


Wilderness Character Qualities and Visitor Typologies: Advancing Adaptive Visitor Use Management in Parks and Protected Areas



Ethan O'Leary GRC Presentation, April 13th, 2026

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Strengthening UNH's Impact - Strengthening Policy, Technology, and Communication



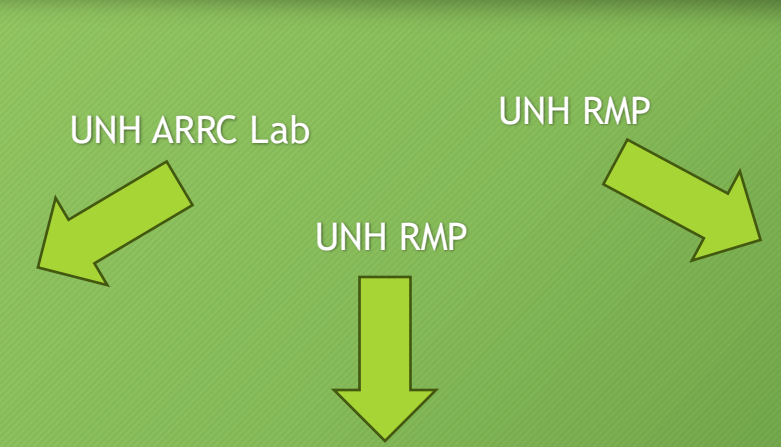
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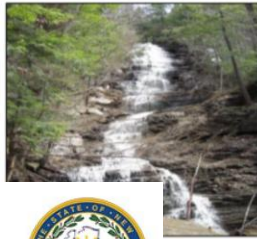
Durham Parks & Recreation Community Survey

Durham Parks & Recreation Department (DPR) and Committee are working with UNH ARRC Lab (Applied Recreation Research Collaborative) to undertake a Community Needs Assessment and Visitor Use Management Study for Jackson's Landing and Woodridge Park. The primary focus of the assessment/study is to provide recreation research, trends, and recommendations for the town's future development and playground plans for these parks. Upon completion of the study, DPR will have community input and research supported data to best determine future improvements and renovations. The study will allow DPR to develop a longer-term and sustainable maintenance program for the two parks as part of the improvements and renovation planning. Drawing on existing research, the proposed study will also assist with playgrounds, programming, and facilities.

We invite you to participate in a short survey about the current Durham Parks & Recreation programs. By completing this survey, you will be providing valuable information that can help make informed management decisions that enhance and preserve the parks, facilities, and the love and value of the parks.



Informing Visitor Use Management and Outfitter Guide Permitting in the Lye Brook Wilderness of the Green Mountain & Finger Lakes National Forests: Final Report



Submitted by the Department of Recreation Management and Policy
The University of New Hampshire



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New Hampshire's 5-year outdoor recreation plan approved by National Park Service

National Park Service has approved New Hampshire's 2024-2028 Statewide Comprehensive Outdoor Recreation Management Plan, the N.H. Division of Parks and Recreation announced today.

