

History, Extent, and Future of Arizona BLM-Managed Roadless Areas in the Madrean Archipelago

Trevor Hare and Cory Jones
Sky Island Alliance, Tucson, AZ

Abstract—Roadless areas of southeastern Arizona managed by the Bureau of Land Management are becoming rare. Fragmentation by roads and development, all-terrain vehicle use, erosion, and altered hydrology are a few of the causes of loss and degradation of roadless areas. The history of BLM and publicly identified roadless areas includes the passage of the Wilderness Act of 1964, the Federal Lands Policy and Management Act of 1976, the development and passage of the Arizona Wilderness Act of 1984, the Arizona Desert Wilderness Act of 1990, the efforts of the Arizona Wilderness Coalition in the 1980s, and Sky Island Alliance's survey work in 2001-2004. Analysis of BLM and AWC wilderness studies, findings, and recommendations along with data from road surveys indicates the potential persists to protect many of the last high-quality roadless areas. Policy shifts, continued all-terrain vehicle abuse, road building, and other impacts presently threaten many of these areas.

Setting

The Safford and Tucson Districts of the Bureau of Land Management cover more than 2.4 million acres in Arizona and New Mexico and encompass an amazing diversity of landforms and biotic communities. Only a small percentage of these communities are represented in the National Wilderness Preservation System. Specifically, 4% of semi-desert grasslands and oak woodlands, and 0.6% of Chihuahuan Desert vegetation communities are represented in designated Wilderness (Loomis and Echohawk 1999).

In Arizona only 11% of the 12,200,000 acres of BLM lands are designated Wilderness, and in the Safford and Tucson Districts only 4% of the 2,200,000 acres of BLM lands are designated Wilderness (Arizona BLM Web site), even though in 1979 the BLM found 5,598,300 acres or 46% to have wilderness qualities in the State (USDI 1979). In 1984 the Arizona Wilderness Coalition proposed 4,257,972 acres or 35% Statewide (more than 4 times the BLM's original proposals), and 457,934 acres or 21% in the Tucson and Safford Districts (more than ten times the BLM's original proposals) (Arizona Wilderness Coalition 1987).

Currently there is no un-mandated inventory or review of roadless areas or comprehensive inventory or review of the road system in either the Safford or Tucson Districts. In fact no comprehensive travel management plan exists in either the Safford or Tucson Districts. Sky Island Alliance since 2001 has inventoried selected areas on the two districts that are in and adjacent to areas identified by the Arizona Wilderness Coalition as having wilderness qualities in their 1987 proposal.

Physiographical and Biological Uniqueness

The BLM lands in southeastern Arizona are unique in many respects including physiography. The region sits in a basin and

range landscape—patterns of mountains and ranges separated by wide valleys or basins—that is made up of degradational landforms, piedmonts left by erosion, and constructional landforms, alluvium fans, etc. The spatially and temporally discontinuous deposition of alluvium has resulted in a mosaic of different aged and applied alluvium. Deeply incised degradational landforms result in amazing topographical relief (canyons), and incised constructional landforms results in the terraced alluvium of the larger river valleys (McAuliffe and Burgess 1995).

These lands are also unique in their biology. They are composed of mid-elevation, ecotonal lands of Madrean evergreen woodland, semidesert grasslands, Chihuahuan desertscrub, Sonoran desertscrub, interior chaparral, Great Basin conifer woodland, montane conifer forest, and riparian communities (Brown 1989; Marshall et al. 2003). They support the highest plant community alpha diversity in the Sky Island region and have a high prevalence of riparian habitats (McLaughlin 1995).

Many rare, endemic, sensitive, and special status species occur on these lands. Plants include 10 recognized by the Arizona Rare Plant Committee (undated). Animals include over 25 species listed as Threatened or Endangered by the U.S. Fish and Wildlife Service plus 7 that are Candidates or Petitioned for listing. Forty are on the BLM Sensitive Species list and 20 are on the Arizona Game and Fish Department Wildlife of Special Concern. Native fish are well represented with at least 7 species (AGFD 2004; USDI 2001b; USFWS 2004).

Wilderness Policy

Wilderness Designation

The organic act for the BLM is the Federal Lands Policy and Management Act of 1976 (FLPMA). In Title VI, Section 201(a) the BLM is directed to inventory all lands with wilderness qualities "...on a continuing basis..." In Section 603(a) the BLM must review those areas greater than 5,000 acres and make

recommendations "...from time to time..." to the President on the suitability of each area for wilderness designation.

