

Vital Sign Indicators Progress Report

Draft Natural Resource and Climate Change Indicators

December 14, 2021





VSI Work Session Overview

Objective: Share staff recommendations on Draft Natural Resource and Climate Change Vital Sign Indicators and gather feedback

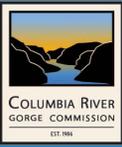
- Where we are in 2021 VSI update process
- Draft Natural Resource and Climate Change Vital Sign Indicators
- Questions and Discussion of Topics for Commission Consideration



Topics for Commission Consideration

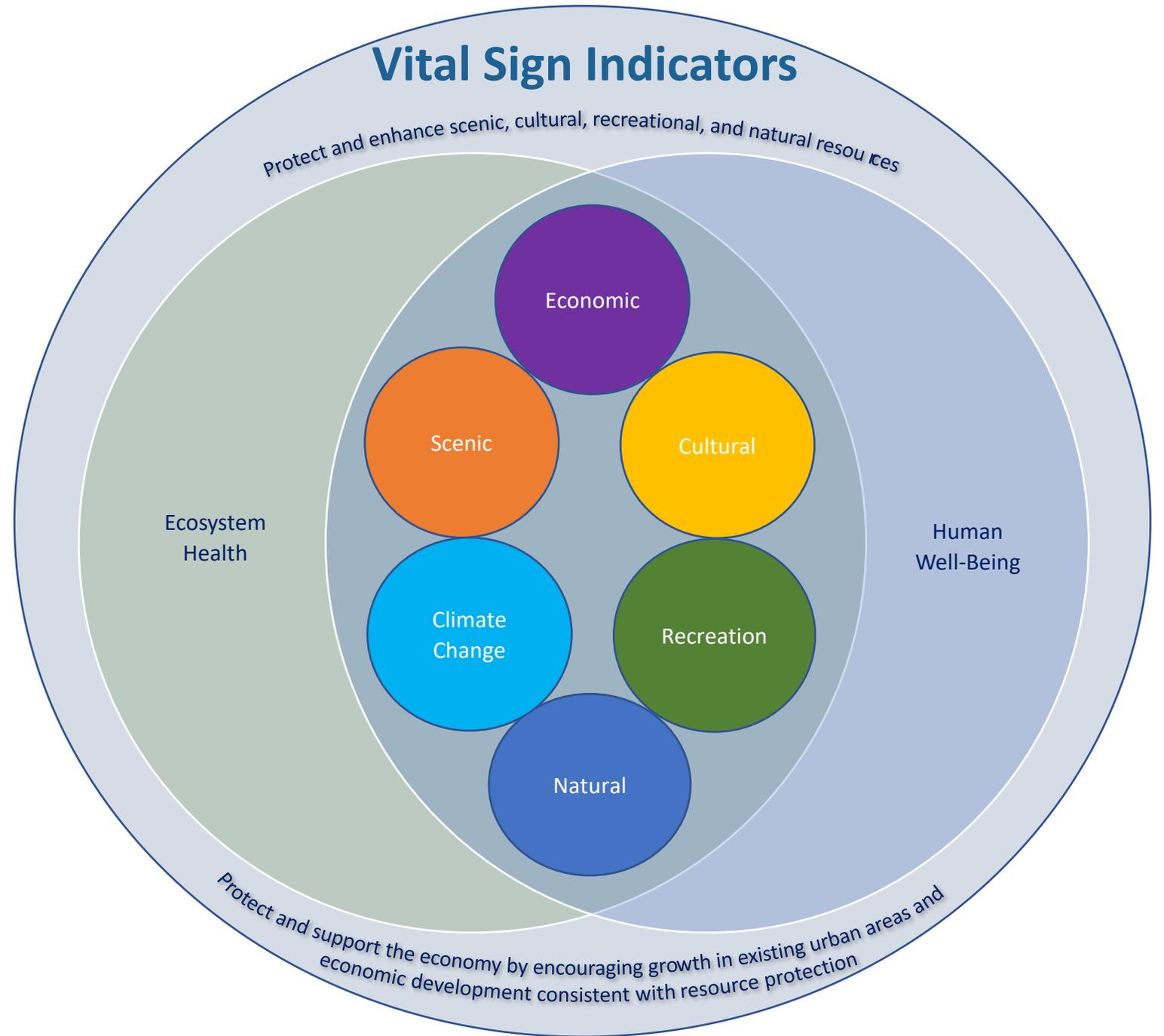
(1) Does the Commission support moving forward with the recommended **draft natural resource and climate change indicators** summarized in this presentation?

