

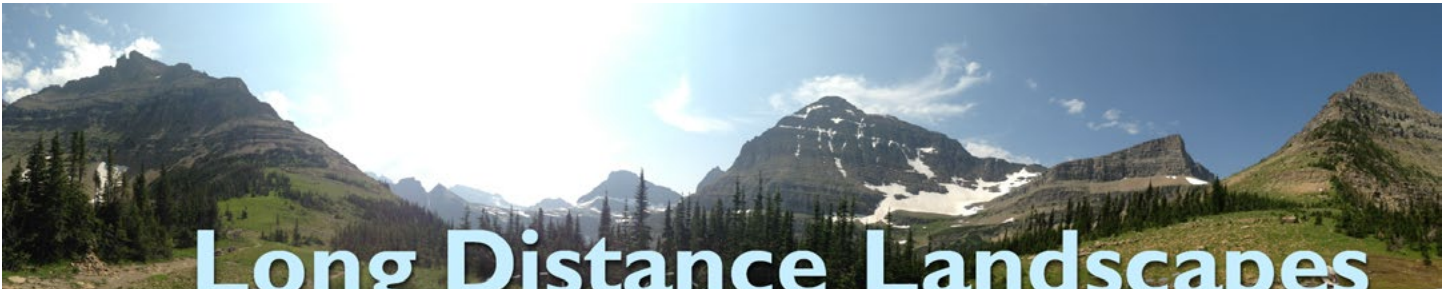
Long Distance Landscapes: Conducting a Baseline Visual Assessment for the Pacific Northwest National Scenic Trail

Brad Cownover and Matt Ramich¹



¹Regional Landscape Architect (BC) and Landscape Architect (MR), US Forest Service Pacific Northwest Region, 1220 SW 3rd Avenue, Portland, Oregon 97204. BC is corresponding author: to contact email at ebcownover@fs.fed.us.

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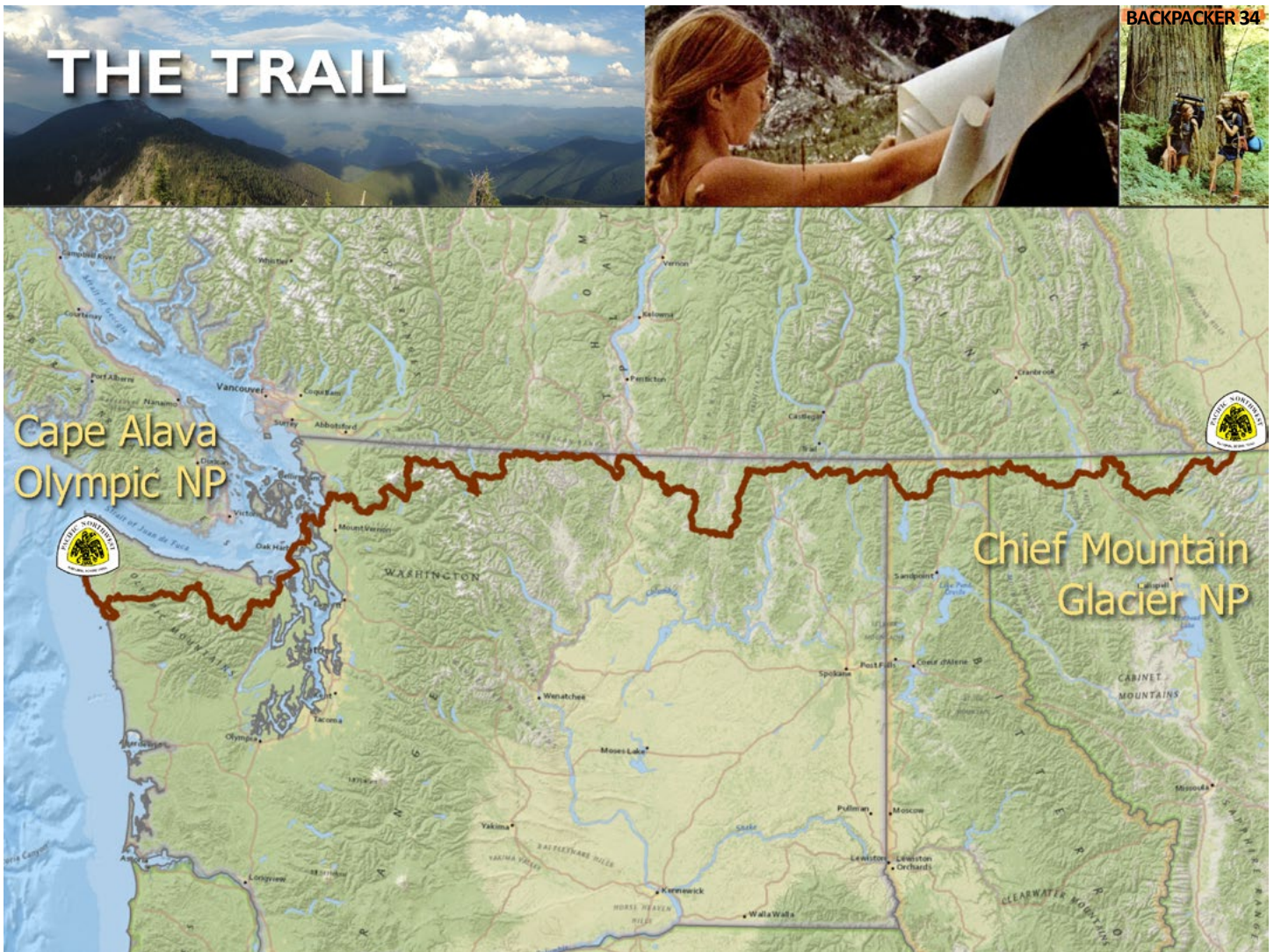
Long Distance Landscapes

CONDUCTING A BASELINE VISUAL ASSESSMENT FOR THE PACIFIC NORTHWEST NATIONAL SCENIC TRAIL



Brad Cownover and Matt Ramich
Landscape Architects, US Forest Service

Abstract.—The purpose of this Visual Case Study is to share an effort made to conduct a baseline visual assessment for the Pacific Northwest National Scenic Trail. This assessment was completed a couple of years ago and the comprehensive planning effort for the trail is now underway, utilizing much of the information provided by the assessment. The following case study provides background information on the trail, discusses the objectives and benefits sought through conducting this assessment, details the methods and initial results, and shares some of the next steps and lessons learned.



INTRODUCTION

Beginning with a big idea by an East Coast college student, Ron Strickland, in 1970, it took nearly forty years before the Pacific Northwest Trail (PNT) was finally added into the National Scenic Trail System by Congress in 2009. In the process, feasibility studies were conducted and a local trail maintenance and advocacy organization was formed.

Designated by Congress in 2009 as one of America's 11 National Scenic Trails, this 1,200-mile route provides outstanding opportunities for long-distance non-motorized recreation. It starts at the Continental Divide: Chief Mountain in Glacier National Park, Montana and ends at the Pacific Ocean: Cape Alava in Olympic National Park, Washington. Across the route, hikers will experience wilderness, working landscapes, and small town main streets.

Concern levels are measured by taking into account the public's use of a landscape along roads, at use areas and viewpoints, etc. The value is based on the number of viewers using that particular area coupled with the overall social importance of the scenery. Take for example the picture of this scenic byway. Knowing how many people use this road and their thoughts about its impact on the surrounding scenery would give us a concern level rating of high (1), moderate (2), or low (3).



PURPOSE

VALUE and BENEFIT

- Document conditions, monitoring
- Defines zones / protect trail experience
- Assist with optimal location review
- Restore / enhance (from what, to what?)
- Public lands
- Private land – (Scenic Easements, Acquisition, etc.)

SCOPE of WORK

- Seen area / visibility mapping
- Photo documentation from trail
- Integrity (now) and stability (future)
- Compile existing information across multiple jurisdictions

Inform Comprehensive Plan

Purpose of the Assessment

Conducting a visual assessment helps to establish a baseline of scenic quality conditions that can be useful in many aspects of planning and managing a national scenic trail, including: documenting the existing conditions to help with monitoring over time; assisting with information that can be useful in situations where the route of the trail might need to be relocated; helping to define, differentiate and ultimately protect the scenic aspects of the trail experience; and providing documentation for areas in need of restoration or enhancement. On this last point, this baseline information can also help to identify opportunities on both federally managed as well as private land that might be accomplished through voluntary measures, scenic easements, land acquisition and similar activities.

A scope of work was created which included a number of elements considered standard for a baseline visual/scenic inventory-assessment: developing a seen area or visibility analysis, evaluating the existing conditions on the ground, photo documentation, and related activities. Two Forest Service landscape architects were hired into a four month detail to help conduct the baseline assessment. While not all of the goals of the scope of work were accomplished during the detail, the information obtained to date has helped us understand key elements that feed the development of the comprehensive plan for the trail, as is required for all National Scenic Trails.

