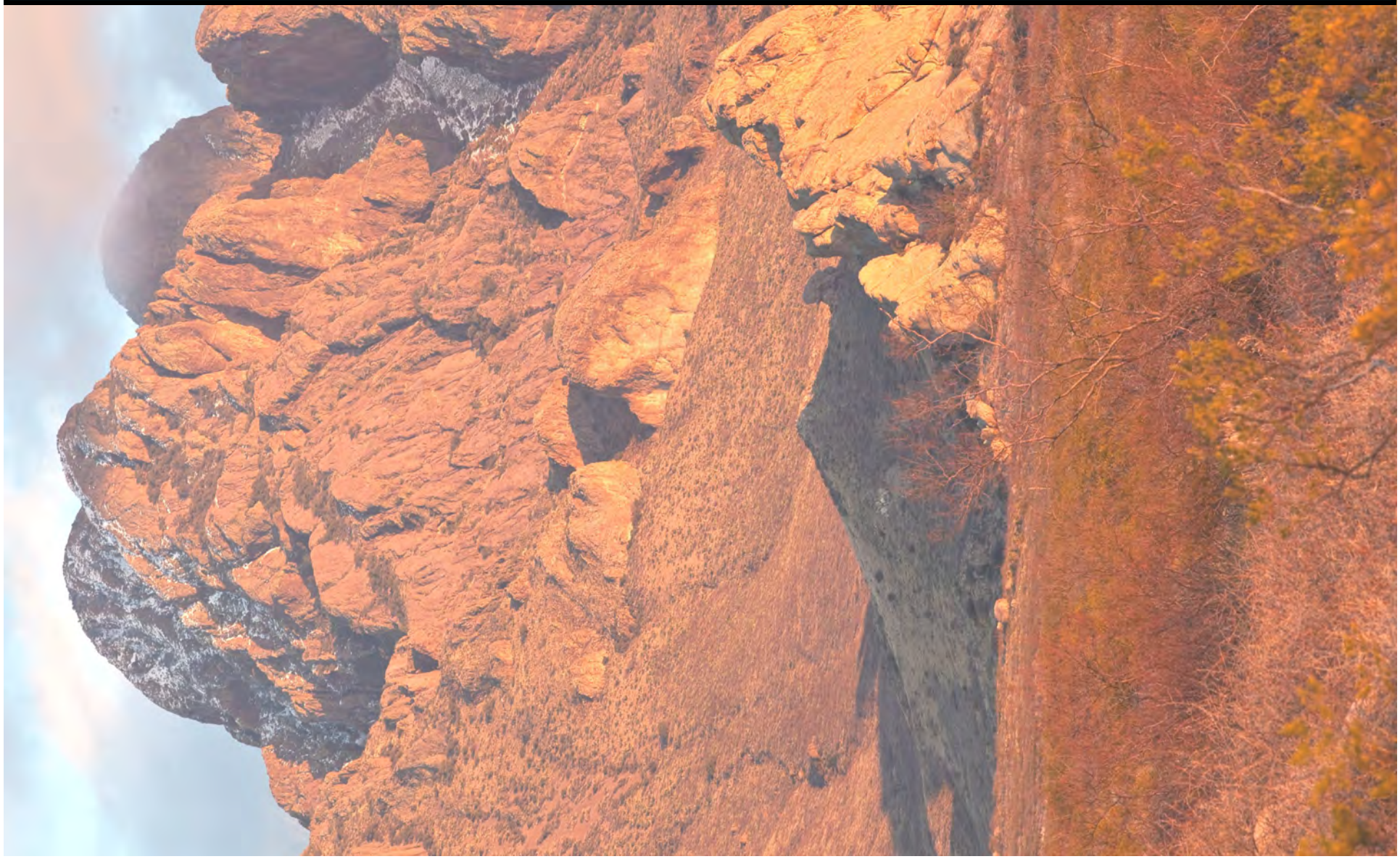
Glossary



GLOSSARY

A

Acre-foot: The volume (as of irrigation water) that would cover 1 acre to a depth of 1 foot (43,560 cubic feet).

Active restoration: Actions taken to reestablish vegetation and ecosystem balance.

Agency: Any Federal, State, or county organization with jurisdictional responsibilities.

Air quality: A measure of the health-related and visual characteristics of the air often derived from quantitative measurements of the concentrations of specific injurious or contaminating substances.

Air quality standard: Levels of air pollutants prescribed by regulations that may not be exceeded during a specified time in a defined area.

Allocated uses: The Bureau of Land Management (BLM) allocates cultural resources to one of five categories including (1) scientific use, (2) conservation for future use, (3) traditional use, (4) public use, or (5) experimental use. If cultural resources are evaluated as lacking significant values, they are categorized as discharged from management.

Allotment (range): A designated area of land available for livestock grazing upon which a specified number and kind of livestock may be grazed under management of an authorized agency. An allotment generally consists of Federal rangeland, but may include intermingled parcels of private, State, or Federal land. BLM and the U.S. Forest Service stipulate the number of livestock and season of use for each allotment.

Allotment management plan (AMP): A written program of livestock grazing management including supportive measures, if required. An allotment management plan is designed to attain specific management goals in a grazing allotment and is prepared cooperatively with the permittee(s) or lessee(s).

All-terrain vehicle: A small motor vehicle with wheels or tractor treads often used for cross-country travel, including traveling over rough ground, snow, or ice. For the purposes of this document, an all-terrain vehicle is defined as a motor vehicle that: (a) is designed primarily for recreational nonhighway all-terrain travel, (b) is 50 or fewer inches wide, (c) has an unladen weight of 800 pounds or less, (d) travels on three or more low-pressure tires, and (e) has a seat designed to be straddled by the operator, and handlebars for steering control. An all-terrain vehicle is a type of off-highway vehicle (OHV)

Ambient (air): The surrounding atmospheric conditions to which the general public has access.

American Indian tribe (or tribe): Any American Indian group in the conterminous United States that the Secretary of the Interior recognizes as possessing Tribal status (listed periodically in the *Federal Register*).

Animal unit: A unit of measure for rangeland livestock equivalent to one mature cow or five sheep or five goats, all over six months of age. An animal unit is based on an average daily forage consumption of 26 pounds of dry matter per day.

Animal unit month (AUM): A standardized unit of measurement of the amount of forage necessary for the complete sustenance of one animal unit for a period of one month; also, a unit of measurement of grazing privileges that represents the privilege of grazing one animal unit for a period of one month..

