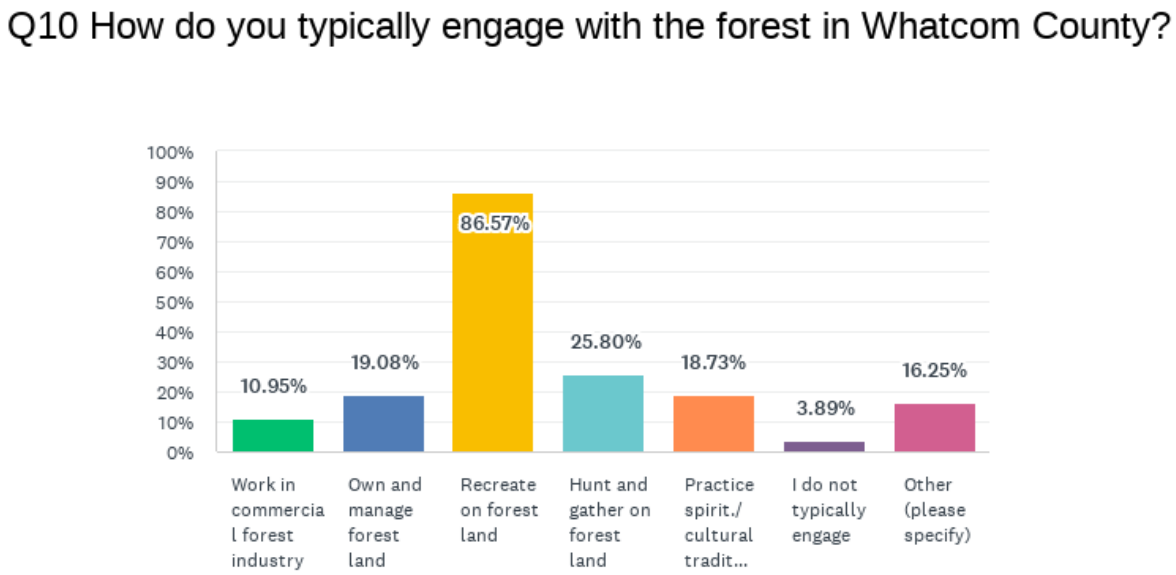

Figure 11. Most respondents engaged with the forest through recreation (86%) followed by hunting and gathering (26%). Respondents were able to select more than one option.

Primary Purpose and Personal Values of Forests

Survey respondents were asked to rank the primary purpose of forests in Whatcom County, with 1 being the most important and 9 being the least important. Overall ecosystem services were ranked as the most important (1) purpose by the most respondents (28%) followed by climate resilience (20%) and fish and wildlife habitat (18%). The following comparisons are a result of filtering the responses based on the respondents' typical mode of engagement with forest in Whatcom County.

- Of the respondents who identified themselves as engaging with the forest through work in commercial forest industry: 25% ranked sustainable forest industry the most important purpose of forests in Whatcom County followed by lumber production (23%) and climate resilience (18%).
- Of the respondents who identified themselves as engaging with the forest through recreation: 31% ranked ecosystem services as the most important purpose of forests in Whatcom County, followed by fish and wildlife (21%) and climate resilience (20%), which aligns with most of the total sample of survey respondents.

Survey respondents were asked to rank what they personally value most about forests in Whatcom County, with 1 being the most valuable and 9 being the least valuable. Overall, ecosystem services were ranked as the most personally valuable (22%) to respondents, followed by recreational opportunities (19%) and habitat for fish and wildlife (18%), which were ranked almost the same.

- Of the respondents who identified themselves as engaging with forest through recreation, 21% identified recreation as the most personally valuable. More of these respondents identified ecosystem services as the most personally valuable (23%).
- Of the respondents who identified themselves as engaging with the forest through work in commercial forest industry, about a quarter (25.93%) identified lumber production as the most personally valuable (1), followed by sustainable timber (25%). 8% of these respondents identified ecosystem services as the most valuable aspect of forests in Whatcom County.

Threats to the Goals of the Plan and Challenges to Achieving Forest Resilience

The largest number of respondents (43%) identified changes in land use, increased development and conversion of forest land to other land uses as the biggest threat when asked to rank the biggest threats to reaching the goals of the Planas identified in the Ordinance.