MERGING TWO SYSTEMS



- ▶ Forest Service Scenery Management System
 - ▶ Majority of land base / agency is Trail lead
- ▶ Bureau of Land Management Visual Resource Inventory
 - ▶ Inventory documentation methods

Common Elements

- | | |
|-----------------------------------|----------------|
| ✓ Condition... | Visual quality |
| ✓ Sensitivity to change... | Concern levels |
| ✓ Visibility... | Distance zones |

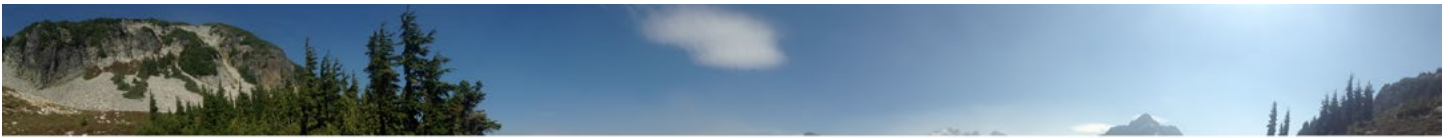
Landscape (Scenic) Character

KEY COMPONENTS OF THE ASSESSMENT

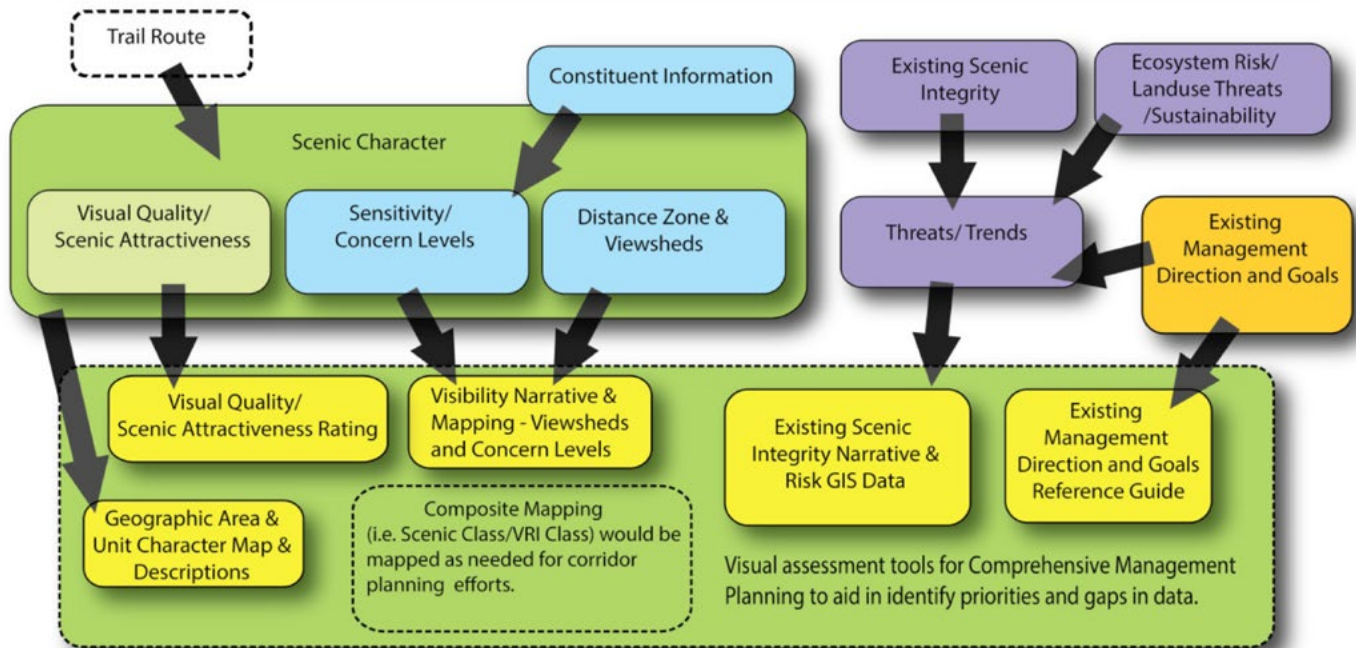
Early on, the two landscape architects on detail met with the regional landscape architect to brainstorm key components that should be part of the assessment, including the relationship to other sources of data that needed to be considered. While the Forest Service is listed as the lead agency for the trail, the trail crosses many other federal and state lands, as well as private lands. There was no requirement for the assessment to use established Forest Service planning systems, and this provided latitude for considering other agency approaches such as those used by the Bureau of Land Management, the National Park Service, and others.

After comparing the possible approaches with the goals of the assessment, the landscape architects ultimately settled on use of two primary approaches, the U.S. Forest Service (USFS) Scenery Management System or SMS (USDA Forest Service 1995) and the Bureau of Land Management (BLM) Visual Resource Management program or VRM (USD I Bureau of Land Management 1980). The USFS system was chosen because a majority of the trail is managed by the USFS. The BLM system was chosen because it contains good documentation approaches for conducting a systematic inventory.

Together, both the USFS and BLM systems have some key scenic resource principles in common and provided a foundational approach for the assessment. These are the condition of the resource, the relative sensitivity to change, and the visibility. Combined, these components help shape an overall landscape or scenic character description for all areas along the trail.



PACIFIC NORTHWEST NATIONAL SCENIC TRAIL SCENIC INVENTORY PROCESS



The two primary leads for the assessment developed a flow chart (shown here) for synthesizing the process used. Much of the chart includes aspects of data that help with the comprehensive plan as well as Forest Plan revisions for the adjacent land.

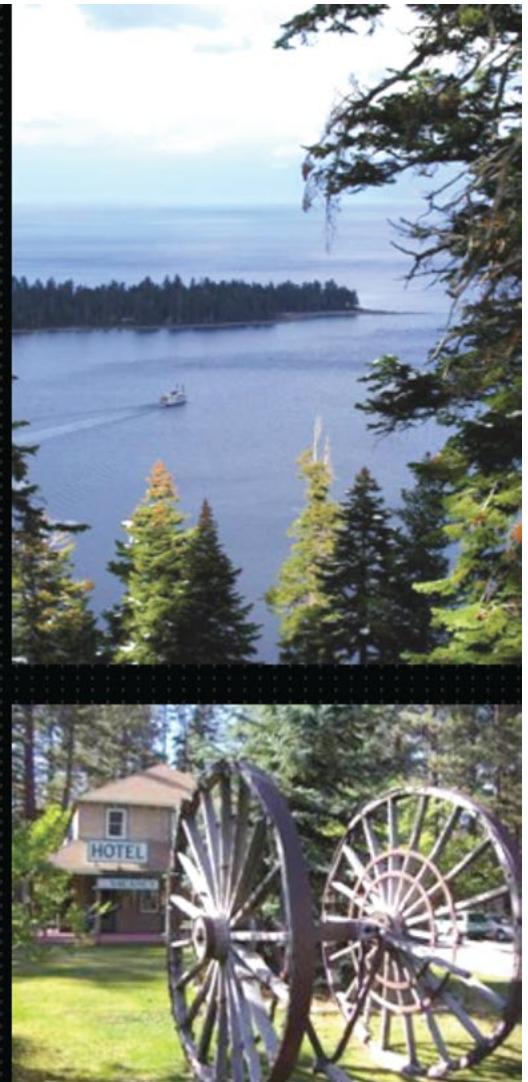
This case study focuses on key elements of the data collected during the baseline inventory. These elements include description of the scenic character of the trail and assessments of visual quality/scenic attractiveness, sensitivity/concern levels, and distance zones and viewsheds. Together, these elements help identify the condition, quality, and distribution of scenery; public sensitivity to change; and what can be seen along the trail. Each is further described below.

Landscape (Scenic) Character

“A combination of the physical, biological and cultural images that gives an area its positive scenic identity and contributes to its sense of place.”

Scenic character is
the essential scenery resource
to be protected and restored

Seen experience of the PNT traveler



Landscape or scenic character is the essential scenery resource. Each place has a scenic character that people value—a unique historic identity composed of scenery attributes, both natural and cultural, evolving through time as the visible expression of ecosystem forms and functions. Social preferences for scenic character are identified through evaluation of constituent information/place analysis, project scoping, historic scenery preferences, and research.

Visual (Scenic) Quality/ Scenic Attractiveness

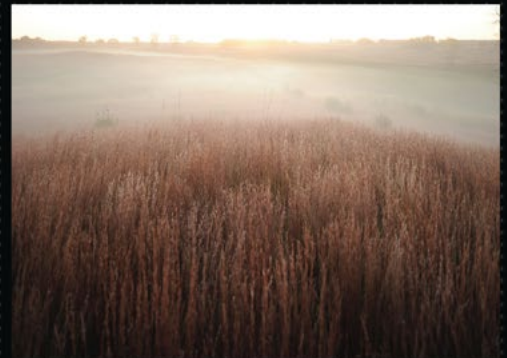
Measures the scenic importance of a landscape based upon perceptions of the intrinsic beauty of landform, rock form, vegetative patterns, water characteristics, cultural land use.

- Class A = Distinctive
- Class B = Typical
- Class C = Indistinctive

- Variety
- Unity
- Vividness
- Mystery
- Intactness
- Coherence
- Harmony
- Uniqueness
- Pattern
- Balance



Physiographic Province



Another next step includes quantifying the results of the inventory components across the length of the trail. For instance, understanding what percentage of the trail is in which scenic quality rating of A, B, C; what percentage of the trail is of high sensitivity vs. low; what is the existing scenic integrity range across the trail; and do certain sections tend to have higher levels of integrity than others?

Also, how does land jurisdiction affect this? Even understanding simply the percentage of the trail under which ownership helps to describe its relative level of inherent protection. Layering that information with data from the visual assessment can further quantify what conservation or enhancement activities might be warranted and where.

Visual quality/scenic attractiveness is determined by breaking up the landscape into various components, such as water, landform, vegetation, and cultural land uses. Using the Forest Service SMS process, landscape architects assign ratings using established design principles such as variety, unity, uniqueness, and balance. After ratings are given for each component, an overall score is calculated, which determines if the area is Class A = Distinctive, Class B = Typical, or Class C = Indistinctive.