Aquifer: A water-bearing rock unit (unconsolidated or bedrock) that will yield water in a usable quantity to a well or spring.

Archaeology: The scientific study of the life and culture of past, especially ancient, peoples, by excavation of ancient cities, relics, artifacts, etc.

Archaeological site: A discrete location that provides physical evidence of past human use.

Area of critical environmental concern (ACEC): An area of public land designated by BLM for special management attention to protect and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resources; or other natural systems or processes or to protect life or provide safety from natural hazards. Areas designated as areas of critical environmental concern have met criteria for importance and relevance that are outlined in Title 43 Code of Federal Regulations (CFR) Section 1610.7-2(b).

Artifact: A human-made object.

Assessment: The act of evaluating and interpreting data and information for a defined purpose.

Attainment area: An area that meets a Federal primary or secondary ambient air quality standard for a specified pollutant.

Avoidance area: An environmentally sensitive area where rights-of-way may be granted only when no feasible alternative route is available.

B

Backcountry byway: A component of the national scenic byway system which focuses primarily on corridors along backcountry roads that have high scenic, historic, archeological, or other public interest values. The road may vary from a single-track bike trail to a low-speed, paved road that traverses backcountry areas (BLM Handbook H- 8357-1, B 2)

Baseline: The existing conditions against which impacts of the proposed action and its alternatives can be compared.

Basin: A depressed area having no surface outlet (topographic basin); a physiographic feature or subsurface structure that is capable of collecting, storing, or discharging water by reason of its shape and the characteristics of its confining material (water basin); a depression in the earth's surface, the lowest part often filled by a lake or pond (lake basin); a part of a river or widened canal (drainage, river, or stream basin).

Best management practices (BMPs): A suite of techniques that guide, or may be applied to, management actions to aid in achieving desired outcomes and help to protect the environmental resources by avoiding or minimizing the impacts of an action. BMPs are often developed in conjunction with land use plans, but they are not considered a land use plan decision unless the land use plan specifies that they are mandatory. They may be updated or modified without a plan amendment if they are not mandatory.

Bureau of Land Management (BLM): An agency of the U.S. Department of the Interior responsible for managing most Federal government subsurface minerals. It has surface management responsibility for Federal land designated under the Federal Land Policy and Management Act of 1976.

C

Casual Use - activities ordinarily resulting in no or negligible disturbance of the public lands, resources or improvements. Examples of casual use include: Surveying, marking routes, and collecting data to use to prepare grant applications.

Cave: The Federal Cave Resources Protection Act of 1988 defines a cave as any natural occurring void, cavity, recess, or system of interconnected passages that occurs beneath the surface of the earth or within a cliff or ledge (including any cave resource therein, but not including any vug, mine, tunnel, aqueduct, or other humanmade excavation) that is large enough to permit an individual to enter, whether or not the entrance is naturally formed or humanmade.

Chemical treatment: The use of herbicides to target species so as to reduce their competitive effect on more desirable species and to reduce fuel loading and wildfire risk.

Clean Air Act of 1990: Federal legislation governing air pollution. The Clean Air Act established National Ambient Air Quality Standards (NAAQS) for carbon monoxide, nitrogen dioxide, ozone, particulate matter, sulfur dioxide, and lead. Prevention of significant deterioration classifications define the allowable increase in air quality deterioration above legally established levels. They include the following:

- **Class I:** minimal additional deterioration in air quality (certain national parks and wilderness areas)
- **Class II:** moderate additional deterioration in air quality (most land)
- **Class III:** greater deterioration for planned maximum growth (industrial areas)

Clean Water Act (CWA) of 1987: The CWA refers to a series of Federal laws and regulations that attempt to restore the beneficial uses of surface waters of the United States (also referred to as "waters of the United States"). The CWA regulates such programs as the National Pollutant Discharge Elimination System, a permit-based set of regulations that control the discharge of pollution to United States waterways from an individual point (for example, the end of a pipe) and the discharge of concentrated stormwater from highways, cities, and other built environments. The CWA also regulates the placing of "fill-in" streams and washes for the construction of road crossings, pipelines, and power lines. In some cases, the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers have extended responsibilities to the individual states to regulate these programs.

Clean Water Act Section 303(d): Annual report to Congress from EPA that identifies those waters for which existing controls are not sufficiently stringent to achieve applicable water quality standards.

Closed: Generally denotes that an area is not available for a particular use or uses; refer to specific definitions found in law, regulations, or policy guidance for application to individual programs. For example, 43 CFR 8340.0-5 sets forth the specific meaning of "closed" as it relates to OHV use, and 43 CFR 8364 defines "closed" as it relates to closure and restriction orders.

Community (natural community): The living part of an ecosystem. Communities change with succession, thereby forming distinctive ecological units in time and space. The plant community and the animal community together form the biotic community. Size is not implied (i.e., organisms associated with a decaying log or with an entire forest each represent communities).

Cooperating agency: Assists the lead Federal agency in developing an Environmental Assessment or Environmental Impact Statement. The Council on Environmental Quality regulations implementing the National Environmental Policy Act (NEPA) define a cooperating agency as any agency that has jurisdiction by law or special expertise for proposals covered by NEPA (40 CFR 1501.6). Any Federal, State, or local government jurisdiction with such qualifications may become a cooperating agency by agreement with the lead agency.

Criteria pollutant: The Clean Air Act required EPA to set NAAQS for pollutants known to be hazardous to human health and the public welfare. Six pollutants were identified: ozone, carbon monoxide, particulate matter (defined as having diameters less than or equal to 10 microns or to 2.5 microns), sulfur dioxide, lead, and nitrogen oxides. The term "criteria pollutant" derives from the requirement that EPA must describe the characteristics and the potential health and welfare effects of these pollutants. It is on the basis of such criteria that NAAQS are set or revised.

Cultural resources: Any definite location of past human activity, occupation, or use, identifiable through inventory, historical documentation, or oral evidence. Cultural resources include archaeological, historic, or architectural sites, structures, places, objects, and artifacts.

Cumulative impacts (or effects): An impact on the environment that results from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts are evaluated as part of the Environmental Impact Statement and may include consideration of additive or interactive effects regardless of what agency or person undertakes the other actions.

D

Decision Area: Public land and Federal mineral estate managed by BLM within the Planning Area are referred to in this document as BLM's Decision Area.

