

### Watershed

**Recreation Management** 

Plan – Community

### Workshop #5

February 8, 2022



## Agenda

- Project Review
- Survey Findings
- Zoning Discussion
- Zoning Workshop
- Closing Thoughts



Enable closed captioning by clicking on "Show Captions" in the Zoom Toolbar







**Respect** competing views



Make space for alternative perspectives



**Recognize** differences



Acknowledge that compromise will be essential



# Survey Findings Overview

- Online and In-person
- In-person survey is direct comparison to 2012
  - August 29, 2022 October 25, 2022
  - Select trailheads & popular locations
  - 12 days of collection
    - Mornings (7:30am 11am)
    - Afternoon (11am 1pm)
    - Late Afternoon / Evening (3pm 6pm)

- Findings
  - Respondents were slightly older in 2022 vs 2012



■ 2022 Survey Percentage ■ 2012 Survey Percentage

#### • Findings

• Visitation frequency , duration, and typical times are generally the same as in 2012



■ 2022 Survey Percentage ■ 2012 Survey Percentage

- Mode of arrival has stayed relatively equal
- Increase in e-bike usage



#### • Findings

 Primary Activities are similar with an increase in hiking, dog walking, and e-biking



What best describes your primary activities?

■ 2022 Survey Percentage ■ 2012 Survey Percentage

- Visitor Trail Experiences continue to be generally good
- Parking and restroom availability were rated as "poor" by the largest portion of respondents
  - Parking 7%
  - Restrooms 5%

Parking	2022 Survey		2012 Survey	
i arking	Count	Percentage	Total	Percentage
Great	305	29%	239	20%
Good	370	35%	429	35%
Fair	179	17%	154	13%
Poor	68	6%	90	7%
Didn't Answer	141	13%	298	25%
Total	1063	100%	1210	100%

Restrooms	2022 Survey		2012 Survey	
Restrooms	Count	Percentage	Total	Percentage
Great	237	22%	174	14%
Good	378	36%	358	30%
Fair	234	22%	169	14%
Poor	56	5%	94	8%
Didn't Answer	158	15%	408	34%
Total	1063	100%	1203	100%

- Trail Conditions rated as "great" or "good" by the majority (87%) of respondents
- Fire Road Conditions rated as "great" or "good" in the 2022 survey (84%)

	2022 Survey		2012 Survey	
Trail Conditions	Count	Percentage	Total	Percentage
Great	472	44%	531	43%
Good	452	43%	583	47%
Fair	36	3%	55	4%
Poor	12	1%	9	1%
Didn't Answer	91	9%	59	5%
Total	1063	100%	1237	100%

	2022 Survey		
Fire Road Conditions	Count Percentage		
Great	468	44%	
Good	424	40%	
Fair	48	5%	
Poor	14	1%	
Didn't Answer	109	10%	
Total	1063	100%	

- Majority of respondents reported feeling safe when visiting
- 1% of respondents reported feeling unsafe in both 2012 and 2022 surveys



2022 Survey Percentage
2012 Survey Percentage

- Usability of maps and signs improved slightly from 2012 to 2022
- Interactions with other visitors remain rated as "good" and "great" by the majority of survey respondents

Usability of maps	2022 Survey		2012 Survey	
and signs	Count	Percentage	Total	Percentage
Great	341	32%	245	20%
Good	436	41%	536	44%
Fair	141	13%	186	15%
Poor	17	2%	55	4%
Didn't Answer	128	12%	206	17%
Total	1063	100%	1228	100%

Interactions with	2022 Survey		2012 Survey	
other visitors	Count	Percentage	Total	Percentage
Great	403	38%	389	32%
Good	487	46%	635	52%
Fair	68	6%	57	5%
Poor	12	1%	18	1%
Didn't Answer	93	9%	128	10%
Total	1063	100%	1227	100%

#### • Findings

• 63% for allowing e-bikes on the watershed (no permit, permit, or paid permit)



Restrict E-bikes from accessing the water shed Allow E-bikes on the watershed ■ Allow E-bikes on the watershed with a permit

Allow E-bikes on the watershed with a paid permit

Allow E-bikes for ADA uses only

#### • Findings

• "Creating multi-use connections to separate visitors in high use areas" was the leading trail management strategy

Establish a reservation parking system for high use trail heads to reduce visitor impacts.