FLPMA in Section 102(a)(7) also formally established the management doctrine of "multiple use and sustained yield." Wilderness, as a resource value, is an important use, and as a designation wilderness is fully compatible with multiple use management. Wilderness designation can also further another key multiple use duty of FLPMA to "prevent permanent impairment of the productivity of the land and the quality of the environment" (Section 103[c]). Additionally, wilderness designation can act as a tool to fulfill another FLPMA duty to "take any action necessary to prevent unnecessary or undue degradation of the lands" (Section 302[b]). Every presidential administration has recognized these authorities in FLPMA for the designation of new Wilderness Areas, and most have signed Wilderness bills, including Presidents Ronald Reagan and George H. Bush.

So does the BLM have a continuing obligation to inventory and protect Wilderness Areas? According to FLPMA it does, but in September of 2003 the BLM issued Instruction Memorandum No. 2003-274, which severely undermined what FLPMA directs. Specifically this directive stated "Authority to complete Wilderness review and manage Wilderness Study Areas under the non-impairment standard under FLPMA Sect. 603 expired October 21, 1993," and rescinded the BLM Wilderness Inventory and Study Procedures Manual Handbook (USDI 2001a), which outlined the procedures the BLM must take to identify and protect wilderness quality lands. This is a slap in the face of organizations that have worked for years to protect wilderness quality lands and to get them designated under the Wilderness Act.

The Wilderness Act of 1964 defines Wilderness as an area that "... in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain." The authors of the act recognized the importance of preserving areas where the public can escape from the trappings of modern civilization and where natural processes dominate. Wilderness also provides for very important ecosystem services such as clean water, clean air, and reservoirs of biological diversity.

Currently the above-mentioned directive is under litigation, and we fully expect that the courts will find that this interpretation of FLPMA Section 201(a) is incorrect.

Roads in Wilderness Areas

The BLM defines a road as "... improved and maintained by mechanical means to insure relatively regular and continuous use. A way maintained solely by the passage of a vehicle does not constitute a road." This definition is from the BLM Handbook (USDI 2001). This language originally appeared in House of Representatives Committee Report 94-1163 (May 15, 1976) on what later that year became the Federal Land Policy Management Act. This is still the only statement regarding the definition of a road in legislative history.

The BLM Handbook goes on to reaffirm and strengthen this definition by stating "A route which was established or has

been maintained solely by the passage of vehicles would not be considered a road, even if it is used on a relatively regular and continuous basis" (emphasis added). Many routes on BLM lands in southeastern Arizona have not been maintained in decades and/or have been created solely by the passage of vehicles.

Currently the BLM is actively converting some wildland routes to constructed roads with fire management and recreation money on the Safford District, while ignoring repeated incursions into off-limits area such as the Gila Box Riparian National Conservation Area and some designated Wilderness Areas.

Wilderness Action

1970s

As directed in FLPMA the BLM Initial Inventory was completed in 1978. They inventoried a total of 1,180,000 acres in the Sky Island Region of Arizona, 1,169,500 on the Safford District, and 10,500 on the Phoenix District. They released 872,340 acres (74%) as unsuitable, 871,400 on the Safford District, and 940 on the Phoenix District, and they proposed that 307,660 acres, 298,100 on the Safford District and 9,560 on the Phoenix District, be intensively inventoried (USDI 1979) (table 1).

The BLM Intensive Inventory was completed in 1979. They intensively inventoried a total of 306,062 acres, 294,454 on the Safford District and 11,608 on the Phoenix District. They released a total 160,407 acres (52%) as unsuitable, 160,407 on the Safford District and 0 on the Phoenix District, and they proposed that 145,655 acres, 134,047 on the Safford District and 11,608 on the Phoenix District, be carried over as Wilderness Study Areas (12% of the original inventory and 48% of the lands intensively inventoried). A note of clarification—the BLM Initial Inventory and Initial Inventory reports report differing numbers for acreages; these numbers are taken from summary tables (USDI 1980) (table 1).

The Arizona Wilderness Act of 1984 dealt mostly with Forest Service land and lands on the BLM Arizona Strip District; however, it did designate the 6,670-acre Aravaipa Canyon Wilderness because it is "...a primitive place of great natural beauty that, due to the rare presence of a perennial stream, supports an extraordinary abundance and diversity of native plant, fish, and wildlife, making it a resource of national significance..."

Efforts to protect Aravaipa Canyon began in the early 1950s, and in 1968 the Canyon was proposed as a Primitive Area. On January 10, 1969, it was established as the 3,957 acre Aravaipa Canyon Primitive Area. In 1971 this was expanded through boundary adjustments to 4,044, and in 1978 two sections of Arizona State Land were acquired to bring the total acreage of the Primitive Area to 5,524. Also in 1978, under the mandate of FLPMA Section 201(a), a wilderness review was undertaken. It was recommended in a Wilderness Suitability Report to the President as deserving Wilderness designation, and in 1982 he concurred and sent it to Congress where it was incorporated into the Arizona Wilderness Act of 1984 (USDI 1988).

