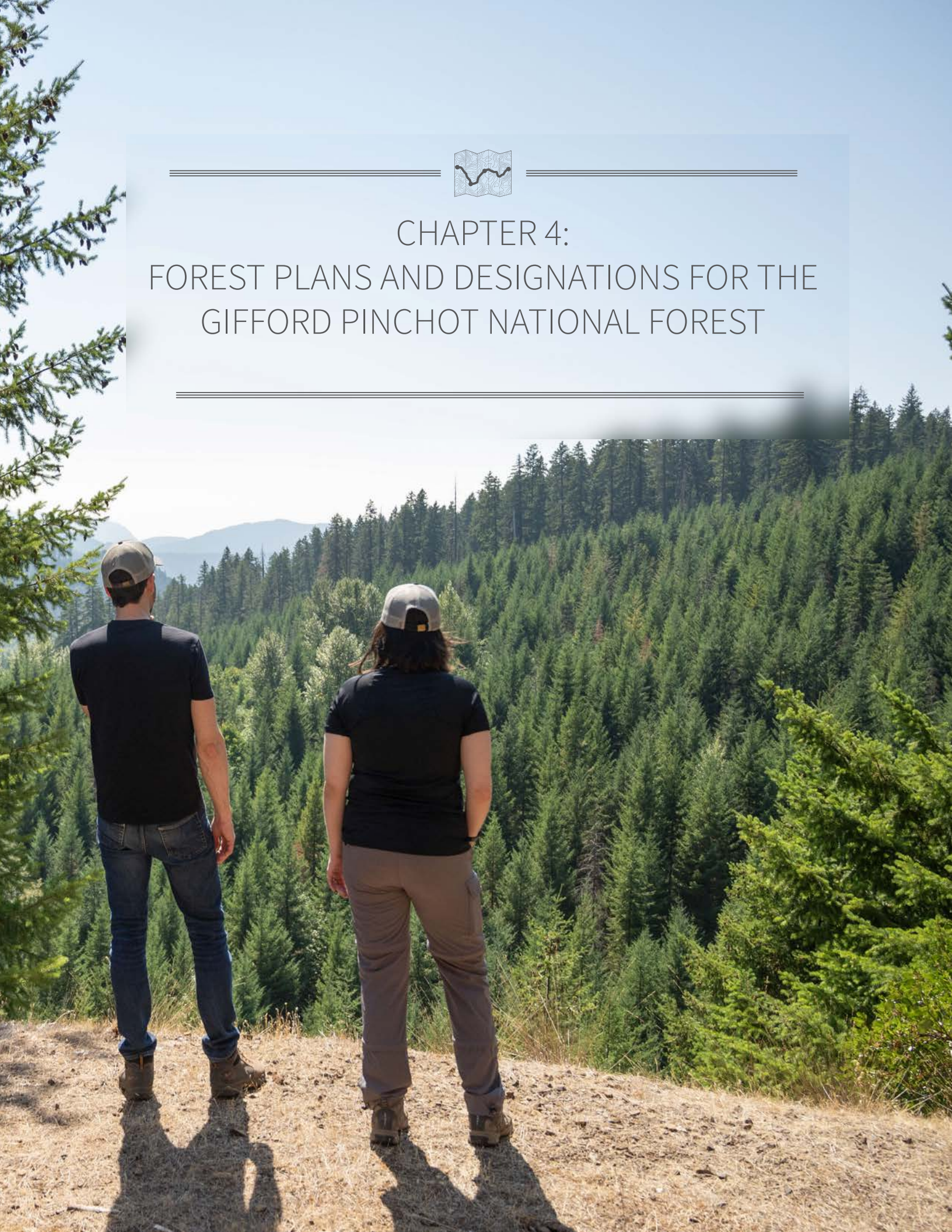
CHAPTER 4:
FOREST PLANS AND DESIGNATIONS FOR THE GIFFORD PINCHOT NATIONAL FOREST



CHAPTER 4 **EXECUTIVE SUMMARY**

Mature and old-growth forests on federal lands play a crucial role in improving climate resilience, enhancing carbon storage, and providing vital habitats for a diverse array of plants and animals. Unfortunately, the existing federal standards often fall short in adequately protecting these invaluable forest ecosystems. In this section, we establish a framework of conservation possibilities through Forest Plan updates and present a set of strategies to protect key areas, particularly older forests and high-quality habitats that face threats from logging and road construction. These recommendations align with the 2012 Planning Rule's focus on ecological integrity, use of best available science, and robust public involvement, aiming to ensure that the ecosystems within the Gifford Pinchot National Forest (GPNF) and other national forests in the Pacific Northwest remain healthy and resilient.

- **Update LSR objectives to include carbon storage and guidance regarding restoration in dry and mixed-conifer forests:** We suggest revising the management objectives for LSRs to emphasize carbon storage in order to enable project-by-project examinations of carbon storage values and associated tree retention. LSR objectives should also include new directives for restoration treatments in dry and mixed-conifer forests to allow targeted thinning and burning in areas where these actions can build resilience.

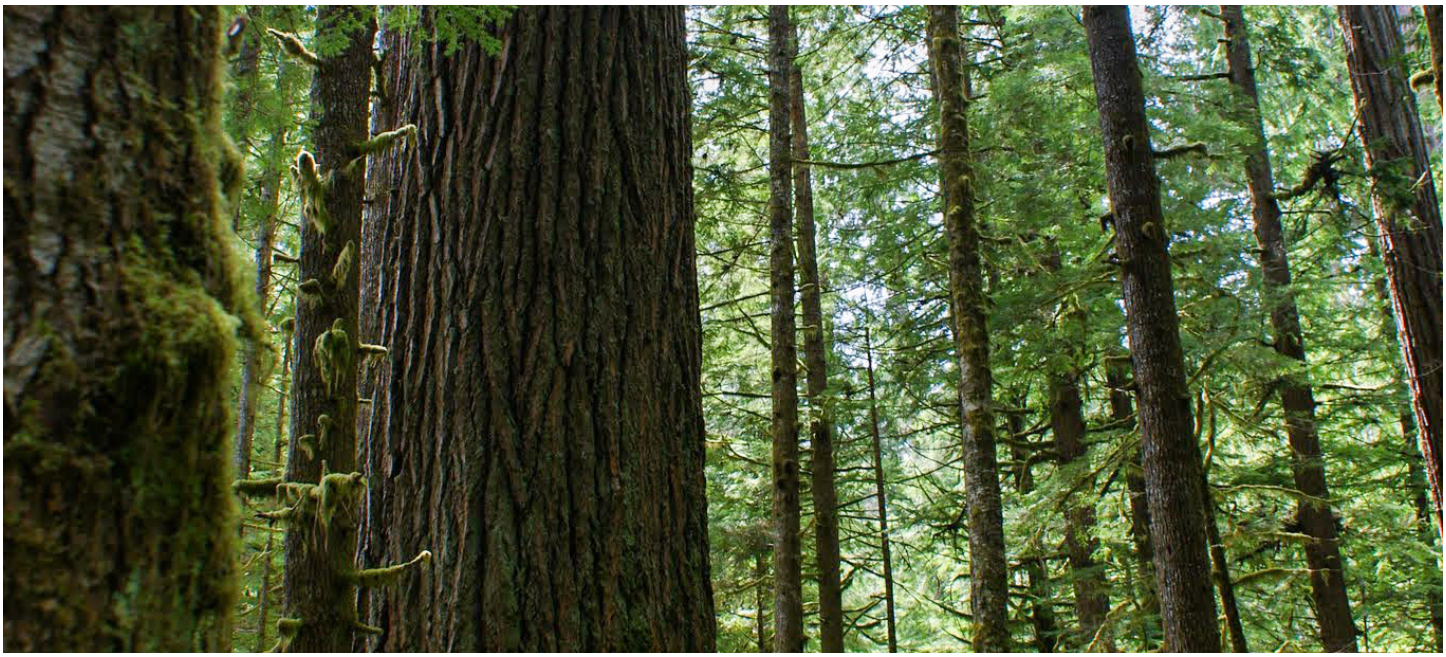
- **Rethinking reserves: select areas for a transfer from Matrix to Late-Successional Reserve (LSR) land use allocation:** We recommend the reclassification of select Matrix lands to LSR allocation to protect older forests that are currently located in Matrix areas where timber harvest is a dominant management objective. Using a hierarchical spatial analysis process that prioritized mature, westside forests with high connectivity potential and high carbon storage value, we identified 77,818 acres for conservation. The proposed alteration does not prohibit logging but concentrates on maintaining and enhancing old-growth characteristics in priority locations. This process was designed for the GPNF but can be replicated in other national forests in the Pacific Northwest.

- **Protect all trees established before 1920 in moist forests:** Due to the role that old and large trees play in creating habitats for wildlife, fostering biodiversity, and increasing stand-level resilience, Forest Plan updates should explicitly outline the protection of all trees in moist forests established before 1920 regardless of land allocation.

- **Preservation of the Survey and Manage program:** The Survey and Manage program has been an important tool for helping us understand and protect biodiversity, and it should remain strong and intact through any changes to the Northwest Forest Plan. This program is pivotal for designing management actions that ensure the protection of rare species identified during pre-management surveys.

- **Pragmatic and effective application of the Species of Conservation Concern program:** The Species of Conservation Concern (SCC) program helps land managers support biodiversity and species health through ecosystem management. It is important that species specialists, such as botanists and wildlife biologists, are engaged in creating and maintaining the SCC lists and that species on these lists have adequate ecosystem management plan components that are specific to their needs.

- **Creation of new Special Areas and other management designations:** We identify four specific areas in the GPNF that warrant consideration for Special Area status, Management Area status, or other designations that can be integrated into Northwest Forest Plan or local Forest Plan updates. These areas each have their own particular management approach and range from road reduction to conservation of connectivity and protection of old-growth. Proposed names for these areas are: Lost Creek Cedar Refugia, Clear Creek Road Reduction Area, Crab Creek Road Reduction Area, and the Steamboat Climate Resilience and Mitigation Area. The management approach for these newly designated areas would be outlined during planning and deliberation to align with specific conservation goals and objectives.



A forest stand in the Gifford Pinchot National Forest

FOREST PLANS AND DESIGNATIONS ON FEDERAL LANDS

History of Forest Plans

Federal lands set aside as national forests are managed by guiding documents called Forest Plans (or Land and Resource Management Plans). These plans are required under the National Forest Management Act (NFMA) of 1976, which requires the Forest Service to develop a Forest Plan for each unit of the national forest system and for plans to be maintained, amended, and revised as needed.

Forest Plans provide management direction and ensure the continuing activity of multiple uses (outdoor recreation, grazing, timber production, wilderness character, and wildlife, fish, and watershed health), while providing a sustained yield of various forest products and services.[1] Although a Forest Plan sets logging goals, identifies suitable areas for timber production, and determines which methods of timber harvest are appropriate, "it does not itself authorize the cutting of any trees." [2] Forest Plans are essentially the zoning ordinances of the national forest, determining which areas are suitable for specific activities. Forest Plans set specific standards and guidelines for future decisions and projects.