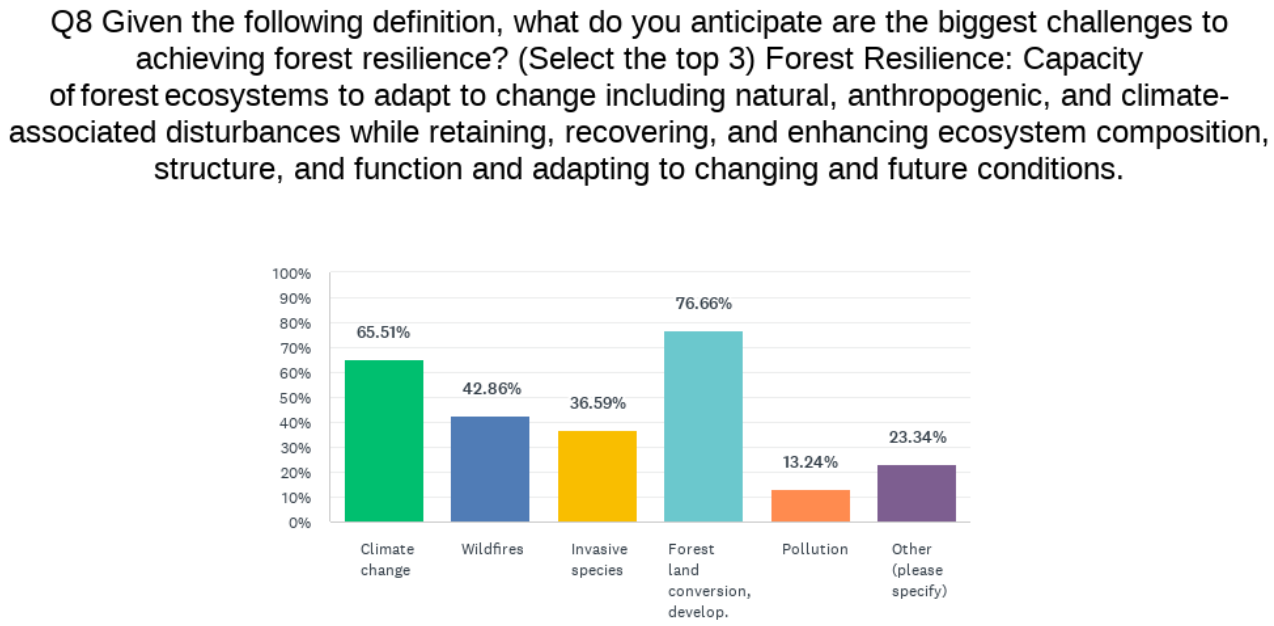

Figure 12. Overall, the majority of respondents (76.66%) identified conversion of forest land and development as the biggest challenge to achieving forest resilience.

No matter what they indicated as their primary connection with forests, between 73 and 81% of respondents identified forest land conversion and development as one of the three biggest challenges to achieving forest resilience.

- 74% of respondents who **work in the commercial forest industry** identified forest-land conversion and development as one of the three biggest challenges to achieving forest resilience.
- 74% of respondents who **own and manage forest land** identified forest land conversion and development as one of the three biggest challenges to achieving forest resilience.

- 81% of respondents who **recreate in forest land** identified forest land conversion and development as one of the three biggest challenges to achieving forest resilience.
- 76% of respondents who **hunt and gather on forest land** identified forest land conversion and development as one of the three biggest challenges to achieving forest resilience.
- 73% of respondents who **practice spiritual or cultural traditions and/or harvest activities on forest land** identified land conversion and development as one of the three biggest challenges to achieving forest resilience.

Climate change was the second most identified challenge, although it was not consistently identified across engagement identities. For example, only 23% of respondents who work in the commercial timber industry identified climate change as a challenge, whereas 75% of respondents who practice spiritual or cultural traditions and/or harvest activities on forest land identified it as a challenge to achieving forest resilience. Wildfires were also identified as a challenge, especially to those who work in the commercial timber industry (64%) and those who own and manage forest land (44%).

Management Priorities

Respondents were asked to rank forest management priorities, given limited resources and the impacts of climate change. Overall, increased investment in future acquisitions of timber land and/or conservation easements by public agencies including Whatcom County and/or partners to implement resilient forest management practices was most frequently ranked as the highest priority (49%). None of the listed priorities were ranked as the highest priority by a majority of respondents, and responses varied widely based on how respondents identified they engaged with forests.

For example, 26% of respondents who work in the commercial timber industry identified increased investment in future acquisitions of timber land as the highest management priority. 57% of these respondents identified coordination with the timber industry to support sustainable timber harvest and maintain a robust forestry economy as the highest priority.

