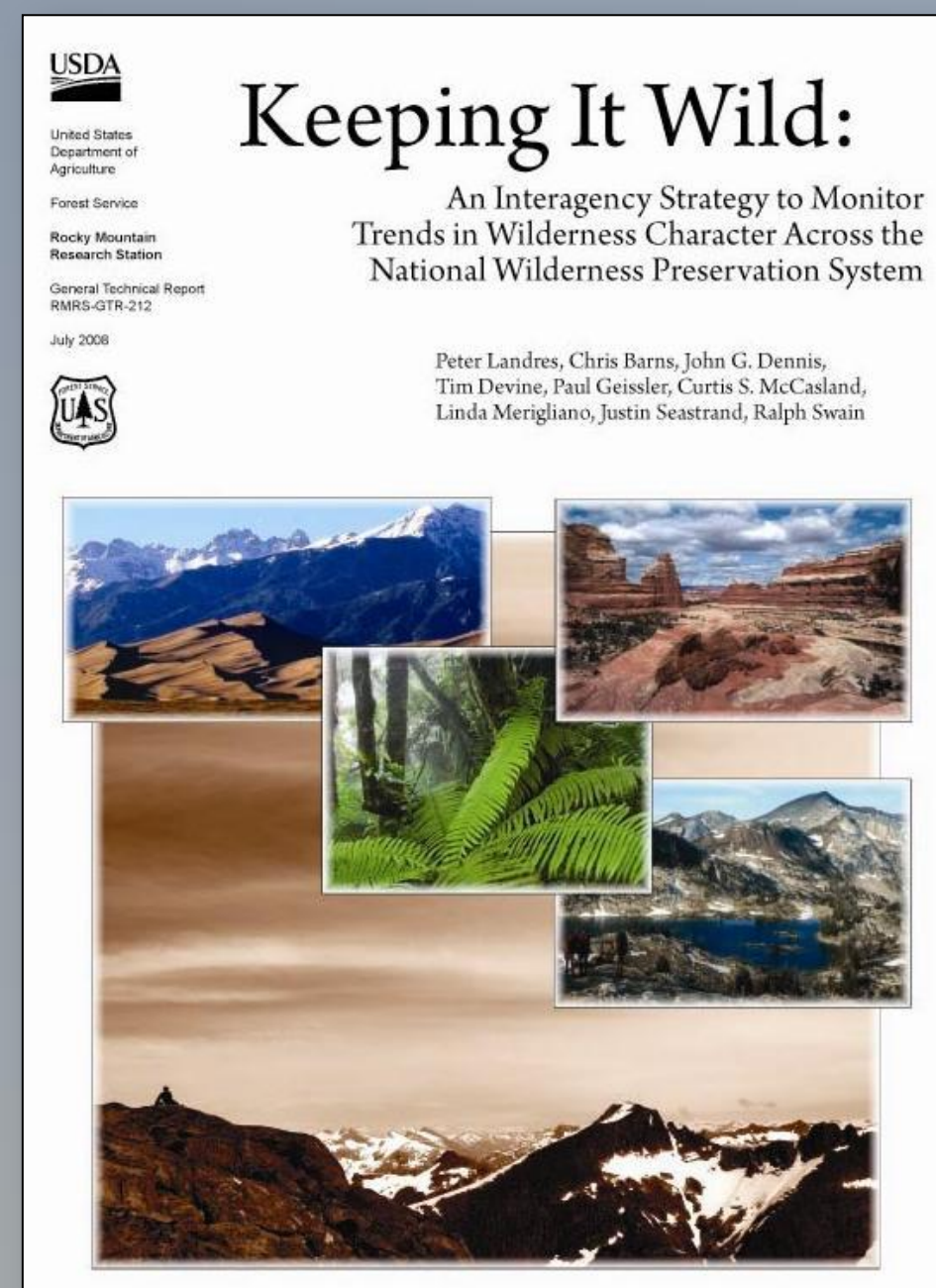


# Mapping wilderness character for US National Park wildernesses

James Tricker and Peter Landres. Aldo Leopold Wilderness Research Institute, Missoula, Montana, USA