1980s

The BLM Safford District published a Final Wilderness EIS in 1987. They inventoried a total of 135,664 acres of

Table 1—Acreages of Designated Wilderness Areas, BLM, Wilderness Study Areas, Arizona Wilderness Coalition, and Sky Island Alliance Inventoried.

Unit name	Designated Wilderness	BLM Inventory 1979	Released WSA	AWC Proposal 1987	SIA Inventory 2001-2005
-----Acres-----					
Gila Mountains				68,000	
Fishhooks	10,883	32,633	4,130	^a	+ ~20,000
Daymine	0	22,954	17,309	^a	~20,000
Johnny Springs	0	8,382	NA	^a	~8,000
Oliver Knoll	0	8,283	NA	^a	~8,000
Diamond Bar	0	6,240	NA	^a	0
Bear Springs Flat	0	12,398	NA	^a	~10,000
Ashurst	0	11,506	NA	^a	~10,000
Turtle Mountain	0	29,117	17,422	17,422	~17,422
Mescal Mountains		25,772 ^a			
Needle's Eye	9,201	^a	9,716	9,201	0
Mescal Mountains		^a	7,140	12,000 ^a	~12,000
El Capitan		^a	0	^a	^a
Peloncillo Mountains	19,650	9,237	8,971	12,317	+ ~5,000
Aravaipa Watershed	19,381	0	12,317	27,520	+ ~8,000
Baboquivari Mountain	2,065	7,465	2,370	7,465	0
Coyote Mountain Wilderness	5,080	5,080	0	9,060	0
Dos Cabezas Mountain Wilderness	11,998	18,509	6,511	14,088	Not inventoried yet!
Black Hills	0	19,396	0	0	~10,000
Whitlock Mountain	0	18,207	17,870	18,853	~18,853
Bowie Mountains	0	37,156	0	3,7156	~37,156

^a Included in area above.

which they proposed 38,672 acres (29%) to be Wilderness Study Areas and released 96,992 acres (71%). The individual WSAs are listed in table 1. The other alternatives considered and rejected were the All Wilderness Alternative of 135,664 acres, the Enhanced Wilderness Alternative of 101,291 acres, and the Moderate Wilderness Alternative of 48,864 acres. The actual acreage of WSAs turned out to be slightly higher than the BLM's Proposed Alternative (USDI 1987b) (table 1).

The BLM Phoenix District published a Final Wilderness EIS in 1987 (USDI 1987a). They proposed that a total of 7,145 acres be designated as wilderness in two units: the Coyote Mountains of 5,080 acres, which was the total inventoried, and the Baboquivari Mountains of 2,065 acres, which is 28% of the original inventory area of 7,465 acres (USDI 1987a) (table 1).

In 1987 the Arizona Wilderness Coalition proposed wilderness for areas totaling 282,174 acres (in 16 units). The Coalition did an excellent job reviewing the BLM's wilderness work under FLPMA and pointed out many flaws in the BLM analysis. The Coalition's points were that the BLM ignored their own recommendation made on Wilderness Study Areas, they failed to account for public comment in favor of wilderness designation for individual areas, they misused the wilderness criteria at all steps of the process, and they applied the wilderness criteria inconsistently across the landscape (Arizona Wilderness Coalition 1987) (table 1).

Finally in 1990 the Arizona Desert Wilderness Act was passed with a total acreage in the Sky Island Region of 84,728,

51% of AWC Proposal of 167,741. The act also designated the Gila Box Riparian National Conservation Area with an acreage of 20,900, which included the Arizona Wilderness Coalition's 17,831 acres of identified roadless area (table 1).

2000s

The Sky Island Alliance started its inventory of BLM lands in 2001, and it will be complete in spring of 2005. Over 100 Alliance volunteers have donated approximately 4,000 hours over 40 weekends walking roads and taking data on the beginning and end of each road, any developments, maintenance and/or erosion along the road, and were asked to determine what the roads were being used for and who was using them. Most roads were being used for grazing structure access, and were also being used by hunters, firewood collectors, and ATVs. We focused on six areas—the Gila Mountains, Turtle Mountain, the Mescal Mountains, the Peloncillo Mountains, the Gila Box, and the Aravaipa Watershed. One result of this inventory was the identification of roadless areas that meet the definition of Wilderness (table 1).

Conclusion

Roadless areas of the Sky Island region of southeastern Arizona managed by the Bureau of Land Management are becoming rare. Fragmentation by roads and development, all-terrain vehicle use, erosion, and altered hydrology are

a few of the causes of loss and degradation of roadless areas. Analysis of BLM and AWC wilderness studies, findings, and recommendations along with data from Sky Island Alliance road surveys indicates the potential persists to protect many of the last high-quality roadless areas. However, policy shifts, continued all-terrain vehicle abuse, road building, and other impacts continue to threaten many of these areas, and only through coordinated and persistent methods will we be able to ensure that these un-roaded landscapes remain.