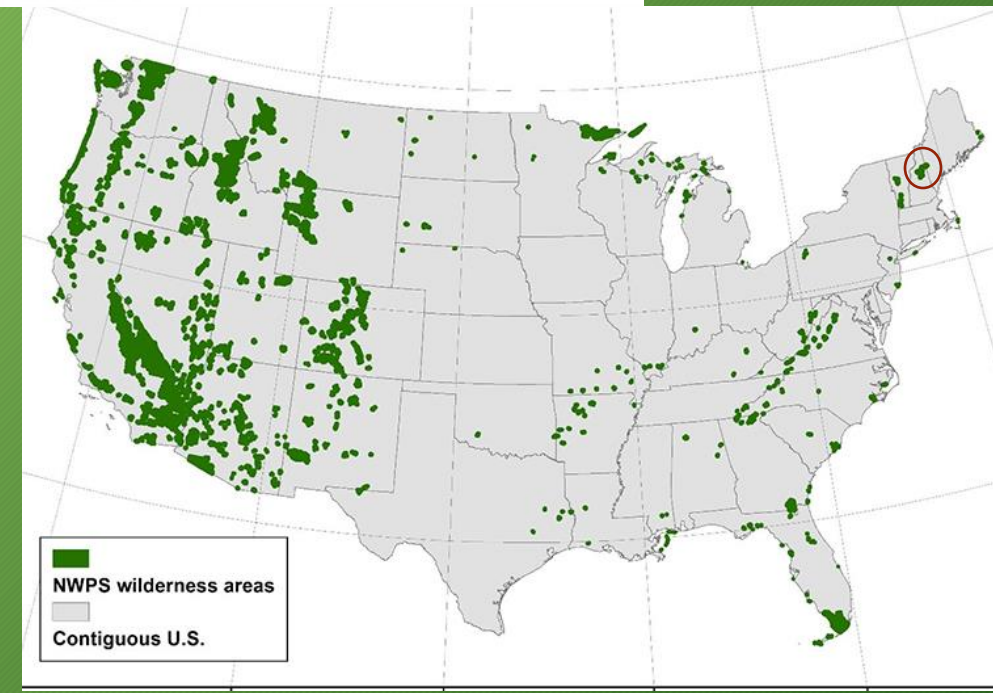
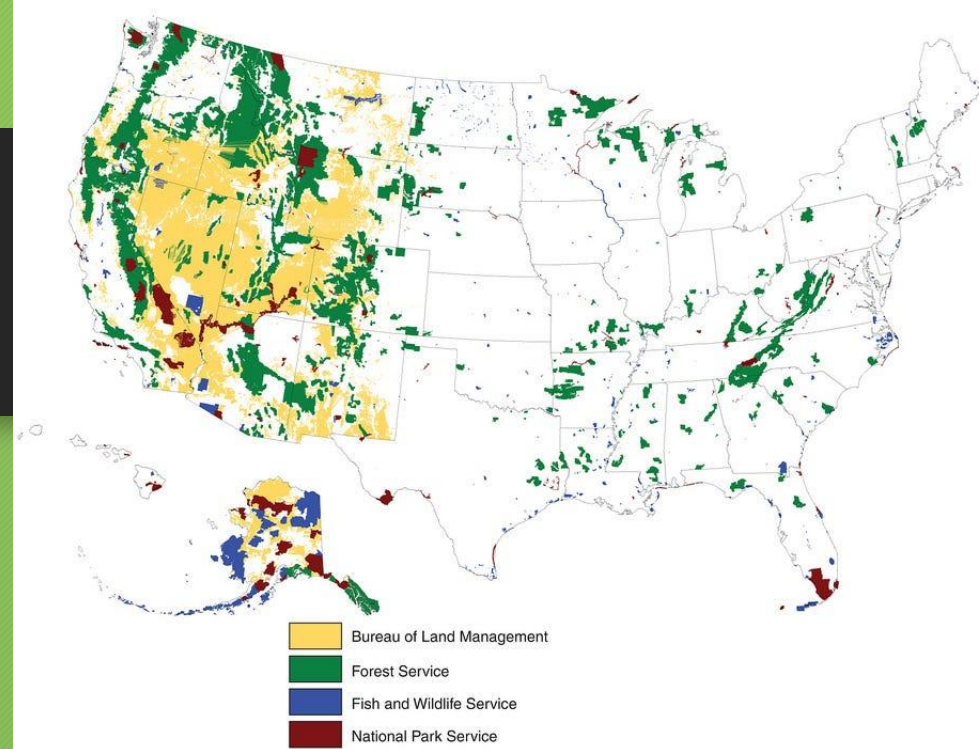
An approved SCORP is required of any state wishing to participate in the Land and Water Conservation Fund State Assistance program, which is administered by the Department of the Interior, National Park Service. Once approved by NPS, the SCORP serves as a planning tool for state and local entities who manage and develop outdoor recreation across the entire state.