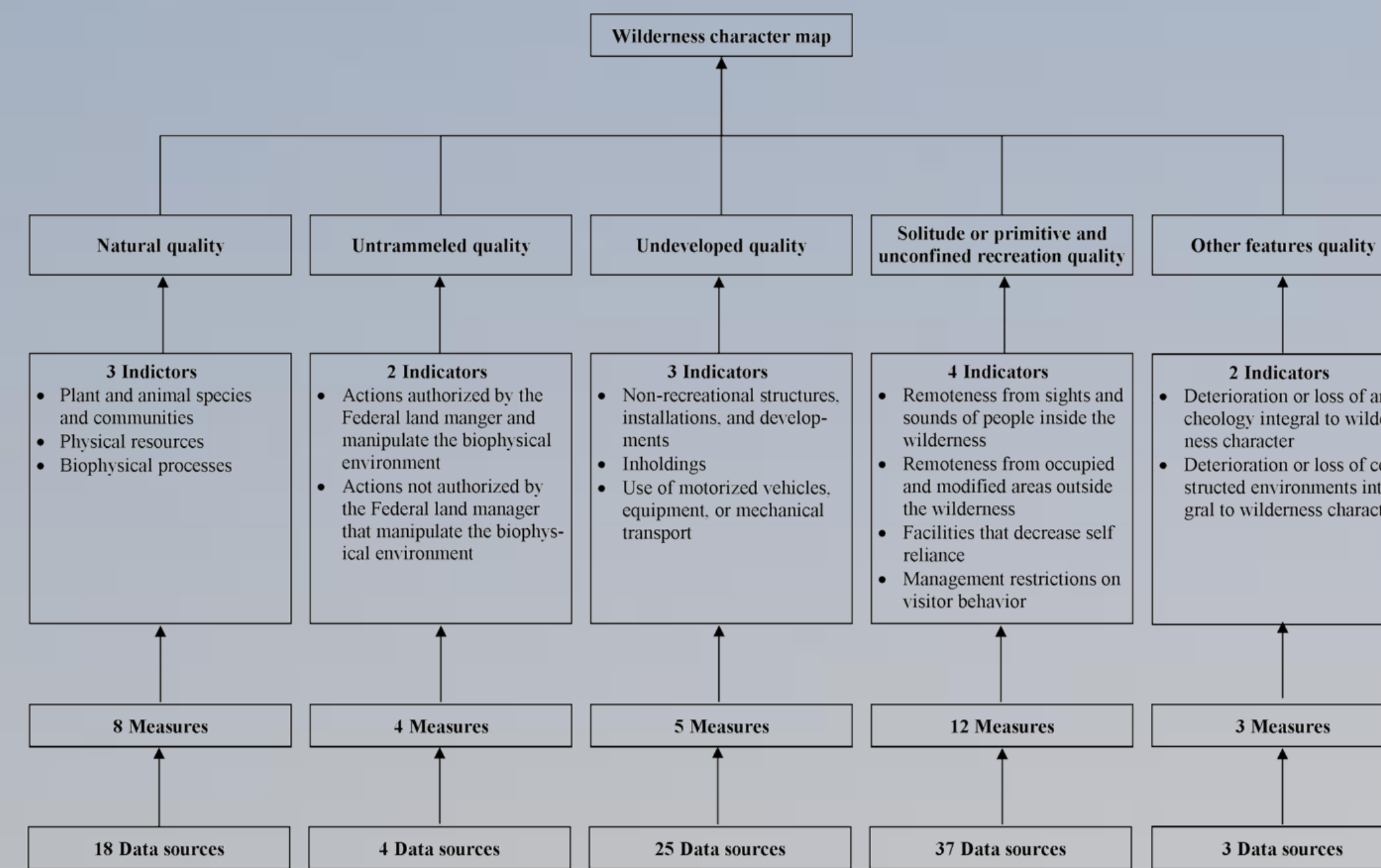
## What is wilderness character?

The 1964 Wilderness Act states that “each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area.”

Wilderness character is composed of the following five qualities:

- “Natural” — ecological systems are relatively unaffected by the effects of modern people.
- “Untrammeled” — free from the actions that hinder, manipulate, or control the community of life.
- “Undeveloped” — without roads, habitations, installations, motorized vehicles, or mechanized transport.
- “Solitude or Primitive and Unconfined Recreation” — outstanding opportunities for solitude, primitive and unconfined recreation, challenge, self-discovery, and inspiration.
- “Other Features of Value” — tangible features that are unique and integral, and have scientific, scenic, educational, conservation, or historical value.