Although there was no clear consensus on the highest management priority, promoting and supporting programs that provide technical assistance to non-industrial private forest landowners/managers and financial incentives for forest stewardship ranked as the second-highest priority among respondents. Technical assistance was ranked as the second-highest management priority by 40% of respondents who work in the commercial forest industry, 38% of respondents who own and manage forest land, 30% of respondents who recreate, 26% of respondents who hunt/gather on forest land, and 19% of respondents who practice spiritual or cultural traditions and/or harvest activities on forest land.

Consistent Themes and Issues Lacking Consensus

Among survey respondents and interviewees, there were several overarching themes as well as issues that lacked consensus. When asked about the purpose and personal value of forests in Whatcom County, responses varied based on how respondents engage with the forests. In general, those who worked in commercial timber or owned and managed forest land identified the purpose and value of forest land to support a sustainable timber industry and timber production more than respondents who recreate, hunt/gather, or practice spiritual or cultural traditions on forest land. Alternatively, respondents who did not work in the timber industry identified ecosystem services as the primary purpose of forests in Whatcom County.

The results of the assessment interviews and community survey reflect the different values and priorities of survey respondents to help inform the prioritization of actions in the Plan.

Appendix B. Policy Document Analysis

Existing policies, guidelines, and regulations provide a context for forest resilience planning in Whatcom County, ranging from the federal to local level.

Federal agencies manage a large portion of land in the county. The U.S. Forest Service has oversight of National Forest System lands in Whatcom County, specifically Mount Baker-Snoqualmie National Forest. Guidance for forestlands is provided primarily by the National Forest Management Act and Northwest Forest Plan. In addition, the 2012 Planning Rule mandates inclusion of climate change in planning documents, including national forest land management plans.

The National Park Service has oversight of national park lands in Whatcom County, specifically North Cascades National Park. With minimal active forest management, the park is guided by authorities such as the Wilderness Act and by the agency's Climate Change Response Program.

The U.S. Environmental Protection Agency provides regulatory oversight for a wide range of issues, such as water quality, air quality, and pesticides. Whatcom County is located within EPA Region 10 whose regional office and associated field offices administer programs and national regulations within Whatcom County. The Natural Resources Conservation Service (NRCS) state office provides technical and financial assistance to private forest landowners through programs and initiatives aimed at promoting sustainable forest management and conservation. NRCS works with other USDA agencies and state agencies to improve forest health, wildfire resilience, water quality, wildlife habitat, and climate change resilience.

At the state level, the Washington Department of Natural Resources (WADNR) owns and manages a large amount of forest land in Whatcom County. WADNR also regulates forest management on private lands through administration of Washington State Forest Practices Rules and the Forest Practices Habitat Conservation Plan. The Washington Department of Ecology (WDOE) has oversight of monitoring and regulatory issues including Forest Practices rules compliance, the Forest Practices Effectiveness Monitoring Program, the Washington State Climate Resilience Strategy, and water quality and quantity.

The Washington Department of Fish and Wildlife provides oversight of how forest management may interact with the State Wildlife Action Plan, Priority Habitats and Species, and at-risk species. Washington State Parks is engaged in climate change adaptation planning.

Whatcom Conservation District is directly involved with several aspects of management and planning on private forest lands including its Forest Stewardship Program, technical and financial assistance for management, and climate and wildfire resilience. The Washington Climate Commitment Act, administered through the Washington Department of Commerce, is a cap-and-invest program with cross-cutting implications for the use of state and private forest lands to help reduce greenhouse gas emissions.

Whatcom County government provides a critical local context for the management of private forest lands and County Parks and Recreation lands:

- The Comprehensive Plan (currently under revision) and Climate Action Plan provide guidance for many aspects of natural resource planning and practices, including resilience objectives. The 2017 Ecosystem Report supports the Comprehensive Plan with an inventory, characterization, and assessment of current ecosystem conditions, including an analysis of risk, initial management recommendations, and landscape planning considerations.
- The Open Space and Designated Forest Land programs help ensure the persistence of forest cover on private lands.
- The County advises on forest practices permits (including Class IV conservation practices) issued by the WADNR and ensures compliance with the Critical Areas ordinance.
- The Comprehensive Parks, Open Space, and Recreation Plan guides the County and Whatcom County Parks and Recreation Department in addressing future needs of the community and progress towards achieving the mission of the Department.
- The Natural Hazard Mitigation Plan identifies natural hazards that affect a jurisdiction, assesses vulnerability to those hazards, and formulates mitigation strategies that will lessen the severity of natural hazards by protecting human life and property
- The Forestry Advisory Committee, comprised of diverse stakeholders, provides review and recommendations to the County Council on issues that affect the forest industry. The Forestry Advisory Committee, as well as a forum for all sectors of the forestry community to contribute to discussions on the future of forestry in Whatcom County.