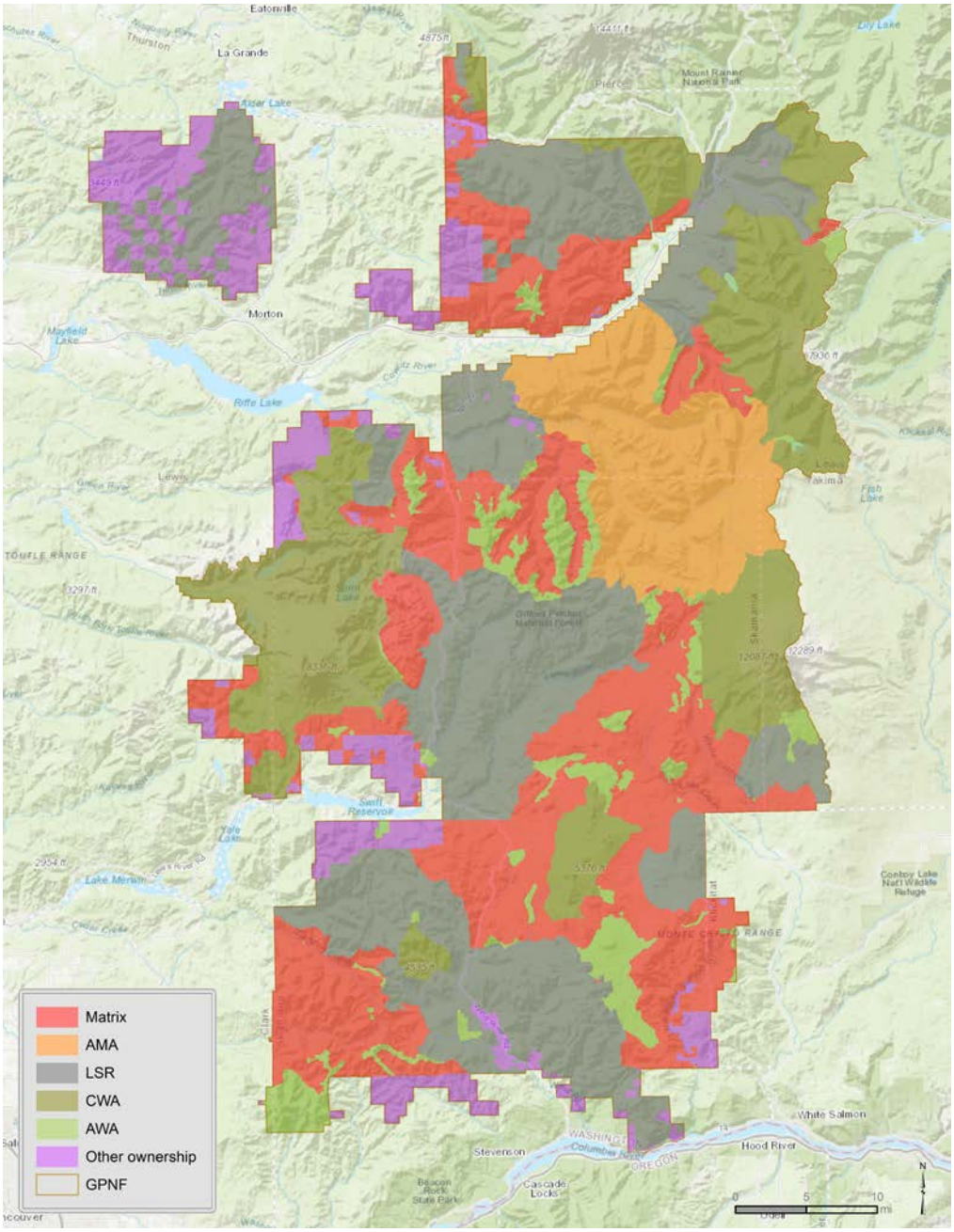
The requirement to create Forest Plans was a reaction to the increased amount of timber harvest occurring on national forests and an attempt to refocus the agency on its multi-use mandate. Before the NFMA was passed, timber harvest was the primary focus, and all other uses were considered secondary. Unfortunately, this approach largely continued even after Forest Plans were initially adopted, which meant objectives such as protecting vulnerable species took a back seat to timber production. By largely disregarding species conservation needs, the agency failed to consider what actions were needed to maintain species viability as required by relatively new requirements such as the 1973 Endangered Species Act and NFMA regulations adopted in 1979 and 1982.

After several courts rejected the agency's approach for conserving species like the northern spotted owl, the agency set a new goal to develop a scientifically-credible conservation strategy. This ultimately led to the Northwest Forest Plan.

Forest Plans

In the Pacific Northwest, within the range of the northern spotted owl, national forests operate under the Northwest Forest Plan (NWFP), which outlines management guidance for all Forest Service and Bureau of Land Management lands. In addition to the NWFP, each national forest has its own unique forest plan, which for the GPNF is called the Gifford Pinchot Land and Resource Management Plan (Gifford Pinchot LRMP).

The NWFP was one of the first land management plans to put into practice the concept of a scientifically-credible conservation strategy for plant and animal species using



Land use allocations on the Gifford Pinchot National Forest (GPNF) showing Matrix, Adaptive Management Areas (AMA), Late-Successional Reserves (LSR), Congressionally Withdrawn Areas (CWA), Administratively Withdrawn Areas (AWA), and other ownership, the latter of which commonly consists of privately-owned timberlands

a system of reserves. Of particular importance to this guidebook are the areas designated by the NWFP as Matrix and Late-Successional Reserves (LSRs). Matrix lands are areas where timber harvest is a primary objective and where fewer protections for habitats and species exist. LSRs are meant to safeguard late-successional forest ecosystems, particularly as habitat for species like the northern spotted owl. LSRs are to be managed in a way that maintains or accelerates old-growth forest characteristics.

Other relevant land allocations include: A) Adaptive Management Areas where experimental land management and harvest strategies may be tested, B) Congressionally or Administratively Withdrawn Areas such as Wilderness or Botanical Special Areas which will be discussed later in the chapter, and C) Riparian Reserves, which surround waterways and are meant to focus management therein on improving or retaining riparian function.

Local Forest Plans, like the Gifford Pinchot LRMP, apply a more detailed and localized lens through which managers plan on-the-ground management activities.

Forest Plan updates

After the adoption of the NWFP, various presidential administrations noted the need for updates to forest planning. New planning rules were proposed, but updated regulations were not finalized and adopted until 2012. The 2012 Planning Rule established an overarching goal of ecological sustainability, an emphasis on adaptive management (the process of monitoring strategies for effectiveness and making changes when necessary), and only required the Forest Service to forecast future conditions to a few decades rather than ten decades or more, which was the previous requirement.[3]

The process laid out in the 2012 Planning Rule includes distinct phases for Forest Plan updates: assessment, plan development, implementation, and monitoring. When changing Forest Plans, the Forest Service may either complete a **revision** where the agency reviews and updates a whole Forest Plan (NWFP or a local plan), or they may carry out a more narrowly-targeted update through an **amendment**. The revision process is more complex than an amendment and requires Forest Service staff to carry out an assessment and evaluate the current condition or status of an array of management factors including: terrestrial and aquatic ecosystems, air and soil quality, carbon stocks, disturbance regimes, invasive species, threatened and endangered species, proposed and candidate species, species of conservation concern, cultural and historic resources, economic conditions, infrastructure, recreation, access patterns, currently designated areas (i.e. Congressionally and Administratively Withdrawn Areas), the potential need and opportunity for additional designated areas, and other factors. For more targeted amendments, an assessment is not required but can be completed to support the need for change.

In 2022, the Forest Service started a process to update and likely amend the NWFP. This process started with the formation of an advisory committee to provide advice and recommendations for a modernization of the NWFP. The committee is composed of scientists, Tribal representatives, and other stakeholders who will consider issues of sustainability, climate change adaptation, wildfire resilience, and protection of late-successional forests.[4] Although not part of this committee's work, local Forest Plans may be updated at some point in the near future as well. In addition, the federal government issued Executive Order 14072, which called for a nation-wide inventory of all mature and old-growth forests on federal lands, an assessment of threats to these forests, and the development of policies to address these threats. And, in 2023, the Forest Service published a notice of intent to amend all Forest Plans across the country to conserve and steward old-growth conditions.

National forest lands in southwest Washington

PROTECTING FOREST HABITATS ON **FEDERAL LANDS**

Below, we outline a series of strategies that can help ensure the region retains important older forests and intact habitats and is set on a course to be more resilient to climate change. These strategies can be integrated into larger NWFP updates or put forward as a set of standalone updates for local Forest Plans. This entails working with the Forest Service, the advisory committee, and partners in advancing these recommendations for the southern Washington Cascades and helping apply these strategies to other national forests in the Pacific Northwest.

Changes to either plan would be done under the 2012 Planning Rule and other agency guidance including manuals, handbooks, secretarial memoranda, guidebooks, and notices.[5,6] Although the agency must initiate and complete the planning process, the rationale for change to the plan can come from "other documentation" from "any source" including groups such as CFC and documents like this guidebook.[6,7] The strategies suggested in this section fit well within the 2012 Planning Rule's need to ensure ecological integrity, use of best available science, and robust public involvement. And, further, these strategies will help the agency keep the GPNF's ecosystems healthy while also helping the agency meet the Rule's requirement to keep land management plans up-to-date and responsive to changing conditions.

Our strategies include: 1) transfer a select subset of Matrix areas to LSR allocation, 2) update LSR objectives to include carbon storage and restoration guidance for dry and mixed-conifer forests, 3) protect all trees established before 1920, 4) protect biodiversity through the Survey and Manage Program, 5) ensure the Species of Conservation Concern Program is effectively addressing the health and resilience of species, and, 6) protect or enhance the ecological function of specific areas through new designations, such as Special Area designation or other management designations. For each strategy, we underscore how management would shift and provide guidance on implementation.

In Chapter 2, we outline other strategies related to federal forest management that are likely best pursued through means outside of Forest Plan updates, such as recommendations involving NEPA and others regarding Tribal involvement in land management decisions.

Strategy 1: Transfer a select subset of Matrix areas to LSR allocation

Matrix lands are those areas where timber harvest is a primary management objective. In Matrix, it is common to see treatments called "heavy thinning" or "regeneration harvest." Heavy thinning refers to a logging plan where the canopy cover is reduced significantly, sometimes down to 40%. Regeneration harvest refers to a technique intended to "restart" the growth cycle of a forest stand by removing most trees throughout the majority of a cutting unit. The application of these logging prescriptions in old forests is anathema to the broadly agreed-upon goals of protecting rare old forests, preserving habitat for species that rely on them, and responsibly managing the carbon storage capabilities of Pacific Northwest coniferous forests.

Unfortunately, there are large amounts of old forests currently located on Matrix lands. Using forest age estimates from 2017 data, Matrix on the GPNF contains approximately 169,884 acres under 100 years of age, 160,031 acres 100 to 200 years of age, and 72,857 acres over 200 years in age.

Unlike forests in LSRs and Inventoried Roadless Areas, which have adequate baseline levels of protection, old forests on Matrix lands lack important safeguards. Therefore, prioritized older forests and connectivity areas currently located on Matrix lands for conservation.

