

ALWRI RESEARCH NOTE

Mapping Wilderness Character

New Tools for New Concepts

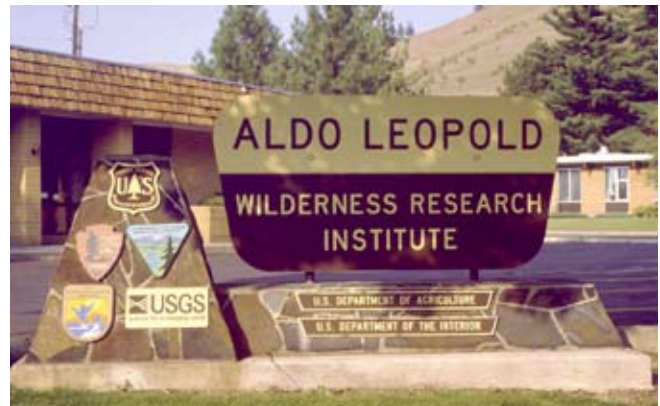
BY JAMES TRICKER

The recent development of an interagency strategy to monitor wilderness character (Landres et al. 2008) allows on-the-ground managers and decision makers to assess whether stewardship actions for an individual wilderness are fulfilling the mandate to “preserve wilderness character.” Since nearly all wilderness monitoring data depict spatial features, a recent Aldo Leopold Wilderness Research Institute study investigated whether these data can be combined to provide a spatially explicit understanding of the changes and trends in wilderness character over time.

Using the 3.1 million acre (1.25 million ha) wilderness in Death Valley National Park (DEVA) as a study area, the goals of this research were to

- show the current overall condition of wilderness character and how it varies across the landscape,
- analyze the effects of different planning alternatives being considered in the forthcoming Wilderness and Backcountry Stewardship Plan on wilderness character, and
- provide a baseline from which future monitoring could show the trend in wilderness character over time.

All major decisions to build this map of wilderness character were based on the knowledge and experience of DEVA staff. Using the indicators from Landres et al. (2008) as a framework, measures were identified to depict where wilderness character has become degraded from a baseline of intactness. Using GIS techniques, spatial data for these measures were processed into grids on a common relative scale. Each measure was then weighted by DEVA staff to reflect its importance in relation to the other measures. Where data for identified measures were unavailable or deemed inadequate by DEVA staff, weighted placeholders were created to allow these measures to be included in the future. Maps were generated for each of the four qualities of wilderness character – natural, untrammelled, undeveloped, and solitude or



primitive and unconfined – which were added together to produce an overall wilderness character map.

The wilderness character map, reclassified into 10 equal categories (see Figure 1), shows the range in quality of wilderness character across the wilderness. A majority of the wilderness character in DEVA is of high quality, with the top 10% areas located in the northern section of the park. The small areas of low quality wilderness character are largely the result of overlapping types of degradation occurring near a particular feature; for example, noise and viewshed impacts, invasive plants, and higher visitor use all occur along road corridors.

Major limitations and cautions about this effort include the following:

- The map only records areas where wilderness character has been degraded, and does not incorporate features that enhance wilderness character.
- The map may facilitate the inappropriate creation of “sacrifice zones” within the wilderness, directly contravening congressional and agency mandates to preserve wilderness character across the entire wilderness.

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Figure 6 – Riverine forest vandalism in the NGR. Photo by Paul Dutton.

slash-and-burn cultivation.

3. Negotiate with the Department of Water Affairs to reinstate normal

summer flooding regimes from Jozini Dam to reestablish the bi-hydrological integrity of the entire

Pongolo floodplain, to restore its once-abundant freshwater fishery.

4. Resuscitate the Lubombo Trans-frontier Conservation and Resource Area tripartite protocol, which has the potential to reinforce the importance of the Maputaland biodiversity hot spot and improve the living standards of communities living contiguous to the Mozambique border.

International support is critical to the mitigation and protection efforts in the NGR in addition to the the nascent, local effort to stop destruction in the NGR before it is too late.

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- The map may also facilitate inappropriate comparisons of wilderness character among different wildernesses when repeated elsewhere. Each wilderness will have dif-

ferent 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.

A more detailed description of the methods, limitations and assumptions, interpretation of results, and possible improvements can be found in the Mapping Wilderness Character in Death Valley National Park Final Report, available at www.wilderness.net.

Although still experimental at this point in time, mapping wilderness character appears to

be a viable approach to help management staff gain a better understanding of how wilderness character varies across a landscape and how different factors combine to affect it. The Aldo Leopold Wilderness Research Institute is continuing this work at several other wildernesses, large and small, urban proximate and remote, and a wide variety of landscapes throughout the United States to refine and improve these methods.

References

- Landres, P., C. Barns, J. G. Dennis, T. Devine, P. Geissler, C. S. McCasland, L. Merigiano, J. Seastrand, and R. Swain. 2008. *Keeping It Wild: An Interagency Strategy to Monitor Trends in Wilderness Character Across the National Wilderness Preservation System*. USDA Forest Service, Rocky Mountain Research Station General Technical Report RMRS-GTR-212. Fort Collins, CO: USDA Forest Service.

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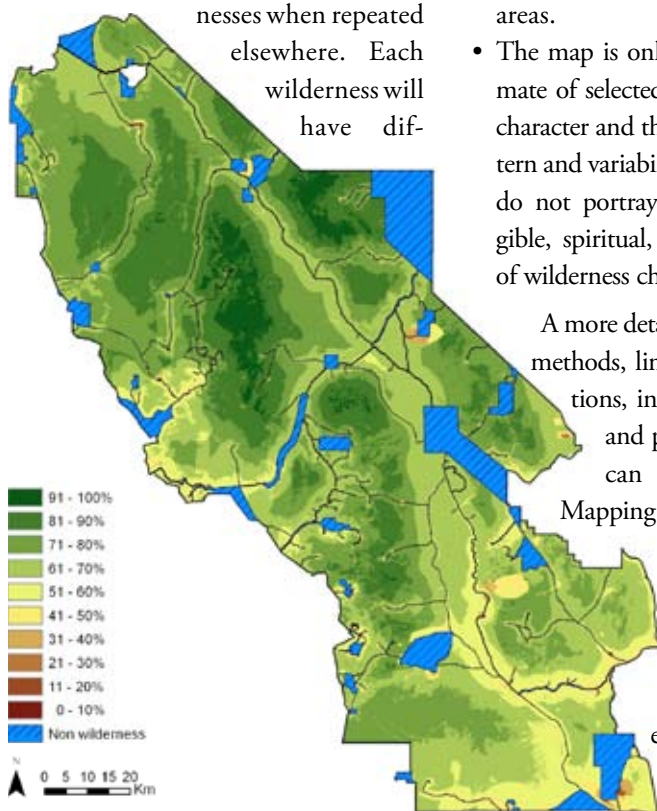


Figure 1– Map of wilderness character in DEVA.