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El Malpais Wilderness Suitability Study

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On Dec. 31, 1987, Congress established El Malpais National Monument (NM) on the southeastern edge of the Colorado Plateau. "The bad country" (EL-MAL-pie-EES) was aptly named by Spanish explorers for the trackless, broken lava flows covering about 230 square miles in northwestern New Mexico (75 miles west of Albuquerque). The 114,848-acre monument contains one of the more recent lava flows in continental United States and has kipukas, cinder cones and other craters, spattercones, pressure ridges, important lava edge ecotones, and more than 50 miles of lava tube systems, some with unusual ice formations and flora and fauna species.

Other features include archeological sites dating from the Archaic (5000 B.C.) through Anasazi (A.D. 1350) periods and continuing to modern Navajo and Pueblo cultures and pristine vegetation associations such as aspen and Douglas-fir stands of piñon and juniper.

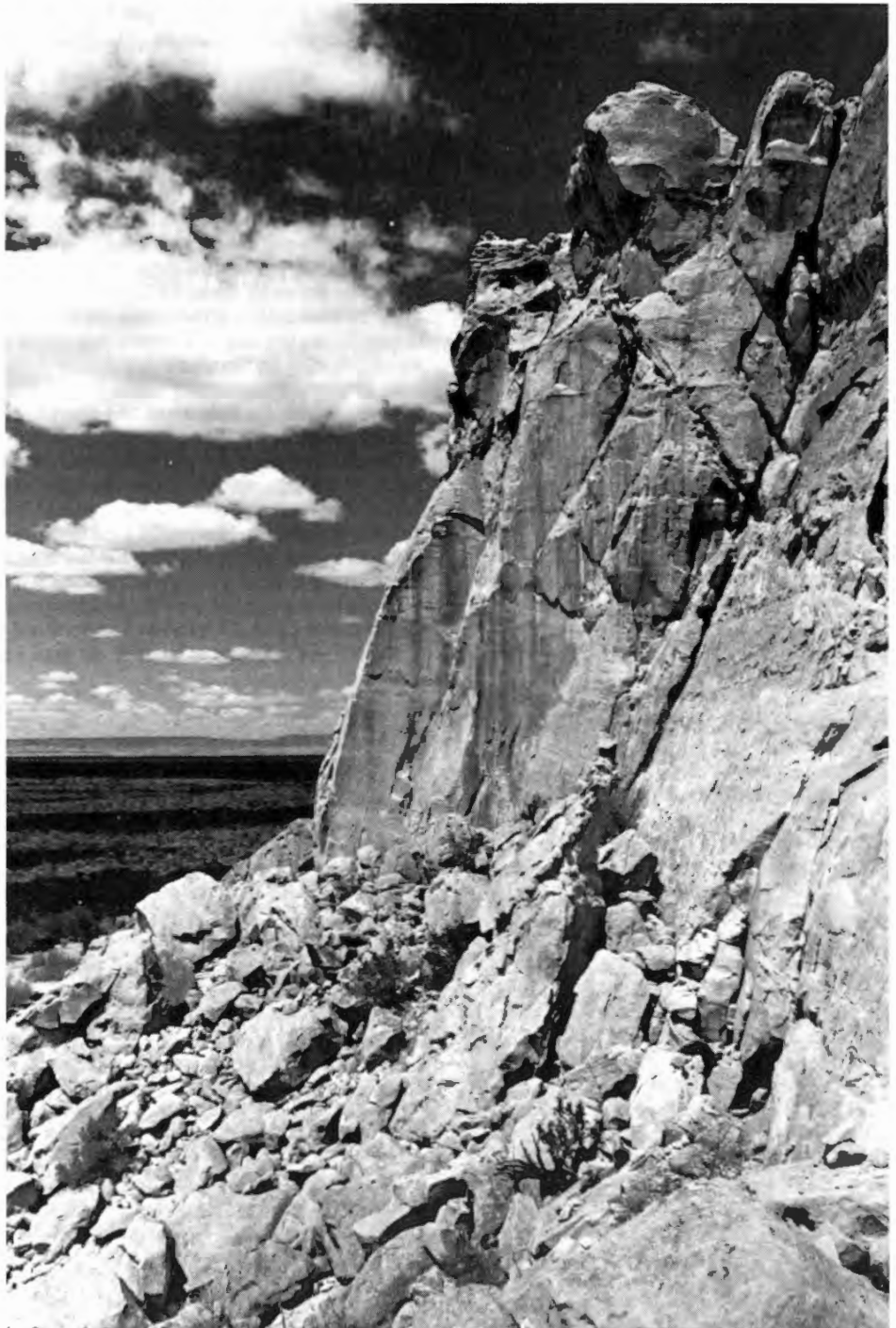
The El Malpais legislation also created a 262,600-acre BLM national conservation area (NCA), which almost surrounds the monument and within which are two designated wilderness areas. These areas (totaling 102,400 acres) border the monument on the south and east. The legislation required the development of simultaneous management plans for the NPS monument and the BLM conservation area.