Prioritizing locations

To move all mature and old-growth forests currently in Matrix to LSR would be impractical, so we narrowed down the locations using a spatial analysis process in ArcGIS to identify priority conservation locations containing:

- Older forest stands—using thresholds of 100 years and 200 years in different stages of the analysis;
- High connectivity potential—using priority areas identified in our previously completed connectivity model with results that included habitat core areas

(HCAs) where there is a high density of mature forests and connectivity corridors where movement between HCAs is expected to be least encumbered by areas of non-forest or otherwise low habitat quality; and

- High carbon storage potential—using estimates of carbon storage values by Law et al. 2021[8]

By focusing on areas where there was a density of overlapping values, we were able to focus on multi-value, high-priority areas that are at-risk from logging and ideal candidates for conservation.

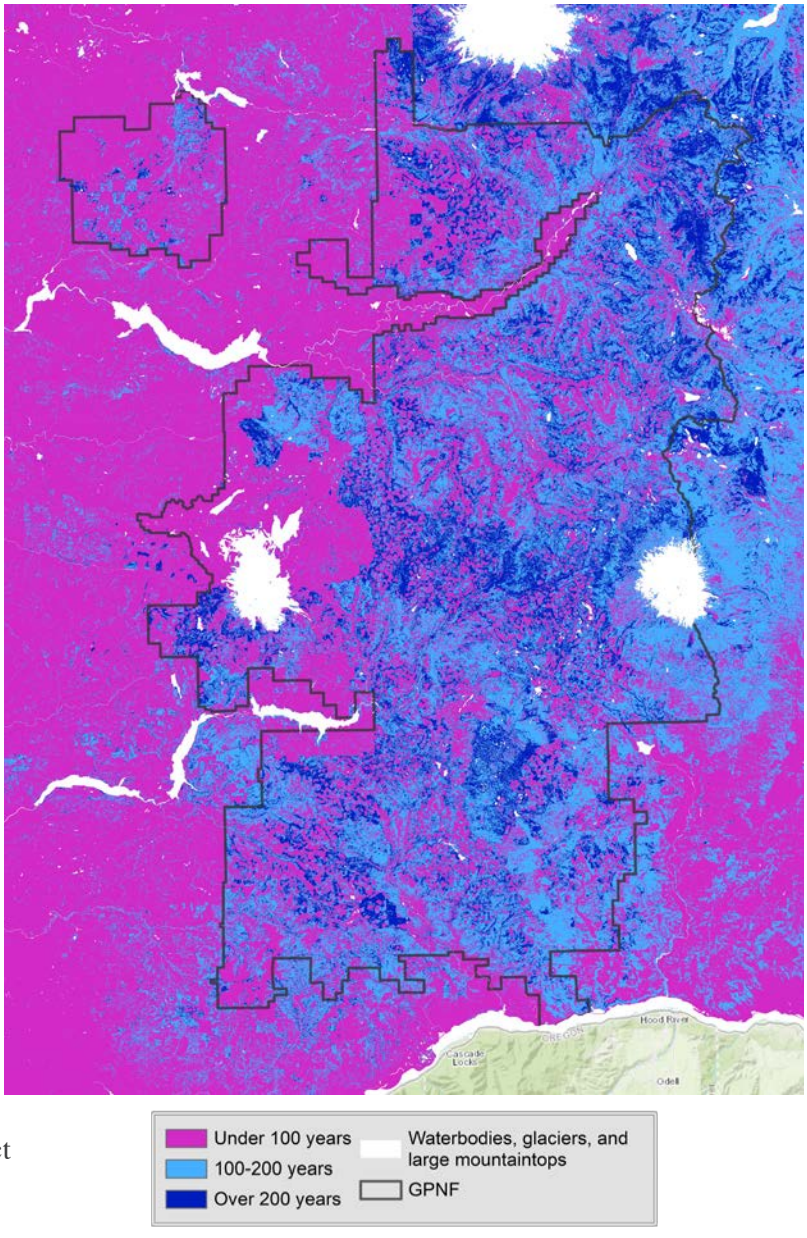
The spatial analysis process is outlined on page 84.

The process identified 77,818 acres for a Matrix to LSR transfer, including 23,747 acres over 200 years old (31% of the total conservation area), 34,427 acres 100–200 years old (44%), and 19,645 acres under 100 years old (25%). Most of the proposed conservation area (75%) consists of forests over 100 years old. The areas assessed to be younger than 100 years in age (comprising 25% of the total) were incorporated at various stages in the process, either: A) initially, as a spatial cell in an HCA or connectivity corridor, B) subsequently, when the layer containing carbon information was applied, or C) in the concluding steps when finalizing the polygon to encompass adjacent priority areas rich in carbon or old-growth.

Our focus is on the GPNF but our analysis methods can be applied to other national forests in the Pacific Northwest that are managed under the NWFP.

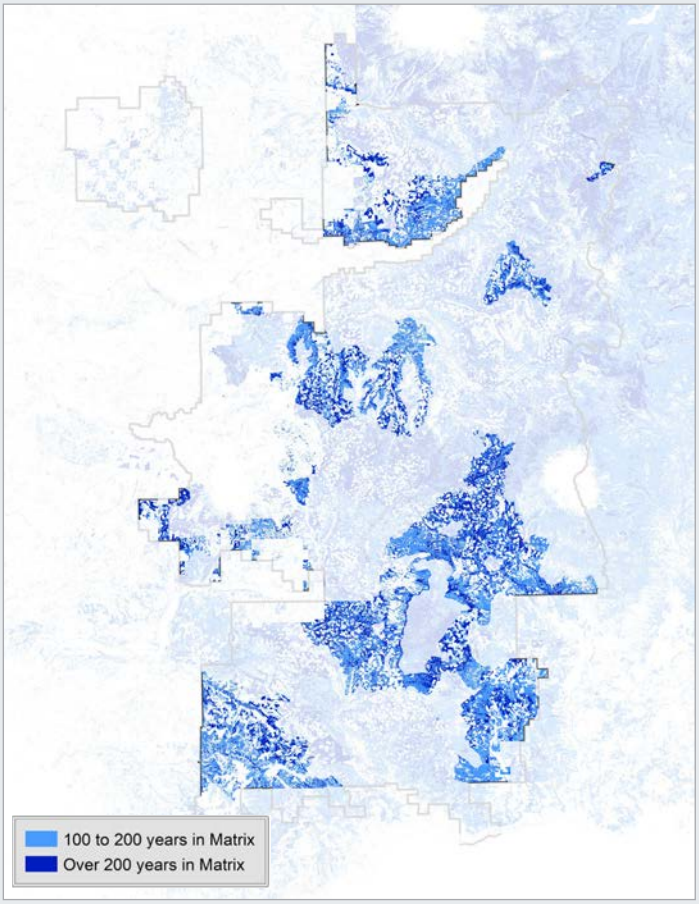
It is important to acknowledge that, as a society, we still use wood as a resource for building materials and paper and that this resource and harvest economy is critically important for many communities in the region. An LSR designation does not preclude logging but merely decreases the intensity of logging in certain areas and ensures that management objectives are largely focused on maintaining and enhancing old-growth characteristics. Instead of logging old forests, we recommend focusing timber harvest on thinning monoculture plantation stands and carrying out restoration thinning and prescribed burning in dry and mixed-conifer forests. In addition, as outlined in chapters 2 and 5 within discussions of forest management on state and private land, economic impacts can be further offset by advancing efforts to diversify the resource economy, such as through easements, carbon markets, new wood product certifications highlighting extended harvest durations, and governmental programs that are intended to help advance a smoother transition to a more diverse, resilient, and climate-smart economy. And, while more difficult to quantify than regional income numbers presented by mills and large timber companies, it is important to fully consider the economic potential for local contractors who are carrying out restoration work for roads, rivers, and forests. This economic input is often overlooked when considering region-wide economic reviews and projections.

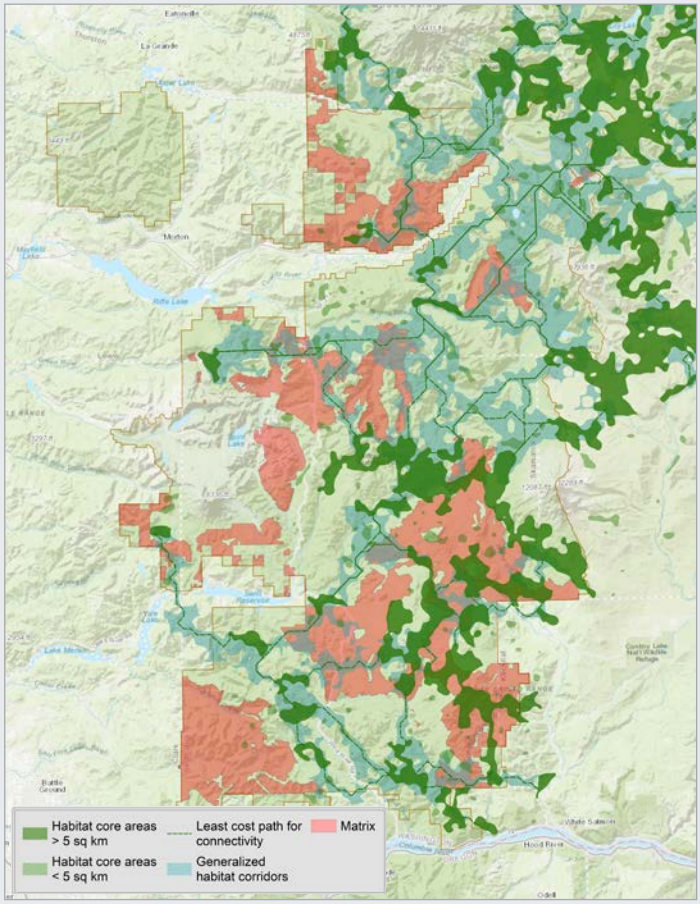
In summary, this recommended change to the Northwest Forest Plan or local Forest Plan would help align forest management goals with current on-the-ground realities regarding climate change, the overall scarcity of old forests on the landscape, and the state and distributions of rare species. The final map on page 85 shows our recommended areas for a switch from Matrix to LSR.



MAPPING **PRIORITY AREAS** FOR PROTECTION

ArcGIS was used to identify mature and old-growth forest areas within Matrix that were modeled as either habitat core areas (HCAs) or connectivity pathways between these HCAs.



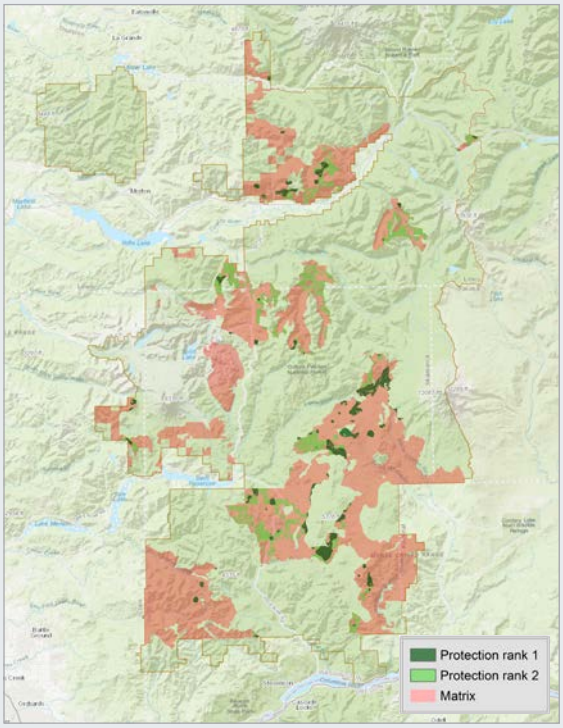


ORGANIZING THE DATA

Each cell was assigned a value based on the following: designation as Matrix (4 points), presence of forests >100 years in age (3 points), presence of an HCA (2 points), and presence of a connectivity corridor (1 point).

