



Wilderness Character Monitoring Continues on National Wildlife Refuges

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There are 74 wilderness areas on the 566 refuges of the U.S. Fish and Wildlife Service's (USFWS's) national wildlife refuge system. These comprise 18% of the designated wilderness areas in the country. Since 2011, the USFWS has been developing measures to conduct wilderness character monitoring on refuge wilderness areas. As the first of the four federal agencies managing wilderness to conduct this monitoring across all of its wilderness areas, our progress and findings provide a way forward toward our goal to preserve these unique areas.

As an introduction to wilderness character monitoring, it is important to understand the key events that led to these surveys. The Wilderness Act (1964) recognized these unique places found on public lands as legally designated wilderness. It established the national wilderness preservation system, which is made up of lands managed by the USFWS, the National Park Service, the U.S. Forest Service, and the Bureau of Land Management. It also mandates those agencies to preserve wilderness character for future generations. The four agencies realized they needed a way to monitor whether or not wilderness character was being preserved. *Keeping It Wild* (Landres et al. 2008) was published as the interagency strategy to develop wilderness monitoring. It took the wording directly from the Wilderness Act to define wilderness character, and how the agencies would monitor the status of wilderness character.

In 2011, the USFWS started sending wilderness fellows to all refuge wildernesses to establish baseline reports based on the guidance provided in *Keeping It Wild*. These reports established the measures that a wilderness manager would use to address the key components of wilderness character. The first few years of wilderness character monitoring were a time to learn what was

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working and what needed to be changed. So, *Keeping It Wild* was updated with *Keeping It Wild 2* (Landres et al. 2015) to reflect the lessons learned, and improve our understanding of wilderness character.

Keeping It Wild 2 defined five qualities that make up wilderness character. The “untrammeled quality” looks at the intentional manipulations to the biotic and abiotic components of a wilderness, generally by management. The “natural quality” considers the threats to plant and animal species in wilderness, as well as abiotic components like air and water, and ecological processes. The “undeveloped quality” monitors the human-made structures and mechanized use in wilderness. The “opportunity for solitude and primitive or unconfined recreation quality” gets at the personal visitor experience in wilderness and the ability to be self-reliant. Lastly, the “other features of value quality” is an optional quality for those wilderness areas that have historical, cultural, or scientific resources.

Some of the changes in *Keeping It Wild 2* include refined focus for the qualities, and reorganized indicators that address those qualities. It also provided additional tools to help those tasked with selecting measures for wilderness character monitoring.

Because wilderness fellows completed baseline reports for refuges before *Keeping It Wild 2* was published, the USFWS was prepared to start the process of updating measures for those reports. The USFWS is doing this with wilderness character monitoring update summaries, which act as an addendum to the baseline report for each refuge wilderness. Within this report, changes are made to the selected measures to be consistent with the new interagency strategy. Interim data are also collected since the year of the baseline report, which sets a wilderness steward up for data entry later.

An example of a modified measure from a completed update summary is from Okefenokee Wilderness, under the untrammeled quality. The old measure, acres of herbicide application within wilderness boundaries, was a common measure selected in baseline reports because many refuges employ this type of management for invasive species. *Keeping It Wild 2* refined the untrammeled quality by stating the focus should be on the intent to manipulate the environment, and not the magnitude of those manipulations. The new measure, number of actions taken to manage plant species, moves away from magnitude by counting each action, or the opportunity to make a decision to perform an action. The measure is also improved because the scope of management actions on plant species was broadened. Even though herbicide application may be the predominant management action today, this measure must be robust well into the future, and that may mean counting new types of management action(s) down the line.

Similar to how *Keeping It Wild 2* provided improved tools, the USFWS is also providing improved tools to help wilderness stewards calculate data values for measures in the update summaries. Adapted from the U.S. Forest Service technical guide (Landres et al. 2009), the USFWS provides specific examples of actions that could be taken to manage plant species, and how each example would be weighted toward the data value for this modified measure (Table 1). This means 50 years from now a wilderness steward will be able to count actions the same way a wilderness steward does today.

Once an update summary is completed for a refuge wilderness, the USFWS uploads these reports to the USFWS Service Catalog so they are publicly available. At this time, the data collected in the

Counting the number of actions to manipulate plant species in the Okefenokee Wilderness (adapted from the Forest Service Wilderness Character Technical Guide)		
Type of action	Example	Counting rule
Single action at a single location	Herbicide applied at a single location to treat a single species	Count as one action
Single action at multiple locations	Herbicide applied at multiple locations to treat a single species	Count as one action for the single species regardless of the number of locations
Multiple actions at a single location	Both herbicide and mechanical manipulation is used to manage a single species at single location, or herbicide is used to treat two species at a single location	Count as multiple actions, in the first case two (one for each action type), and in the second case two (one for each species)
Multiple actions at multiple locations	Both herbicide and mechanical manipulation is used to manage a single species at multiple locations, or herbicide is used to treat two species at a multiple locations	Count as multiple actions, in the first case two (one for each action type), and in the second case two (one for each species)
How the time frame of actions affects counting		
Time frame of action	Counting rule	
Action occurs within a single fiscal year	Count as one action regardless of the number of times the action is undertaken within the same fiscal year	
Action spans multiple fiscal years	Count as multiple actions, one for each different fiscal year in which the action occurs	

Table 1. Counting protocol for the measure number of actions taken to manage plant species.

update summaries are also entered in the interagency Wilderness Character Monitoring Database. This database houses the data for all wilderness areas in the national wilderness preservation system. Update summaries have been completed for 30% of national wildlife refuge wilderness areas, and the USFWS plans to have the remainder completed in the next two years.

References

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