A further legislative requirement was a wilderness suitability study – an inventory of lands suitable for wilderness designation. This article deals with the NPS approach to and conclusion of that study and the problems encountered.

Background

Legislative provisions that influenced the mandated wilderness study are: (1) the general management plan (GMP) "shall review and recommend the suitability or nonsuitability for preservation as wilderness of all roadless lands within the boundaries" (hearing language defined "roads"); (2) a map of potential development zones that did not have to be inventoried; (3) development of two visitor centers and traditional NPS facilities to provide for the enjoyment of ...; (4) phaseout of grazing by 1998 (eliminating many existing roads and other incompatible intrusions); and (5) continuance of traditional American Indian practices and access consistent with the Wilderness Act.

Because of simultaneous deadlines, only one week was allowed for wilderness fieldwork. Topo maps and air photos were essential for locations of roads and other major intrusions. Most intrusions were adjacent to the lava flows and associated with past lumbering and grazing activities. Field inventory and evaluation concentrated on applying the Wilderness Act criteria,



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Cliff at Sandstone Bluff, with McCarty Crater flows in the background. Photo by Dennis Daily.

El Malpais Study Poses Problems

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the "road" definition, and evaluation of other intrusions. All identifiable roads and ways were field checked and evaluated for need and intrusiveness. The latter proved very difficult; many determinations were changed as planning progressed and additional consultations occurred with tribal groups. Data were circulated between NPS and BLM planning teams for additional review and comment. Finally, all pertinent data were transferred onto a permanent base map.

Crystal Ball Needed

Because the El Malpais wilderness study was part of the GMP process, an integrated team was assembled to determine the most appropriate potential land uses. This was critical to the wilderness study because NPS management of the monument had begun only a few months prior to starting the GMP and there was very limited visitor use and resource data base (first field staff were hired in July 1988; GMP fieldwork started that August). To balance wilderness preservation and other legislative requirements, it was necessary first to determine development and access needs for resource protection, and visitor, administrative, American Indian, and private uses. Because of limited data, this required some crystal ball type work.

Although El Malpais' legislative map designated some potential development zones that did not have to be evaluated for wilderness suitability, these were inventoried anyway; those suitable (after planning needs were met) were included as wilderness-suitable lands.

The authors found some unique circumstances during this study. The lava flows show almost no evidence of modern humankind. For the most part, the rugged lava flows preclude developments, and no further exploration was required on a sizeable portion of the monument. For approximately 58 of the 131 linear miles of monument boundary, many lava flow edges roughly coincide with monument boundaries, making ecosystem and physiographic boundary identification and protection relatively easy. A strong desire to simplify management with the adjacent BLM West Malpais Wilderness Area made analysis along approximately 33 miles of common boundary less complex. This left about 40 linear miles that presented the difficulties discussed here.

Lack of Guidance

The NPS's *Management Policies* devotes a chapter to wilderness; however, the chapter primarily addresses operational management rather than the study process. Another potential guidance source, NPS-2, *Planning Process Guidelines*, lacks any reference to wilderness studies. A review of other, older NPS wilderness studies proved to be the best overall guidance, as discussed here later.

The Senate report mandated the use of the BLM's definition of road – "a vehicle route which has been improved and maintained by mechanical means to ensure relatively regular and continuous use." A way, on the other hand, was "a vehicle route which has not been improved and maintained by mechanical means." For this wilderness study, "maintained" and "relatively regular and continuous use" needed further definition. Fortunately, BLM was wrestling with the same criteria on its nearby Chain of Craters Wilderness Study Area; we shared each other's ideas and thoughts. Still, what evidence of maintenance will you find on a road in an open grassy flat? In a remote, isolated, rugged area, what is "relatively regular" use?



Inside Bandera Crater within El Malpais National Monument. Photo by Dennis Daily for the Cibola County Beacon.

Once a month? Once a year?

Obtaining the Needed Data

Numerous vehicular routes were not on topo maps or range inventories, and some were not even apparent on aerial photographs. Up to a year after the fieldwork, at least six vehicular routes were discovered, which made keeping up with acreage calculations and determining wilderness boundaries very difficult.

Do We Evaluate Private Lands for Wilderness Suitability?

Another problem was how to deal with private lands within the monument. Should they be evaluated before being acquired? No guidance is given for evaluating these private lands. In our final analysis, the private lands were evaluated and when those private lands that meet wilderness criteria are acquired, they will be considered as wilderness-suitable lands. (For purposes of the study, these lands were called potential wilderness additions.)