The assigned values of each cell were summed, resulting in the combined values in the table shown here.

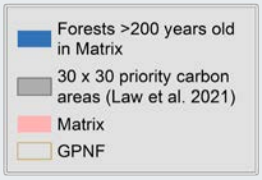
Combined Value	Protection Ranking
9-10	Protection rank 1
8	Protection rank 2
1-7	Excluded

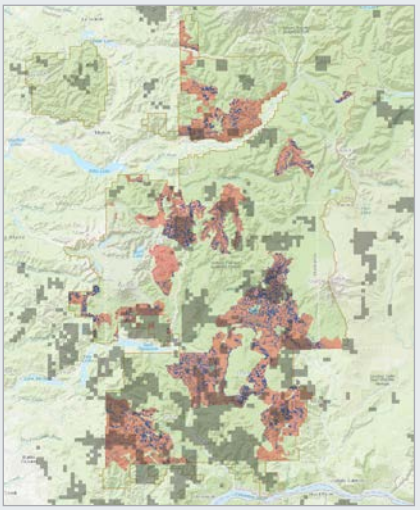


REFINING OUR RECOMMENDATIONS

The ranking and reclassification of raster layers resulted in a large number of relatively disjunct areas that would not translate well to management boundaries.

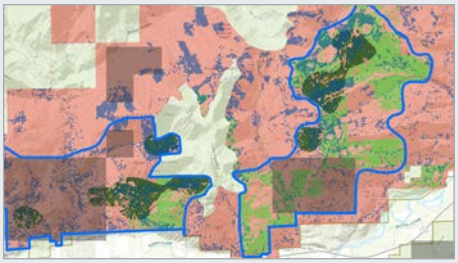
To help refine the final recommendations and to bring two new variables into consideration, we overlaid: 1) a carbon storage layer from Law et al. 2021 (showing priority areas for conserving carbon), and 2) a layer showing old-growth forests over 200 years old. We also overlaid recent timber harvest areas and removed these areas from consideration as future harvest is less likely to occur there again in the near future.

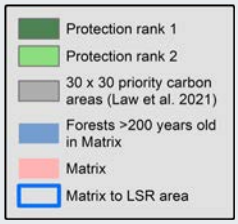


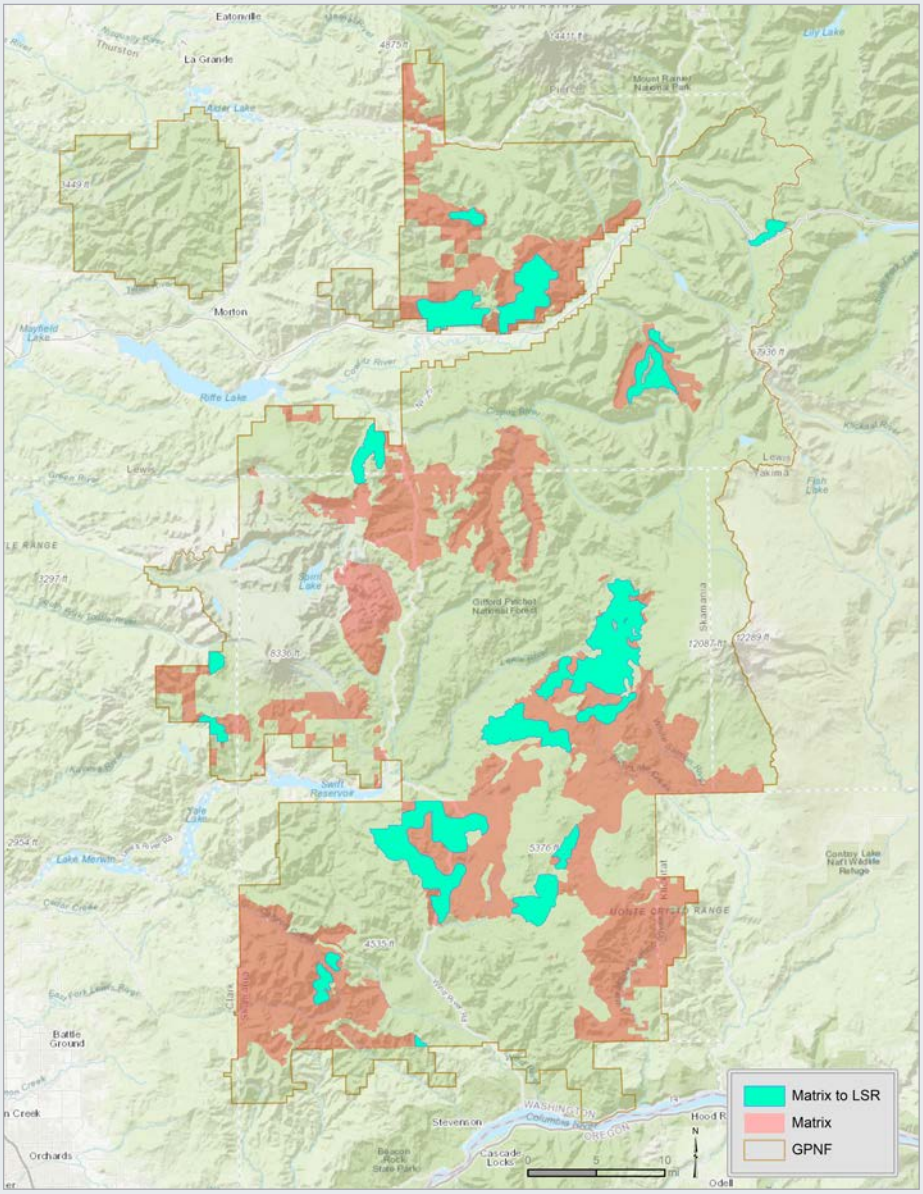


FINALIZING OUR RECOMMENDATIONS

To finalize the boundaries, we prioritized regions with an aggregation of protection rank 1, incorporating adjacent areas of: protection rank 2, priority carbon areas, and forests over 200 years old. This step, while qualitative, refined the data-driven prioritization with practical judgement regarding the proximity and densities of the various inputs. It ensured that designated conservation areas were not only viable in size for management but also encompassed ecologically important zones adjacent to initial clusters.







Recommended areas for a transfer from Matrix to LSR. Part of this area overlaps the proposed Steamboat Climate Resilience and Mitigation Area; implementation of both approaches in these areas of overlap would create redundancy, and the Climate Resilience and Mitigation Area designation would take precedence in this case.

Strategy 2: Update LSR objectives

Management objectives for LSRs should be updated to include carbon storage as one of the primary objectives across all LSRs in Pacific Northwest forests. In addition, LSRs in dry and mixed-conifer forests should more clearly include management directives that allow for targeted restoration thinning and prescribed burning to align these forests with their historical conditions and to bolster their future resilience to drought, insects, disease, and wildfire.

Currently, two of the primary objectives for LSRs are to retain old-growth characteristics in stands that are already at or near an old-growth state and, in younger areas, to accelerate forest stands toward an old-growth state. The latter is done by thinning, sometimes taking the canopy cover down to coverages as low as 40%. Thinning can sometimes help the larger trees reach maturity quicker, but there are negative impacts of this type of logging, including impacts to wildlife habitats, soils, and mycorrhizal communities (underground networks of fungus) as well as the introduction of invasive species. And, logging almost always works contrary to the goal of carbon storage and sequestration, even acknowledging that some carbon is retained in wood products.[9-13]

Our objective with the first part of this strategy is to ensure carbon storage becomes one of the primary management objectives for LSRs in moist, westside forests. Although there are a variety of management objectives in LSR, the two primary objectives under this new scenario would be: 1) retaining old-growth stands and characteristics, and 2) increasing carbon storage. This objective and management shift should, in most cases, be interpreted to mean less intensive thinning. For instance, if a current canopy cover target in certain LSR stands is 40%, the integration of carbon dynamics as a management consideration would result in this target number being higher in future prescriptions, helping retain more old trees in the stand and increasing carbon storage.

This type of management change, however, is not appropriate for dry and mixed-conifer forests where more intensive thinning, combined with prescribed fire, can reduce risks associated with wildfires, insects, disease, and drought stress. This brings us to our second recommendation regarding management direction for LSRs.

Current LSR guidelines and associated planning requirements are sometimes interpreted to suggest that thinning of medium and large grand firs or significantly reducing canopy cover levels to create a more open environment are not permissible management actions in dry and mixed-conifer forests. Therefore, the Forest Service has oftentimes not utilized what flexibility it has in these areas. Because of this, we believe it is important that guidance documents more clearly outline these exceptions for management in dry and mixed-conifer forests.

Some timber harvest activities are still permitted in LSRs

Restoration thinning and prescribed burning in specific areas should be paired with the preservation of large pine, cedar, Douglas-fir, and larch trees, as well as retention of strategically-placed dense forest patches across a third or more of the landscape. These large trees are 1) more resilient than grand fir, 2) much rarer on the landscape, and 3) less likely than grand fir to exacerbate drought stress during the dry season—as grand fir cannot control their stomatal openings like many other species, which means they cannot reduce their water uptake and transpiration in periods of drought.

These LSR recommendations align with federal directives, like the 2012 Planning Rule and the 2022 Executive Order focused on protecting old-growth. Integrating this strategy into upcoming NWFP revisions or amendments is a logical next step.

Option 1: Update of the NWFP

We recommend updating management goals for LSRs through the amendment process of the NWFP. Climate change and LSRs are topics that will be addressed by the agency and the federal advisory committee, and a change that enhances climate resilience and decreases the loss of carbon is a fitting consideration for efforts to modernize the NWFP.

Option 2: Update GPNF's LSR Assessment

As a secondary approach, we can advance this strategy by working with the GPNF to evaluate opportunities to incorporate these changes into the local LSR Assessment, an internal document used by the GPNF to determine what types of prescriptions are allowed within LSRs. An LSR Assessment can be updated by the GPNF through a process that is local to the Forest and less intensive than updating the NWFP or Gifford Pinchot LRMP. This is because a change to an LSR Assessment does not require adherence to the 2012 Planning Rule. Although updating the LSR Assessment is simpler, updates would be limited in scope (i.e., changes would only be local with less potential for regional change). Also, they must function within existing management direction and guidance within the NWFP, which could actually preclude the ability to retain more trees in a stand since the NWFP goal of accelerating tree growth might be interpreted to conflict with carbon goals. As it relates to management guidance for dry and mixed-conifer forests, however, this local option would likely suffice in helping advance restoration thinning and prescribed burning.