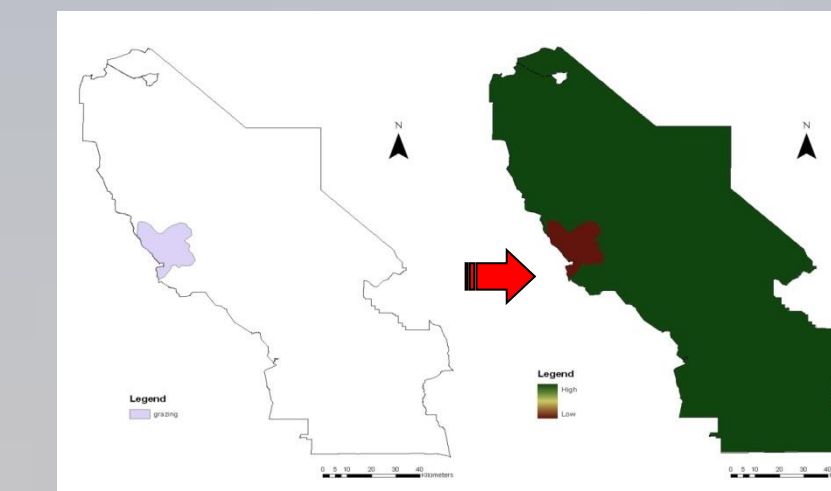
Keeping It Wild (Landres et al 2008) created a hierarchical framework composed of these five qualities and an associated set of indicators and measures.



## How to map wilderness character?

- Use a variety of data sources in different formats and scales from the federal agency and contractors.
- Dataset attributes are formatted and converted to grids. Grid values are normalized onto a common relative scale.
- Grids are added together using park-defined weightings that factor in the different impacts each measure has on wilderness character.

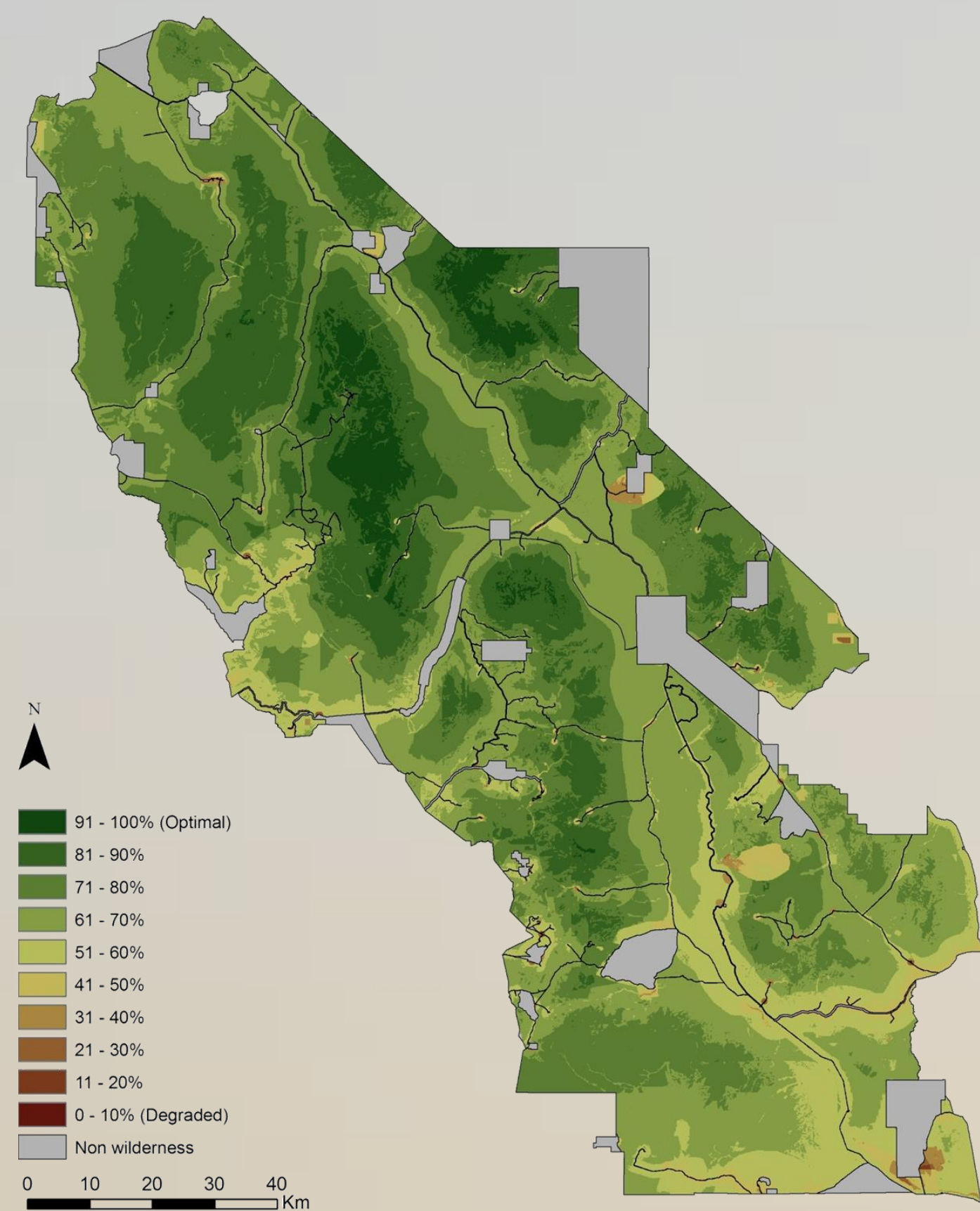
A full description of the mapping process, along with listed sources and associated cautions is described in the Death Valley Wilderness Character Mapping Report (Tricker et al., 2012).