PNNST Visual Inventory

Geographic Area: **N ROCKIES**

Scenic Character Unit: **KOOTENAI VALLEY**

Scenic Attractiveness/ Visual Quality (Variety, Unity, Vividness, Mystery, Intactness, Coherence, Harmony, Uniqueness)			
Landform Spatial Definition	L	M	H
Rock Features	L	M	H
Vegetation Patterns	L	M	H
Surface Water Characteristics	L	M	H
Landmarks	L	M	H
Landuse Patterns	L	M	H
Built Features	L	M	H
Cultural/Sense of place	L	M	H
Score (Circle One)	A	B	C
Scenic Integrity			
Level of Natural Intactness	L	M	H
Wholeness	L	M	H
Score (Circle One)	VL	L	M
Visibility			

Foreground View:
RIVER

Middleground View:
AGRICULTURE

Background View:
SELKIRK PURCELLS

GPS Location:

Photographs:

B 0702-0325

Date: **7/5/15**

B-8

Scenic Character Description:

Vegetation:

**LITTLE RIPARIAN EDGE
COTTONWOODS
TEXTURE OF FORESTED SLOPES
PASTORAL**

Land Use:

**FARMLAND HOPS, WHEAT, MUSTARD?
FORESTRY
BLACKWATER RIVER
BEEVES
PATCHWORK PATTERNS
PASTURE GRASS - MONOCULTURE**

Landform:

**FLAT VALLEY
MEANDER OF LARGE RIVER
FORESTED SELKIRK PURCELLS
WITH BRUSHLANDS
JUST A HINT OF SELKIRK CREST
STEEP SLOPES DOWN TO FLAT
VALLEY**

Features:

**RIVER
FARMLAND
MOUNTAINS
BIG VIEW**

Other Comments:

**RATTING OF COTTONWOODS
BATTLE OF WIND BURST
CHIRPING OF SWALLOWS
FULL LIGHT
QUIET
PEACEFUL
BORDER PATROL
SLEEPY
SMOKEY
NOT MANY STRUCTURES BUT
EVIDENCE OF MODIFICATION
FOR FLOODPLAIN AGRICULTURE**

All of this information will feed into the comprehensive management plan for the trail and may inform revisions to existing land and resource management plans for the forests in the area of the trail. This information can also aid in development strategies for cooperative efforts with regard to viewshed protection that might occur through other means, such as easements, land acquisition, and volunteer or private land stewardship activities.

Other approaches to quantifying multiple data layers across linear areas have been conducted that might also be compared, such as the ILARIS project in the Puget Sound and the Visual Prioritization Process (VPP) being used on the Arizona Trail.

Finally, this data will assist with identifying areas that could be targeted for scenic restoration and enhancement efforts as part of compensatory mitigation that might occur because of other projects.

For our study, the landscape architects started to use the rating method described on the previous slide and illustrated by the graphic on this slide. However, they soon found it to be too complex and adopted the BLM method for rating landscapes.

Scenic Quality

Seven scenic quality factors



Landform



Vegetation



Water



Color



Adjacent scenery



Scarcity



Cultural
modifications

Just like the Forest Service SMS rating system, BLM's VRM process splits the landscape into components. As illustrated, there are seven components, each with numerical scoring to determine how distinct, typical, or indistinct that particular landscape area is.

Key Factors	Rating Criteria and Score		
Landform	High vertical relief as expressed in prominent cliffs, spires, or massive rock outcrops, or severe variation or highly eroded formations including major dune systems or detail features dominant and exceptionally striking and intriguing such as glaciers.	Sleep canyons, mesas, buttes, cinder cones, and drumlins, or interesting erosional patterns of variety in size and shape of landforms, or detail features which are interesting though not dominant.	Low rolling hills, flat valley bottoms or no interesting features.
Vegetation	A variety of vegetative types as expressed in interesting forms, textures, and patterns.	Some variety of vegetation, but only one or two major types.	Little or no variety contrast in vegetation.
Water	Clear and clean appearing, still, or cascading white water, any of which are a dominant factor in the landscape.	Flowing, or still, but not dominant in the landscape.	Absent, or present but not noticeable.
Color	Rich color combinations, variety or vivid color, or pleasing contrasts in the soil, rock, vegetation, water or snow fields.	Some intensity or variety in colors and contrast of the soil, rock and vegetation, but not a dominant scenic element.	Subtle color variation contrast, or interest generally muted to dominant scenic element.
Influence of Adjacent Scenery	Adjacent scenery greatly enhances visual quality.	Adjacent scenery moderately enhances overall visual quality.	Adjacent scenery or no influence or visual quality.
Scarcity	One of a kind or unusually memorable, or very rare within region. Consistent chance for exceptional wildlife or wildflower viewing, etc.	Distinctive, though somewhat similar to others within the region.	Interesting within but fairly common region.
Cultural Modifications	Modifications add favorably to visual variety while promoting visual harmony.	Modifications add little or no variety to the area, and introduce no discordant elements.	Modifications add but are very discordant promote strong disharmony.

Figure Source: BLM Manual H-8410-1, Illustration 2.

* A rating of greater than 5 can be given but must be supported by written justification.

PNNST Visual Inventory

Date: 8/31/2016

Geographic Area: COAST RANGE (OLYMPIC PENINSULA) B-44

Scenic Character Unit: LOW OLYMPICS (ELWANA RIVER)

Visual Quality / Scenic Attractiveness (Variety, Unity, Vividness, Mystery, Intactness, Coherence, Harmony, Uniqueness)

Landform	5/3, 1 pts
Vegetation	5/3, 1 pts
Water	5/3, 0 pts
Color	5/3, 1 pts
Influence of Adjacent Scenery / Viewshed	5/3, 0 pts
Scarcity	5+ 3, 1 pts
Cultural Modification / Sense of place (Also see Scenic Integrity)	5/0, -4 pts
A=19+, B=12-18, C=11-10	Score (Circle One)

Scenic Integrity

Level of Natural Intactness	H 5 L
Wholeness	5 M L
Score (Circle One)	VL L M H ND

Visibility (Sensitivity/Concern Level/Viewshed)

Foreground View:
RIPARIAN CORRIDOR
TUNNEL OF TREES
OPENINGS IN CANOPY IS LIMITED

Middleground View:
GIMMIES OF RIVER
RIVER PROCESSES

Background View:
LIMITED
SOME ROCK OUTCROPS
FORESTED UPLAND SLOPES

GPS Location:

Photographs:

Scenic Character Description:

Vegetation:

BIG TREES
• DOUG FIR
• BIG LEAF MAPLE
RIPARIAN MAPLES
VINE MAPLES
EPIPHYTIC MISS LICHEN
Land Use: DRIFT MAPROTES !!
RECREATION
CONSERVATION
RESTORATION
• W RED CEDAR
SNOW FERN
TERNY HABITAT
UNDISTURBED

Landform:

FLUVIAL PROCESSES
RIVER CANYONS
HOT SPRINGS
LAKE MILLS
EROSION
RIVERINE RIPARIAN
POINT BARS
CUTTING/DEPOSITING
DYNAMISM
EXPRESSES VOLCANIC HISTORY

Features:

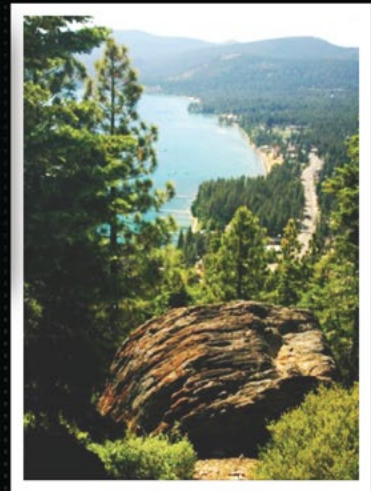
RIVER
HOT SPRINGS (BOVIDER)
ELVIN-ESQUE
COOL CULTURAL MODIFICATION OF
BREACHED PAN
PARK MANAGEMENT GIVES RURAL
CHARACTER IN DEV AREA
TRAIL INTERACTS WITH RIVER
ABOVE MARY'S FALLS CAMPGROUND
SALMONIDS
FULL SHADE IN MANY AREAS
GUIDE
WET CLIMATE

DENSE FOREST

This slide provides an example of how BLM scenic quality ratings were assessed for a portion of the trail. High (5), medium (3) or low (1) ratings for each component are based on how closely the area being examined matches one of the three descriptions in the manual. In-between ratings can be given if the area exhibits part of the description for a rating of, for example, 5 as well as 3, in which case the area would be given a 4. The surrounding landscape can influence these ratings as well. Finally, note that the only component that could be rated with a negative score is cultural modifications. That is because, as we have all witnessed, human introductions in the form of structures or reconfiguring the natural environment can either add or subtract value to the overall landscape. Unlike the previous form, this form incorporates a more numerical approach to the rating process.

Constituent Information

- ❖ How people use area
- ❖ Preferences and thresholds for scenery condition
- ❖ PNT-Local Field Office as surrogates for formal survey of trail hikers
- ❖ Crowd-source potential geo-photos
- ❖ Comprehensive planning can augment



Constituent information helps incorporate stakeholders' values for scenery and place attachment. As applied in this assessment, the landscape architects relied upon information provided by local field office staff and local trail administrators as surrogates for direct contact with trail users. The team also connected with a few local and long distance "through" hikers who helped provide important anecdotal information and insights into perceptions of trail scenery and place attachment.

As part of a broader assessment of constituent information, the comprehensive planning process and other communication and outreach efforts can provide additional ways to augment the input received. For instance, in formulating a strategy for the assessment, we discussed opportunities to examine social media and crowd sourced information such as geotagged photos on the web along the trail and trail blogs as an independent layer of constituent information. These sources could help provide a better understanding of the Visual Sensitivity component in the inventory aimed at assessing public sensitivity to change in the landscape.

Concern Levels

A measure of public concern for scenery as viewed from travel ways, use areas, and special places.

