

STRATEGIC QUESTIONS TO ANSWER IN DEVELOPING A WILDERNESS CHARACTER MAP

There are several strategic questions that drive the entire process of building a wilderness character map. Answering these questions at the beginning of the process will allow a wilderness area to move forward in a more efficient way without having to go back and revisit these issues as they develop the map. These questions are listed approximately from general to specific. Potential answers in italics, synthesized from previous wilderness character mapping projects, are offered below the explanation of each strategic question.

1. Why is the wilderness area building a wilderness character map and how will it be used?

There are many different reasons and each will drive the selection of measures and data sources that strongly affects the map.

Potential reasons include:

- *Assess the effects of different plan alternatives on wilderness character.*
- *Establish a baseline to assess future trend in wilderness character.*
- *Evaluate cumulative impacts across all the qualities of wilderness character.*
- *Improve internal staff communication about wilderness and wilderness character.*
- *Improve external communication between the park and the public.*
- *Identify different zones within the wilderness to aid allocating resources and establishing thresholds for impacts.*

2. Should the wilderness area strictly follow the qualities and indicators from Keeping It Wild 2?

The wilderness area could add other indicators if those from *Keeping It Wild 2* do not adequately capture something important.

All the wilderness areas that developed a wilderness character map have used the indicators from Keeping It Wild 2 and so far no wilderness areas have added additional indicators (although they all reserved the right to do so if deemed necessary to capture an important element of the wilderness that wasn't adequately accounted for in Keeping It Wild 2.)

3. Should the wilderness area include the "other features of value" quality of wilderness character?

The wilderness area could include measures for the other features of value quality of wilderness character, such as cultural resources and paleontological resources, or other measures as appropriate.

Four out of the eight wilderness areas chose to include this quality. These wildernesses developed their own unique set of indicators and measures for this quality, based on the type of resources. Four of the wildernesses expressed interest in including this quality but did not develop specific measures. All wildernesses expressed concerns about making such data available in a map that could be seen by the

public. Olympic NP made the decision to only use this quality internally, and chose not to include this quality in any public documents.

4. Should the wilderness area try to incorporate intangible measures (such as spiritual or symbolic values, or visitor experiences)?

Wilderness character could include intangible and experiential aspects, so wilderness areas could try to incorporate these into the map, although the wilderness would most likely need to develop new protocols to do this.

None of the wilderness areas that developed a wilderness character map have tried to develop and incorporate intangible measures. There are several reasons for this, including the lack of an ability to adequately quantify any intangible measures in a way that could be mapped, and the desire to not map spiritual values of indigenous people. All wilderness areas acknowledged that intangible values were important but such information would only be used internally by staff for planning purposes to ensure that management activities didn't compromise these values.

5. Should the map show only degradation to wilderness character?

This is primarily a technical issue of distilling many different types of data into a single spatial product. All wildernesses want to show the positive effects of management actions on wilderness character but showing these on the same map that depicts degradation of wilderness character masks what is happening. For example, if herbicides are used to treat exotic, invasive plants, the natural quality would improve and the untrammelled quality would degrade—the positive and degrading effects cancel each other out on the map.

Most wilderness areas that developed a wilderness character map expressed interest in depicting positive management actions and attributes of wilderness. The best approach considered for attempting this was to develop separate products: one map depicting where wilderness is degraded and another map depicting where wilderness is improved/enhanced. To date, only Gates of the Arctic has produced a positive features map, which involved identifying three indicators (Natural features, Cultural features, and Management actions) with a set of measures for each quality.

6. Should the wilderness area use the same measure in more than one quality?

Most measures could be included in more than one quality. For example, the data point for the presence of a management-created barrier in a stream to prevent exotic fish from moving upstream could be included in any of four qualities (the barrier disrupts water flow so degrades the natural quality; the decision to build the barrier degrades the untrammelled quality; the presence of the structure degrades the undeveloped quality; seeing the structure degrades the solitude quality).

In general, all wilderness areas chose to use a measure under what staff felt was the single most appropriate quality because of concerns about over-emphasizing a particular measure if it was included in more than one quality. However, all wilderness areas decided that different types of data for a single measure were appropriate to use in different qualities. For example, the physical structure of artificial water sources (guzzlers) in Death Valley were shown as degrading the undeveloped quality, and the area around the guzzlers was shown as degrading the natural quality because of the multiple effects on flora and fauna caused by the increased ungulate presence. All wilderness areas reserved the right to include a measure in more than one quality and then weight the measure differently in the different qualities.

7. Should the wilderness area weight the qualities or just weight the measures within each indicator?

The Wilderness Act does not state that any one aspect of wilderness is more important than any other, even though the on-the-ground reality is that some things cause greater impacts than others, and the establishing legislation for some wildernesses may place greater emphasis on one aspect of a wilderness.

All the wilderness areas that developed a wilderness character map chose to weight the qualities equally, the indicators under each quality equally, and only identify weights for the measures under an indicator.

8. Should the wilderness area include measures that they do not have data for?

No wilderness area will have data for all the things that degrade wilderness character, even for some of the most important things such as climate change or loss of connectivity with the surrounding landscape, so how should these situations be treated?

All the wilderness areas that developed a wilderness character map chose to include measures that were deemed crucial or of such importance that they wouldn't pass the red-face test if they weren't included, even when data for such measures did not exist or were not sufficiently reliable to be used. These measures were included under their appropriate indicator, weighted along with the other measures under that indicator, but not included in the mapping process. By including them and weighting them, such measures could be easily incorporated into the map when the data become available, and they have been identified as of high priority for future data collection efforts when resources become available.

9. Should the wilderness area create separate wilderness character maps for different units, or for designated, recommended, and eligible wilderness?

There are many different configurations of wilderness across the National Wilderness Preservation System and each area will need to decide if they want to create one map or separate maps.

Both Olympic and Saguaro wildernesses comprise of two spatially separated wilderness units – they decided to use a single protocol and weighting scheme for both compartments. Denali and Gates of the Arctic decided to create one map for designated and eligible wilderness, and include both park and preserve lands in this map.

10. Should the wilderness area create different wilderness character maps to reflect different seasonal patterns?

This strongly depends on the wilderness area and the seasonality in use and impacts.

Denali decided to create different maps to reflect summer and winter patterns because use and impacts are so different between these two seasons (these differences were only depicted in the Solitude quality). Death Valley considered seasonal maps but there were not enough measures that would change seasonally to make this worthwhile.

11. What is the spatial resolution for the map?

Spatial data come in a variety of different resolutions, from 1-square meter up to many square kilometers.

Wilderness areas have used either 30-meter or 100-meter resolution, depending on the data availability and the size of the park. Some wildernesses used 30-meter resolution even though they had 10-meter data because 30-meter resolution was considered adequate for the purposes of the wilderness character map.

12. How far back in time will data be used in creating the map?

Ideally, data are available back to the date when the wilderness was established, but rarely will an agency have such data. Instead, the first time the wilderness character map is created will become the de facto baseline, and agencies will need to decide how far back in time to use data if it is available.

All wilderness areas decided that the year the wilderness character map is created will define its baseline for evaluating future change. Denali decided to go back up to five years for the untrammeled quality, depending on data availability, and go back as far as possible for the other qualities, as data availability allows. Most wilderness areas typically followed this approach, with some variation in the timescale for the untrammeled quality (some wilderness areas went as far back as 10 years). Denali also decided to create a “retrospective” wilderness character map using professional judgment back to the time of wilderness designation to use in estimating change to wilderness character since it was designated wilderness.