INPUT 1	INPUT 2	OUTPUT
3	1	16
4	2	12
3	1	14
16	16	16
16	14	12
12	12	12

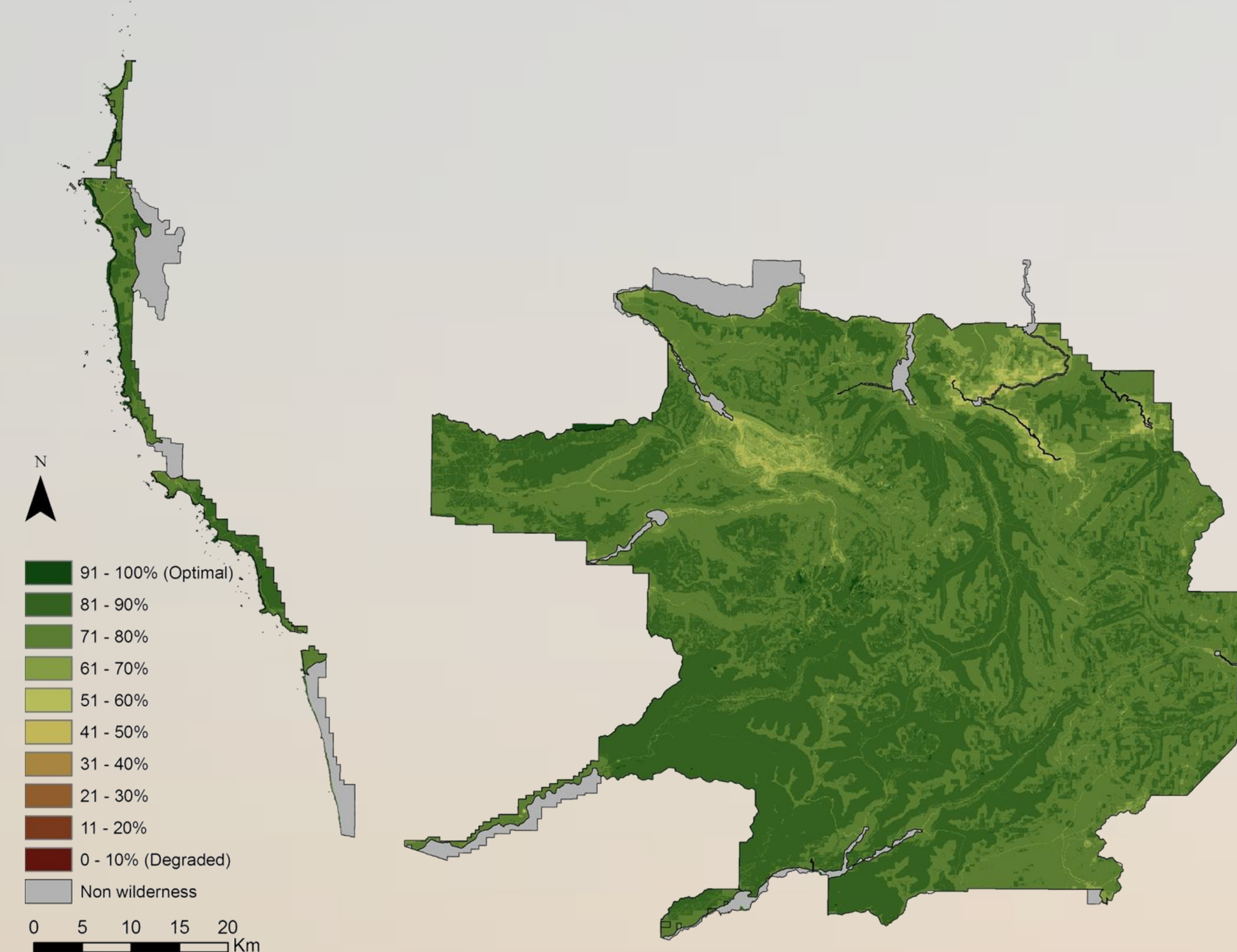
Indicator	Measure	Weight
Non-recreational structures, installations, and developments	Unauthorized installs & developments	9
	Abandoned & closed mines	18
	Radio collars	10
	Admin installs & developments	27
	Subsistence	9
Public roads & rail		27
Inholdings	Development of inholdings	75
	Access to inholdings	25
Use of motor vehicles, motorized equipment, or mechanical transport	Administrative	20
	SAR, emergency	20
	Commercial	20
	Private	20
	Subsistence	20