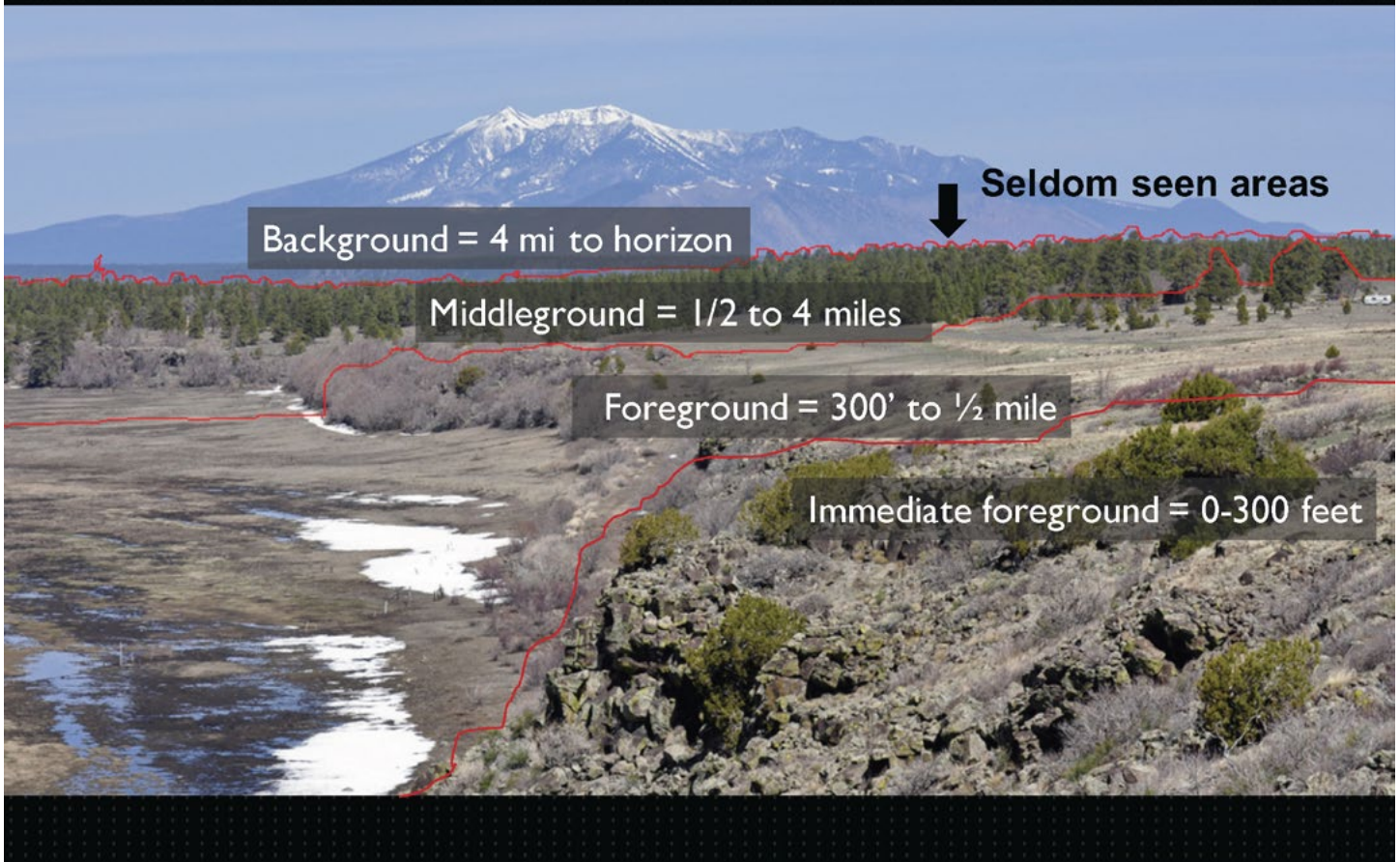
Based on numbers of viewers & social importance of the scenery.



High 1 Moderate 2 Low 3

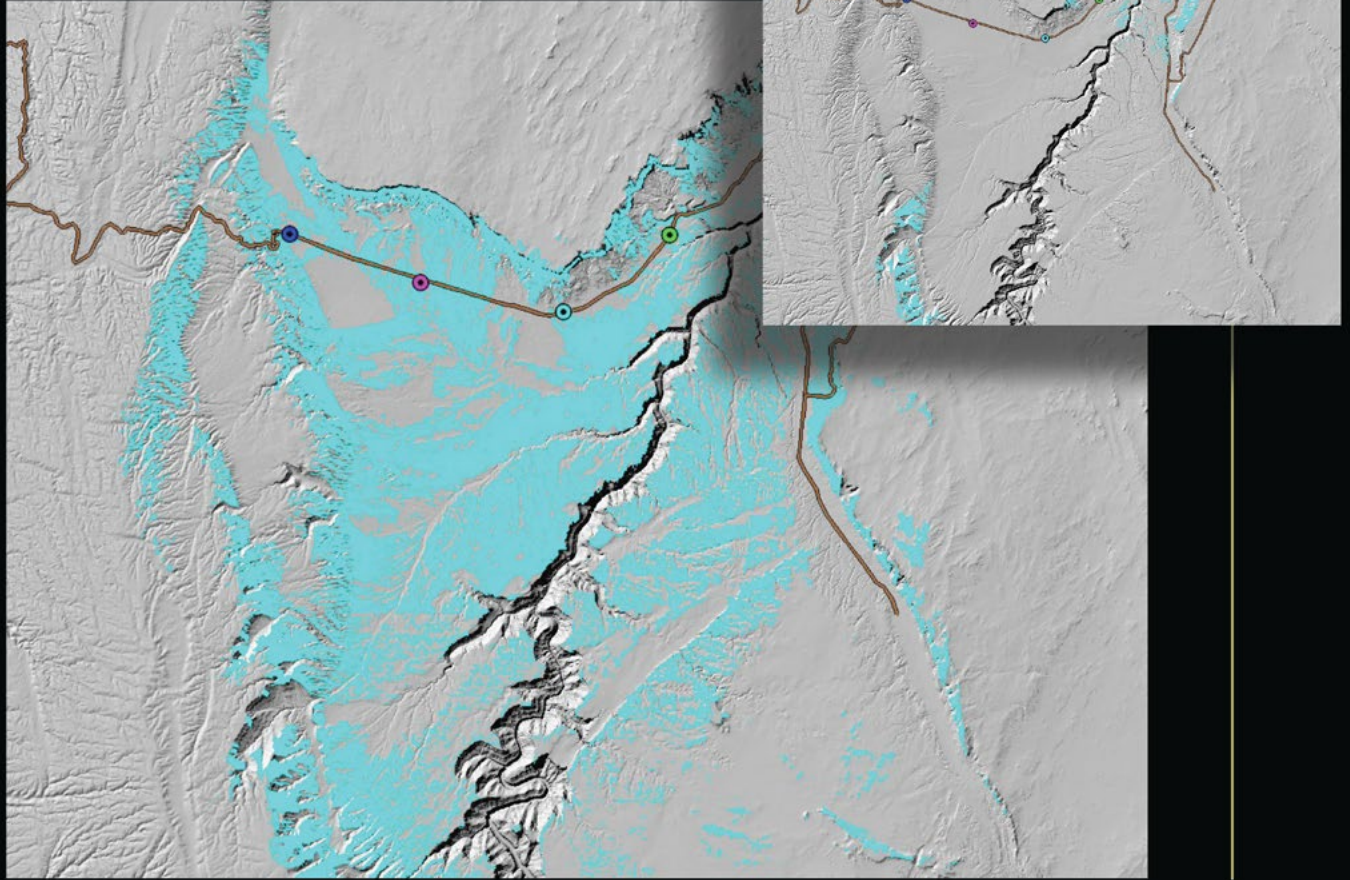
Concern levels are measured by taking into account the public's use of a landscape along roads, at use areas and viewpoints, etc. The value is based on the number of viewers using that particular area coupled with the overall social importance of the scenery. Take for example the picture of this scenic byway. Knowing how many people use this road and their thoughts about its impact on the surrounding scenery would give us a concern level rating of high (1), moderate (2), or low (3).

Landscape Visibility



Where or how far as well as how visible something is to a viewer on a travel corridor, at a use area, or in some special place determines its prominence or impact in the overall landscape.

Viewsheds



A viewshed analysis can be done using Arc GIS or equivalent software to determine and map seen and unseen areas from a set point or points. Clipped to a certain boundary, this viewshed analysis can show the multiple seen or unseen areas along a travel corridor or the area seen or unseen from a certain vantage point. This analysis can help determine areas that add value to a person's experience or need support to continue or improve this experience.

KEY INDICATOR

Scenic Integrity

Measures scenery disturbance of the scenic character, in 6 levels:

SIO

Very high

No disturbance

High

Unnoticed disturbance

Moderate

Minor disturbance

Low

Co-dominant disturbance

Very low

Strong disturbance

No integrity

Excessive disturbance

Scenic integrity is emphasized within view of travelways, use areas and special places – measures existing / future disturbance & can define thresholds for future disturbance.