References

- Arizona Game and Fish Department. 2004. Heritage data management system. Species lists. http://www.gf.state.az.us/w_c/edits/hdms_species_lists.shtml. 15 August 2004.
- Arizona Rare Plant Committee. [Undated]. Arizona rare plant field guide: A collaboration of agencies and individuals.
- Arizona Wilderness Coalition. 1987. Arizona wilderness. Unpublished proposal.
- Brown, D. E. 1989. The American Southwest: A vanishing heritage. Report 1. Ecological Values of Bureau of Land Management Wilderness Study Areas in Arizona. Washington, DC: The Wilderness Society.
- Loomis, J.; Echohawk, J. C. 1999. Using GIS to identify under-represented ecosystems in the National Wilderness Preservation System in the USA. *Environmental Conservation*. 26(1): 53-58.
- Marshall, R. M.; Turner, D.; Gondor, A.; Gori, D.; Enquist, C.; Luna, G.; Paredes Aguilar, R.; Anderson, S.; Schwartz, S.; Watts, C.; Lopez, E.; Comer, P. 2004. An ecological analysis of conservation priorities in the Apache Highlands Ecoregion. Prepared by The Nature Conservancy, Instituto del Medio Ambiente y el Desarrollo Sustentable del Estado de Sonora, agency and institutional partners. 152 p.
- McAuliffe, J. R.; Burgess, T. L. 1995. Landscape complexity, soil development, and vegetational diversity within a Sky Island Piedmont: A field trip guide to Mt. Lemmon and San Pedro Valley. In: Debano, L. F.; Gottfried, G. J.; Hamre, R. H.; Edminster, C. B.; Ffolliott, P. F.; Ortega-Rubio, A.; tech. coords. Biodiversity and management of the Madrean Archipelago: The Sky Islands of Southwestern United States and Northwestern New Mexico; 1994 September 19-23; Tucson, AZ. Gen. Tech. Rep. RM-GTR-264. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station: 91-107.
- McLaughlin, S. P. 1995. An overview of the flora of the Sky Islands, Southeastern Arizona: Diversity, affinities, and insularity. In: Debano, L. F.; Gottfried, G. J.; Hamre, R. H.; Edminster, C. B.; Ffolliott, P. F.; Ortega-Rubio, A.; tech. coords. Biodiversity and management of the Madrean Archipelago: The Sky Islands of Southwestern United States and Northwestern New Mexico; 1994 September 19-23; Tucson, AZ. Gen. Tech. Rep. RM-GTR-264. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station: 61-83.
- The Arizona Desert Wilderness Act of 1990. Public Law 101-628.
- The Arizona Wilderness Act of 1984. Public Law 98-406.
- The Federal Lands Policy and Management Act of 1976 (as amended). Public Law 94-579; 43 U.S.C. 1701-1785.
- The Wilderness Act of 1964. Public Law 88-577; 16 U.S.C. 1131-1136.
- U.S. Department of the Interior. 1979. Wilderness review, Arizona. Initial inventory of public lands administered by Bureau of Land Management. Decision Report. Phoenix, AZ. Bureau of Land Management Arizona.
- U.S. Department of the Interior. 1980. Wilderness review, Arizona. Intensive inventory of public lands administered by Bureau of Land Management. Proposal Report. Phoenix: Bureau of Land Management Arizona.
- U.S. Department of the Interior. 1980. Wilderness review, Arizona. Intensive inventory of public lands administered by Bureau of Land Management. Decision Report. Phoenix: Bureau of Land Management Arizona.
- U.S. Department of the Interior. 1987a. Phoenix District final wilderness environmental impact statement. Phoenix: Bureau of Land Management Arizona.
- U.S. Department of the Interior. 1987b. Safford District final wilderness environmental impact statement. Phoenix: Bureau of Land Management Arizona.
- U.S. Department of the Interior. 1988. Wilderness management plan: Aravaipa Canyon Wilderness, Arizona. Bureau of Land Management Arizona, Safford District, Graham and Pinal Counties.
- U.S. Department of the Interior. 2001a. BLM handbook H-6310 – 1 – Wilderness inventory and study procedures. Washington, DC.
- U.S. Department of the Interior. 2001b. Sensitive species list, Arizona. Phoenix: Bureau of Land Management Arizona. <http://web.blm.gov/internal/wo-200/wo-230/datacall01.htm>.
- U.S. Department of the Interior. 2003. BLM Instruction Memorandum No. 2003-274. Washington, DC.
- U.S. Fish and Wildlife Service. 2004. [Online]. List of threatened and endangered species. http://ecos.fws.gov/tess_public/TESSSpeciesReport. 15 August 2004.