**Trail Management Strategy** Prioritize social trail closures and restoration activities to reduce the impacts of watershed visitors.

Establish directional trails in high use areas to reduce congestion.

> Create multi-use trail connections to separate visitors in high use areas



■ 2nd Choice 3rd Choice

SURVEY RESULTS: IDENTIFIED

Parking

Picnic Area

Headquarters - Fire Roads

Watershed Boundary

- System Trails Park

Water

WATERSHED DESTINATIONS

Less Popular

More Popular

- Findings
  - Entrance & Exits
  - Destinations
  - Congested Areas



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- Strava Data
  - High usage trails
  - Potential for user conflicts



#### SURVEY RESULTS: IDENTIFIED CONGESTED AREAS

Low Hiking & Biking Use High Hiking & Biking Use

REPORTED STRAVA TRIPS (WEEKENDS, MAY 2022) Highest Usage Trails / Fire Roads

- Picnic Area
   Mt. Tamalpais Watershed Headquarters
   Fire Roads
   System Trails
   Park
- Water

Parking

Watershed Boundary

**DESTINATIONS + BOUNDARIES** 

\*Paved roads are shown in white

#### ESTIMATED AVERAGE TRIPS PER DAY WEEKENDS 2022 (MAY)

PEDESTRIAN TRIPS	BICYCLE TRIPS
Greater than 750 trips	Greater than 750 trips
—— 250 - 750 trips	—— 250 - 750 trips
—— 50 - 250 trips	—— 50 - 250 trips
10 - 50 trips	—— 10 - 50 trips
Fewer than 10 trips	Fewer than 10 trips



### **2022 MMWD Annual Usage Estimate**

- Eco-counters placed throughout the watershed (August November)
- Compared to Strava data
- Extrapolated to annual estimate range

Mode	2022		
Widde	Low Range	High Range	
Pedestrians	1,728,055	2,081,714	
Bicyclists	256,141	564,233	
Total	1,984,196	2,645,947	
Total percent increase from 2012 Estimate	9%	46%	

## **Next Steps for Data Analysis**

- Evaluate intersection of visitor usage and resource data
  - Biological
  - Ecological
  - Water Quality / Erosion Data
  - Cultural
  - Usage patterns
- Identify potential recreation and preservation zones

Watershed **EVALUATION DIAGRAM:** Recreation Sifting through the data Facilities ANALYSIS Level 1: Water Quality Level 2: Sensitive Resources Level 3: Multi-Use **Benefits** 

## ZONING AS A RECREATION MANAGEMENT TOOL

Dr. Ashley D'Antonio

Associate Professor of Nature-based Recreation Management

![](_page_22_Picture_0.jpeg)

### Presentation Roadmap

- Brief history of the recreation opportunity spectrum
- Zoning as a management tool
- Examples of zoning
- Zoning decision-making
- Monitoring & zoning

## Recreation Opportunity Spectrum (ROS)

Developed by USDA Forest Service in the 1970s

![](_page_23_Figure_2.jpeg)

## Recreation Opportunity Spectrum (ROS)

• Zoning for recreation opportunities

 Recognizes that diverse opportunities can exist (and co-exist)

![](_page_24_Picture_3.jpeg)

## Goal of ROS

To provide opportunities for visitors to participate in preferred activities in the <u>appropriate</u> physical, social, and managerial setting.

As such, visitors <u>may</u> fulfill their motivations and realize benefits.

![](_page_26_Picture_0.jpeg)

#### **Preserving Winter Trails**

The packed and groomed winter trails within Green Canyon are maintained by Nordic United through volunteer effort and donations. Snow bikes and runners can have detrimental impacts to the ski trail - so please help keep this trail grea for everyone to use all winter.