Very high integrity

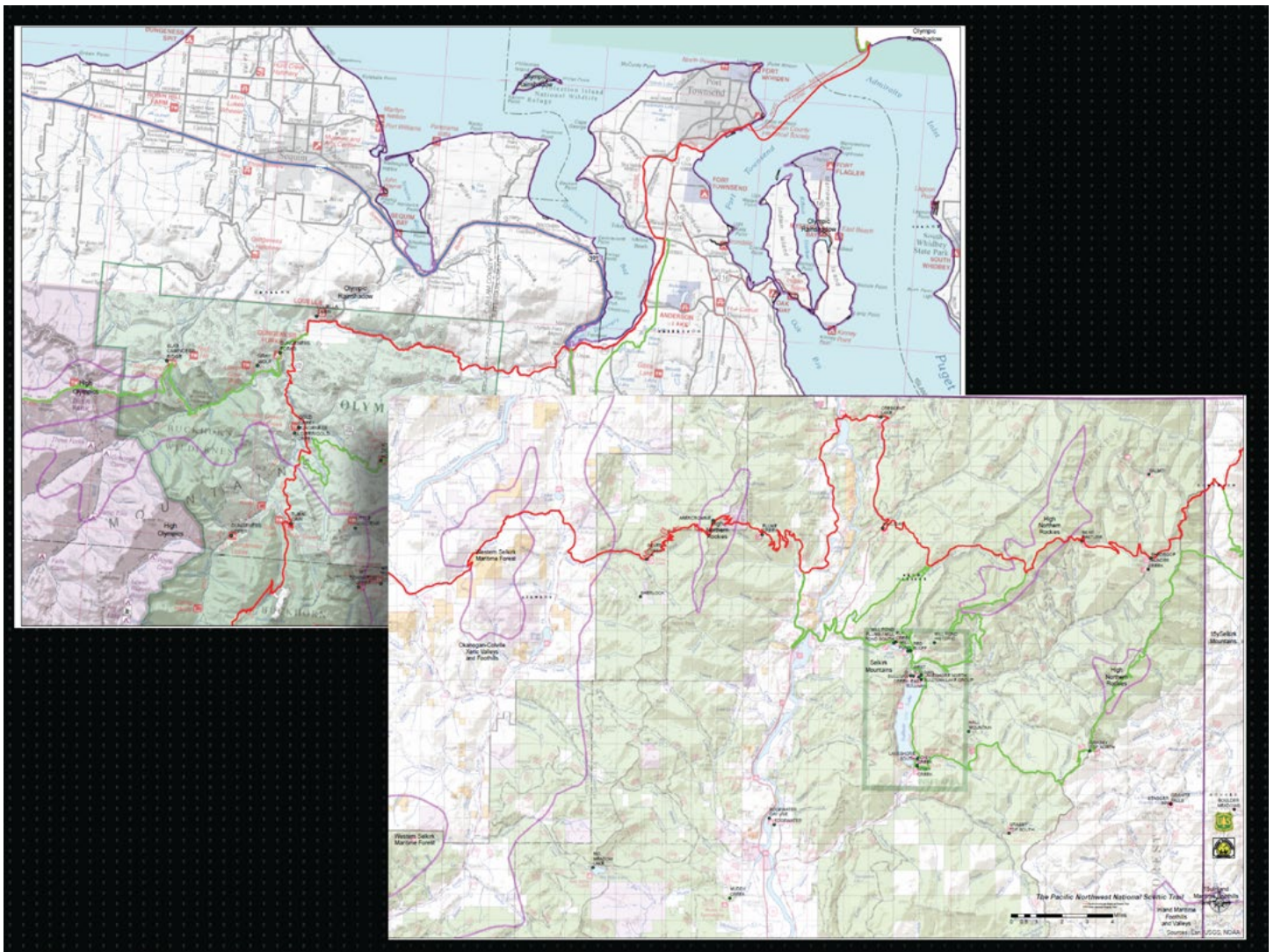


Moderate integrity



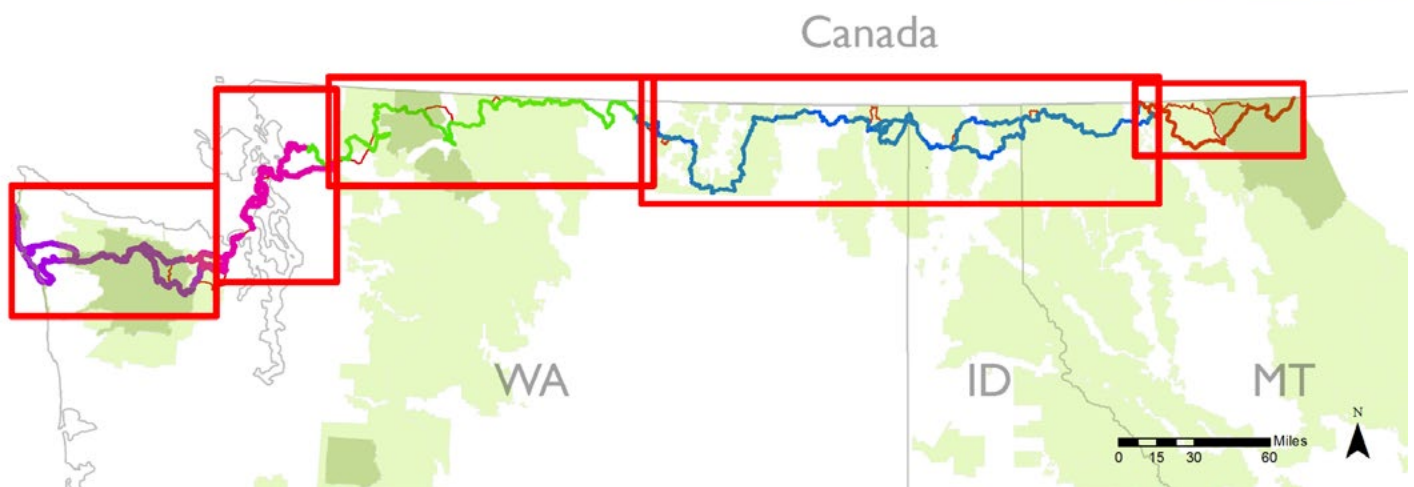
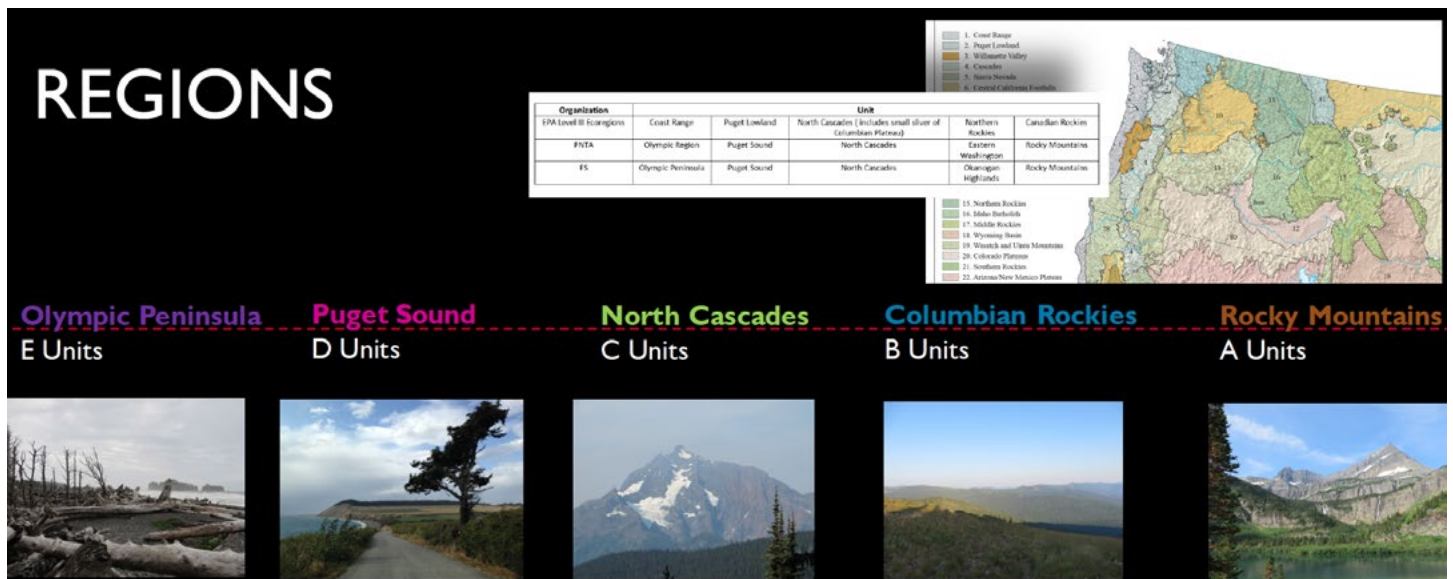
No integrity

Finally, the landscape architects hired to conduct the assessment also captured baseline ratings for scenic integrity, or the measure of scenery disturbance. In the Forest Service's SMS, scenic integrity objectives (SIOs) help to establish present and future landscape disturbance levels as well as future disturbance thresholds.



All of these analysis factors were evaluated in the context of the trail corridor. Prior to conducting field work, the landscape architects created georeference PDF maps of the PNT corridor that could be used on the mobile app Avenza. That way they knew exactly where they were on the trail. Also, the photos they took could be geotagged, so that later there would be no question about where a particular set of photos was taken.