Developed recreation: Recreation that requires facilities that result in further concentrated use of the area (e.g., off-road vehicles require parking lots and trails, and campgrounds require roads, picnic tables, and toilet facilities).

Dispersed recreation: Recreation that does not occur in a developed recreation site, such as hunting, backpacking, and scenic driving.

Distance zones: A subdivision of the landscape as viewed from an observer's position. The subdivision (zones) includes foreground-middleground, background, and seldom seen.

- **Foreground-middleground zone:** The area that can be seen from each travel route for a distance of 3 to 5 miles, where management activities might be viewed in detail. The outer boundary of this distance zone is defined as the point where the texture and form of individual plants are no longer apparent in the landscape.
- **Background zone:** The remaining area that can be seen from each travel route to approximately 15 miles. To be included within the distance zone, vegetation should be visible at least as patterns of light and dark.
- **Seldom-seen zone:** Areas that are not visible within the foreground-middleground and background zones, and areas beyond the background zones.

E

Easement: A right afforded a person, agency, or organization to make limited use of another's real property for access or other purposes.

Ecological site: A distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community.

Ecosystem: Any area or volume in which there is an exchange of matter and energy between living and nonliving parts; i.e., the biotic community together with soil, air, water, and sunlight form an ecosystem. Ecosystems are the units defined for studying the flow of energy and matter.

Edge effect: Edge effects occur when natural habitats are interrupted by development or other human-induced disturbances, including roads, structures, and trampling, or vehicle tracks. Edge effects affect wildlife species in different ways, depending on the life history of the species, and they cause behavioral modifications that can lead to fragmentation of habitat. Some disturbance-adapted species, especially shrub-scrub bird species, thrive along edges of roads and other developed areas. Other wildlife species, especially large mammals, avoid human-disturbed areas and do not tend to cross roads. Roads also increase mortality of small mammals from both increased vehicle collisions and increased predation from large mammals, while roads increase mortality of large mammals as a result of vehicle collisions. Pollution and bioaccumulation are secondary effects of roads and other development that increase edge effects on wildlife and wildlife habitats.

Effect (or impact): A modification of the existing environment as it presently exists, caused by an action (such as construction or operation of facilities). An effect may be direct, indirect, or cumulative. The terms effect and impact are synonymous under NEPA.

Endangered species: A plant or animal that is in danger of extinction throughout all or a significant portion of its range.

Environmental Assessment (EA): A concise public document for which a Federal agency is responsible. An Environmental Assessment serves (1) to briefly provide enough evidence and analysis for determining whether or not to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact; (2) to aid an agency's compliance with NEPA when no EIS is needed; and (3) to facilitate preparation of an EIS when one is needed.

Environmental Impact Statement (EIS): An analytical document that portrays potential impacts on the human environment of a particular course of action and its possible alternatives. Required by NEPA, an EIS is prepared for use by decisionmakers to assess the environmental consequences of a potential decision.

Environmental justice: The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, State, local, and Tribal programs and policies (Executive Order 12898).

Ephemeral stream: A stream that flows only in direct response to precipitation in the immediate watershed or in response to the melting of a cover of snow and ice and has a channel bottom that is always above the local water table.

Erosion: The wearing away of the land surface by running water, wind, ice, or other geologic agents and by such processes as gravitation creep.

Exclusion area: An environmentally sensitive area where rights-of-way would be granted only in cases where there is a legal requirement to provide such access.

Extraction: The removal of mineral resources from the land by mining, quarrying, or excavation.

F

Federal land: Land, or interests in land (such as easements and rights-of-way), owned by the United States.

Federal undertaking: A project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency including those carried out on or on behalf of the agency, those carried out with Federal financial assistance, those requiring a Federal permit license or approval, and those subject to State or local regulation administered pursuant to a delegation or approval by a Federal agency.

Fire line: BLM often constructs fire lines to contain and stop the spread of wildfire. A fire line is the part of a containment or control line that is scraped or dug to mineral soil.

Fire regime: Periodicity and pattern of naturally occurring fires in a particular area or vegetative type, described in terms of frequency, biological severity, and area of extent.

Fire Regime Condition Class (FRCC): A standardized interagency tool for determining the degree of departure from reference condition vegetation, fuels, and disturbance regimes. Assessing Fire Regime Condition Class can help guide management objectives and set priorities for treatments.

Fire intensity: The effects of fire on the aboveground vegetation, generally described in terms of mortality.

Fire severity: Fire effects at and below the ground surface. Describes the impacts on organic material on the ground surface, changes to soils, and mortality of belowground vegetative buds, roots, rhizomes, and other organisms.

Floodplain: The land that borders a water body and is subject to flooding on a periodic basis.

Fluid minerals: Oil, gas, and geothermal resources.

Fossil: Any remains, trace, or imprint of a plant or animal that has been preserved by natural process in the earth's crust since some past geologic time.

G

Geographic information system (GIS): A system of computer hardware, software, data, and applications that capture, store, edit, analyze, and graphically display a potentially wide array of geospatial information.

Grazing: Consumption of native forage on rangeland or pastures by livestock or wildlife.

Grazing allotment: An area where one or more livestock operators graze their livestock. An allotment generally consists of Federal land but may include parcels of private or State-owned land.

Grazing district: An administrative unit of BLM-managed rangeland established by the Secretary of the Interior under the Taylor Grazing Act of 1934. Grazing units are not the same as BLM administrative districts.

Grazing fee: A charge, usually on a monthly basis, for grazing a specific kind of livestock.

Grazing lease: A document authorizing use of public land outside of an established grazing district. Grazing leases specify all authorized use, including livestock grazing, suspended use, and conservation use. Leases specify the total number of AUMs apportioned, the area authorized for grazing use, or both.

Grazing permit: An authorization that allows grazing on public land. Permits specify class of livestock on a designated area during specified seasons each year. Permits are of two types: preference (10 years) and temporary nonrenewable (1 year).

Grazing preference: The total number (active and suspended nonuse) of AUMs of livestock grazing on public land, apportioned and attached to base property owned or controlled by a permittee.

Grazing season: On Federal land, an established period for which grazing permits or leases are issued.

Grazing system: A systematic sequence of grazing use and nonuse of an allotment (pasture or management unit) to meet multiple use goals by improving the quality and amount of vegetation.

Groundwater: Subsurface water that fills available openings in rock or soil materials to the extent that they are considered saturated.

