

# “Keeping It Wild” at Fire Island’s Wilderness: Developing a Protocol for Wilderness Character Monitoring

Lindsay Ries, Jason Flynn, Jordan Raphael

National Park Service, Fire Island National Seashore

## Developing Wilderness Character Monitoring Protocols

The Wilderness Act of 1964 states that resource stewards must *preserve wilderness character*. An interagency team was created to address how to directly link agency stewardship to legal mandates. A conceptual framework to monitor wilderness character was set forth in their publication, “Keeping it Wild” (Landres et al., 2008). This publication defines wilderness character by four qualities which can be assessed by relevant indicators and measures.

Fire Island National Seashore developed relevant indicators and measures based on the conceptual framework in “Keeping It Wild” to produce a monitoring protocol specific to the Otis Pike Fire Island High Dune Wilderness. Given the relatively small size of this ecologically diverse wilderness and the practicable assessment tools in this protocol, NPS resource managers can now assess wilderness character annually.

## Four Qualities of Wilderness Character

### 1) Untrammeled



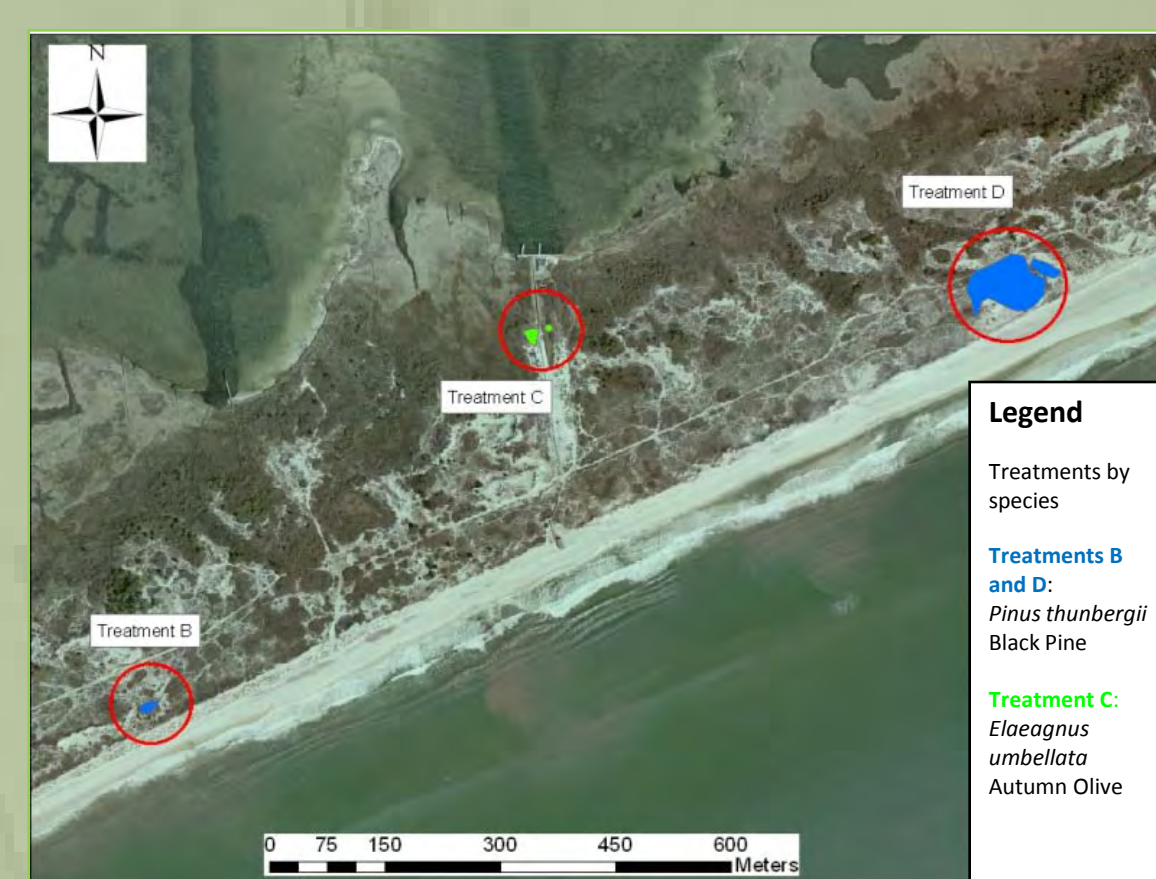
Untrammeled wilderness is free of human manipulation therefore actions, whether authorized or unauthorized, are an indicator of this quality. One measure used to assess this quality is the number of management actions taken to eradicate invasive plant species. While this management action degrades wilderness character within this quality, it increases it elsewhere.