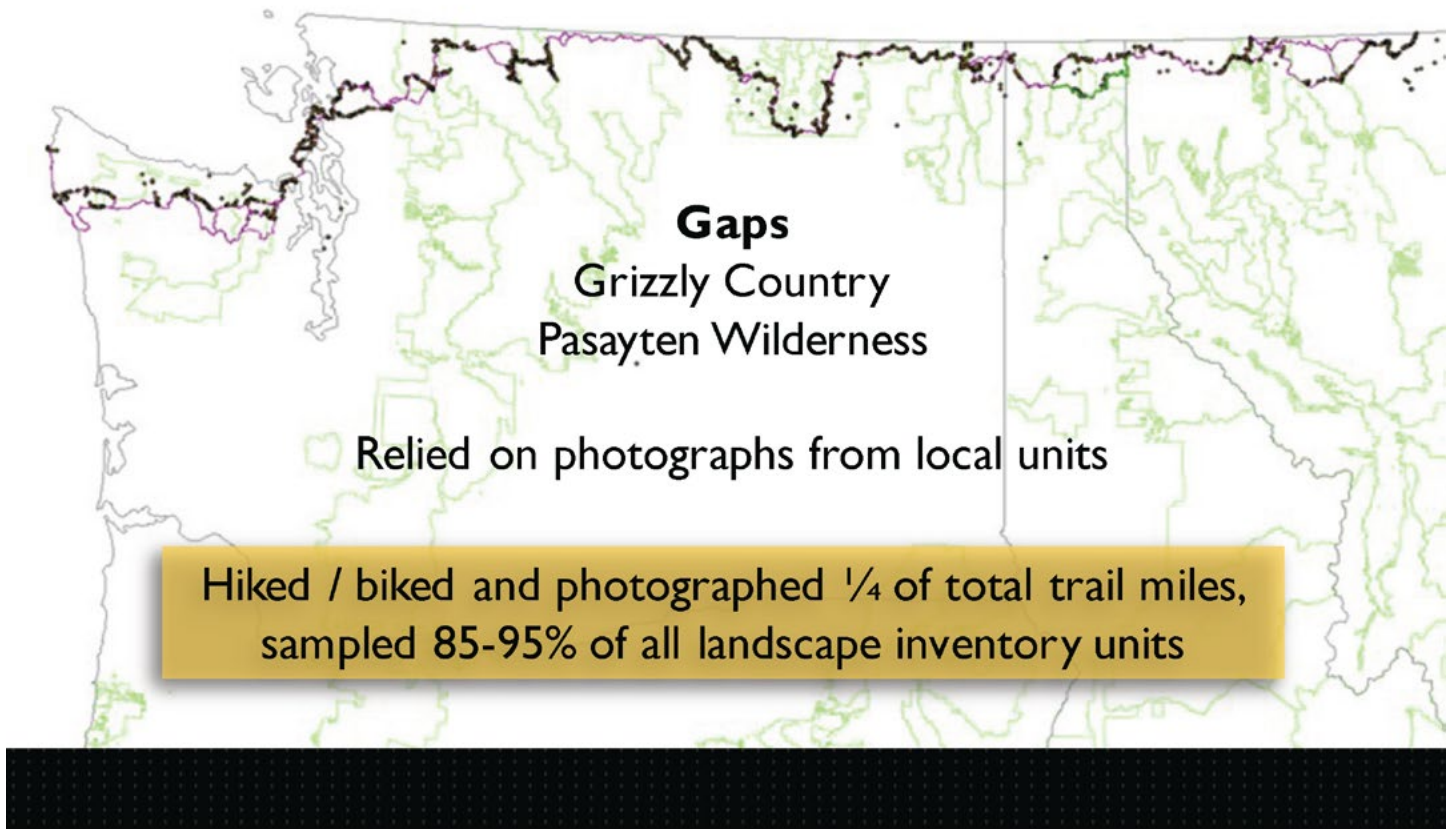
For our study, the landscape architects started to use the rating method described on the previous slide and illustrated by the graphic on this slide. However, they soon found it to be too complex and adopted the BLM method for rating landscapes.



To facilitate better organization of data and information from 1200 miles of trail, use of the USEPA's Level III ecoregions helped create manageable and meaningful regions or zones. These regions also closely relate to divisions used by the Pacific Northwest Trail Association and USFS for management of the trail. The regions related to this project include:

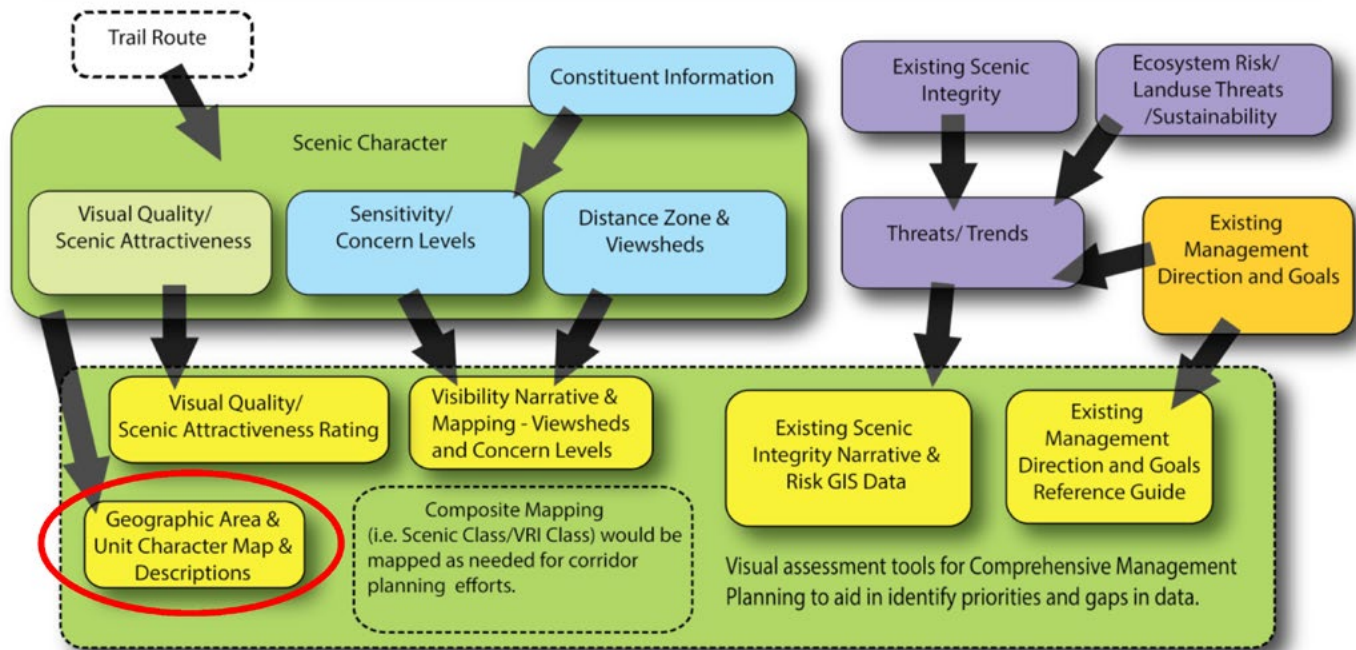
- Rocky Mountains – A Units
- Columbian Rockies – B Units
- North Cascades – C Units
- Puget Sound – D Units
- Olympic Peninsula – E Units

PHOTO INVENTORY POINTS



The landscape architects also captured a tremendous amount of photographic data in conjunction with the inventory. This graphic illustrates the number of photo points established and inventories conducted along the PNT. Note that there were two significant gaps. In the grizzly area, there is no established footpath. In the Pasayten Wilderness, there was so much trail to cover and so few easy in and out access points that the landscape architects were not able to make frequent stops to take photographs. Overall, during the summer of 2015, the amount of trail sampled was exceptionally high. This was due not only to the amount of time spent hiking, but in certain sections, one member of the team was able to bike, increasing the distance traveled in a day.

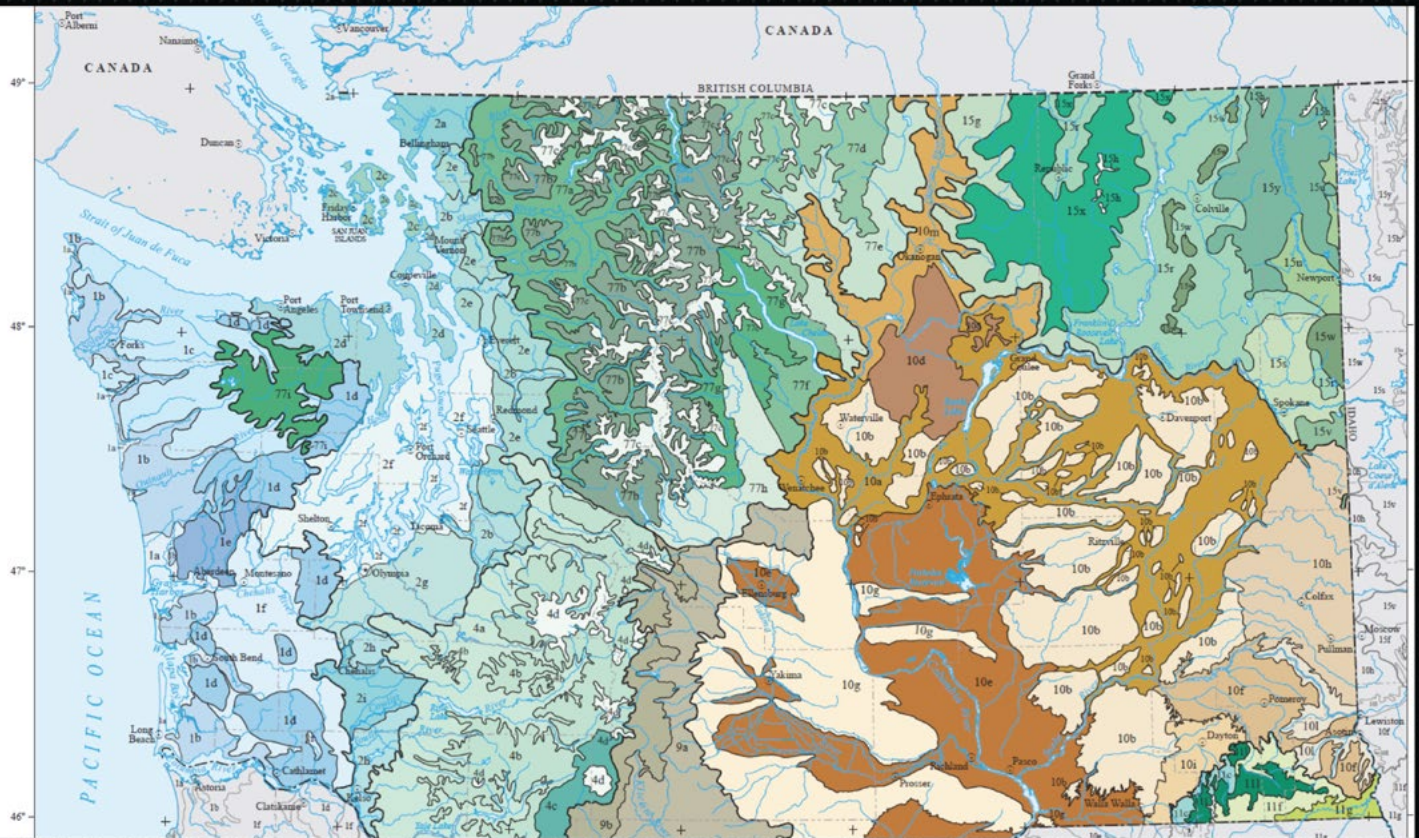
PACIFIC NORTHWEST NATIONAL SCENIC TRAIL SCENIC INVENTORY PROCESS



Referring back to the flow chart outlining the inventory methodology, note how the visual quality/scenic attractiveness descriptions feed into the ratings for each factor. Together with sensitivity/concern levels and distance zones and viewsheds, they help create a descriptive narrative of the area under analysis. These narratives are referred to as landscape or scenic character descriptions in this study as well as in the SMS used by the Forest Service.