(2) Does the Commission support moving forward with staff recommendations for **wildfire, carbon storage, and transportation topics** as described in this presentation?



What is the Vital Sign Indicators Program?

Monitoring the health of the Columbia River Gorge National Scenic Area to assess if we are achieving Management Plan goals



Draft Natural Resource Vital Signs

Wetlands

Streams and Riparian
Areas:
Salmon and Steelhead
Cold Water Refuge
Habitat

Oregon White Oak Woodlands

Coniferous Forests
Grasslands/Prairies
Talus

Air Quality

Culturally Important
and Rare Plants

How we selected Draft Vital Sign Indicators

Indicators should be...

1. Measurable

2. Relevant to management actions

3. Clear

4. Consistently available

5. Obtainable

6. Cost-effective

7. Additional consideration: Compelling story

Vital Sign: Streams and Riparian Areas: Cold Water Refuge Salmon and Steelhead Habitat

Draft Indicators: Stream Temperature and Flow

These indicators tell us:

How well we are protecting cold water refuge habitat for salmon and steelhead



Columbia River Gorge National Scenic Area: Cold Water Refuge Streams



Vital Sign: Wetlands

Draft Indicators: Extent and Land Cover Change



These indicators tell us:

How well we are protecting wetland habitat and what land use changes are affecting wetlands

Vital Sign: Oregon White Oak Woodlands

Draft Indicators: Current Extent and Land Cover Change



Photo credit: Doug Gorsline

These indicators tell us:

- How well we are protecting oak woodland habitat and what land use changes are affecting oak woodlands

Vital Sign: Grasslands/Prairies

Draft Indicators: Extent and Land Cover Change



These indicators tell us:

How well we are protecting grassland habitat and what land use changes are affecting grasslands

Vital Sign: Coniferous Forests

Draft Indicators: Extent and Land Cover Change



Vital Sign: Talus

Draft Indicators: Moss Cover and Temperature



Photo credit: OR Department of Fish & Wildlife

These indicators tell us:

How well we are protecting key habitat characteristics for talus-dependent species

Vital Sign: Air Quality

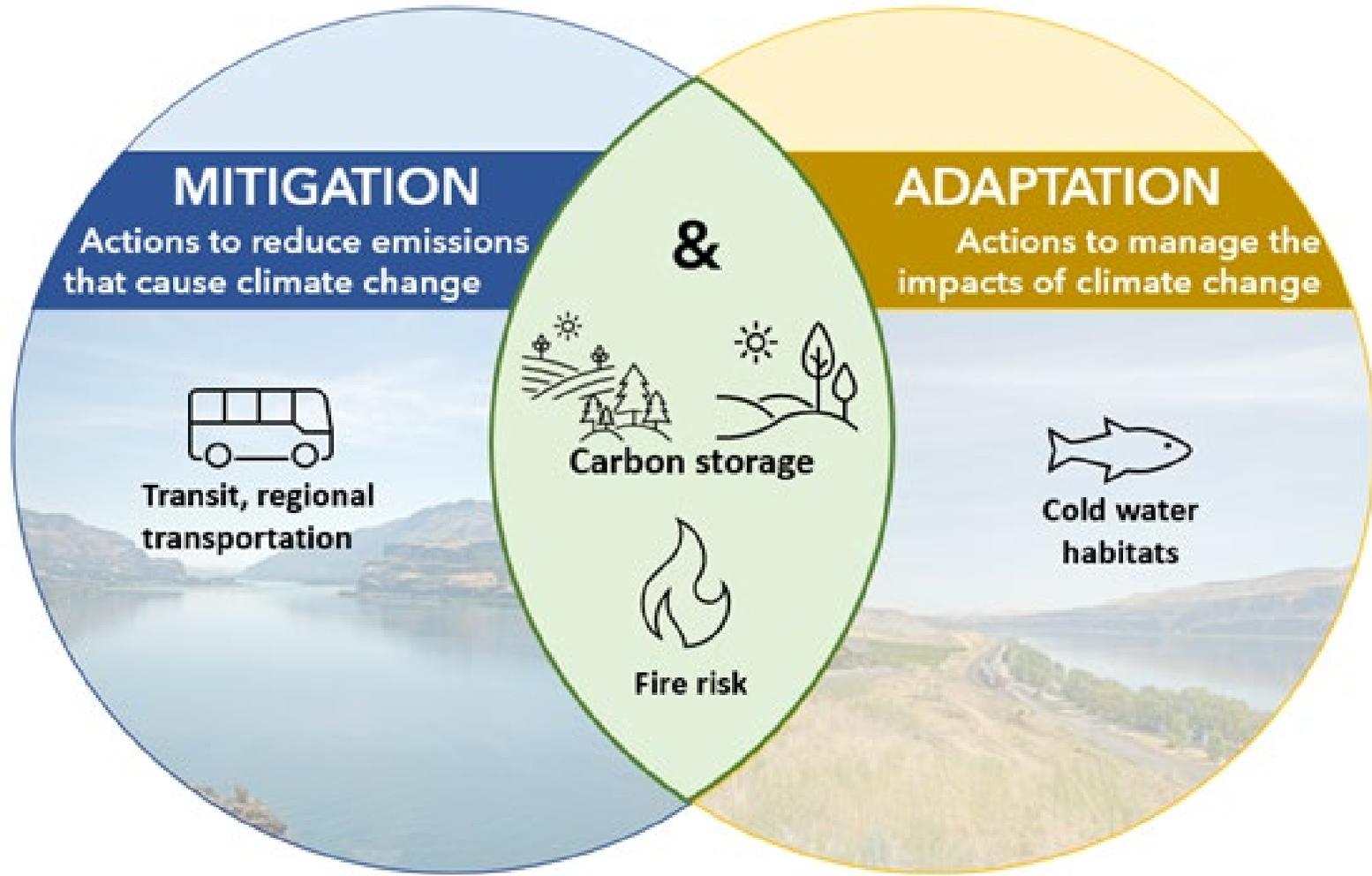
Draft Indicators: Visibility, Precipitation Chemistry, and Terrestrial Effects of Pollution and Climate change