Strategy 3: Protect all trees established before 1920

In this strategy, we discuss a Forest Plan recommendation for moist forest zones that involves the retention of all trees established before 1920. This echoes recommendations outlined by Johnson et al. (2023) in *Making of the Northwest Forest Plan*.[14] The difference between this strategy and the one previously outlined (select areas for a Matrix to LSR transfer) is that the previous recommendation involves protection of contiguous forest stands that may encompass a mix of forest ages whereas this recommendation targets the protection of individual trees without stated retention of surrounding forest areas. This combination approach allows both targeted protection of older trees and larger-scale protections of contiguous habitat patches.

This strategy can be written into Forest Plan updates. The tenets would then be integrated into harvest prescriptions, which could include approaches employing selective thinning of smaller trees or variable density thinning whereby certain structural elements—such as large trees, high priority tree species, standing dead snags, or any other desired features—are retained (possibly in clumps) and incorporated into the future heterogeneity of the larger area.[14]

This strategy is especially relevant for management guidelines in Matrix and Adaptive Management Areas, since management guidelines for LSRs already discourage cutting trees over 80 years unless it is advancing old-growth characteristics or resilience in dry or mixed-conifer forests.

While a stand origin threshold of 1920 may suggest we support logging of trees that are in the 80 to 100-year range, this is generally not the case. From an ecological perspective, when looking at moist, westside forests (which make up the bulk of the GPNF), it is optimal to retain older trees as much as possible, especially those which are starting to gain attributes allowing them to serve increasingly important habitat roles.

Management in dry and mixed-conifer forests, on the other hand, may require more site-specific flexibility, so while retention of old and large trees is also extremely important in these forests, we do not outline specific limits for these zones.

LAND DESIGNATIONS

CONGRESSIONAL DESIGNATIONS		
Establishing Authority	**Size Limitation**	**Examples/Categories**
Congress by law*	None as a group	Wilderness; Wild and Scenic Rivers; National Recreation Areas; National Monuments; National Scenic Areas; National Scenic Research Areas; National Management Emphasis Areas; National Scenic and Historic Trails; National Heritage Areas
Process for Designation	**Interaction with Forest Plan**	**How vunerable to overturning?**
Law - Usually done with individual bills. There are several existing categories of designation that require an inventory and recommendation process from the agency to Congress.	Any specific management direction should be incorporated into the Forest Plan or a Comprehensive Management Plan should be created if required by the creating law.***	These are generally hard to overturn since it would require another Act of Congress.

SPECIAL AREA		
Establishing Authority	**Size Limitation**	**Examples/Categories**
Forest Service/USDA	None, but designated official changes at 100,000 acres**	Scenic Areas; Geological Areas; Botanical Areas; Zoological Areas; Paleontological Areas; Historical Areas; Recreational Areas
Process for Designation	**Interaction with Forest Plan**	**How vunerable to overturning?**
Administratively Designated - An analysis should be done that shows the "need and desirability" for the Special Area, usually done as part of the forest planning process either for amendment or revision. If Regional Forester can designate the area they may do so cocurrently when adopting an amendment or revision of a Forest Plan. Regional Forester may designate under 100,000 acres; Sec. of Ag. may designate over 100,000 acres.**	Regardless of whether designation occurs during the forest planning process or outside of it, amendment to the Forest Plan should be done to incorporate management direction into the plan for the new Special Area. When designation is recommended through the planning process, inclusion of management direction can be done cocurrently with the recommendation or through an amendment later.	Can be overturned in the same manner as they are created, including through either an amendment or revision of the Forest Plan if an analysis shows and makes a recommendation that the Special Area should be recinded. If the Regional Forester could have designated the area, then adoption of the amendment or revision of the Forest Plan with the recommendation to recind would remove the designation.

MANAGEMENT AREA		
Establishing Authority	**Size Limitation**	**Examples/Categories**
Forest Service	None	No set categories. These are very specific to particular Forest needs.
Process for Designation	**Interaction with Forest Plan**	**How vunerable to overturning?**
Administratively Adopted - Responsible Official may identify the area as a management area or as a geographic area in the land management plan if the land area does not otherwise qualify for designation adminstratively or congressionally.	The need for a management area should be identified in the forest planning process. If management areas are identified, management direction should be created and adopted for the area through the forest planning process.	Can be overturned in the same manner as they are created, through analysis in the forest planning process showing that the management area no longer needs focused management direction.

* National Monuments can also be established by the President

** If substantial improvements are planned for the Special Area then Regional Forester can designate areas up to 160 acres and anything over that must be done by the Sec. of Agriculture

*** For example, the Mount St. Helens National Volcanic Monument has a Comprehensive Management Plan that was required by the establishing law

Looking up toward Mount St. Helens

A fisher is a mid-sized carnivore that was extirpated from the Gifford National Forest due to trapping and habitat loss prior to recent reintroduction efforts. Photo by Michael Sulis.

Strategy 4: Protect biodiversity through the Survey and Manage Program

As changes to Forest Plans are considered at the regional and local levels, it is imperative that the Survey and Manage Program remains fully intact. Survey and Manage consists of a set of standards and guidelines, encompassing field surveys, associated reporting, and project adjustments, all of which are mandatory before initiating particular management action. The goal is to design management actions in a way that safeguards rare species identified during these survey processes. The Survey and Manage list comprises "rare and little known species thought to be associated with late-successional and old-growth forests (including mosses, liverworts, fungi, lichens, vascular plants, slugs, snails, salamanders, and red tree voles)."[15] The Survey and Manage process is a pivotal tool for protecting biodiversity and enabling effective adaptive management (i.e., continual improvement of management practices through scientific learning and new information), which holds particular significance in the face of climate change. It provides crucial information on the locations of rare species and data on population patterns and species trajectories, and it allows us to tailor management strategies to protect these species effectively.

An amendment in 2001 introduced several changes to the Survey and Manage Program, creating exceptions to the survey requirement for specific project types: 1) thinning in forest stands younger than 80 years of age, 2) culvert replacement/removal, 3) riparian and stream improvement projects, and 4) hazardous fuels treatments which apply prescribed fire. While these changes sensibly provide exceptions to the survey requirement, there have been other proposed shifts that would erode the strength and purpose of this program. It is crucial to ensure that no other exceptions are employed to circumvent this vital program.

Strategy 5: Ensure the Species of Conservation Concern Program is effectively protecting listed species

When considering updates to local and regional Forest Plans, it is important to design the Species of Conservation Concern (SCC) Program with comprehensive input from on-the-ground staff, including botanists and wildlife biologists, and to ensure that Forest Plan components are sufficiently structured to advance the long-term health and resilience of SCC species.

The SCC Program is a requirement from the 2012 Planning Rule; it is an updated method for conserving known species for which there is "substantial concern over the species' ability to persist over the long-term in the plan area," which is different from the Survey and Manage Program, which protects species where little is known regarding their presence or where protection measures are needed to ensure their "persistence" at a site.[15] The 2012 Planning Rule requires ecosystem integrity be maintained or restored. The rule assumes that most species will be adequately protected if their ecosystem is protected. For those species that are not adequately protected through ecosystem protection or state or federal listings, such as the Endangered Species Act, the Regional Forester is tasked with identifying species for the SCC list. The agency is then required to enhance habitat protection to ensure health and resilience of the species.

For this program to successfully protect biodiversity, it is essential that botany and wildlife experts with the Forest Service are engaged with creating and managing the SCC lists and developing plan components to ensure there is sufficient on-the-ground experience and suitable application in the design of Forest Plans.

Strategy 6: Protecting forest habitats through new designations

Below, we identify four priority conservation areas within the GPNF that warrant more ecologically-tailored management. We recommend these areas receive new designations, primarily as Special Areas in the local Forest Plan. We also discuss designation options for new Management Areas and another option that would be enacted through an update of the NWFP. The management approach for each is outlined below and would ultimately be determined by the specific goals and objectives outlined during planning, deliberation, and designation.

We identified these areas using methodologies similar to those outlined previously for the Matrix to LSR shift yet with a stronger focus on old-growth forests (rather than mature forests) and an incorporation of other variables such as 1) proximity to current roadless and Wilderness areas, 2) road locations and densities, 3) results from a previously completed road impacts analysis, and 4) locations of recreation facilities, trails, and potential future recreation needs. The process was less hierarchical and more qualitative and conditional upon this broad set of factors.

Before we discuss these recommendations, we will examine existing designations and their influence on management.

Designated Areas

Designated Areas are defined in regulations as "[a]n area or feature identified and managed to maintain its unique special character or purpose."[16] Both Congress and administrative agencies like the Forest Service have the authority to create land designations of different types and scales. Designated Areas all have their own management objectives and goals that can override the general prescriptions and management direction in Forest Plans.

Areas designated by Congress

Congress can establish new Designated Areas that protect or enhance specific conservation and recreation values by law. Examples of areas created by law include Wilderness, National Recreation Areas, National Monuments, National Scenic Areas, National Scenic Research Areas, and National Management Emphasis Areas (defined in the text box on page 101. The specific management objectives for each area are determined by the law which established a particular area. For example, the management objectives of Mount St. Helens National Volcanic Monument are "to protect the geologic, ecologic, and cultural resources, in accordance with the provisions of this act allowing geological forces and ecological succession to continue substantially unimpeded." [17]

Once a law designating an area is enacted by Congress, the management objectives and goals are incorporated into the Forest Plan at the local level in the form of guidelines that will ensure the area is managed as the law dictates. Other uses that do not directly conflict with the primary management objectives are allowed. Uses that would conflict with objectives are generally prohibited. For example, the Mount St. Helens Monument heavily restricts timber management in the establishing law, and therefore, timber harvest is only implemented in very narrow circumstances, such as the removal of hazard trees.

In this guidebook, we do not suggest Wilderness as a means of habitat protection. Instead, we recommend protection methods that 1) present fewer roadblocks, 2) are easier to adopt, 3) don't rely on an inherent assumption that humans never inhabited the area, 4) can be managed with more flexibility, and 5) will allow us to focus on areas most at-risk and those that may not meet Wilderness standards. In short, new Wilderness designation would have a low likelihood of success compared to our proposed methods and would limit our geographic focus to areas that, in some cases, are already well protected, such as Inventoried Roadless Areas.

Areas designated administratively

Special Areas: The Forest Service can designate Special Areas to protect and/or study sensitive species and habitats. They can be designated at the regional level by the Region 6 Forester or through the U.S. Department of Agriculture by the Secretary of Agriculture. The objective of this authority is stated in the Forest Service Manual as: to "protect the special values and attributes of the area (that is, scenic, cultural, historic, wilderness, wildlife, or other values) that contribute to public enjoyment" and "[m]anage for any other resource values present in the area, in a manner that does not impair the public recreation values or the special attributes of the area."[18]

If an area meets one of the Special Area categories then it may be designated through the forest planning process, such as through a targeted amendment to the Gifford Pinchot LRMP or a more comprehensive revision. On the GPNF, current Special Areas include (among others) Smith Butte Research Natural Area, Shark Rock Unusual Interest Area, Mount St. Helens Geothermal Area, Sister Rocks Natural Research Area, Cedar Flats National Research Area, and Wind River Experimental Forest.