As an extension of this process, the visual quality/scenic attractiveness ratings also helped establish units or smaller geographic areas called “landscape rooms.”

REGIONS → SUB-REGIONS → LANDSCAPE ROOMS



A map of Washington, showing USEPA's level 4 ecoregions.

Landscape rooms are based on the USEPA's level 4 ecoregions and are a finer boundary delineation for analyzing an area. In general, these boundaries are not very distinct in the field but they helped organize the data as the inventory process was carried out.



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SCENIC CHARACTER

The Belly River Valley lies east of the Continental Divide in the rain shadow of the Rocky Mountains. The most eastern section of the PNNST coincides with an alternate route of the Continental Divide National Scenic Trail. The broad Belly River Valley extends into Canada cradling the north flowing river. Nestled along the Rocky Mountain Front, here the Rocky Mountains dramatically uplift from the vast prairie to the east. Open meadows intersperse with aspen groves and mixed coniferous forest. Riparian corridors carve through rolling hills. Glacially scoured Cooley and Glenns Lakes display clear, azure water and are linked together by the Molokan River. High quality water abounds in many shades and forms. Expansive views of the surrounding Lewis Range are abundant.

Chief Mountain presides over the valley, a landscape sacred to the Blackfoot Nation. The Belly River Ranger Station stands testament to National Park Service management and the primary land use of recreation. Wildlife is abundant with most of the entire suite of species still extant, including lynx and grizzly bears. Non-native plant species, such as Timothy grass, have been introduced.

Aerial Overview



UNIT MAP



VISUAL QUALITY/SCENIC ATTRACTIVENESS

	Rating	Explanation or Rationale
Landform	4	Dramatic, glaciated mountains and valleys of Lewis Range.
Vegetation	3	Mixed coniferous forest; meadow; riparian corridor; aspen groves.
Water	5	Abundant in many forms: river; streams; lakes high quality water.
Color	3	Meadow flowers; aspen; clear cerulean water.
Adjacent Scenery	3	Rocky, jagged mountains including iconic Chief Mountain.
Scarcity	5	Exceptional; national significance.
Cultural Modification	3	Excellent trails and campgrounds; Belly River Ranger Station and associated facilities.
Total	26	RATING = A

Visual Inventory Form

Zone: 5 - Rocky Mountains
Unit # A1 Belly River Valley

Date: 07/06/2015

Jurisdiction (s): National Park

LOCATION MAP



VISIBILITY

Viewsheds/ Screening/ Distance Zone	Views are filtered by vegetation in sections but mostly far reaching into Middleground and Background of surrounding Lewis Range.
Sensitivity/ Concern Level	Very high concern levels because of high use and partial access to Glacier National Park.

SCENIC INTEGRITY

Level of Naturalness	Very High except introduced pasture grass
Wholeness	Very High



This example showcases the information assembled from the scenic inventory for one of the landscape rooms in Zone 5, the Rocky Mountain region of the trail, Unit A1 Belly River Valley. The description and key viewpoint photographs on the following slide profile the landscape room in a way that is easy to read and understand. Subsequent slides present parallel analyses of selected landscape rooms from other regions to illustrate the diversity of landscape and cultural elements along the length of the PNT.

Viewpoint - Panorama #01



Viewpoint #02



Viewpoint #03



Key viewpoints along Landscape Room A1 Belly River Valley, Zone 5, Rocky Mountain Region.

SCENIC CHARACTER

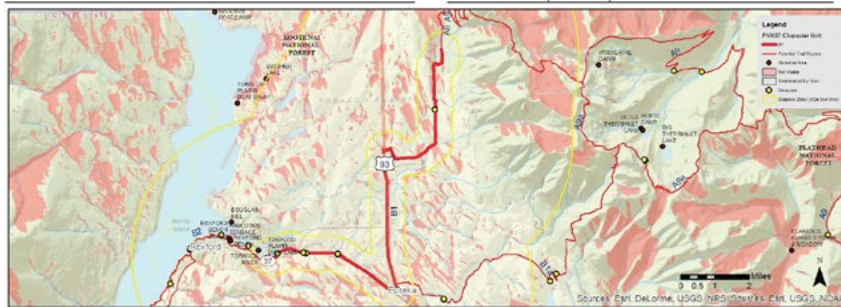
The Tobacco Plains unit is a broad valley sculpted by glaciation. Drumlins, or hills composed of glacial till, create low relief and well drained soils. The Tobacco River carves through the rolling landscape with rich riparian habitat replete with bird life. Land cover is largely treeless. Uplands, such as river terraces, supports dry, fragrant ponderosa pine forests. Pockets of aspen add to the pleasant mosaic. Suitable land has been converted to agriculture use, adding pastoral charm. Open expanses have distant views of the Whitefish and Salish Mountain ranges.

The convivial town of Eureka, a social oasis nestled in the Tobacco Plains, offers sustenance to weary travelers. Portions of the trail sample the residential and commercial fabric of this quiet community. The unit's geologic history renders it rich with sand and gravel deposits.

Aerial Overview



UNIT MAP



VISUAL QUALITY/SCENIC ATTRACTIVENESS

	Rating	Explanation or Rationale
Landform	3	Lowland hills; alluvial terraces; river bluffs.
Vegetation	3	Mostly treeless; ponderosa pine; aspen; riparian corridor; agricultural fields.
Water	3	Tobacco river; farm ponds.
Color	2	Fall color of aspen and broadleaf riparian plants; agriculture.
Adjacent Scenery	3	Broad agricultural valley; Whitefish Range to the east; Salish Mountains to the west.
Scarcity	1	Common agricultural landscape.
Cultural Modification	2	Historic rural farm houses; historic downtown Eureka.
Total	17	RATING = B

Visual Inventory Form

Zone: 4 - Columbian Rockies
Unit # B1 Tobacco Plains

Date: 07/07/2015

Jurisdiction (s): Private, US Forest Service

LOCATION MAP



VISIBILITY

Viewsheds/ Screening/ Distance Zone	Middleground views are open in the Ag land. Background is dominated by mountain ranges.
Sensitivity/ Concern Level	Very High concern levels because of proximity to Eureka.

SCENIC INTEGRITY

Level of Naturalness	Low level because landscape is altered for the majority of the unit.
Wholeness	Low level because agricultural land has continuity but other land is fragmented.



Scenic Inventory summary for Landscape Room B1, Tobacco Plains, Zone 4 Columbian Rockies Region.

Viewpoint - Panorama #01



Viewpoint #02



Viewpoint #03



Key viewpoints along Landscape Room B1, Tobacco Plains, Zone 4 Columbian Rockies Region.

The **Shag River Valley** unit is composed of floodplains and terraces. Western red cedar forest, western hemlock forest, and both riverine and wetland habitat were common before the 19th century. Subsequently, many of the wetlands were drained. Pastures, cropland, forests, and urban centers now dominate the landscape. In sections, a re-purposed rail line is the trail platform. The trail corridor stitches together riparian area, patchwork of agriculture, residential and industrial development. The urban fabric of Sedro-Wooley and Burlington are brought into the fold. These cheerful communities provide lodging, fare, and, leisure for weary travelers. Views are often screened by vegetation and other land cover. The iconic Mt Baker is looms over the area.

An aerial photograph showing a river with multiple meanders flowing through a lush green landscape. The river is a light blue-grey color, contrasting with the vibrant green of the surrounding fields and forests. The terrain appears to be a mix of agricultural land and natural vegetation.[illegible]

	Rating	Explanation or Rationale
Landform	1	Fragmented landscape, flat valley bottom.
Vegetation	3	Crops, cottonwoods line irrigation ditches.
Water	2	Irrigation ditches.
Color	3	Fall color, green agricultural land.
Adjacent Scenery	2	Hillsides of conifers.
Scarcity	1	Typical rural landscape.
Cultural Modification	2	Rail-to-trails and small towns of Hamilton, Lyman, Sedro-Woolley and Burlington add to the uniqueness of the area, but portions of the built environment detract as well.
Total	14	RATING = B-

Zone: 2 - Puget Sound
Unit # D1a Skagit River Valley

Jurisdiction (s): Private

Viewsheds/ Screening/ Distance Zone	Views are limited by screening of adjacent vegetation and built structures, but do open up in a few areas.
Sensitivity/ Concern Level	High concern because of the high use and population density

Level of Naturalness	Low levels of naturalness.
Wholeness	Fragmented landscape, low.