These indicators tell us:

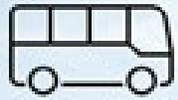
- **Visibility:** How well we are protecting scenic views
- **Precipitation Chemistry:** How well we are protecting air quality
- **Terrestrial Effects of Pollution and Climate Change:** How well we are protecting terrestrial habitats and sensitive vegetation

Climate Change Action Plan (CCAP) Priorities



MITIGATION

Actions to reduce emissions that cause climate change



Transit, regional transportation

ADAPTATION

Actions to manage the impacts of climate change



Cold water habitats

&



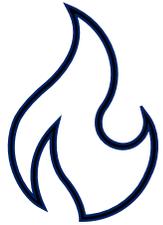
Carbon storage



Fire risk

Vital Sign: Wildfire

Draft Indicators: Wildfire Extent and Distribution; Fuels Reduction



CCAP Priority:
Wildfire Risk

These indicators tell us:

- Where wildfire is occurring across priority habitats and land use types
- How well we are reducing wildfire risk

Recommendations:

- Start with Wildfire Extent & Distribution and Fuels Reduction (National Forest System lands)
- Continue working with partners on all-lands fuels reduction indicator

Potential Climate Change Vital Sign: Carbon Storage

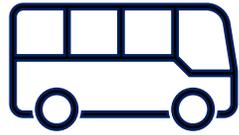


CCAP Priority:
Carbon storage

Recommendations:

- Complete comprehensive land cover layer necessary for Natural Resource Vital Sign Indicators
- Then determine need for carbon storage assessment based on priorities in approved Climate Change Action Plan