For more information, or to get involved, visit www.nordicunited.org

![](_page_26_Picture_4.jpeg)

## Zoning based on:

Physical setting (natural setting)
Social setting
Managerial setting

### Setting + Activity = Experience

## Example of typical ROS classes

![](_page_27_Figure_1.jpeg)

![](_page_28_Figure_0.jpeg)

From: USDA Forest Service ROS Primer

![](_page_29_Figure_0.jpeg)

![](_page_29_Figure_1.jpeg)

Source: Manning, et al., 2017

#### Leung et al ., 2018 – IUCN Guide on Sustainable Tourism

![](_page_30_Picture_0.jpeg)

## Five Zone System

Integrated approach by which land and water areas are classified according to ecosystem and cultural resource protection requirements, and their capability and suitability to provide opportunities for visitor experience

Zone I Special Preservation	Zone II Wilderness	Zone III Natural Environment	Zone IV Outdoor Recreation	Zone V Park Services
Little or no	Backcountry,	Minimal	Campgrounds,	Park Office
visitation	few facilities	facilities	full services	

Parks Canada – Addressed in ALL recreation management plans

## Evolution of ROS

## Planning Framework

## Management Tool

![](_page_32_Picture_0.jpeg)

## Zoning in Visitor Use Management

- Commonly used tool for managing visitor use and associated disturbance
  - Can address both social & ecological impacts
  - Generally, has strong support among visitors
  - Manning et al., 2022; Leung et al., 2018
- Multiple types:
  - Spatial Zoning
  - Buffer Zones (type of spatial zoning)
  - Temporal Zoning

## Examples of Zoning in Recreation Settings

#### Features of Marine Protected Areas Worldwide

![](_page_34_Figure_1.jpeg)

SPATIAL ZONING

OURCE: /arine Managed Areas: What, Why, and Where, Science to Actio

![](_page_35_Picture_0.jpeg)

![](_page_36_Figure_0.jpeg)

Classification	Road Type	Characteristics	Miles
Class VI	Equestrian Trails	Substantial infrastructure improvements required to support use. Seasonal closures may apply.	17.8
Class VII	High Use Hiking Trails	Hikers only. High to medium level of use and maintenance. Can be an important trail connector. Infrastructure improvements consistent with use levels.	26.2
Class VIII	Moderate Use Hiking Trails	Hikers only. Medium to low level of use. Not an important trail connector. Little to no trail infrastructure improvements. Seasonal closures may apply.	11.8
Class IX	Backcountry Trails	Hikers only. Low level of use. Minor maintenance. Not important trail connectors. Rustic-style trail infrastructure improvements only. Typically farthest from parking areas and towns.	1.7
Class X	Reserved	This classification reserved for future use.	n/a
		Total	57.5

Table 2.6 - Trail Classifications on the Watershed. The classifications are hierarchical with Class VI trails being the busiest, serving equestrians and hikers, and the most infrastructure improvements (i.e. stairs, railings, walls, rocked surfaces, etc.) and Class IX being the least used with virtually no maintenance or improvements. Permissible recreational uses of Watershed trails are defined in Title 9, Regulations for Use of Marin Municipal Water District Lands (MMWD 2002).

![](_page_38_Figure_0.jpeg)

#### Catskills Park in New York State

Catskill/Delaware Watershed

![](_page_39_Picture_2.jpeg)

#### THE PRESERVE WITHIN THE PARK

Many people think the Catskill Forest Preserve and the Catskill Park are the same thing, but they are not. The Catskill Park is a mix of public and private land, defined by the "blue line," a boundary the state established in 1904. The Preserve is stateowned land that is protected as "forever wild" within the park.

#### **PRESERVE LANDS INCLUDE:**

Wilderness – About 143,000 acres

These areas, accessible by foot only, offer exceptional places for solitude in remote forest settings. Motor vehicles and bicycles are not allowed.

#### Wild Forest – About 130,000 acres

These areas provide settings for a wide range of recreation, including hiking, camping, cross-country skiing and mountain biking. Some areas have snowmobile and horse trails.

#### State Recreation Areas – About 6,000 acres

These include Belleayre Mountain Ski Center, campgrounds and dayuse areas. All offer picnicking, and some offer swimming, fishing and car-top boat launches.