Guidelines: Actions or management practices that may be used to achieve desired outcomes, sometimes expressed as BMPs. Guidelines may be identified during the land use planning process, but they are not considered a land use plan decision unless the plan specifies that they are mandatory. Guidelines for grazing administration must conform to 43 CFR 4180.2. Guidelines (1) typically identify and prescribe methods of influencing or controlling specific public land uses; (2) are developed and applied consistent with the desired condition and within site capability; and (3) may be adjusted over time.

H

Habitat: A specific set of physical conditions in a geographic area(s) that surrounds a single species, a group of species, or a large community. In wildlife management, the major components of habitat are food, water, cover, and living space.

Habitat corridors: A strip or block of habitat connecting otherwise isolated units of similar habitat that allows the dispersal of organisms and the consequent mixing of genes.

Habitat fragmentation: The division of large, continuous areas of habitat into smaller patches isolated from one another. The effects of habitat fragmentation include loss of habitat area and the creation of smaller, more isolated patches of remaining habitat.

Habitat management plan (HMP): A written and officially approved plan for a specific geographical area of public land that identifies wildlife habitat and related objectives, establishes the sequence of actions for achieving objectives, and outlines procedures for evaluating accomplishments.

Hazardous materials: Substances or mixtures of substances that have the capability of either causing or significantly contributing to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, or posing a substantial present or potential risk to human health or the environment.

Hazardous substance: A term used by the EPA for chemicals that must be reported if released into the environment above a certain amount. Depending on the threat to the environment, Federal involvement in handling the incident can be authorized under the Comprehensive Environmental Response, Compensation, and Liability Act.

Hazardous waste: The Resource Conservation and Recovery Act defines hazardous waste as a solid waste that may cause an increase in mortality or serious illness or pose a substantial threat to human health and the environment when improperly treated, stored, transported, disposed of, or otherwise managed. A waste is hazardous if it appears on a series of lists compiled by the EPA or exhibits characteristics of ignitability, corrosivity, reactivity, and/or toxicity.

Heritage tourism: The business and practice of attracting and accommodating visitors to a place or area based especially on the unique or special aspects of that locale's history, landscape (including trail systems), and culture.

High potential: The geologic environment, geologic processes, and reported mineral occurrences or valid geochemical/geophysical anomaly, and known mines or deposits [within the same type of geologic environment] indicate high potential for accumulation of mineral resources.

Hydrology: The study of the movement, distribution, and quality of water throughout the earth. Hydrology addresses both the hydrologic cycle and water resources.

I

Ignitability: A characteristic defining a hazardous waste. A solid waste that is defined as ignitable is one that exhibits any of the capability to ignite under certain regulatory circumstances.

Impairment: Detrimental effect on the biological integrity of a body of water caused by an impact that prevents attainment of the designated use.

Indirect effect (or impact): Secondary effects that occur in locations other than the initial action or later in time, but that are caused by the proposed action.

Interdisciplinary team: A team of land use and resource specialists who provide a coordinated, integrated information base for overall land use planning and management.

Interim Management Policy and Guidelines for Lands Under Wilderness Review: This policy provides guidance for managing existing wilderness study areas to ensure that an area's wilderness values are not impaired prior to the establishment of a wilderness area or an area's release from consideration for this status.

Invasive species: A species that is not native to an ecosystem and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

Issue: Describes the relationship between actions (proposed, connected, cumulative, similar) and environmental (natural, cultural, and socioeconomic) resources. Issues may be questions, concerns, problems, or other relationships, including beneficial ones. Issues do not predict the degree or intensity of harm or benefit the action might cause, but alert the reader as to what the environmental concerns might be. The NEPA document should address issues identified through interaction with agencies and/or the public, and/or through resource studies.

J

Jurisdiction: The legal right to control or regulate use of land or a facility. Jurisdiction requires authority, but not necessarily ownership.

K

Karst: An irregular limestone region with sinks, underground streams, and caverns. Karst landscapes owe their existence to the removal of bedrock in solution and to the development of underground drainage without the development of surface stream valleys. Within these broad constraints, karst landscapes show much variation and are usually described in terms of a dominant landform.

Karst feature: Cavities, sinkholes, or other solution features in karst terrain that seem to be a cave, but do not fit the definition given above. Lava tubes and bubbles, while not karst, are included as caves if they meet the cave definition.

L

Landform: A discernible natural landscape that exists as a result of geological activity, such as a plateau, plain, basin, or mountain.

Land use plan: A set of decisions that establish management direction for land within an administrative area, as prescribed under the planning provisions of the Federal Land Policy and Management Act; an assimilation of land use plan-level decisions developed through the planning process outlined in 43 CFR 1600, regardless of the scale at which the decisions were developed. Resource management plans are land use plans.

Landscape: An area composed of interacting ecosystems that are repeated because of geology, landform, soils, climate, biota, and human influence throughout the area. Landscapes are generally of a size, shape, and pattern that are determined by interacting ecosystems.

Leaching: The process of water moving down through the surface of the soil.

Lease: An authorization or contract by which one party (lessor) conveys the use of property, such as real estate, to another (lessee) in return for rental payments. In addition to rental payments, lessees also pay royalties (a percentage of value) to the lessor from resource production.

Leasable minerals: Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920. They include coal, phosphate, asphalt, sulfur, potassium, and sodium minerals, as well as oil, gas, and geothermal resources.

Locatable mineral: Any valuable mineral that is not salable or leasable, including gold, silver, copper, uranium, etc., that may be developed under the General Mining Law of 1872.

Low potential: The geologic environment and inferred geologic processes indicate low potential for accumulation of mineral resources.

M

Mechanical treatment: This involves the use of various types of mechanized equipment to clear out understory, brush, and/or trees and then pile and burn them to reduce fuel loading and wildfire risk.

Mineral entry: The location of mining claims by an individual to protect his/her right to a valuable mineral.

Mineral potential: The four categories of mineral potential are defined in *BLM Manual,* Section 3031 and are based on the geologic environment, inferred geologic processes, and reported mineral occurrences. Mineral potential is designated as none, low, moderate, or high. In addition, each mineral potential category is supplemented by a designation of certainty that reflects the level of confidence in the assessed data.

Mineral rights: Outstanding third-party rights or an interest in minerals not owned by the person or party conveying the land to the United States. Mineral rights are an exception in a deed that is the result of prior conveyance separating title of certain minerals from the surface estate.