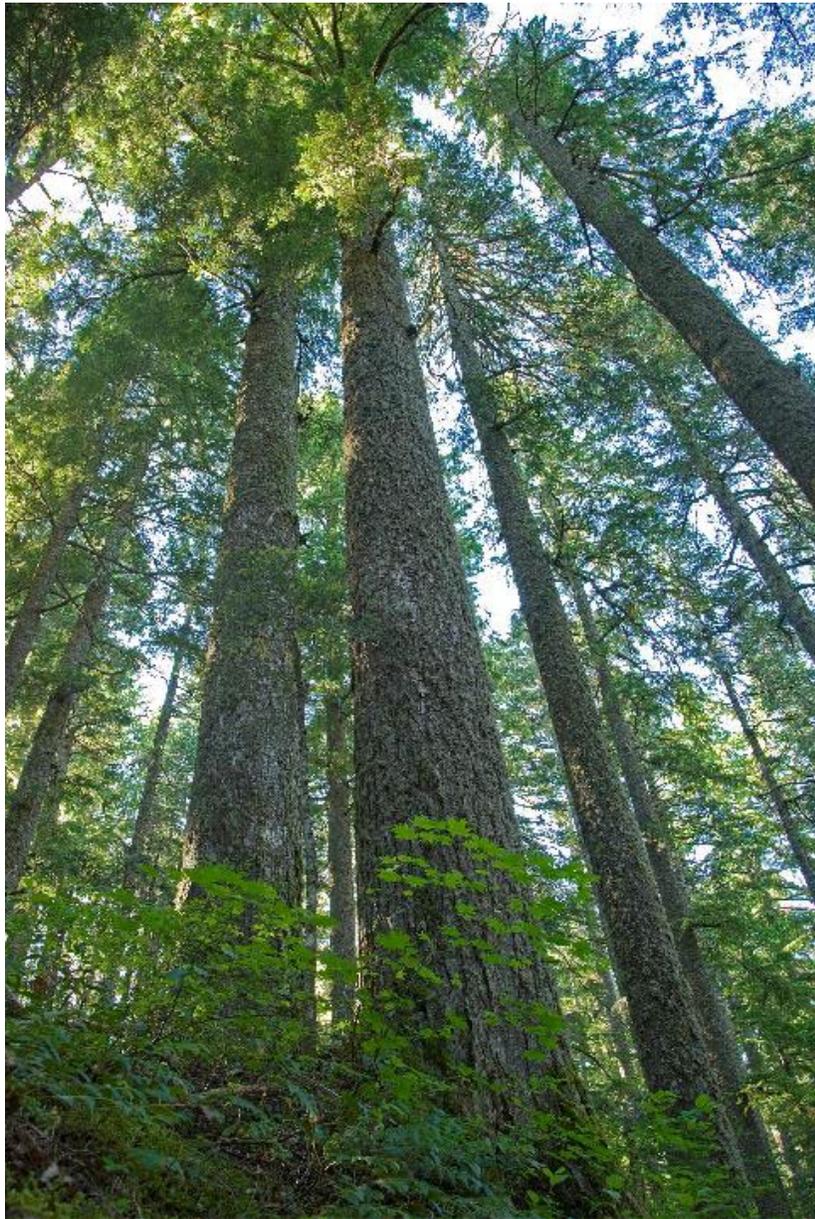
Potential Climate Change Vital Sign: Transportation



CCAP Priority:
Transit and
Regional
Transportation

Recommendations:

- Proceed with early steps in the CCAP and clarify transportation-related goals
- Table a transportation-related indicator for this biennium



Topics for Commission Consideration

(1) Does the Commission support moving forward with the recommended **natural resource and climate change indicators** summarized in this presentation?

(2) Does the Commission support moving forward with staff recommendations for **wildfire, carbon storage, and transportation topics** as described in this presentation?