The size and condition of Administratively Designated Areas determine which agency official must make the designation. For example, if an area is proposed for recreation and needs "development and substantial improvements"[19] then the Regional Forester can only approve a Special Area of 160 acres or less. The Secretary of Agriculture designates areas above that size. If an area will be maintained substantially in its current or natural condition, the Regional Forester can designate a Special Area up to 100,000 acres, and the Secretary of Agriculture designates those over 100,000 acres.

Old-growth western redcedars. Photo by Darryl Lloyd

The designation of Special Areas aligns well with the goal of building resilience as the rules for management of these areas are determined by the original reason for their designation. In other words, if an area is designated because it was identified as valuable climate refugia for a certain species or group of species, management would focus on conserving that trait, enabling managers to manage adaptively in the face of uncertainty and allowing restoration efforts that are supported by observed changes and current literature. The Forest Service echoes this in their documentation on Special Areas: "One of the goals of the program is to preserve a wide spectrum of pristine areas. We want to preserve and maintain genetic diversity. Within these areas, we want to protect against serious environmental disruptions."[20]

Management Areas: If specific guidance is needed for a certain area, but the area does not meet any of the Special Area criteria, the Forest Service can identify it as a "management area or as a geographic area to apply specific plan components in the land management plan."[6] Similar to Special Areas, a Management Area designated in a Forest Plan, with its associated management guidelines, allows the Forest Service to manage for specific desired conditions or features – such as climate resilience.

Old-growth western redcedars along Lost Creek

PLACE 1: LOST CREEK CEDAR REFUGIA

Lost Creek Cedar Refugia is a 305-acre area in the Little White Salmon watershed where ancient forests straddle Lost Creek and the boundary of the GPNF and the Columbia River Gorge Scenic Area. This area is home to some of the largest trees in the GPNF and a thriving understory teeming with botanical diversity. The area was threatened by a timber sale 25 years ago, but local citizens and stewards appealed and stopped the sale. As Matrix lands, this area remains at-risk from logging and should be set aside as a habitat reserve.

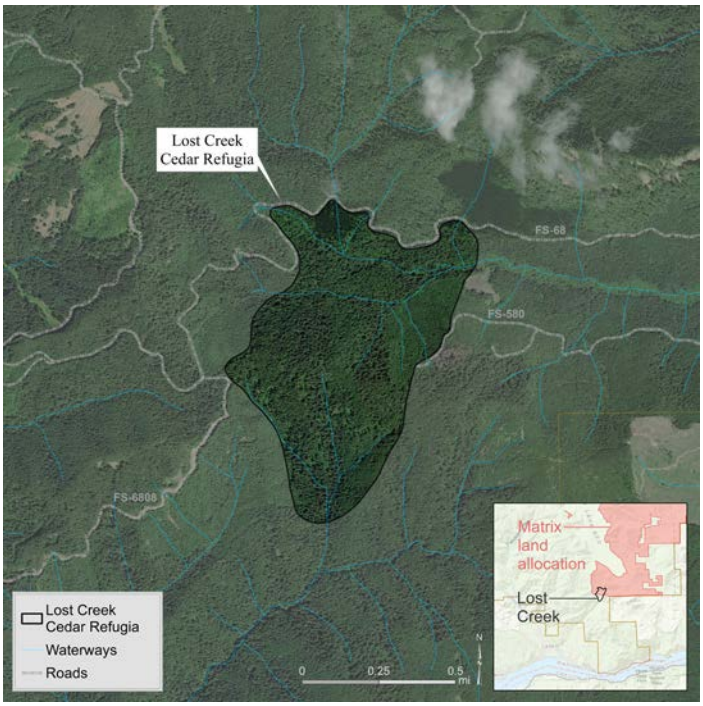
We are proposing to enhance forest protection in this area (through a full restriction of logging) utilizing one of two routes.

Option 1: Special Area Designation

Our primary designation recommendation for this area is to designate it as a Botanical Special Area or Research Natural Area in the Gifford Pinchot Land and Resource Management Plan for its rare ecological integrity. Both of these designations fit under the category of Special Areas. We will pursue this by working with the GPNF to create an "analysis of the need and desirability" showing the need for this Special Area in the Gifford Pinchot LRMP, whereby the Regional Forester could designate the Lost Creek Cedar Refugia as a new Special Area.[18]

Option 2: Management Area Designation

If the GPNF determines that the Lost Creek Cedar Refugia does not meet the requirements for a Special Area then the area could alternatively be protected as a Management Area. Designating the area as a Management Area could focus management on preserving it as a habitat reserve. This change in management direction could be done through a revision or amendment of the Gifford Pinchot LRMP.



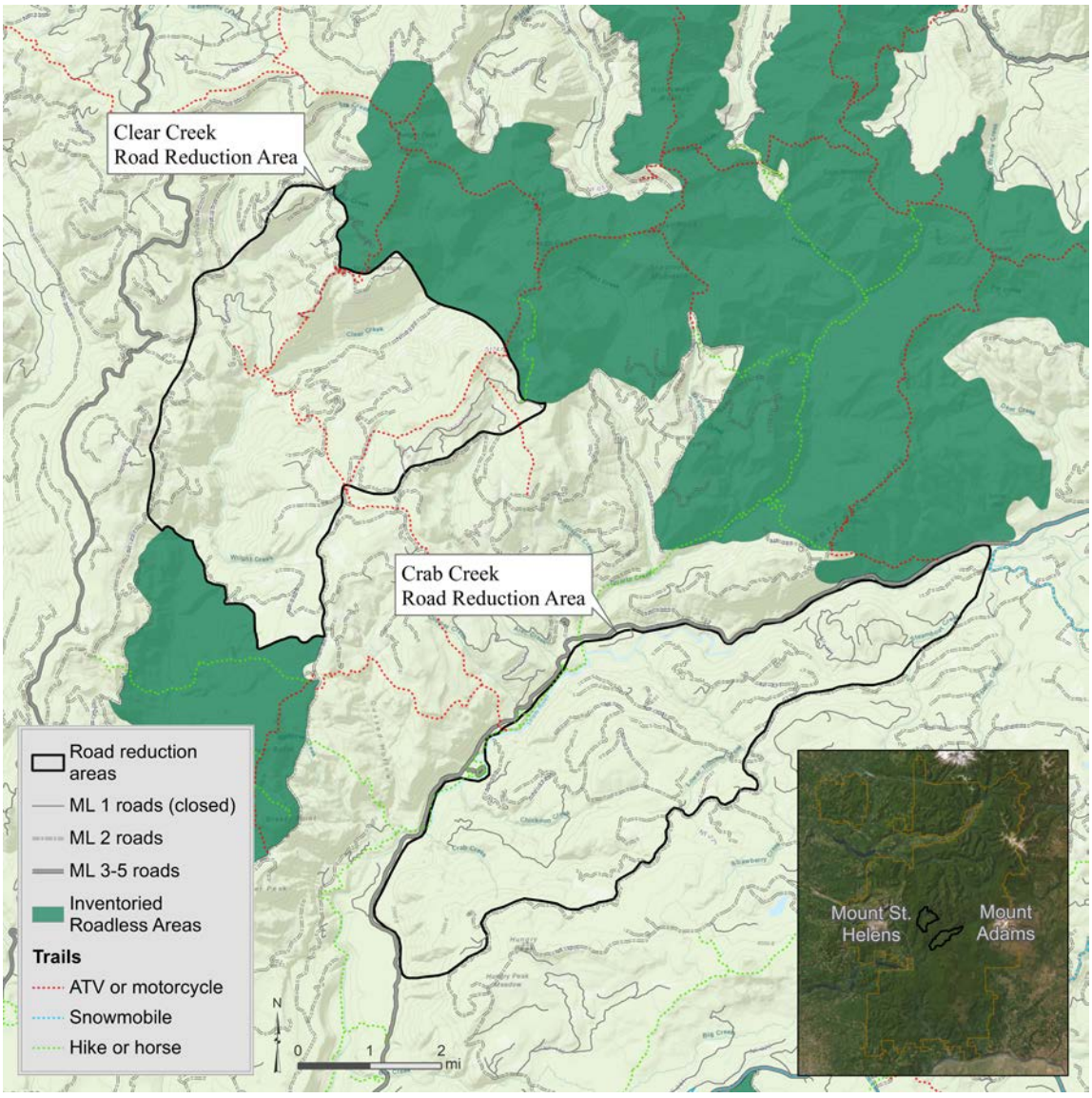
The proposed Lost Creek Cedar Refugia Special Area

PLACES 2 AND 3: CLEAR CREEK AND CRAB CREEK ROAD REDUCTION AREAS

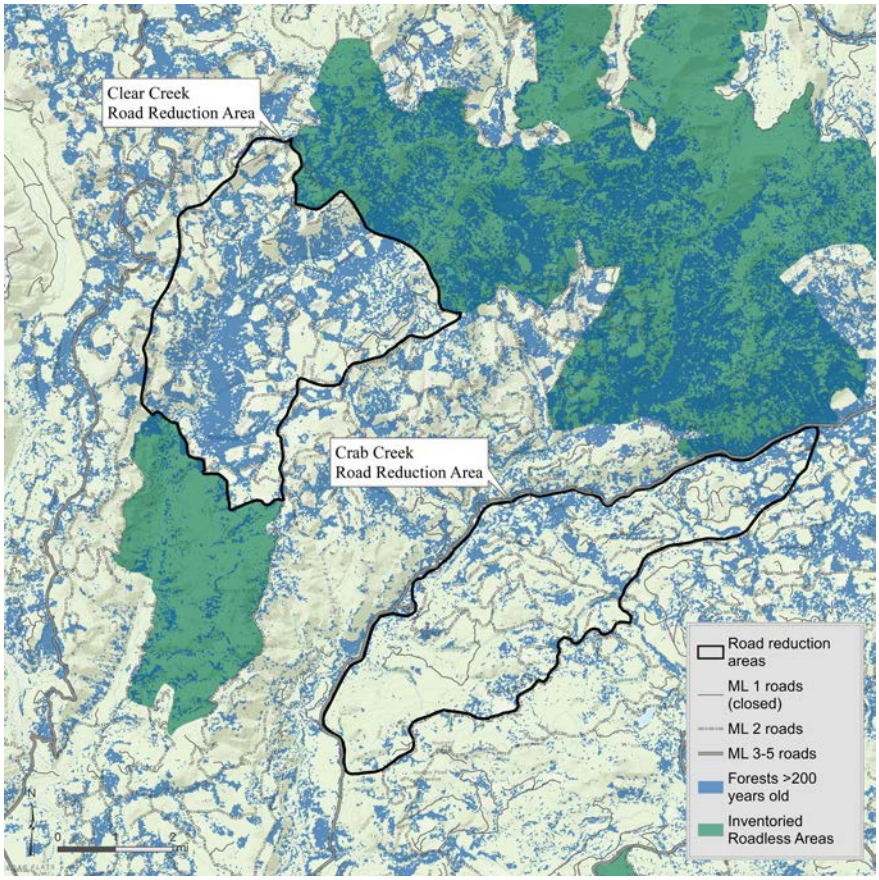
There are more roads in the GPNF than can be properly maintained, especially considering the projected increase in high flow events from climate change. In addition, forest roads can have a significant impact on terrestrial and aquatic ecosystems. Roads increase sediment in waterways, block fish passage, introduce invasive plants, and disrupt habitat use for a variety of land-roaming species.[21–24]

The GPNF carried out a travel management planning process in 2015, but the identification of road reduction opportunities was minimal, and the effort was tilted strongly toward road retention, with the idea that fine-tuned planning for targeted road reduction would occur during future timber harvest planning efforts. Because of this and the rarity of other planning efforts focused on roads issues, there is little to no opportunity to address road closure needs outside of timber sales. Even during timber sale planning, road reduction often remains overlooked and under-utilized.