To create the 2024-2028 SCORP, N.H. State Parks partnered with the University of New Hampshire's Recreation Management and Policy program to study New Hampshire residents' outdoor recreation participation patterns, attitudes, perceptions and opinions.

Mountain & Forests

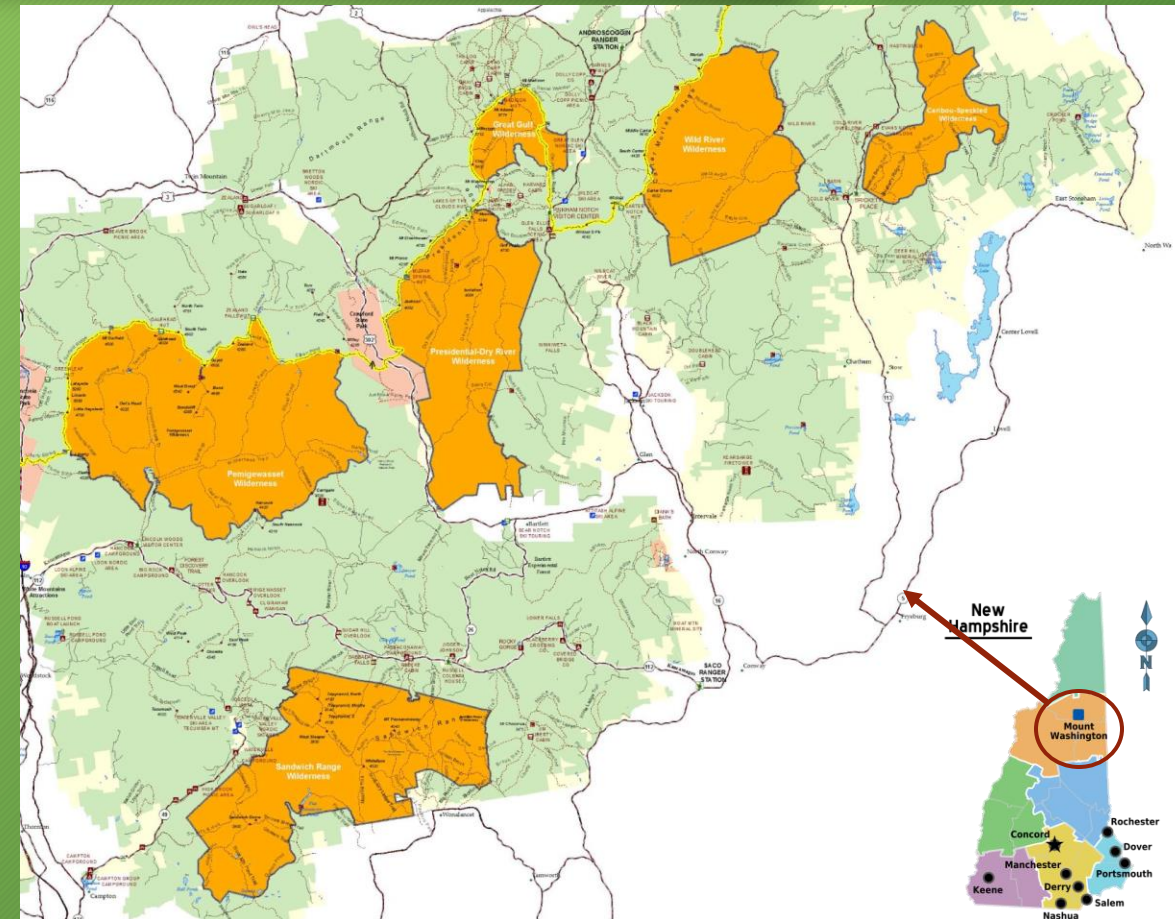
Introduction

- Parks and protected areas (PPAs)
 - USFS, NPS, BLM, USFWS, etc.
- Federally-designated Wilderness
 - What's the difference?
 - Wilderness Character Quality (WCQ)**
- Study Context: White Mountain National Forest
- Problem: Exponential visitation increases to PPAs
 - Wilderness visitation UP ~300% in 2020