↑ in actions = ↓ in wilderness character

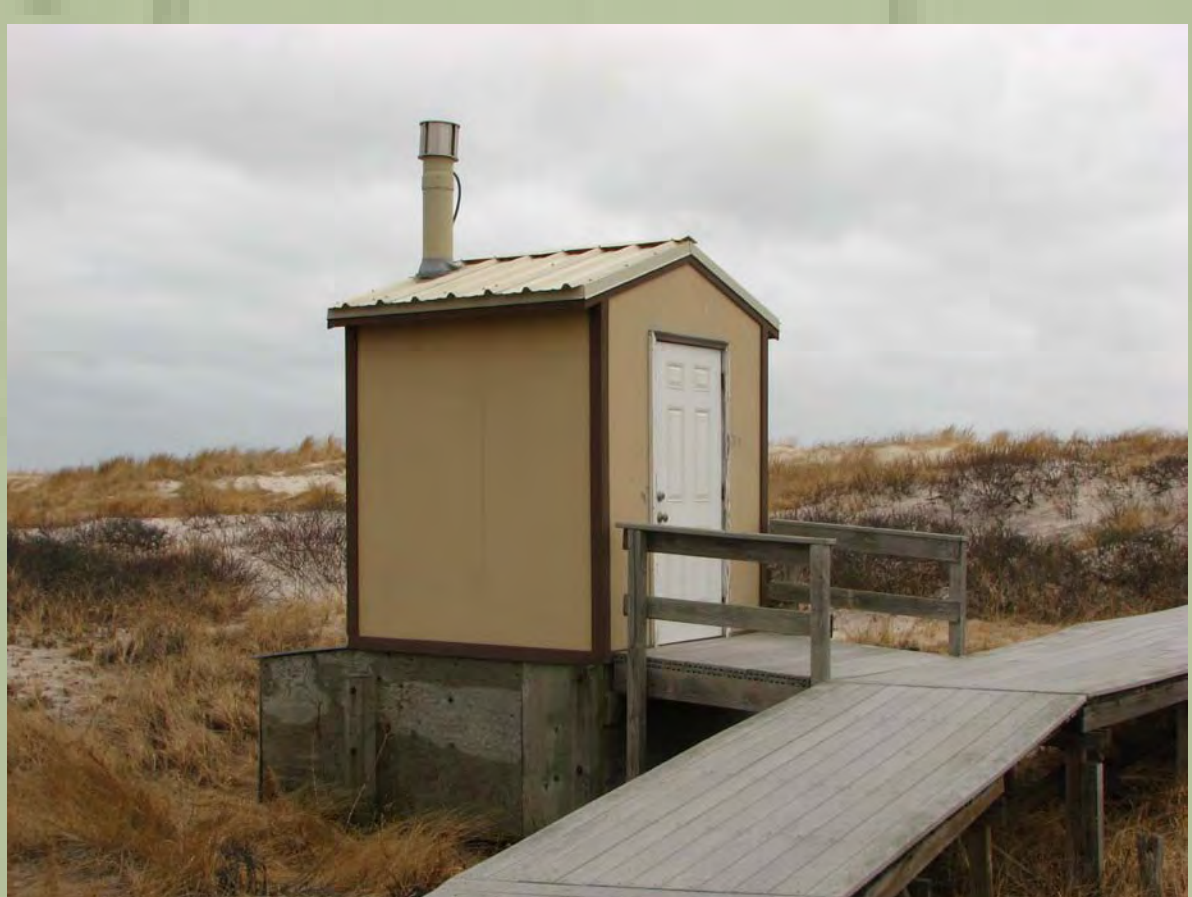
### 2) Natural

Natural wilderness is substantially free from the effect of modern civilization. Therefore, plant and animal species, communities, and physical and biophysical resources are important indicators for this quality. The number and acreage of invasive plant species are used as a measure for this quality on Fire Island.

↓ in acreage = ↑ in wilderness character



### 3) Undeveloped



Undeveloped wilderness is essentially without permanent improvements or human occupation. The number of structures, physical developments, mechanical use and remnants from past occupation are indicators of this quality. An example measure is the number of authorized physical developments present in the wilderness.

↑ in developments = ↓ in wilderness character

### 4) Solitude or primitive and unconfined recreation

Remoteness, self-reliance, trail development and visitor use are important indicators of this quality. An example measure is the number of agency-provided recreational facilities in the wilderness.

↑ in facilities = ↓ in wilderness character



## Fire Island’s Wilderness

Congress established the Otis Pike Fire Island High Dunes Wilderness within Fire Island National Seashore on the south shore of Long Island, New York in 1980. It contains a variety of dynamic barrier island habitats in relatively natural condition within 60 miles of New York City. It is the only federally designated wilderness in New York State and is one of the smallest areas managed by the NPS at 1,380 acres.



Otis Pike Fire Island High Dune Wilderness

## Choosing Indicators and Measures

The overall strategy for each wilderness is to: 1) choose a set of measures from those that are relevant, cost-effective, and tied to preserving wilderness character; 2) periodically collect data to assess trend in measure; and 3) use these trends to assess and report on trends in wilderness character.

## Assessing Measures and Trends

Several indicators and measures were chosen for each quality to holistically represent the Otis Pike High Dune Wilderness. Existing measures like visitor use reports and long-term resource monitoring program data were used. In addition, new measures were developed to reflect indicators of wilderness character that were not previously monitored, such as night sky.