2009 Natural Resource Vital Sign Indicators								2021 Draft Natural Resource Vital Signs
Objective	Vital Sign Number	Vital Sign Title	Measure	Proxy Measure	Year Reported	Connects to Management Plan Provision? YES/NO/UNCLEAR	Management Plan Reference & Notes	
2.1 Protect and Enhance the Native Plants and Animals and the Habitats Which Support Them	2.1.a	Habitat Quality	Percent of priority habitat types rated as properly functioning	Number of important landscape elements in the Scenic Area that are functioning at high levels	2009	YES on Vital Sign; Review of measures needed	Part 1: Chapter 3, GMA Goal 1: "Ensure that new uses do not adversely affect Priority Habitats or sensitive wildlife sites."	→
	2.1.b	Habitat Fragmentation	Percent of priority habitat types that are lost or fragmented by human activity		TBD in 2011	YES on Vital Sign because habitat fragmentation connects with habitat quality; Review of measures needed	See Habitat Quality reference above. Wildlife consult for development reviews includes assessment of habitat integrity. Connectivity is part of integrity.	
	2.1.c	Species Health	Percent of at-risk species whose populations in the gorge are healthy	Note: In 2009, only reported on plants; no assessments of animal species available.	2009	YES on Vital Sign because species health connects with habitat quality; Review of measures needed	See Habitat Quality reference above for wildlife and Part 1: Chapter 3, GMA and SMA Goals for Rare Plants. (Note: This measure could apply to plants or wildlife.)	→
	2.1.d	Species Range	Percent of native species (wildlife, plants, invertebrates) with ranges that are declining		TBD in 2011	YES on Vital Sign because species range connects with habitat quality; Review of measures needed	See Habitat Quality reference above for wildlife and Part 1: Chapter 3, GMA and SMA Goals for Rare Plants. (Note: This measure could apply to plants or wildlife.)	
2.2 Protect and Enhance Quality of the Water and Aquatic Habitats	2.2.a	Surface Water Quality	Percent of streams, including Columbia River, whose water quality is (a) poor, (b) fair, (c) good, and (d) excellent.	Number of watersheds, including the Columbia River, where water quality is (a) impaired and (b) good.	2009	YES on Vital Sign because water quality connects with aquatic habitat quality; Review of measures needed	Part 1: Chapter 3, GMA Goal 3: "Protect water quality, natural drainage, and fish and wildlife habitat of streams, ponds, lakes, and riparian areas."	→
	2.2.b	Habitat Quality	Percent of native fish habitat that is properly functioning		2009	YES on Vital Sign; Review of measures needed	Part 1: Chapter 3, GMA Goal 3: "Protect water quality, natural drainage, and fish and wildlife habitat of streams, ponds, lakes, and riparian areas."	
	2.2.c	Surface Water Quantity	Percent of streams with satisfactory in-stream flows		TBD in 2011	UNCLEAR	While the Commission does not manage for water quantity specifically, stream flow is critical for CWR fish species and is covered above.	
	2.2.d	Groundwater Quantity	Square miles of groundwater restricted areas		TBD in 2011	NO	Currently, not Commission's role to regulate groundwater. Is there information we want to collect to inform consideration of a policy change in the future?	
	2.2.e	Groundwater Quality	To be developed		TBD in 2011	NO		
2.3 Protect and Enhance Quality of the Air	2.3.a	Air Quality	To be developed		Summary in 2009	YES on Vital Sign; Review of measures needed	Part 1: Chapter 3, Wildlife and Plants, SMA Policy 15: "Air quality shall be protected and enhanced, consistent with the purposes of the National Scenic Area Act." Includes requirement for states of OR and WA and the Forest Service to "continue to monitor air pollution and visibility levels in the Gorge" and "provide annual reports to the Gorge Commission on progress made regarding implementation of this policy [regional air quality strategy]."	→

