



Wilderness Eligibility Mapping for the NPS Alaska Region

Overview

Wilderness stewardship in the National Park Service (NPS) Alaska Region was profoundly influenced in December 1980 by the passage of the Alaska National Interest Conservation Act (ANILCA). ANILCA not only outlined Congressionally-designated wilderness acreage for the Alaska Region, it defined wilderness land management expectations and directed wilderness suitability reviews of all non-designated land within administrative boundaries. Wilderness suitability reviews completed in the 1980s as part of each unit's General Management Plan (GMP) employed specific criteria to evaluate non-designated land for wilderness eligibility. To date, the determinations provided in these reviews remain the authority for wilderness eligibility in the Alaska Region¹.

A hardcopy map depicting wilderness suitability determinations is contained in each unit's GMP. However, the wilderness areas presented on these maps are difficult to interpret and lack practicality for the following reasons: their production scale provides insufficient detail; they do not depict current boundary or land status information; and their non-digital nature does not conform with modern digital workflows. The Wilderness Eligibility Mapping project focuses on developing accurate digital representations of NPS Alaska Region wilderness areas in ESRI® ArcGIS to facilitate wilderness stewardship and decision making in the Alaska Region.

¹ For certain parks GMP amendments exist.

Technical and Process Details

The wilderness suitability maps in the 1980s era GMP documents provide static snapshots of boundary and land status information. Land boundaries including administrative unit boundaries, Congressionally-designated wilderness boundaries, and individual parcel boundaries have evolved as have land status conditions. The NPS Alaska Region Land Resources Program Center and GIS Team work to maintain accurate boundary depictions and land status data for the Region in two primary ESRI® ArcGIS geodatabases: the Alaska Parks geodatabase and the Alaska Region NPS Land Status geodatabase. Each geodatabase has a regular maintenance schedule and reflects the most up to date NPS boundary or land status data available.

Using ESRI® ArcGIS 10.0 Model Builder, a workflow titled the Alaska Wilderness Areas Model was created to extract boundary and land status data from these geodatabases for use in wilderness mapping. This workflow includes a series of controlled data inputs, structured queries, and geoprocessing tools that are executed in a set order to accomplish specific goals. GIS models such as these are best suited to automate lengthy or complicated workflows, and are advantageous because they:

- Eliminate the need for redundant data maintenance. Source inputs remain dynamic.
- Reduce the potential for human error
- Produce repeatable, well-documented results

1 Wilderness mapping efforts begin with a thorough review of the authoritative GMP document.

2 The Alaska Wilderness Areas Model is run to establish a baseline map. Source inputs for this initial effort include the Alaska Parks geodatabase and the Alaska Region NPS Land Status geodatabase. This serves to reconcile GMP wilderness suitability information to modern boundary and land status data.



The current extent of Congressionally-designated wilderness is extracted from the Alaska Parks geodatabase, and all land remaining in the administrative unit boundary is classified non-designated wilderness.

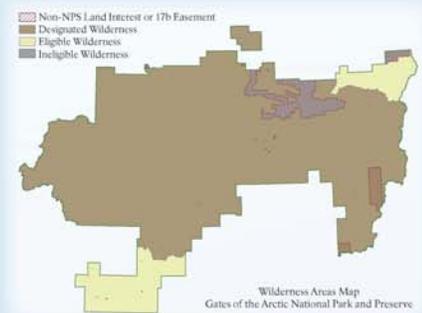
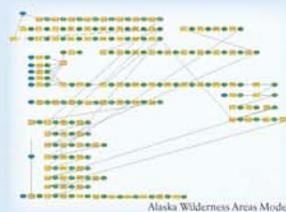


Current land status data is extracted from the Alaska Region NPS Land Status geodatabase. Non-designated wilderness is reclassified as eligible or ineligible wilderness based on land status criteria that align with the GMP wilderness suitability reviews.

GMP Wilderness Suitability Land Status Criteria		
Type	Criteria	Eligibility Status
Federal		Eligible
Federal	Under Application or Selection	Pending
State or Private Land	Patented or Tentatively Approved	Ineligible
Private	Ownership of Subsurface	Ineligible

Wilderness Eligibility Mapping Land Status Criteria		
Type	Criteria	Eligibility Status
Access, Utility, ROW, Easement	Federal 17b Easement Non-NPS Federal Non-Federal Public Private ANILCA Native	Ineligible
Split Estate Ownership	Non-NPS Federal Private Private ANILCA Native	Ineligible
Subsurface Ownership	Private Private ANILCA Native	Ineligible
Primary Land Ownership	Non-NPS Federal Non-Federal Public Private Private ANILCA Native	Ineligible

^{*}All remaining land status criteria are assigned an eligible status.



3 GMP content is reexamined to 1.) identify areas where wilderness determinations were made for reasons precluding boundary or land status issues, and to 2.) identify unclear wilderness boundaries that result from insufficient GMP map scale or lack of GMP clarity. NPS Regional and Park staff work collaboratively to discuss and resolve any uncertainty regarding eligibility definition and boundary delineation. The language and intent of the original GMP and any subsequent authoritative source is considered during this evaluation. Wilderness eligibility and boundary information that results from this effort is integrated into a GIS dataset that serves as the final source input for the Alaska Wilderness Areas Model. The model is re-run to populate the AKR GMP Wilderness Areas geodatabase, an ESRI® geodatabase developed by the NPS Alaska Region GIS Team that stores finalized wilderness area data for distribution and map production. Its structure adheres to established national NPS Wilderness Standards for GIS data transfer.



Conclusion

The digital wilderness data produced through the Wilderness Eligibility Mapping project will greatly benefit NPS Alaska Region permitting, planning, and wilderness stewardship by clearly and accurately defining the areas of designated and eligible wilderness within administrative unit boundaries. Wilderness information resulting from this effort may further assist in defining appropriate focus areas for future Wilderness Studies, and may serve as a potential source for the recalculation of defensible wilderness acreage values for the Region. To date, wilderness eligibility mapping is complete for GAAR, GLBA, and LACL. Mapping efforts for KEFJ and KATM are currently underway and should be completed by December 2011. KOVA and NOAT are next in queue for wilderness mapping in 2012.