The first year of monitoring will act as a baseline for wilderness character. The measures for the current year will always be compared to the previous year using the framework in the Wilderness Character Trend Worksheet.

| Measure                         | Previous Year | Current Year | Trend in Measure | Trend in Indicator | Trend in Quality |
|---------------------------------|---------------|--------------|------------------|--------------------|------------------|
| 1a. Number of listed species    | 5             | 5            | ↕                |                    |                  |
| 1b. Abundance of listed species | 25            | 20           | ↓                |                    |                  |
| 1c. Number of invasive species  | 5             | 6            | ↑                | ↑                  |                  |
| 1d. Acreage of invasive species | 1.3           | 1.1          | ↑                |                    | ↑                |
| 2a. Ozone (ppm)                 | 0.060         | 0.055        | ↑                | ↑                  |                  |
| 2b. Water quality               | 50            | 48           | ↑                | ↑                  |                  |
| 3a. Forest health               | 0             | 0            | ↕                | ↓                  |                  |
| 3b. Salt Marsh Elevation        | 2.5           | 2.1          | ↓                |                    |                  |

Example of trend worksheet for Natural Quality

The current year measure will be compared to the previous year to see if there is an increase, decrease or no change in wilderness character for each measure, indicator, quality and overall by adding the rankings. All measures are equally weighted allowing for an assessment of change but not for the magnitude of that change.

## How will managers use this protocol?

Evaluating trends allows wilderness managers the ability to see the impacts of management decisions on wilderness character. Identifying which measures show “degrading” or -1 trends will highlight areas in which management decisions may need to be altered in the future. This protocol will provide other NPS units with an example of how FIIS staff interpreted wilderness character for this particular wilderness and ultimately further our understanding of wilderness stewardship.