## Death Valley NP



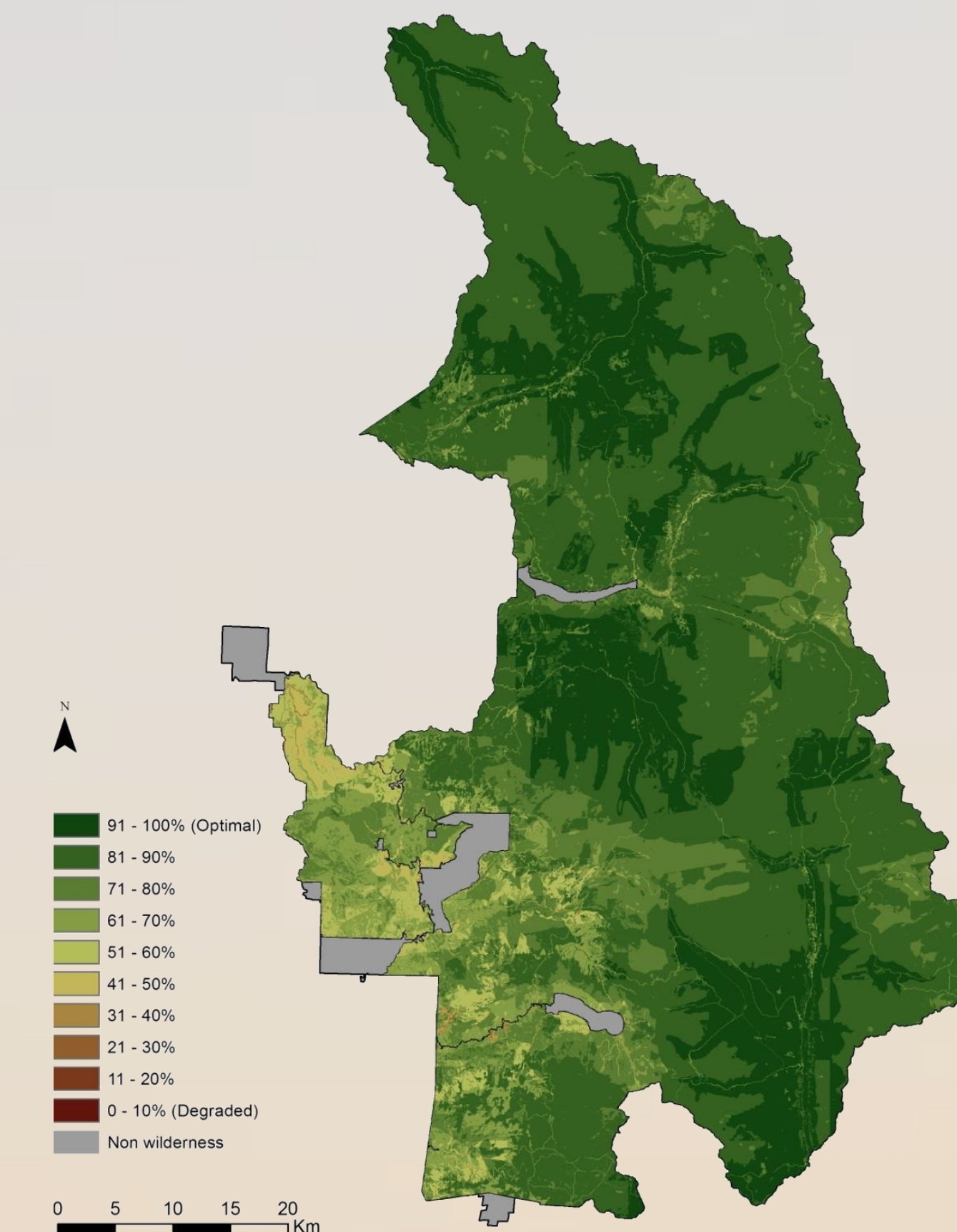
- 3.1 million acres, designated in 1994
- Unique issues: existing road network, mining disturbance, outside pressures (night sky, air pollution)
- Correlation between roads, water, exotic species and visitor pressures
- Northern half of park has the most intact wilderness character