Mineral withdrawal: A withdrawal of public land that is potentially valuable for leasable minerals. This precludes the disposal of the land except with a mineral reservation, unless the land is found not to be valuable for minerals.

Mitigation: The abatement or reduction of an impact on the environment by (1) avoiding a certain action or parts of an action, (2) employing certain construction measures to limit the degree of impact, (3) restoring an area to preconstruction conditions, (4) preserving or maintaining an area throughout the life of a project, (5) replacing or providing substitute resources to the environment, or (6) gathering data (e.g., archaeological or paleontological) prior to disturbance.

Moderate potential: The geologic environment, inferred geologic processes, and reported mineral occurrences or valid geophysical/geochemical anomaly indicate moderate potential for accumulation of mineral resources.

Multiple-use: Multiple use is defined as follows by the Multiple Use – Sustained Yield Act of 1960, which states: "(1) the management of all the various renewable surface resources so that they are used in the combination that will best meet the needs of the American people; (2) making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; (3) that some land will be used for less than all of the resources; and (4) harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will be given the greatest dollar return or the greatest unit output."

N

National Ambient Air Quality Standards (NAAQS): The allowable concentrations of air pollutants in the air specified by the Federal government. The air quality standards are divided into primary standards (based on air quality criteria and allowing an adequate margin of safety and requisite to protect the public health) and secondary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public welfare) from any unknown or expected adverse effects of air pollutants.

National Environmental Policy Act of 1969 (NEPA): NEPA encourages productive and enjoyable harmony between man and his environment and promotes efforts to prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man, as well as to enrich understanding of the ecological systems and natural resources important to the nation. NEPA established the Council on Environmental Quality.

National Register of Historic Places (National Register): A listing of architectural, historical, archaeological, and cultural sites of local, State, or national significance. The list of sites was established by the Historic Preservation Act of 1966 and is maintained by the National Park Service.

Native species: With respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.

No potential: The geologic environment, inferred geologic processes, and lack of mineral occurrences, do not indicate potential for accumulation of mineral resources.

Nonpoint source pollution: Pollution from diffuse sources caused by rainfall or snowmelt moving over and through the ground.

Notice of Intent: The first formal step in the EIS process, consisting of a written notice that includes proposed actions and alternatives, proposed scoping process, and identification of a lead agency contact person.

Noxious weeds: Plant species that have been legally designated as unwanted or undesirable. This includes national, State, and county, or local designations.

O

Objectives: The planned results to be achieved within a stated time. Objectives are subordinate to goals, narrower in scope, and shorter in range. Objectives must specify time for completion and the products or achievements that are measurable.

Off-highway vehicle (OHV): A vehicle (including four-wheel drive, trail bikes, all-terrain vehicles, and snowmobiles, but excluding helicopters, fixed-wing aircraft, and boats) capable of traveling off road over land, water, ice, snow, sand, marshes, and other terrain. OHV designations are defined in Appendix O.

Open: Generally denotes that an area is available for a particular use or uses. Refer to specific program definitions found in law, regulations, or policy guidance for application to individual programs. For example, 43 CFR 8340.0-5 defines the specific meaning of "open" as it relates to OHV use.

Ozone (O_3): A criteria pollutant regulated under the Clean Air Act. In the troposphere (the layer extending 7 to 10 miles above the earth's surface), ozone is a chemical oxidant and a major component of photochemical smog.

P

Paleontology: The science of animal and plant fossil remains.

Particulate matter: Includes dust, soot, and other tiny bits of solid materials that are released into and move around in the air. Particulates are produced by many sources, including burning of diesel fuels by trucks and buses, incineration of garbage, mixing, application of fertilizers and pesticides, road construction, industrial processes such as steel making, mining operations, agricultural burning (field and slash burning), and operation of fireplaces and woodstoves.

Passive restoration: Allowing resources to naturally regenerate over time without taking direct action.

Perennial plant: A plant that has a life cycle of three or more years.

Perennial stream: A stream or that part of a stream that flows continuously during the calendar year as a result of groundwater discharge or surface runoff.

Permeability: The ease with which gases, liquids (water), or plant roots penetrate or pass through a mass of soil or a layer of soil. Since different soil horizons vary in permeability, the particular horizon under question should be designated.

Permit: Permits are one of three forms of a land use authorization (the others are leases and easements). Permits are short-term, revocable authorizations to use public land for specific purposes that involve either little or no land improvement, construction, or investment that can be amortized within the term of the permit. A permit conveys no possessory interest. The permit is renewable at the discretion of the authorized officer and may be revoked in accordance with its terms and applicable regulations.

Permitted livestock use: The forage allocated by, or under the guidance of, an applicable land use plan for livestock grazing in an allotment under a permit or lease and expressed in AUMs.

Place-based values: Refers to the attachment of an individual or group to a specific geographic area. It relates to the concept of "sense of place," or a link between social experiences and geographic areas. Contributing qualities include personal memory, community history, physical landscape appearance, and emotional attachment. These values are subjective and may be developed based on perceptions about amenities (such as recreational opportunities), historic or symbolic activities and places, or landscape and scenic vistas.

Planning Area: As used in this document, the Planning Area includes all land within Sierra, Otero, and Doña Ana counties regardless of jurisdiction or ownership.

Planning criteria: The standards, rules, and other factors developed by managers and interdisciplinary teams for their use in forming judgments about decisionmaking, analysis, and data collection during planning. Planning criteria streamline and simplify the resource management planning actions.

Post and pole: The harvest of forest and woodland species 4-9" diameter, used primarily as fence posts, corral or fence rails.

Point-source pollution: Pollution that comes from an identified source or location—"end-of-the-pipe" pollution.

Potable water: Water suitable for drinking.

Prescribed fire: Fire set intentionally in wildland fuels under prescribed conditions and circumstances.

Prevention of significant deterioration: A Clean Air Act requirement to include a permit review process applicable to the construction and operation of new and modified stationary sources in attainment areas.

Primitive Road: A linear route managed for use by four-wheel drive or high-clearance vehicles. These routes do not normally meet any BLM road design standards.

Programmatic EIS: A comprehensive NEPA document prepared to analyze the environmental consequences of alternative programs or management strategies under consideration. A Programmatic EIS is prepared to help determine a consistent, broad management approach that can be used by BLM field-level staff for local land use planning. The Programmatic EIS is intended to support and expedite site-specific analysis or NEPA efforts for individual projects.