How Do We Determine Wilderness Boundaries?

Perhaps the biggest problem was the lack of guidance as to how to determine wilderness boundaries. The lack of clear guidance was evident in several areas.

Definitions: While applying the Wilderness Act and NPS policy to this study, most often the authors found the law and policy too loosely worded to provide enough guidance. Neither policy nor law defines basic terms like "solitude," "untrammeled by man," or "primitive and unconfined recreation." Also, neither gives guidance on determining wilderness boundaries.

Solitude: Solitude from what? When is solitude achieved in terms of user experience or physiography? What are the elements that make up solitude? Are there opportunities for solitude on open flats or broken lava fields (with few trees) adjacent to roads? How do developed areas affect solitude? Where do wilderness

users begin to experience solitude and how is it measured – when they are out of sight of roads, or sound of vehicles, or both?

In heavily vegetated areas it seems easier to identify where a sense of solitude begins, but human perceptions vary through time, geographic area, and by individual. The recreation opportunity spectrum (ROS), developed by the USFS and adopted by BLM, was a valuable tool and helped with this identification.

Primitive and unconfined recreation: What is primitive in terms of trail standards and other wilderness developments? Does unconfined mean that management cannot take any confining actions such as gating caves to reduce resource impacts or closing areas that may be hazardous for visitors? How is unconfined reconciled with American Indian access issues?

On one hand, dealing with primitive and unconfined recreation wasn't as complex: El Malpais has no major developments. On the other hand, there are no established visitor use patterns or public use needs either. What demands on the resource and management will future visitation bring? There are no direct baseline data to model, so the GMP team used other parks similar to El Malpais to project overall visitation trends. This wasn't much help in wilderness planning. Visitation levels affect the quality of wilderness. What developments/facilities are necessary to protect the resource and accommodate an estimated potential annual visitation of 276,100 by the year 2000 without compromising wilderness values? Where and how do we provide for the enjoyment of those visitors and maintain wilderness? Again, an ROS system helped to provide a framework.

Untrammeled by man: Currently, there are many private inholdings in the northwestern quarter of the monument; access must be provided and developments will continue. What is the resiliency of this land and environment to the effects of people? How much restoration can we economically and realistically do to give the feeling of "untrammeled by man" (not to mention woman)?

Multiple Problems with Existing Ways Of Determining Wilderness Boundaries

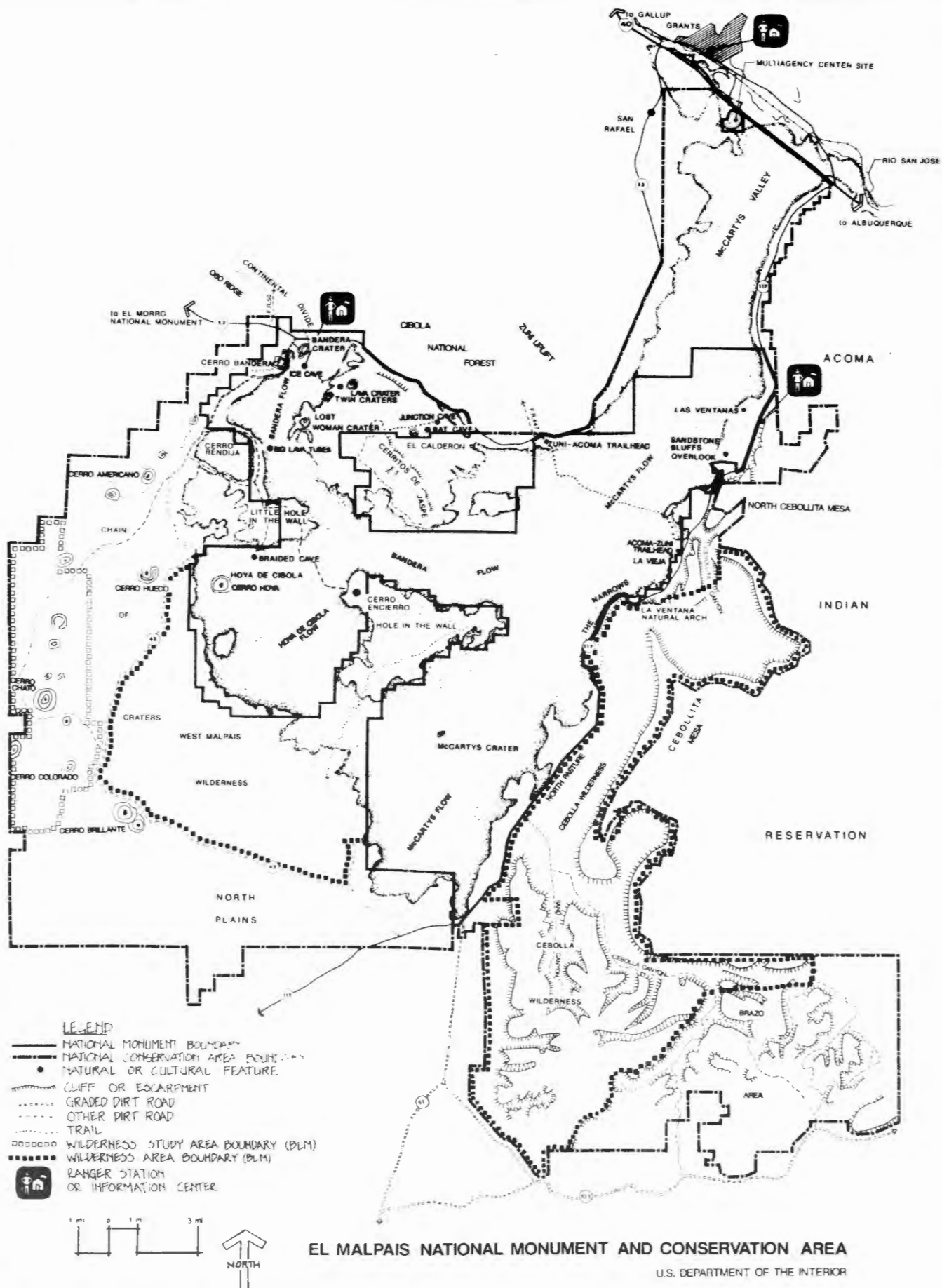
Basically, there are three broad parameters or methods for determining wilderness boundaries:

(1) **Using standard setbacks** (BLM's preferred method). For NPS this method already presents a problem ... the Park Service does not define a standard setback. (At least one NPS study, Big Bend, used a 660' setback from developments). In general, this method provides for maximum acreage, although it is inflexible to terrain and vegetation variations. With standard setbacks (a) solitude and law enforcement trespass problems are created in open terrain; (b) future options for road realignments for safety factors (landslides, floods, etc.) are limited to a narrow corridor, which often creates more expensive realignments than might have been necessary; and (c) options for developing facilities to access wilderness (parking, trailheads, etc.) are much more limited.

(2) **Using physiographic boundaries:** This is apparently the favored NPS method, judging from past studies. This method works well where landforms provide identifiable boundaries. The public can easily identify and understand the boundary, and management can easily enforce and maintain the boundary. Where landforms are indistinct, this method presents problems.

(3) **Using surveyed boundaries:** This method may

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follow section lines, Universal Transverse Mercator (UTM) coordinates, or other artificial lines. This seems to be the NPS and BLM second favorite method. Acreages are easy to calculate and areas are easy to establish on maps, but they also are incredibly difficult for visitors (and managers) to locate on the ground without intrusive signs. Also, surveyed boundaries are expensive to establish formally.

Conclusions and Proposals

The NPS planning team studied BLM's resource and management problems that related to using standard setbacks from roads, looked to other NPS wilderness documents, and looked at issues at other NPS wilderness areas. The approach that seemed most closely to follow past NPS practice was the use of physiographic boundaries where possible and practical, and survey lines where physiography could not be used. Every attempt was made by the NPS team to define manageable boundaries that could easily be identified on the ground. Boundaries were drawn that (1) maximized wilderness values and met other legislative requirements, (2) made maximum use of physical boundaries for ease in public identification and management, (3) prevented potential problems of ORV and other trespass, and (4) enhanced long-term management. In other words, all three methods were used in the NPS El Malpais wilderness study – BLM standard setbacks from most roads, physiographic boundaries where they reflected wilderness criteria, and surveyed boundaries in remote areas where lava flows could not be used.

Approximately 97,025 acres (86,011 instant; 11,014 potential additions) or almost 85 percent of the monument was found to possess wilderness characteristics and values, including most of the major lava flows and ecotones and grasslands adjacent to the lava flows and especially land adjoining BLM wilderness (forming a 136,625-acre NPS/BLM wilderness area). Approximately 17,823 acres in 14 separate monument areas were not suitable for wilderness due to proposed development access routes, and other effects of people. In accord with NPS **Management Policies**, once the suitability study was approved, the monument began managing those lands as wilderness.

If policy and guidelines such as NPS **Management Policies** and the **Planning Process Guideline** (NPS-2) defined the broad parameters of acceptable means/methods for determining wilderness boundaries and had definitions for setbacks, solitude, and primitive and unconfined recreation (two of the three major terms in the Wilderness Act), some of the aforementioned problems could be avoided. Defining wilderness boundaries for those 40 linear miles would have gone just as smoothly as the defining of boundaries for the rest of the monument. However, because of the lack of clear guidance, an unnecessarily large amount of time and effort were spent defining and justifying the wilderness boundary for those 40 miles.

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