In 2017, the GPNF did finalize one standalone roads assessment, the Upper Lewis River Roads Project, where the agency identified specific road restoration and reduction needs, with the intention to carry out on-the-ground implementation over the following several years. To assist in this project, CFC, along with teams of volunteers, collected on-the-ground information about road conditions and culverts and helped identify priority road segments for closure. A similar process can be carried out in the areas identified here.



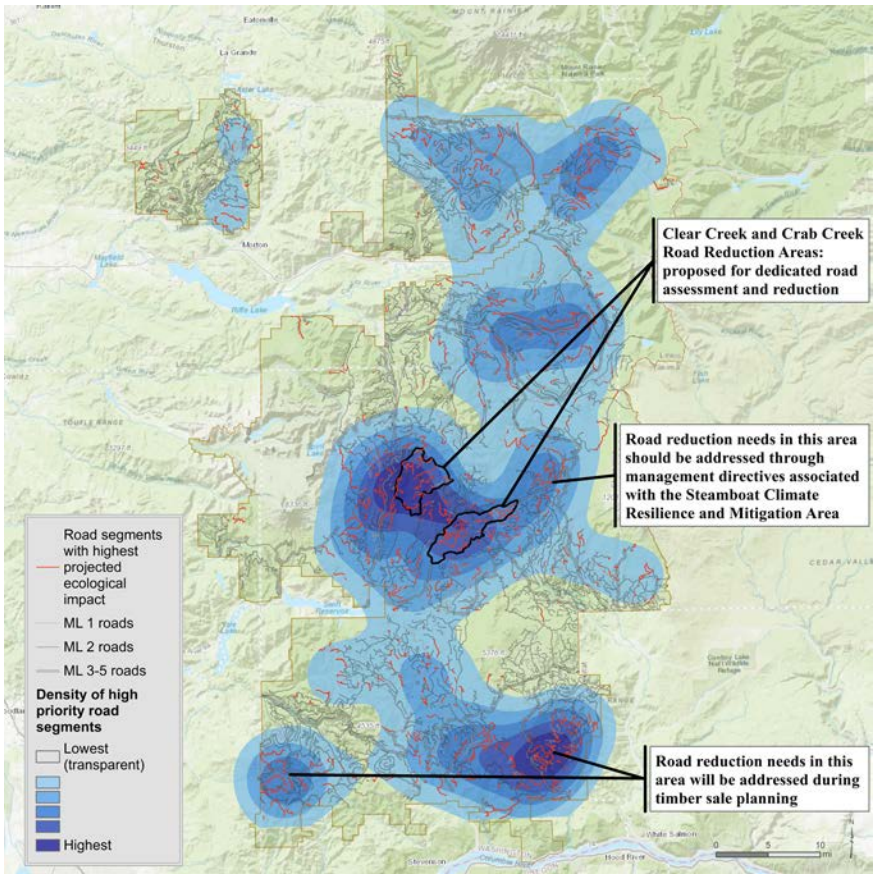
Through spatial analysis and investigation into potential management and policy solutions, we have identified two priority areas where we recommend management directives be tailored to 1) study the road network, 2) reduce road mileage and associated impacts, 3) increase habitat quality and connectivity, and 4) improve backcountry recreation opportunities. An additional goal for the Clear Creek Road Reduction Area is to connect two existing roadless areas and create one of the largest contiguous roadless areas in the southern Washington Cascades.



These two particular areas were selected for a variety of reasons.

First, these areas do not contain major thoroughfares or critical access routes that would make it difficult to advance their roadless character.

Second, they contain high densities of roads projected to bring negative ecological impacts. The map to the right was created using a base model that estimated road impacts by considering factors such as number of stream crossings, likelihood of a road segment creating sedimentation issues in aquatic systems (due to soil and topography dynamics), proximity to critical terrestrial habitats, and a variety of other measures. We then narrowed it down further by focusing on the highest impact roads (top quartile) and removing roads designated as maintenance levels 3, 4, and 5 (well-used and/or regularly maintained roads) as well as those labeled with two digits (e.g., FS-32) as these are likely well-used and needed on the landscape for a variety of purposes. Using this refined selection of road segments, we then ran a density tool to locate areas where these were densely aggregated. Running this density analysis allowed us to identify general project areas where a collection of roads could be assessed and considered as a group, similar to the process carried out for the Upper Lewis River Roads Project.



Third, these road reduction areas are nearby other roadless areas and this work

can therefore help in creating larger contiguous zones of un-roaded forest habitats, offering connectivity benefits for wildlife. The Clear Creek Road Reduction Area, in particular, encompasses a large expanse of old-growth forests and also sits between two existing Inventoried Roadless Areas, the Dark Divide and Spencer Ridge Roadless Areas. If significant closure of roads in this area was able to be accomplished, it would create one of the largest roadless areas in the region. Even partial road reduction would enhance the wildness of the area and improve habitats. Habitat models created by the Washington Wildlife Habitat Connectivity Working Group and Halsey et al. (2015) suggest that these areas are important as core habitat areas and/or connectivity pathways for a variety of species including fisher, marten, black bear, mountain goat, elk, flying squirrel, and western toad.[25,26] Field investigations can be integrated into management directives and can help in prioritizing reduction strategies and refining management objectives.

Option 1: Management Area Designation

Our top recommendation for advancing the roadless nature of these areas is to designate them as Management Areas through a revision or amendment of the Gifford Pinchot LRMP.

Management Area determinations are flexible and can allow for specific management objectives, such as road reduction, habitat protection and improvement, or recreation enhancement. In this case, Management Area designation would allow the agency to direct attention and resources toward A) assessing roads for closure and B) decommissioning road segments found to be suitable candidates for closure. This would, in turn, reduce long-term costs associated with forest-wide road maintenance, improve habitat and connectivity for terrestrial and aquatic wildlife, and improve backcountry recreation opportunities.

Option 2: Recreational Special Area Designation

Alternatively, designation as a Recreational Special Area could also be suitable and would allow more flexibility for enhancing backcountry recreation in this area. Similar to a Management Area, this type of designation would be enacted through a revision or amendment of the Gifford Pinchot LRMP. A Recreational Special Area is "a unit of land that has been administratively designated for particular recreation opportunities or activities such as hiking, rock hounding, recreational mining, photography, or other special activity." [18] These areas already contain recreation opportunities that fit this description, but more so, this option presents an opportunity to enhance these features. Recreation specialists would be needed to refine recreation locations and carry out requisite planning actions such as identification of low-impact camping locations, trail routes, and road-to-trail opportunities. As populations in cities and communities around the region continue to grow rapidly, we see a need to increase opportunities for low-impact recreation.

Option 3: District-level Management Project

A third approach to advance road reduction is through the creation of a standalone management project initiated and carried out by the district office(s). This effort would be similar to the Upper Lewis River Roads Project carried out by the GPNF in 2017 and would be done through the standard NEPA process, including assessment, scoping and environmental analysis (with associated public input), and a final decision.

A multistory forest stand near Clear Creek

What is the 2001 Roadless Rule? Can it be used to advance road reduction in these areas?

In 2001, the Forest Service adopted the 2001 Roadless Rule. This effort was implemented to protect the unique characteristics of un-roaded areas. The Inventoried Roadless Areas (IRAs) were identified by the Forest Service in either the Roadless Area Review and Evaluation II (RARE II) done in the late 1970s or other large scale assessments done for each national forest and grassland.[27] Instead of defining a minimum size or other set characteristics through which to determine eligibility, the Rule intentionally limited IRAs to include only those areas identified through the 2001 rulemaking process and which were mapped in the Rule's Final Environmental Impact Statement.[28] IRAs carry strong protections from logging and road development due to the national value they offer for habitat, recreation, and biodiversity.

While it might seem prudent to consider the Crab Creek and Clear Creek areas as new IRAs, there are two primary reasons that we recommend alternate approaches. First, these areas likely do not meet the pre-designation standards required for an IRA, since there are roads currently in place. Second, there is no set process for designating new IRAs. The process that originally created the IRAs was specific to the 2001 rulemaking process and could not be readily replicated in a present-day context. If a similar process were to be considered, it would require involvement of the Secretary of Agriculture which would create unnecessary complications.

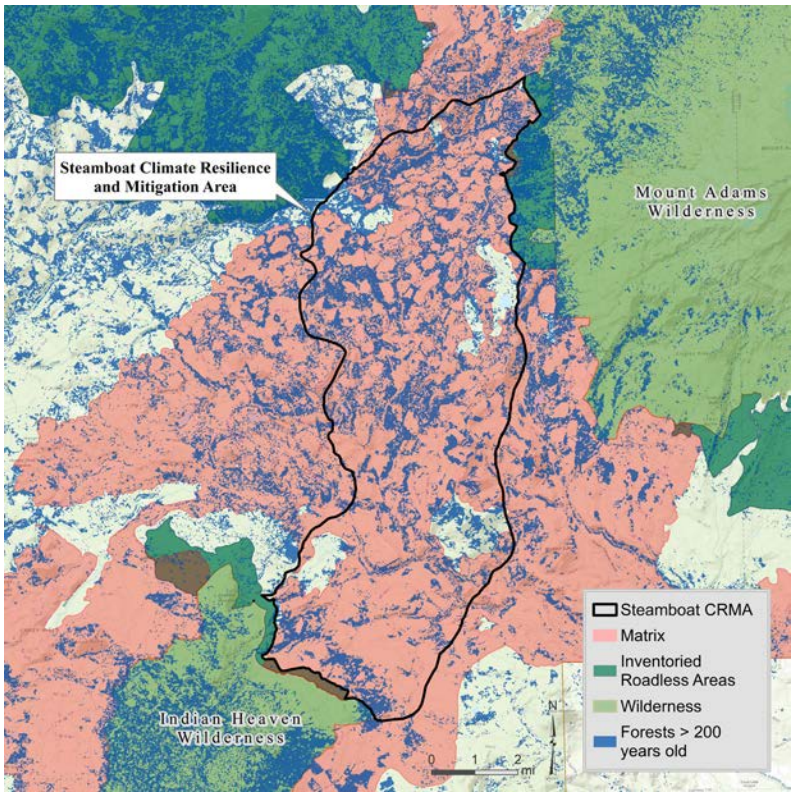
PLACE 4: STEAMBOAT CLIMATE RESILIENCE AND MITIGATION AREA

We recommend establishing a new protected area focused on carbon storage, connectivity, and climate resilience, where disturbance from logging and new road development would be limited and where management would be specifically tailored to advancing resilience for species and habitats. This recommendation focuses on using a new Forest Plan designation to reduce logging intensity, with 70% set as a minimum canopy cover threshold except in narrowly-targeted cases such as the treatment of root rot or the creation of fire breaks.