Study Context: White Mountain National Forest

- 800,000+ acres in northern NH
- 6+ million visitors/year
 - Within a day's trip of over 9 million people
- 1,200+ miles of trails, 23 campgrounds
- Six designated wilderness areas
 - 150,000+ acres
 - Pemigewasset, Wild River, Presidential Range/Dry River, Caribou-Speckled, Sandwich, & Great Gulf



Map Source: Redline Guiding



The Question:

How do land managers adapt to increased visitation while upholding the wilderness dual mandate?
(Preserving both visitor experiences and the natural environment)

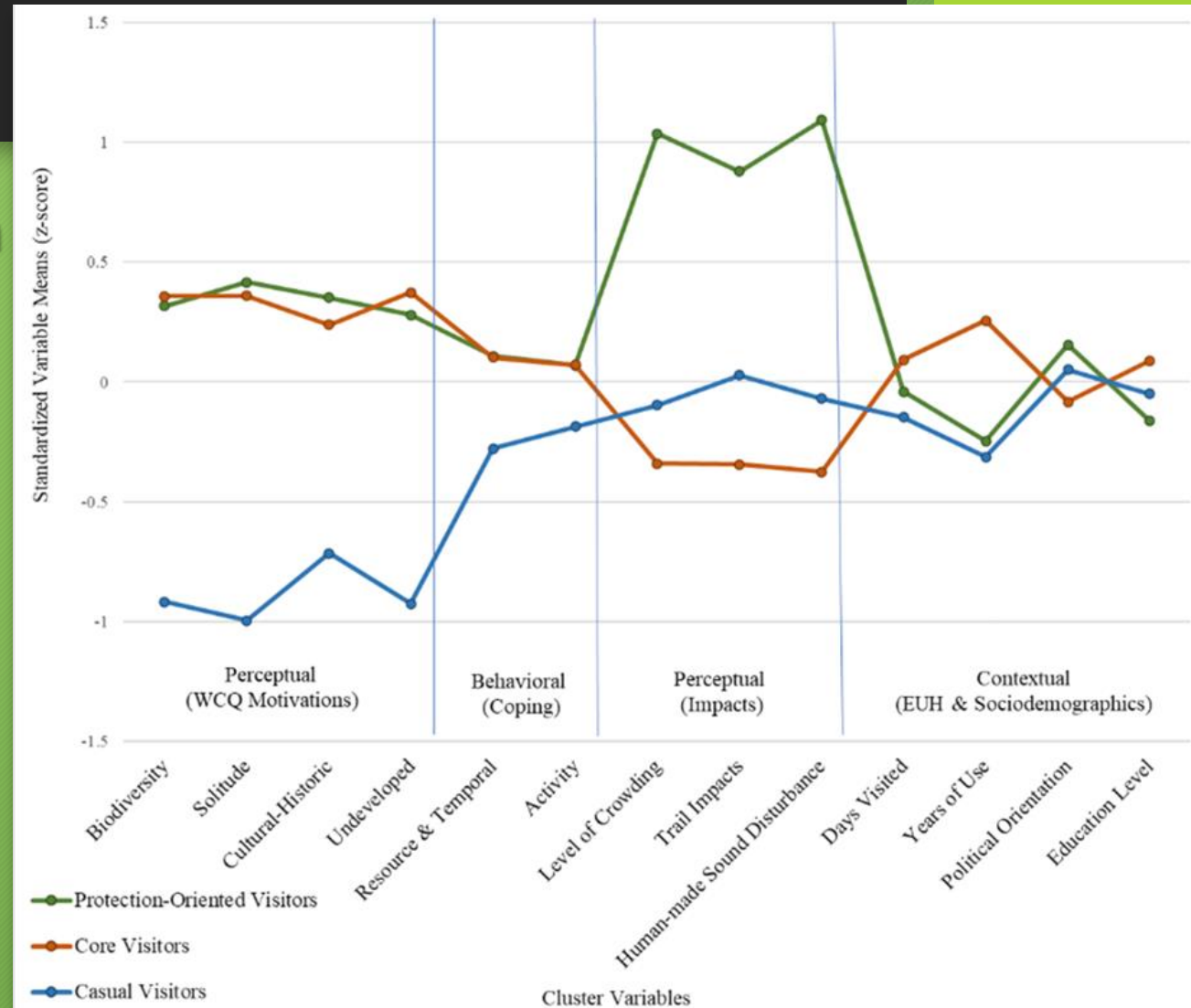
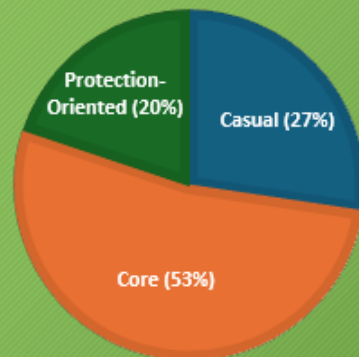
Study Methods

