

A database application for wilderness character monitoring

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THE NATIONAL PARK SERVICE (NPS) WILDERNESS

Stewardship Division, in collaboration with the Aldo Leopold Wilderness Research Institute and the NPS Inventory and Monitoring Program, developed a database application to facilitate tracking and trend reporting in wilderness character. The Wilderness Character Monitoring Database allows consistent, scientifically based monitoring of trends in wilderness character throughout the National Park System and, potentially, throughout the National Wilderness Preservation System. Furthermore, the database allows the Park Service to track whether wilderness character is improving, stable, or degrading at the local, regional, or national level.

Why is this significant? The National Park Service is mandated by the 1964 Wilderness Act to protect and preserve wilderness character in designated wilderness. The Park Service must know the ongoing status of wilderness character to evaluate whether or not it is being preserved. Until the development of the wilderness character database in 2011, there was no national systematic effort to monitor wilderness character. Some national parks with strong wilderness stewardship programs tracked particular aspects of wilderness character, such as visitor numbers and the opportunity for solitude, but these efforts were not coordinated across the system and did not fully address the broad spectrum of qualities that underpin wilderness character.

The database has three main objectives: (1) to facilitate wilderness character tracking and reporting at the local, regional, and national levels, (2) to establish a framework for national consistency on overall wilderness qualities monitored, and (3) to allow flexible autonomy at the individual wilderness level through unique measure selection.

The database is based on the monitoring framework from “Keeping It Wild: An Interagency Strategy to Monitor Trends in Wilderness Character Across the National Wilderness Preservation System” (Landres et al. 2008). Like the strategy, the hierarchical database design breaks wilderness character down into four universal qualities: untrammelled, natural, undeveloped, and solitude or primitive and unconfined recreation.

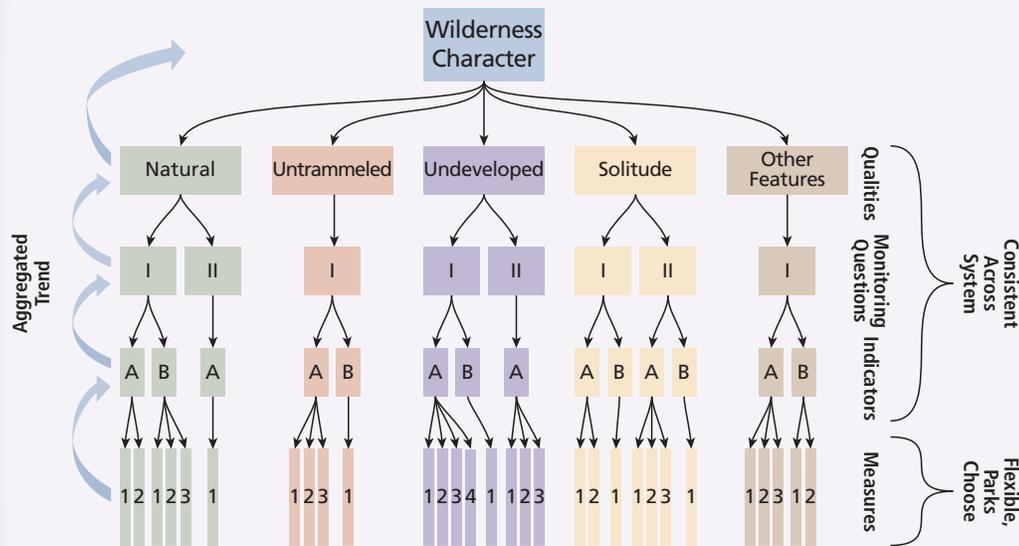


Figure 1. Hierarchical structure of the wilderness character database. Wilderness character is broken down into five qualities, which are then further categorized into monitoring questions, indicators, and measures. The database is standardized from the qualities down to the indicator level; measures are flexible and are chosen on a park-by-park basis. Trend is aggregated at each level from the level directly below, converging into the overall trend for wilderness character at the top.

Diverging from “Keeping It Wild,” the Park Service also breaks wilderness character down into a fifth quality: other features. Each of these qualities is further divided into a set of monitoring questions, which are subcategorized into indicators, then monitoring measures (e.g., Character → Qualities → Monitoring Questions → Indicators → Measures) (see fig. 1).

The database is standardized from the qualities down to the indicator level. However, measures are flexible and can be unique to each wilderness area. For example, one wilderness may choose the population size of grizzly bears as a measure for the “plant and animal species and communities” indicator under the natural quality, while another wilderness may choose the total number of native mammal species found within its boundaries. Appropriate measures are chosen at the park unit level, ideally with guidance from regional and national levels.

The trend in wilderness character is initially assessed at the measure level. At each higher level, the trend is “rolled up,” or aggregated, from the previous level based on rules for combining trends published in “Keeping It Wild” (Landres et al. 2008). The database shows trend interaction and how a management action in one measure, or a combination of management actions across multiple measures, affects trend direction on multiple levels.

Managers can track and report the condition of the measure, although only the trends in wilderness character are aggregated. Additionally, at every level, managers can comment on the underlying reasons for data and trends to better clarify why those trends are occurring.

When the wilderness character database is fully implemented (target date 2014), each park will house a database for each wilderness area within its jurisdiction, and will electronically submit its database(s) annually to the national office for aggregate, macro trend evaluation. Notably, database trends are not comparable among wilderness areas because of the unique aspects of each wilderness.

Additional information about the wilderness character database application will be made available in the future in the form of a user guide being developed by the Wilderness Character Integration Team.

Reference

Landres, P., C. Barns, J. G. Dennis, T. Devine, P. Geissler, C. S. McCasland, L. Merigliano, J. Seastrand, and R. Swain. 2008. Keeping It Wild: An interagency strategy to monitor trends in wilderness character across the National Wilderness Preservation System. General Technical Report RMRS-GTR-212. USDA Forest Service, Fort Collins, Colorado, USA.

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