Viewpoint #01



Viewpoint #02



Viewpoint #03



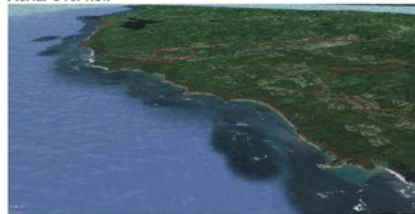
Viewpoint #04



Key viewpoints along Landscape Room D1a, Skagit River Valley, Zone 2 Puget Sound Region.

The Pacific Coast unit is the abrupt transition of mixed coniferous forest to coast. Forest is predominantly shore pine and Sitka spruce. Marsh occupies estuary areas. Grass and other pioneers stabilize beach terraces. Headlands make travel dangerous, and tides dictate opportunities. Beach is diverse with a range of substrates, including sand and basalt cobble. Pounding surf is an incessant and visceral force. Tide pools teem with colorful sea creatures. Ocean is dynamic and in perpetual motion. Sea stacks, vertical towers of rock, protrude from ocean. Salt liden wind and precipitation are common. Life is abundant and revolves around the rhythms of tide. Kelp and marine detritus collect in mats that swarm with insects and decomposers. Shore birds flock on tidal flats and cling to sea stacks. Sea otters and other marine mammals comb surf and bask on protected beaches.

Aerial Overview



The map displays the study area in the Pacific Northwest, showing the coastline, major roads (e.g., 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909,

	Rating	Explanation or Rationale
Landform	5	Dramatic views of coastal tidal pools, sea stacks, sand and rock beaches.
Vegetation	5	Thick rain forest vegetation: ferns, fungi, coastal conifers, hepo, salt grasses, and mosses.
Water	5	Pacific Ocean. Rolling waves and moving tides.
Color	3	Rock outcrops exuding browns against the blue water. Green ferns and colorful fungi.
Adjacent Scenery	5	Distant sea stacks and shoreline add to the visual integrity.
Scarcity	5	Amazing views of the ocean shoreline.
Cultural Modification	5	Native American heritage and cultural features are positive elements. Some built elements take away.
Total	33	RATING = A+

Date: 09/02/15

Jurisdiction (s): National Park

Viewsheds/
Screening/
Distance Zone

Views are open along the seashore but as you move inland, vies are limited to the immediate foreground.

Concern Level

Very high concern levels along this section of trail because of the high use and portal access to the Cascades National Park.

Level of Naturalness

Landscape is natural appearing along the undeveloped coastline, but has very low scenic integrity along developed sections.

Strong sense of intactness along most of the trail except in a few developed portions where there are a loss of continuity.



for the greatest good



PACIFIC NORTHWEST NATIONAL SCENIC TRAIL

Viewpoint #01



Viewpoint #02



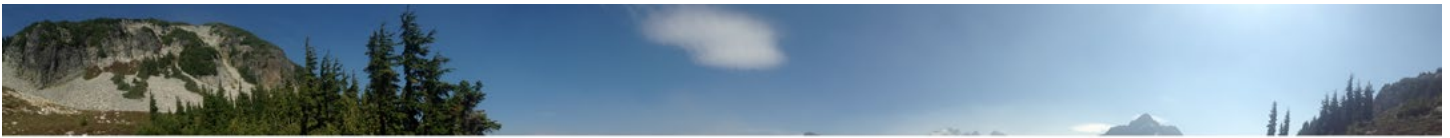
Viewpoint #03



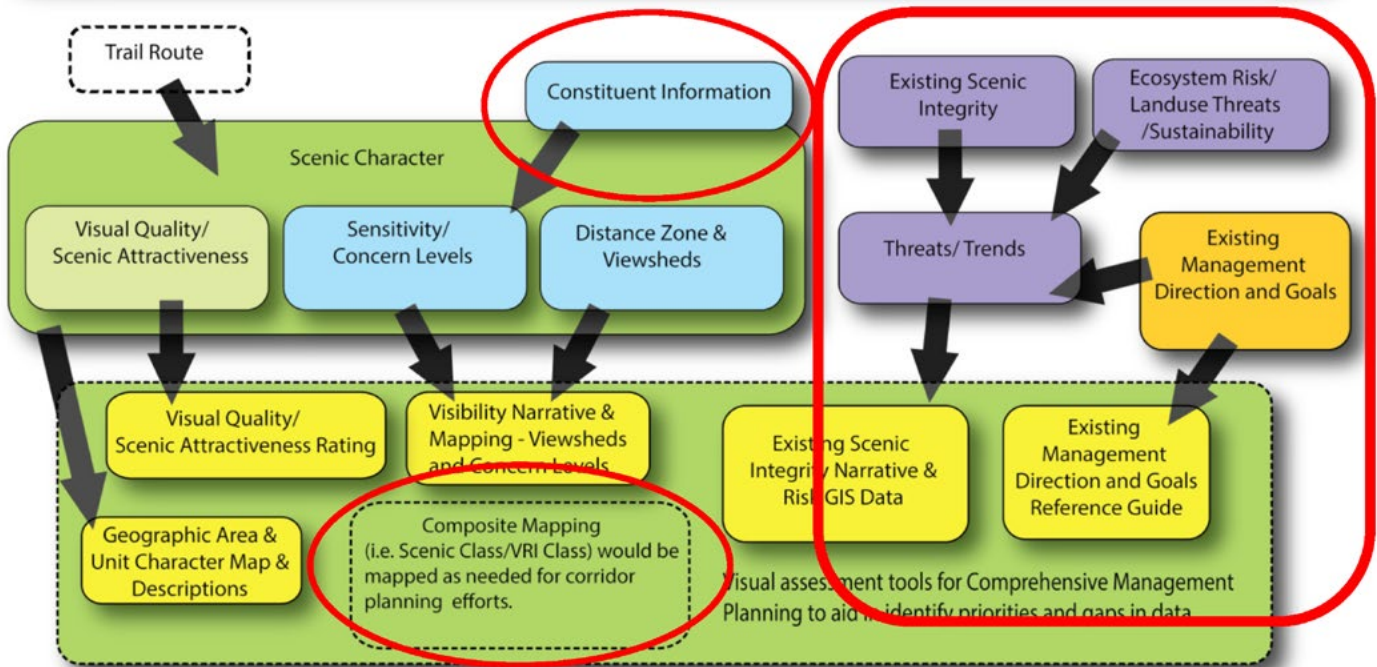
Viewpoint #04



Key viewpoints along Landscape Room E8, Pacific Coast, Zone 1 Olympic Peninsula Region.



PACIFIC NORTHWEST NATIONAL SCENIC TRAIL SCENIC INVENTORY PROCESS



NEXT STEPS

This Visual Case Study has described a baseline scenic inventory conducted thus far along the length of the PNT, focusing on identifying and delineating scenic character, visual quality/scenic attractiveness, sensitivity/concern levels, and distance zone and viewsheds, and developing scenic character descriptions and ratings for landscape rooms. The red circled areas of the original process flowchart identify the project's next steps related to constituent information and composite mapping that can and likely will be refined later within the Comprehensive Management Planning process. These will be combined with existing information on scenic integrity and other trends and threats to identify priorities and gaps in data.



QUANTIFICATION- SYNTHESIS- ANALYSIS

HOW MUCH OF WHAT, WHERE...

- Scenic quality, sensitivity, scenic classes
- Existing scenic integrity

LAND JURISDICTION

- (Percent federal / state / private / other)

LEVEL OF PROTECTION

- Designation (wilderness, VSR, or not ...)
- Conservation easements (agriculture / scenic...)
- Other projection (hillside, historic overlay...)

Another next step includes quantifying the results of the inventory components across the length of the trail. For instance, understanding what percentage of the trail is in which scenic quality rating of A, B, C; what percentage of the trail is of high sensitivity vs. low; what is the existing scenic integrity range across the trail; and do certain sections tend to have higher levels of integrity than others?

Also, how does land jurisdiction affect this? Even understanding simply the percentage of the trail under which ownership helps to describe its relative level of inherent protection. Layering that information with data from the visual assessment can further quantify what conservation or enhancement activities might be warranted and where.



COMPREHENSIVE PLAN...

PRIORITIZATION OF LANDS FOR PROTECTION

- Forest planning
- Geographic areas & overlay management area & corridor
- Land acquisition, conservation easements, voluntary measures

COMPENSATORY MITIGATION

- Information can help with identifying areas that might be targeted for scenic restoration/enhancement as offset for unavoidable impacts from nearby projects as part of a compensatory mitigation.
- 

All of this information will feed into the comprehensive management plan for the trail and may inform revisions to existing land and resource management plans for the forests in the area of the trail. This information can also aid in development strategies for cooperative efforts with regard to viewshed protection that might occur through other means, such as easements, land acquisition, and volunteer or private land stewardship activities.

Other approaches to quantifying multiple data layers across linear areas have been conducted that might also be compared, such as the ILARIS project in the Puget Sound and the Visual Prioritization Process (VPP) being used on the Arizona Trail.

Finally, this data will assist with identifying areas that could be targeted for scenic restoration and enhancement efforts as part of compensatory mitigation that might occur because of other projects.



CONCLUSION

LESSONS LEARNED

- Benefits of hybrid system
- Importance of actual field based inventory
- Information for future route alternatives
- Tap into experience of nomadic 'perpetual hikers'

In conclusion, there were several lessons learned from the process that were valuable for future inventory collection on long distance trails. Some of these included recognizing the benefits of hybrid a USFS-BLM system, the importance of field based inventories, and understanding how the data can be used for future route alternatives. Finally, it was critical to recognize the value of and need to tap into the experience of long distance through hikers, including nomadic “perpetual hikers” whose perspectives can provide tremendous insight for trail planning.

References

- USDA Forest Service. 1995. **Landscape Aesthetics: A Handbook for Scenery Management**. Agriculture Handbook No. 701. Washington, DC: US Government Printing Office.
- USDI Bureau of Land Management. 1980. **Visual Resource Management Program**. Washington, DC: US Government Printing Office.

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