## Olympic NP



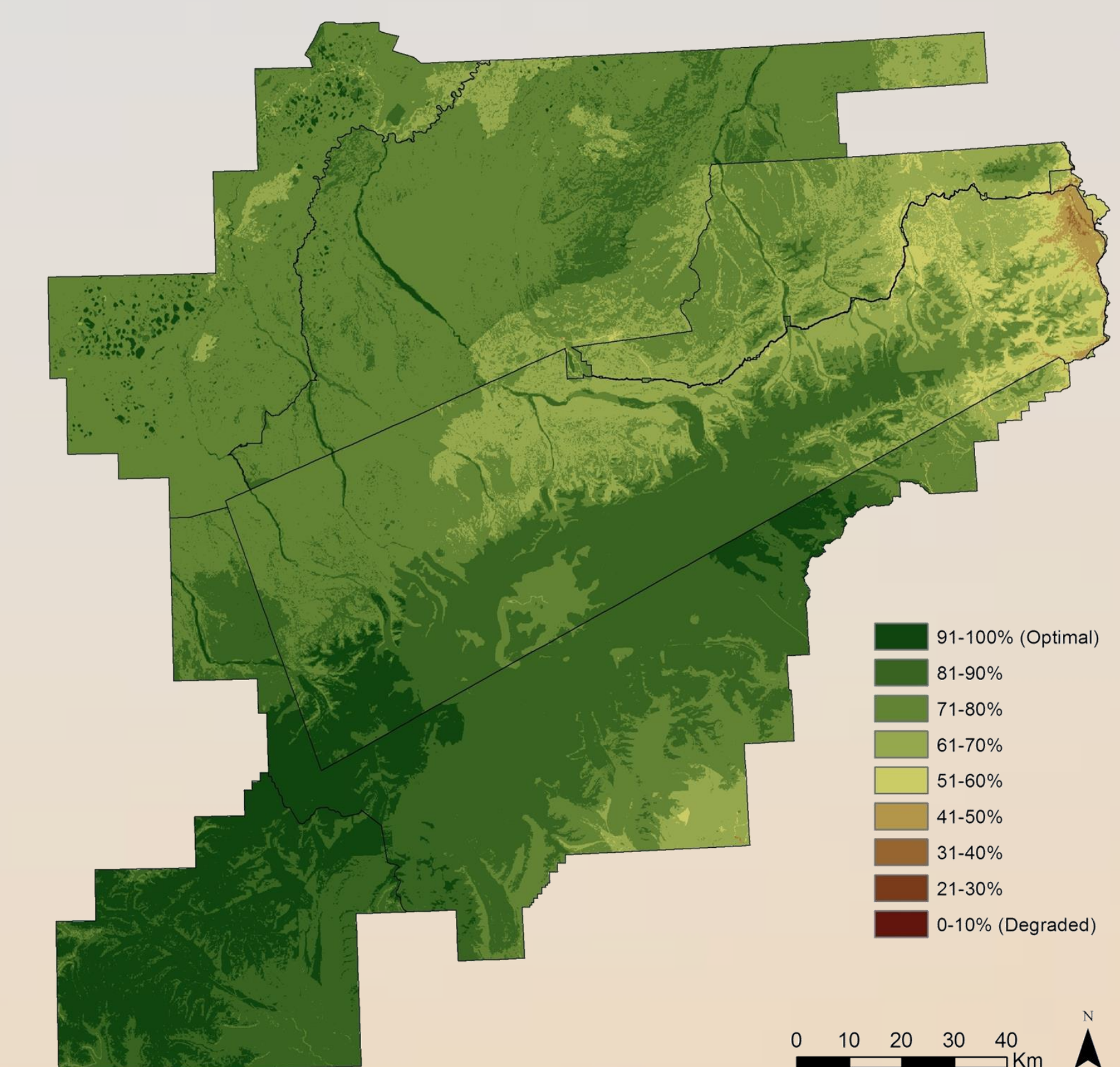
- 876,447 acres, designated in 1988
- Unique issues: Elwha dam removal, two very different units (coastal and interior)
- Sol Duc area and coastal unit see most of the backcountry use
- Majority of park is in excellent condition