Public land: any land and interest in land owned by the United States within the several States and administered by the Secretary of the Interior through the Bureau of Land Management without regard to how the United States acquired ownership. [FLPMA Sec. 103 (e)]

R

Raptors: Birds of prey, such as the eagle, falcon, hawk, owl, or vulture.

Reclaim/reclamation: The process of converting disturbed land to its former use or other productive uses. In some instances, the term is also used for the act of adapting wild or natural resources to serve a utilitarian purpose such as converting riparian habitats to agriculture.

Recreation experience: The psychological outcome realized either by recreation-tourism participants as a direct result of their onsite leisure engagements and activities or by nonparticipating community residents as a result of their interaction with visitors and guests within their community and/or interaction with BLM and other public and private recreation-tourism providers and their actions.

Recreation opportunities: Favorable circumstances enabling visitors' engagement in a leisure activity to realize immediate psychological experiences and attain more lasting, value-added beneficial outcomes.

Recreation settings: The collective, distinguishing attributes of landscapes that influence, and sometimes actually determine, what kinds of recreational opportunities are produced. These include opportunities for engaging in specific recreational activities, attaining both satisfying and unsatisfying recreational experiences, and attaining both beneficial and unbeneficial outcomes.

Rehabilitate: Restore to a state of good condition or operation (e.g., a management alternative and/or practice that restores landscapes to a desired condition).

Reserved mineral rights: The retention of ownership of all or part of the mineral rights by a person or party conveying land to the United States. Conditions for the exercising of these rights have been defined in the Secretary of the Interior's *Conditions, Rules and Regulations to Govern Exercise of Mineral Rights Reserved in Conveyances to the United States* (36 CFR 251.15), attached to and made a part of deeds reserving mineral rights.

Restore/restoration: The process of restoring site conditions as they were before land disturbance. Note: restoration involves restoring a site to a specific point in time.

Resource management plan (RMP): A land use plan that establishes land use allocations, multiple-use guidelines, and management objectives for a given planning area. The resource management planning system has been used by BLM since 1980.

Revision: The process of rewriting the land use plan due to changes in the Planning Area that affect major portions of the plan or the entire plan.

Right-of-way: Land authorized to be used or occupied for the construction, operation, maintenance, and termination of a project, pursuant to a right-of-way authorization.

Riparian: Areas of wetland transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence.

Riparian habitat: Riparian habitat is an ecological transition between an in-stream community of plants and animals and the adjacent, upland community. Normally the term is used for perennial streams (those that flow all year). The term "xeroriparian habitat" is used to describe the distinct plant and animal communities that concentrate around dry washes and are sustained by desert storms.

Roadless: Refers to the absence of roads constructed and maintained by mechanical means.

Roads: Vehicle routes that are improved and maintained by mechanical means to ensure relatively regular and continuous use. (A way maintained strictly by the passage of vehicles does not constitute a road.)

S

Sacred sites (American Indian): Defined in Executive Order 13007 as "any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site."

Salable minerals: Minerals that may be sold under the Material Sale Act of 1947, as amended. Included are common varieties of sand, stone, gravel, and clay.

Saturated: When referring to soil, the maximum amount of water that can be held either when the soil is frozen or the spaces between the soils particles are filled with water. Any additional seepage over saturated soil will result in runoff.

Scenic area: An area with a landscape character that exhibits a high degree of variety and harmony among the basic elements that results in a pleasant landscape to view.

Scenic quality: The relative worth of a landscape from a visual perception point of view. The seven factors (landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications) used to evaluate the scenic quality of a landscape. The relative scenic quality (A, B, or C) assigned to a landscape by applying the scenic quality evaluation key factors, with scenic quality A being the highest rating. The rating unit for scenic quality is defined as a portion of the landscape that displays primarily homogenous visual characteristics of the basic landscape features (land and water form, vegetation, and structures).

Scoping: A term used to identify the process for determining the scope of issues related to a proposed action and for identifying significant issues to be addressed in an EIS.

Season of use: The time during which livestock grazing is permitted on a given range area, as specified in the grazing permit.

Sedimentation: The breaking up of soil particles and their deposition on ground surfaces or in water bodies.

Sensitive species: Species not yet officially listed but that are undergoing status review for listing on the U.S. Fish and Wildlife Service official list of threatened and endangered species; species whose populations are small and widely dispersed or restricted to a few localities; and species whose numbers are declining so rapidly that official listing may be necessary.

Site hardening: Site hardening is a measure, or combination of measures, taken to make an archaeological or historic site less vulnerable to effects from visitation. These measures may include surface collection, signing, onsite hosts, vehicle barriers, data recovery, or other means.

Special management area (SMA): An area identified by BLM for the management of a specific resource or resources.

Special recreation management area (SRMA): A public land unit identified in land use plans to direct recreation funding and personnel to fulfill commitments made to provide specific, structured recreation opportunities (i.e., activity, experience, and benefit opportunities). BLM recognizes three distinct types of SRMAs: community-based, intensive, and undeveloped big open.

Special status species: Includes proposed species, listed species, and candidate species under the Endangered Species Act; State listed species; and sensitive species designated by the BLM state director (see *BLM Manual,* Section 6840: Special Status Species Policy).

Split estate: Surface and minerals of a given area in different ownerships. Frequently the surface is privately owned while the minerals are federally owned.

Standard: A description of the physical and biological conditions or degree of function required for healthy, sustainable land (e.g., land health standards). A standard is expressed as a desired outcome (goal).

Structural diversity: The diversity of the composition, abundance, spacing, and other attributes of plants in a community.

Sustainable use (production): The continuation of livestock grazing at a uniform level while maintaining a healthy desired plant community.

T

Terms and conditions: Stipulations contained in livestock grazing permits and leases as determined by the BLM authorized officer to be appropriate to achieve management and resource condition objectives for the public land and other land administered by BLM and to achieve standards for rangeland health and ensure conformance with guidelines for grazing administration. Terms and conditions also apply to fluid-mineral leases, as defined in Appendix B.

Threatened species: Any animal or plant species likely to become endangered within the foreseeable future throughout all of a significant portion of its range. These species are listed by the U.S. Fish and Wildlife Service.

Toxicity: A characteristic defining a hazardous waste. Toxicity refers to the ability of a material to produce injury or disease on exposure, ingestion, inhalation, assimilation by a living organism.

Trail: A linear route managed for human-powered, stock, or off-highway vehicle forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.