#### NOTICE:

This map is intended as an overview of places for recreation on NYS Forest Preserve and NYCowned lands within and near the Catskill Park. It is not a trail or land-use map. The information on it has been compiled from many sources and verified wherever possible. However, DEC does not guarantee its accuracy and is not liable for its use for any purpose. Detailed information about specific NYS Forest Preserve and NYC-owned lands is available at DEC or NYC Department of Environmental Protection (DEP) offices and online at www.dec.ny.gov or www.nyc.gov/dep respectively. Trail conditions and land ownership may change. Particular caution is advised where a trail crosses private land. Always check with the landowner and consult with the local DEC or DEP office prior to using any trail which crosses private land.

![](_page_40_Figure_0.jpeg)

## BUFFER ZONES

Hull et al., 20211

![](_page_41_Picture_0.jpeg)

#### Dana Point Preserve, Dana Point, CA

Anagement Hours Notice: Hours of operation for public trail access

Commencing or continuing on April 15, 2022, the hours of operation for public access to the trail on the Dana Point Preserve—owned and managed by the Center for Natural Lands Management, a nonprofit organization—are:

Tuesday:8:00 a.m. - 4:00 p.m.Wednesday:Not openThursday:8:00 a.m. - 4:00 p.m.Friday:Not openSaturday:8:00 a.m. - 4:00 p.m.Sunday:Not openMonday:Not open

Note: These are scheduled hours of operation. The Center for Natural Lands Management may change the hours as needed, for example, closing the trail to public access to conduct trail maintenance, to address public safety concerns (e.g., provide police or fire responders access), or for the protection of species at sensitive times.

## TEMPORAL ZONING

## Zoning Considerations

![](_page_42_Figure_1.jpeg)

• What's appropriate for each zone's social, ecological, and **managerial objectives**?

• What are existing social, ecological, and managerial conditions?

• What visitor opportunities are appropriate in each zone?

## Zoning Considerations

What social conditions should be considered in zoning decisions?
Ex: opportunities for solitude

What ecological conditions should be considered?
Ex: location of sensitive species

What managerial conditions should be considered?
Ex: current condition of facilities/infrastructure

<u> https://miro.com/app/board/uXjVPqXAmiM=/?share\_link\_id=502869201879</u>

## Recreation Suitability Mapping

## Multicriteria or multibenefit analysis

![](_page_45_Figure_1.jpeg)

Geneletti et al., 2008

![](_page_46_Figure_0.jpeg)

Survey methods informed preferences for recreation experiences paired with spatial data of visitor use.

Beeco, et al., (2014) Landscape & Urban Planning

![](_page_47_Figure_0.jpeg)

PPGIS to Inform Zoning

• Grade et al., 2021

![](_page_48_Figure_0.jpeg)

Figure 4 – Spatial distribution of negative outcomes reported by overnight users.

![](_page_48_Figure_2.jpeg)

Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Orchance S NASA, CGIAR, N Robinson, NCEAS, NUS, OS, NMA, Geodatastyreisen, Rijks Giß user community, Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Rijkswataretaat, GSA, Geoland, FEMA, Intermap and the GIS user community

## Recreation Susceptibility Mapping

![](_page_50_Picture_0.jpeg)

![](_page_50_Picture_1.jpeg)

![](_page_50_Picture_2.jpeg)

### Vegetation Susceptibility

![](_page_51_Picture_1.jpeg)

![](_page_52_Picture_0.jpeg)

![](_page_52_Picture_1.jpeg)

### Potential for Change

### High Use Levels

### Low Use Levels

![](_page_53_Picture_3.jpeg)

## Importance of Monitoring & Evaluation for Adaptive Management

![](_page_54_Figure_1.jpeg)

## Take Home Messages

Zoning is a common and successful recreation management tool

 Recognizes that diverse recreation opportunities can exist and coexist on a landscape

 Recognizes that ecological and managerial conditions and objectives also vary across a landscape

• Monitor these conditions to inform adaptive management

## **Next Watershed Recreation Planning Activities**

### **April 2023 Final Workshop**

• Development of plan outcomes

#### Fall 2023 - Recreation Management Plan Final

- Watershed Census Survey Report Memo
- Draft Watershed Recreation Management Plan

Project Website: https://www.marinwater.org/WatershedRecPlan

# **Closing Thoughts**

### **Public Comments**

Please keep comments to under 1 minutes\* to provide space and time for others.

There will continue to be opportunities to participate and share perspectives throughout the planning process.

# MINUTE PUBLIC COMMENT

# Thank You