- On-site exit-use surveys at all 6 wilderness areas
- May - August 2024 (peak visitation)
- Sample: 1,086 completed surveys
 - Response rate: 83%
- Questions included:
 - **WCQ perceptions & importance (Likert 1-7)****
 - Stress-coping behaviors (Likert 1-7)
 - Wilderness use history (Years & days of use)
 - Perceived impacts and encounters (Likert 1-7)
 - Management preferences (Likert 1-7)



Data Analysis - Clustering

- Cluster analysis → visitor segmentation
- Perceptual, behavioral, & contextual
- Goal: ID distinct visitor profiles
 - Segmentation-led management
- Three distinct profiles:
 - Protection-Oriented Visitors
 - Core Visitors
 - Casual Visitors



Data Analysis - Experiential Outcomes

Outcome variables: satisfaction, intention-to-return, & management preferences

Table 4. Outcome Differences by Visitor Typology

Outcome Measure	Protection-Oriented M (SD)	Core M (SD)	Casual M (SD)	F	(η^2)	p
Satisfaction ¹	6.05 (0.82) ^a	6.59 (0.58) ^b	6.13 (0.93) ^a	57.07	.099	<.001
Intention-to-Return ²	6.14 (1.35) ^a	6.66 (0.82) ^b	6.24 (1.20) ^a	24.86	.046	<.001
Visitor Use Limits ³	3.68 (1.71) ^a	3.48 (1.80) ^a	3.10 (1.63) ^b	7.94	.015	<.001
Reservation Systems ³	3.15 (1.65) ^a	2.86 (1.63) ^a	2.68 (1.54) ^b	5.07	.010	.006
Ranger Presence ³	3.57 (1.43) ^a	3.49 (1.42) ^{a,b}	3.22 (1.25) ^a	5.24	.010	.005

Visitor Profile Characteristics



Core

- Most experienced
- High WCQ importance
- Low sensitivity to impacts
- High satisfaction



Casual

- Least experienced
- Low WCQ importance
- Moderate sensitivity to impacts
- Moderate satisfaction



Protection-Oriented

- Moderate experience
- Very high WCQ importance
- High sensitivity to impacts
- Lowest satisfaction

“So What?”

How do land managers adapt to increased visitation while upholding the wilderness dual mandate?

- Segmentation → targeted management:
 - Signage & communication
 - Visitor compliance & safety (pre-trip planning)
 - ID management decision support
- WCQ importance scales → prioritization
 - High solitude importance + high crowding impacts = potential WCQ degradation
- Easy integration with existing monitoring



Thank You!

Ethan O'Leary

Recreation Administration MS



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