## Sequoia Kings Canyon NP



- 768,112 acres, designated in 1984
- Unique issues: second oldest park (long history of visitor use), tradition of stock use, proximity to large urban centres
- Two major through trails: John Muir Trail and Pacific Crest Trail
- Three large pockets of intact wilderness

## Denali NP



- 2.1 million acres, designated in 1980
- Unique issues: subsistence use, major seasonal differences, impact of park road
- Backcountry zoned permit system in the wilderness
- Southwest of park stands out as having most intact wilderness character

## Benefits

- Show the current overall condition of wilderness character and how it varies across the landscape.
- Analyse the effects of different planning alternatives being considered for forthcoming Wilderness and Backcountry Stewardship Plan on wilderness character.
- Provide a baseline from which future monitoring could show the trend in wilderness character over time.
- Allow park staff to evaluate existing park spatial data and consider whether new or better data would be needed for future planning and analyses of effects on wilderness character.

National Parks Group Applauds Death Valley National Park for Setting New Standards with Wilderness and Backcountry Stewardship Plan Statement by David Lamfrom, California Desert Senior Program Manager, National Parks Conservation Association

“The plan is unique in that the park has implemented a process for assessing, monitoring, and seeking to protect or improve wilderness character. Death Valley National Park involved desert communities and key stakeholders to find an innovative way to better understand and protect the vast wilderness resources in the park. This is the first plan I have seen that actively measures wilderness character and seeks to improve it – the results were well worth the wait.”

## Limitations

- The maps only record areas where wilderness character has been degraded, and does not incorporate features that enhance wilderness character.
- The maps may facilitate the inappropriate creation of "sacrifice zones" within a wilderness, directly contravening congressional and agency mandates to preserve wilderness character across an entire wilderness.
- The maps may also facilitate inappropriate comparisons of wilderness character among different wildernesses. Each wilderness will have different data and weighting regimes in response to the particular characteristics and qualities of these areas.
- The map is only intended as an estimate of selected aspects of wilderness character and their relative spatial pattern and variability. The map products do not portray the symbolic, intangible, spiritual, or experiential values of wilderness character.

## References & Acknowledgements

US Wilderness Act, 1964. <http://www.wilderness.net/index.cfm?fuse%NWPS&sec%legisAct>.  
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 Tricker, J., Landres, P., Dingman, S., Callagan, C., Stark, J., Bonstead, L., Fuhrman, K., Carver, S., 2012. Mapping Wilderness Character in Death Valley National Park. Natural Resource Report NPS/DEVA/NRR-2012/503. National Park Service, Fort Collins, Colorado, p. 82.

Death Valley NP - Sandee Dingman, Charlie Callagan, John Stark  
 Olympic NP - Jenn Chenoweth, Roger Hoffman, Ruth Scott  
 Denali NP - Rob Burrows, Dan Abbe, Jon Paynter  
 Sequoia Kings Canyon NP - Gregg Fauth, Paul Hardwick, Alex Eddy