Travel and transportation management system: A program to be developed by BLM to manage access for motorized, mechanized, and nonmotorized recreation. Travel would be managed through a network of authorized routes and access points. A management plan would be developed to provide policy and guidance for addressing the regulation, maintenance, and monitoring of the routes and other components of the travel and transportation system.

U

Unclassified area (for air quality): An area that cannot be classified on the basis of available information as meeting or not meeting the Federal primary or secondary ambient air quality standard for the pollutant.

Use of wildland fire: Management of either wildfire or prescribed fire to meet resource objectives specified in Land/Resource Management Plans.

Utility corridor: A linear corridor usually designated for facilities such as power lines, pipelines, fiber-optic cables, roads, etc.

V

Vegetative state: The stage in a flowering plant's life cycle before the appearance of its fruiting structures.

Viable: A wildlife population that has the estimated numbers and distribution of reproductive individuals to ensure its continued existence.

Viewshed: The landscape that can be directly seen, under favorable atmospheric conditions, from a viewpoint or along a transportation corridor.

Visual resources: The visible physical features in a landscape (e.g., land, water, vegetation, animals, structures, and other features). Visual resources are managed by inventory and planning actions taken to identify resource values and to establish objectives for managing those values; and the management actions taken to achieve the visual management objectives.

Visual resource management (VRM): The inventory and planning actions taken to identify visual resource values and to establish objectives for managing those values, and management actions taken to achieve the established objectives.

Visual resource management classes: Categories assigned to public land based on scenic quality, sensitivity level, and distance zones. There are four classes (Class I through Class IV), each having an objective that prescribes the amount of change allowed in the characteristic landscape.

W

Watershed: All land and water within the confines of a drainage divide.

Ways: Primitive two-track trails located within wilderness study areas.

Wetlands: Areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Examples of wetlands include marshes, shallow swamps, lakeshores, bogs, muskegs, wet meadows, estuaries, and riparian areas.

Wilderness area: An area officially designated as wilderness by Congress. Wilderness areas will be managed to preserve wilderness characteristics and shall be devoted to "the public purposes of recreation, scenic, scientific, educational, conservation, and historical use."

Wilderness study area (WSA): Areas under study for possible inclusion as a wilderness area in the National Wilderness Preservation System.

Wildfire frequency: A general term referring to the recurrence of fire in a given area over time. It can be expressed as the number of fires per unit time in a given area. It can also be expressed as the probability of an element burning per unit time.

Wildfire intensity: The amount of heat released by a wildfire. Intensity is derived from the energy content of the fuel, the mass of fuel consumed, and the rate of spread of the fire. The units of fire line intensity reflect energy release (kilowatts) per unit length (meters) of the fire line and can be described as energy release along a linear front. In general, flame length is positively correlated to intensity (i.e., larger flames indicate a more intense fire).

Wildfire: An unplanned ignition caused by lightning, volcanoes, unauthorized, and accidental human caused actions and escaped prescribed fires.

Wildland fire: A general term describing any non-structure fire that occurs in the vegetation and/or natural fuels.

Wildland-urban interface: The line, area, or zone where structures and other human developments meet or intermingle with wildland or vegetative fuel. Interface is further delineated by (1) developed areas with residential structures where many structures border wildland on a broad front or (2) developed areas with private residential structures where developments are few and are scattered over a large area surrounded by wildland.

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References

REFERENCES

Agee, James K. 1993. *Fire Ecology of Pacific Northwest Forests.* Washington, DC: Island Press.

Austin, G.S., J.M. Barker, and E.W. Smith. 1998. Active and Recently Active Construction Materials and Aggregate Operations in Doña Ana County, New Mexico. In *Las Cruces County II: New Mexico Geological Society 49th Fall Field Conference Guidebook.* Socorro, New Mexico: New Mexico Geological Society Guidebook.

Barbour, M., J. Burk, W. Pitts, F. Gilliam, and M. Schwartz. 1999. *Terrestrial Plant Ecology.* 3rd ed. Menlo Park, California: Addison Wesley Longman, Inc.

Barker, James M. 2002. Letter from James M. Barker, Geologist, New Mexico Bureau of Geology and Mineral Resources, to David P. Palmer, URS Corporation. November 19.

Basurto, Xavier, and Diana Hadley, eds. 2006. *Grasslands Ecosystems, Endangered Species, and Sustainable Ranching in the Mexico–U.S. Borderlands Conference Proceedings.* Fort Collins, Colorado: Rocky Mountain Research Station, Forest Service, USDA. RMRS-P-40.

Belsky, A.J., and D.M. Blumenthal. 1997. Effects of livestock Grazing on Stand Dynamics and Soils in Upland Forests of the Interior West. *Conservation Biology* 11(2):315-327.

Bent, A.C. 1940. Life Histories of North American Cuckoos, Goatsuckers, Hummingbirds and Their Allies. *Bulletin of the United States National Museum*, No. 176.

Bestelmeyer, B.T., J.E. Herrick, J.R. Brown, D.A. Trujillo, and K.M. Havstad. 2004. Land Management in the American Southwest: A State-and-Transition Approach to Ecosystem Complexity. *Environmental Management* 34(1):38-51.

Bureau of Land Management (BLM): see U.S. Department of the Interior, Bureau of Land Management

Blue Earth Ecological Consultants. 2002. *Biological Survey Report for Realignment and Reconstruction of U.S. 54, Carrizozo to Vaughn (MP 130 to MP 201).* Prepared for Souder, Miller, and Associates and the New Mexico State Highway and Transportation Department. Santa Fe.

Brown, B. T. 1988. Breeding Ecology of a Willow Flycatcher Population in Grand Canyon, Arizona. *Western Birds* 19:25-33.

Browning, M.R. 1993. Comments on the Taxonomy of *Empidonax traillii* (Willow Flycatcher). *Western Birds* 24:241-257.

Chamberlin, R. M., and Cather, S. M. 1994. Definition of the Mogollon Slope, West-Central New Mexico: New Mexico Geological Society, Guidebook 45, p. 5-6.

Chauvin, Y., A. Kennedy, and K. Wild. 2001. *Survey of Kuenzler's Hedgehog Cactus* (Echinocereus fendleri *var.* kuenzleri*).* Albuquerque: New Mexico Natural Heritage Program, Biology Department, University of New Mexico.

Citizens' Task Force for Open Space Preservation. 2005. *A Vision: Open Space and Trail System for Doña Ana County, New Mexico.* Available at http://www.zianet.com/openspace/.