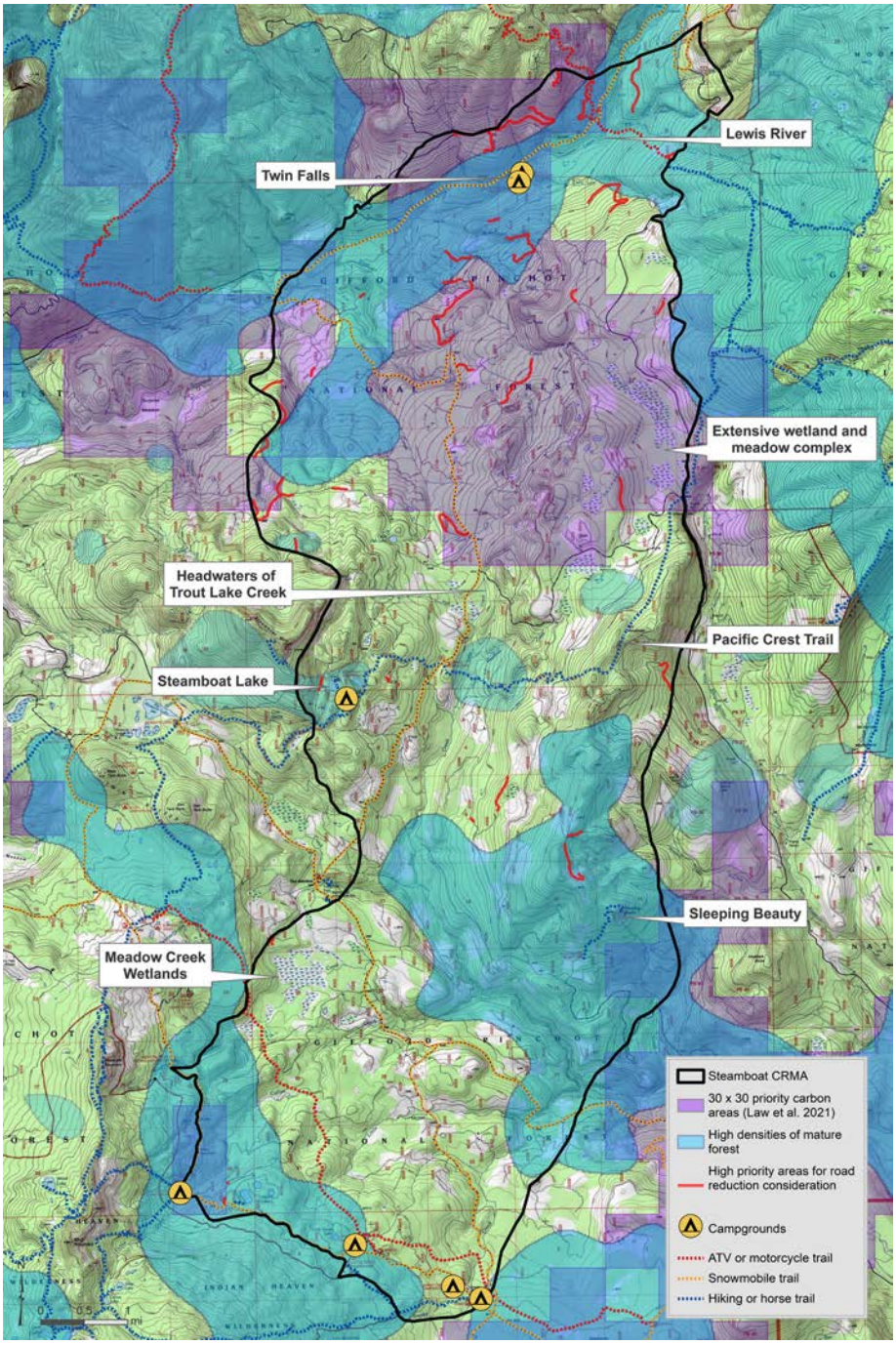
The proposed Steamboat Climate Resilience and Mitigation Area (CRMA) would connect Mount Adams Wilderness and Indian Heaven Wilderness. It encompasses Steamboat Lake, patches of old-growth forest, an abundance of wetlands and meadows, and many popular recreation sites and trails, including the Pacific Crest Trail.

In the CRMA, like a Wilderness area, habitat conservation is a primary objective along with recreation. But, management of a CRMA differs from Wilderness in a variety of ways: 1) roads are allowed; 2) aquatic, riparian, and road restoration is encouraged; and 3) light thinning of monoculture plantation stands originating between 1945 and 2015 is allowed. In addition, there is a distinct push to monitor and advance climate resilience to better understand the role of large multi-use areas in an era of climate change.

In the Steamboat CRMA, roads allow access to recreation areas and, in some situations, could be useful as fire breaks to protect patches of old-growth (note: more research is needed regarding the efficacy of roads as fire breaks in varying fire severity scenarios). As with most areas in our national forests, there are many old and unneeded roads that are causing ecological damage. So, with the goal of maintaining ecosystem health and enhancing climate resilience, this designation would advance processes to identify some roads for closure and others for upgrades (such as culvert replacements to increase fish passage and decrease the chance of road failure from high streamflow events).



A forest stand bordering a meadow in the Steamboat area



Option 1: Climate Resilience and Mitigation Area (CRMA) in the NWFP

This method employs a campaign advocating for the inclusion of climate resilience reserves—to be titled Climate Resilience and Mitigation Areas (CRMAs)—in the update of the NWFP. The Steamboat CRMA would be the pilot case showcasing the process and potential for such a designation in other national forests operating under the Northwest Forest Plan. As we move forward with advancing protection for this area, we will pursue opportunities to work with partner groups and apply our methods to locations in other areas.

Option 2: Special Area Designation

This method involves establishing the Steamboat CRMA as a Special Area (recreational or scenic) through the Gifford Pinchot LRMP.

As outlined for the road reduction areas, recreational areas are "designated for particular recreation opportunities or activities such as hiking, rock-hounding, recreational mining, photography, or other special activity."[18] There are many recreational opportunities present in this area, such as the Pacific Crest Trail, Cultus Creek Campground, Langfield Falls, Steamboat Lake, Swampy Meadows, and many more. There is also the potential to enhance

backcountry recreation through infrastructure updates, trail construction, and strategic road closures in areas where there are unneeded roads, such as the heavily-roaded slopes near the headwaters of Trout Lake Creek and the north section of the Steamboat CRMA, which ranked high in our analysis of projected road impacts on ecological systems.

The scenic values of this area are abundant and diverse (meadows, old-growth forests, lakes, and rock outcroppings) and could potentially justify Scenic Special Area designation. The regulations define a Scenic Special Area as "a unit of land with outstanding natural beauty that requires special management to preserve this beauty." [18]

If logging impacts are reduced, roads are studied and decreased in select areas, and infrastructure is enhanced to support Scenic Area goals, the natural beauty of this area can justifiably be improved through a designation of this sort.

For either option, we would pursue Special Area designation by working with the GPNF to create an "analysis of the need and desirability"showing the need for this Special Area in the Forest Plan which could then be used by the Regional Forester to designate the Steamboat CRMA as a newly designated Special Area. [18]

Looking out at Mount Adams and the Steamboat Climate Resilience and Mitigation Area

Appendix B: Congressional Designations

Wilderness: is defined in its enabling act as an "area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions." (Wilderness Act of 1964) Additional Wilderness areas may be added by a process that includes inventory and recommendation to Congress. All new Wilderness areas are adopted through Congress.

Wild and Scenic Rivers: are select rivers that "possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values" and "shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations." (Public Law 90-542; 16 U.S.C. 1271 et seq.)

National Recreation Areas: "Areas that have outstanding combinations of outdoor recreation opportunities, aesthetic attractions, and proximity to potential users. They may also have cultural, historical, archaeological, pastoral, Wilderness, scientific, wildlife, and other values contributing to public enjoyment." (Forest Service Manual Ch 2370)

National Monuments: "Areas of unique ecological, geologic, historical, prehistorical, cultural, and scientific interest." (Forest Service Manual Ch 2370)

National Scenic Areas: "Areas that contain outstanding scenic characteristics, recreational values, and geologic, ecologic, and cultural resources." (Forest Service Manual Ch 2370)

National Scenic Research Areas: "Areas that contain outstanding scenic values for research, scientific, and recreational purposes." (Forest Service Manual Ch 2370)

National Management Emphasis Areas: "[A]reas that contain unique or outstanding physical features and that contain specific physical, cultural, or political characteristics receiving specific emphasis in the legislation." (Forest Service Manual Ch 2370)

National Scenic and Historic Trails: These trails are intended to provide for expanding outdoor recreational needs. Scenic trails are those with "outdoor recreation potential" and for "the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass." Historic trails are those "which follow as closely as possible and practicable the original trails or routes of travel of national historic significance." (The National Trails System Act, 16 USC 1241-1251)

National Heritage Areas: These are areas that are nationally important with historic, cultural, and natural resource significance. These areas are mostly lived-in landscapes and usually involve collaboration with local communities and include a component of sustaining economic vitality of the designated area. (https://www.nps.gov/subjects/heritageareas/index.htm)

Appendix C: Administrative Designations

Research Natural Areas: The Forest Service "shall establish a series of research natural areas, sufficient in number and size to illustrate adequately or typify for research or educational purposes, the important forest and range types in each forest region, as well as other plant communities that have special or unique characteristics of scientific interest and importance."

Botanical Special Areas: Botanical Special Areas can be designated to secure important plant communities. Designation for these areas is similar to that for RNAs, yet is focused on preserving certain botanical species or communities. Management of these areas comes with a distinct set of rules; these rules and their flexibility vary with the type of species or communities.

Scenic Special Areas: Scenic Special Areas are used to protect outstanding natural beauty. The focus is to tailor management toward the preservation of this outstanding natural beauty.

Geological Special Areas: These areas contain "outstanding formations or unique geological features of the earth's development." Some examples include caves, cliffs, and fossil areas.

Zoological Special Areas: These areas are intended to protect important animals or communities. These can be significant "because of their occurrence, habitat, location, life history, ecology, rarity, or other features."

Paleontological Special Areas: "A paleontological area is a unit of land that contains fossils of plants and animals, shellfish, early vertebrates, coal swamp forests, early reptiles, dinosaurs, and other prehistoric plants and animals."

Historical Special Areas: "A historical area is a unit of land possessing a significant site or a concentration of sites, buildings, structures, or objects united historically or prehistorically by plan or physical development. Memorial areas are included in this definition."

Recreational Special Areas: A recreational area is a unit of land that has been administratively designated to protect or enhance recreation opportunities or activities such as "hiking, rock hounding, recreational mining, photography, or other special activity."

Inventoried Roadless Areas: In 2001 the Forest Service and USDA adopted a rule that provided protections for inventoried roadless areas against timber harvest and roadbuilding. There is no existing process in regulations or law to add more areas to the inventoried roadless area category.

*Designation information sourced from 36 C.F.R. § 251.23 (2023) and Forest Service Manual 2372.05

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