Tribal consultation on forest management issues is facilitated by authorities such as Executive Order 13175, the 2022 Presidential Memorandum on Uniform Standards for Tribal Consultation, and the Tribal Forest Protection Act. Tribal forest management plans and agreements with other parties help provide Native American perspectives on natural resource issues.

Standards and certification for forest management and forest products are provided by non-governmental organizations. The American Tree Farm System encourages sustainable management, including forest resilience, through stewardship plans written by small forest landowners. The Washington Farm Forestry Association provides statewide support for these efforts. The Sustainable Forestry Initiative and the Forest Stewardship Council provide detailed standards for sustainability, climate change, and other components of forest management. Certification by these organizations encourages forest resilience and elevates the marketability and value of wood products, especially those produced from industrial forest lands.

Appendix C. Definitions

Best Available Science is scientific information that meets specific criteria to ensure its quality, objectivity, and reliability for use in planning and decision making. The use of best available science has been a priority in natural resource management for over 30 years and has been particularly relevant for environmental assessment (e.g., in environmental impact statements).

Best available science is characterized by:

- Quality and integrity — The quality, objectivity, and integrity of scientific information, including statistical analyses, are a priority.
- Peer review — Relevant information is subjected to peer review, ensuring it has been critically evaluated by other experts in the field.
- Replicable methods — The scientific process uses clearly-stated methods that can be replicated by researchers and practitioners.
- Logical conclusions — Conclusions are logical, using reasonable inferences based on data (including statistical inference).
- Quantitative analysis — Data analysis employs rigorous statistical and analytical techniques.
- Proper context — Appropriate assumptions, analytical techniques, and data within an appropriate context (e.g., geographic scope) are considered prior to application.
- Transparency — Uncertainty, confidence level, and data gaps are documented and communicated.

Best available science can be derived from:

- Peer-reviewed articles in scientific journals and similar publications.
- Reports, government documents, etc. that have some level of peer review.
- Scientific judgment elicited through expert opinion and documented appropriately.
- Traditional ecological knowledge and local knowledge, in appropriate contexts.

Best available science can be subjective. When different sources contain divergent inferences, expert judgment may be required to evaluate the relative quality of those sources. The preferred scientific information—including a justification—can then be used in an assessment, plan, or management action. Decision makers must stay updated and adapt their approaches based on the most current scientific information.

Best practices: Science-based management guidelines and procedures designed to ensure that forests are managed sustainably, protecting environmental values while supporting social objectives.

Carbon sequestration: The process of capturing atmospheric carbon dioxide and storing it in solid (e.g., plants, soil) or liquid (e.g., oceans) form, thus helping to mitigate climate change.

Climate change: Long-term alterations in the average weather patterns and conditions on Earth, including changes in temperature, precipitation, wind patterns, and other atmospheric phenomena. These shifts can occur naturally over geological timescales but are currently being driven primarily by human activities, particularly the emission of greenhouse gases.

Climate change adaptation: The process of adjusting to actual or projected climate and its associated effects, including with human intervention to facilitate the adjustment.

Climate change mitigation: A human intervention to reduce emissions or enhance the storage of greenhouse gases (e.g., carbon dioxide).

Ecological restoration: The process of assisting the recovery of ecosystems that have been damaged or destroyed. It aims to reestablish the structure, function, and biodiversity of ecosystems, enabling them to provide benefits such as clean water and animal habitat.

Forest health: This subjective term refers to the ability of a forest to maintain biophysical processes in a highly functional state, enabling it to be resilient to stressors such as low soil moisture, insects, and diseases.

Industrial forest landowners: Individuals, companies, or organizations that own large tracts of forestland primarily for the purpose of producing timber products for profit. These landowners often manage their forests with a focus on sustainable timber harvesting, wood manufacturing, and maximizing economic returns.

Small forest landowners: Individuals or entities that own relatively small parcels of forestland and manage them for diverse purposes, including ecological, recreational, aesthetic, and sometimes economic benefits. The Washington DNR defines small forest landowners as those who own less than 5,000 acres of forestland and harvest fewer than 2 million board feet of timber per year on average.

Sustainability: The responsible management and use of natural resources—including forests, water, soil, and biodiversity—to meet current human objectives without compromising the ability of future generations to meet their own needs. It emphasizes maintaining a balance among environmental health, economic viability, and social equity.

Traditional ecological knowledge: Cumulative body of information, practice, and belief about the relationships between living beings (including humans) and their environment. It is developed by Indigenous and other communities through direct contact with the land and natural resources and is passed down from generation to generation.