2021 Draft Natural Resource Vital Signs

**Terrestrial Habitat:
Coniferous Forests
Oregon White Oak Woodlands
Grasslands/Prairies
Talus**

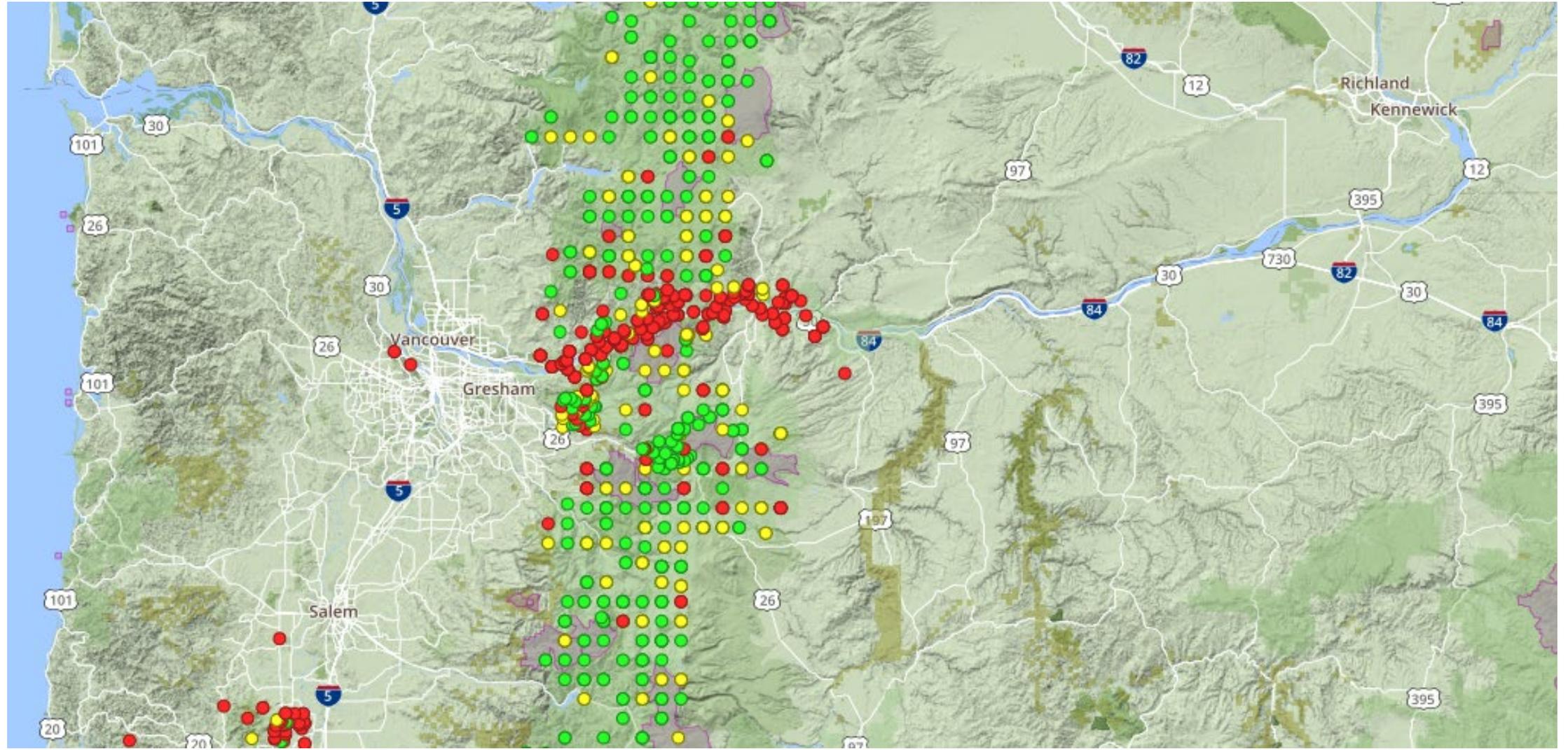
Culturally Important and Rare Plants

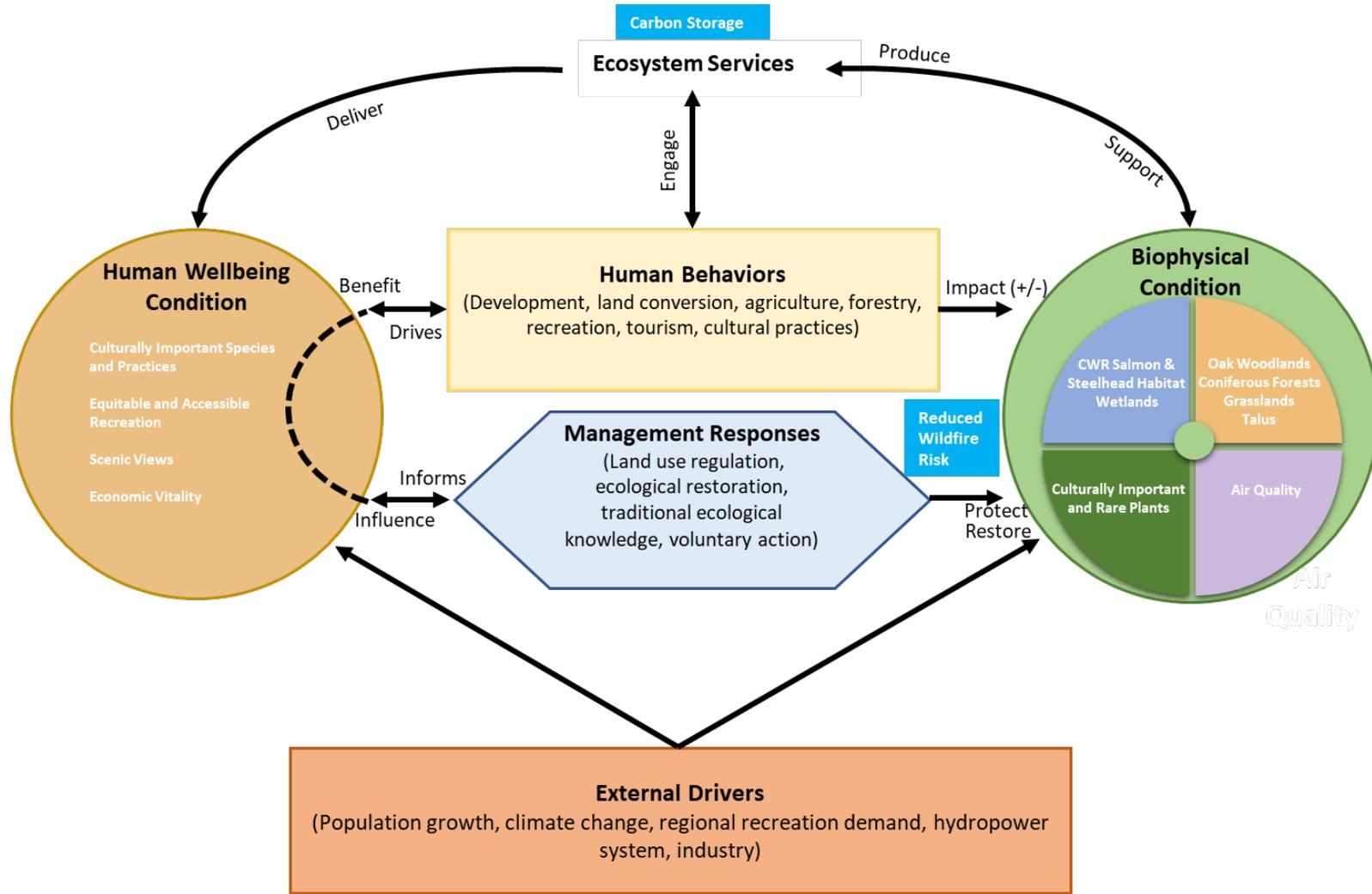
**Water Resources and Aquatic Habitat:
Streams and Riparian Areas--Cold Water
Refuge Salmon & Steelhead Habitat
Wetlands**

Air Quality

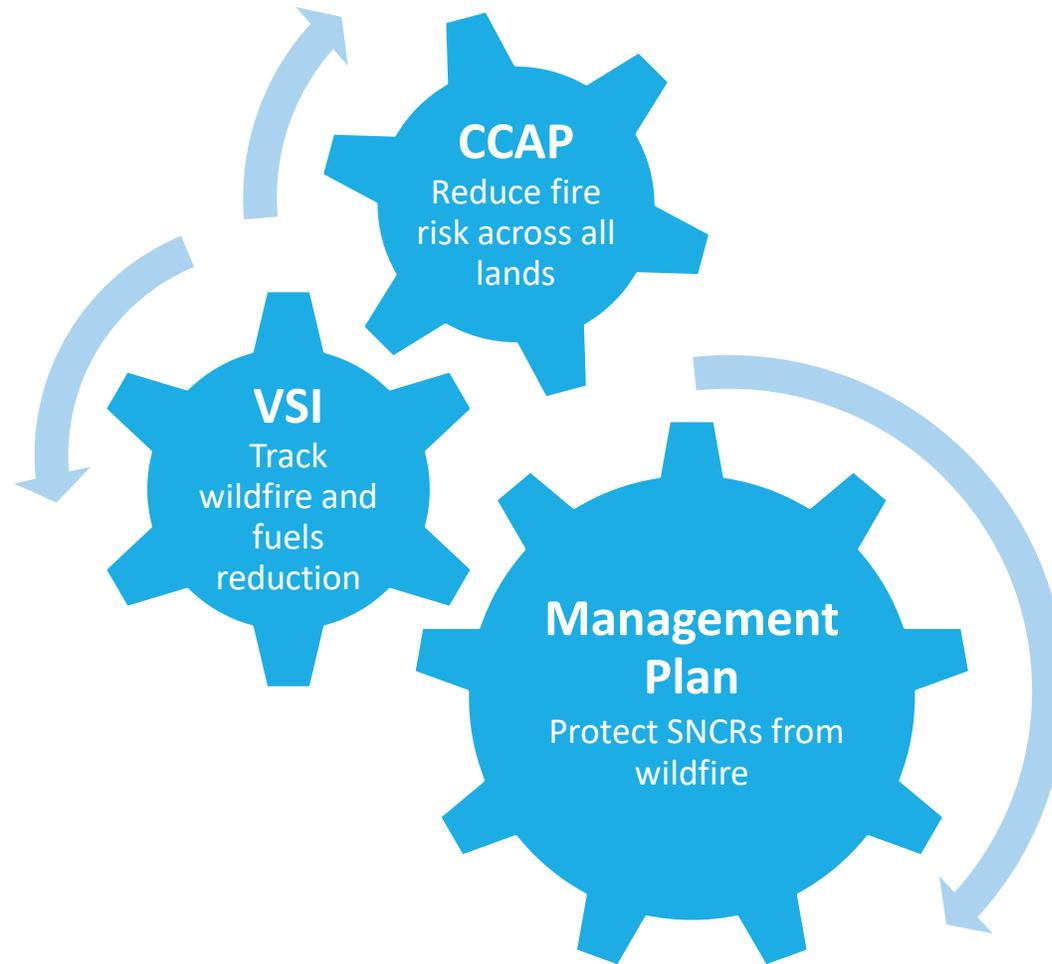
Vital Sign	Potential Indicators	Natural	Climate (Supports CCAP)	Scenic	Recreation	Cultural	Economic
Coniferous Forests	Extent and Distribution, Land Cover Change	●	●	●		●	
Grasslands/Prairies	Extent and Distribution, Land Cover Change	●	●	●		●	
Wetlands	Extent and Distribution, Land Cover Change	●	●	●		●	
Air Quality	Visibility, Precipitation Chemistry, Terrestrial Effects of Pollution & Climate Change	●	●	●			
Wildfire	Acres of fuels reduction per year on NFS lands in NSA (thinning and prescribed fire)		●	●			
Wildfire	Acres burned per year by wildfire (including distribution)		●	●			
Talus	Moss cover, Temperature <small>(select sites by USFS)</small>	●	●				
Streams & Riparian Areas: CWR	Stream temperature, Flow*	●	●	●	●	●	
Oregon White Oak Woodlands	Extent and Distribution	●	●	●		●	
Streams & Riparian Areas: CWR	Salmon population abundance	●	●	●	●	●	
Wildfire	Acres of fuels reduction per year across land ownership		●	●			
Talus	Pika presence/absence <small>(citizen science)</small>	●	●				
Talus	Pika evidence <small>(Beever's methodology also includes moss cover, temp/RH, and microrefugial characteristics)</small>	●	●				
Oregon White Oak Woodlands	Land Cover Change	●	●	●			
Oregon White Oak Woodlands	Condition <small>(multiple measures of ecological integrity in assessment tool under development)</small>	●	●				
Carbon Storage	Carbon stock by land cover type - forest		●				
Wildfire	Number of landowners/parcels in NSA incorporating Firewise principles	●	●	●			
Culturally Important & Rare Plants	Occurrence	●	●			●	
Grasslands/Praires	Condition (TBD)	●	●	●			
Streams & Riparian Areas: CWR	Benthic macroinvertebrates	●	●	●			
Oregon White Oak Woodland	Connectivity <small>(overlay with deer and elk winter range)</small>	●	●	●			
Coniferous Forest	Condition (TBD)	●	●	●			
Wetlands	Condition (TBD) <small>(veg layer in progress)</small>	●	●	●			
Carbon Storage	Carbon stock by land cover type - wetlands, grasslands, and ag lands		●				

Management Plan Resource or Topic	Draft Vital Sign
Nat Res, Climate, Scenic, Cultural	Oak Woodlands
Nat Res, Climate, Scenic, Cultural	Grasslands/Prairies
Nat Res, Climate, Scenic, Cultural	Streams and Riparian Areas: Cold Water Refuge Salmon and Steelhead Habitat
Nat Res, Climate, Scenic, Cultural	Wetlands
Nat Res, Climate, Cultural	Culturally Important and Rare Plants (TBD)
Nat Res, Climate, Scenic	Air Quality (overlaps with Scenic)
Nat Res, Climate	Talus
Nat Res & Climate	Coniferous Forest
Climate, Scenic	Wildfire
Scenic	Scenic Quality at Key Viewing Areas
Scenic, Nat Res	Landscape Setting Quality
Scenic, Nat Res	Visibility (overlaps with Air Quality)
Cultural	Archeological Resources (TBD)
Cultural	Historic Resources (TBD)
Cultural, Climate, Nat Res	First Foods/Culturally Important Species (TBD)
Recreation	Recreation Opportunities and Visitor Experience
Recreation	Access and Equity
Recreation	Recreation Impacts on Other Protected Resources
Economic Vitality	OIB/WIB Investments (TBD)
Economic Vitality	Agriculture (TBD)
Economic Vitality	Forestry (TBD)
Economic Vitality	Commercial Uses Outside Urban Areas (TBD)
22	





Source: Adapted from Puget Sound Partnership Integrated Ecosystem Recovery Conceptual Model describing interactions between human wellbeing and biophysical conditions in an ecosystem (from Harguth et al. 2015).



Vital Sign Indicators 2021 Work Plan Timeline

Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
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