City of Las Cruces. 2005. Master Plan. Las Cruces, New Mexico: City of Las Cruces.

Cody, Betsy A. 1996. *Grazing Fees: An Overview.* Congressional Research Service Report for Congress 96-50. Washington, D.C.: Environment and Natural Resources Policy Division, National Council for Science and the Environment.

Conant, R. T. 2010. *Challenges And Opportunities For Carbon Sequestration In Grassland Systems*. Integrated Crop Management. 9. pp. 1-55.

Conant, R.T., Pausitan, L., & Elliot, E. T. 2001. *Grassland Management And Conversion Into Grassland: Effects On Carbon*. Ecol. Appl., 11:343-355.

Declining Amphibian Populations Task Force. 1993. Post-Metamorphic Death Syndrome. *Froglog* 7:1-2.

Degenhart, William G., Charles W. Painter, and Andrew H. Price 1996. Amphibians & Reptiles of New Mexico. University of New Mexico Press.431 pp.

Ehrlich, Paul, D. Dobkin, D. Wheye, and Oporornis Agilis. 1988. *The Birders Handbook: A Field Guide to the Natural History of North American Birds.* New York: Simon & Schuster, Inc.

Enquist, C., and D. Gori. 2008. Implications or Recent Climate Change and Conservation Priorities in New Mexico. The Nature Conservancy Science Program. 79 pp.

Federal Aviation Administration. 2008. Spaceport America Final Environmental Impact Statement.

Federal Geographic Data Committee. 2001. *Interagency Development of National Watershed and Subwatershed Hydrologic Units.* Available at http://gis.esri.com/library/userconf/proc01/professional/papers/pap492/p492.htm (accessed July 2005).

Findley, James S., Arthur H. Harris, Don E. Wilson, and Clyde Jones. 1975. Mammals of New Mexico. University of New Mexico Press. 360pp.

Fletcher, R. 1985. *Recovery Plan for the Kuenzler Hedgehog Cactus (*Echinocereus fendleri *var.* kuenzleri*)*. Albuquerque, New Mexico: Region 3, Forest Service, U.S. Department of Agriculture.

Frost, J.S., and J.T. Bagnara. 1977. *Sympatry Between Rana blairi and the Southern Form of Leopard Frog in Southeastern Arizona (Anura: Ranidae*). Southwestern Naturalist 22:443-453.

Ganey, J.L, W.M Block, J.K. Dwyer, B.E. Strohmeyer, and J.S. Jenness. 1998. Mexican Spotted Owl Home Range and Habitat Use in Pine-Oak Forest: Implications for Forest Management. *Forest Science* 45(1):127-135.

Goddard Institute for Space Studies. 2007a. GISS Surface Temperature Analysis: Global Temperature Trends: 2007 Summation (website). Available at http://data.giss.nasa.gov/gistemp/2007.

Goddard Institute for Space Studies. 2007b. Annual Mean Temperature Change for Three Latitude Bands. Datasets and Images, Analysis: GISS Surface Temperature Analysis: Analysis, Graphs, and Plots, New York, New York. http://data.giss.nasa.gov/gistemp/graphs/Fig.B.lrg.gif.

Government Accountability Office (GAO). 2007. Climate Change: Agencies Should Develop Guidance For Addressing The Effects On Federal Land And Water Resources. Washington, D.C.: United States Government Accountability Office.

Grant, P.R., Jr., and Foster, R.W. 1989. Future petroleum provinces in New Mexico-Discovering New Reserves: New Mexico Bureau of Mines and Mineral Resources, 94. P. (17" x 22" folio), prepared for the New Mexico Research and Development Institute.

Gutzler, D. S. 2005. What's In Store for New Mexico. New Mexico Climate Change Advisory Group.

Gutzler, D. S. 2007. *Climate Change And Water Resource In New Mexico*. Earth Matters, v. 7, p. 1 ff.

Hamilton, W.J., III, and M.E. Hamilton. 1965. Breeding Characteristics of Yellow-billed Cuckoos in Arizona. *Proceedings of the California Academy of Sciences* 32:405-432.

Holechek, J. L., Milton Thomas, Franciso Molinar, and Dee Galt. 1999. *Stocking Desert Rangelands: What We've Learned.* Rangelands. Vol. 21, No. 6.

Holechek, J., R. Pieper, and C. Herbel. 2001. *Range Management, Principles and Practices.* 4th ed. Upper Saddle River, New Jersey: Prentice Hall.

Howard, Mike. 2011. BLM State Botanist. Las Cruces District Office.

Hubbard, J.P. 1987. The Status Of The Willow Flycatcher In New Mexico. Santa Fe, New Mexico: Endangered Species Program, New Mexico Department of Fish and Game. 29 pp.

Fuff G. G., and D. A. Chase. 2006. Knowledge and Understanding of the Hydrogeology of the Salt Basin in South-central New Mexico and Future Study Needs. Albuquerque, New Mexico: USGS, Sandia National Laboratories. Open File Report.

Hunter, W.C., R.D. Ohmart, and B.W. Anderson. 1987. Status of Breeding Riparian-Obligate Birds in Southwestern Riverine Systems. *Western Birds* 18:10-18.

Interagency Monitoring of Protected Visual Environments. 2005. The New Mexico Lower Rio Grande Regional Water Plan. Report to the New Mexico Interstate Streams Commission. Santa Fe.

Intergovernmental Panel on Climate Change (IPCC). 2007a. IPCC Fourth Assessment Report. Geneva: United Nations Environmental Programme.

_____. 2007b. Summary for Policy Makers. In *Climate Change 2007: The Physical Science Basis.* Cambridge, United Kingdom: Cambridge University Press. Available at http://www.ipcc.ch/ipccreports/ar4-wg1.htm. August 2005.

_____. 2001. *Third Assessment Report: Climate Change 2001.* Cambridge, United Kingdom: Cambridge University Press. Available at http://www.ipcc.ch/ipccreports/assessments-reports.htm. August 2005.

James Kent Associates (JKA). 2003. *Preliminary Assessment of Community Interests and Communication Strategies by Geographic Area: The Las Cruces Field Office Planning Area.* Basalt, Colorado.

Justus, J. R., and S. R. Fletcher. 2007. Global Climate Change. Nova Science Publishing, Inc.

Kimball, S., and P. Schiff man. 2003. Differing Effects of Cattle Grazing on Native and Alien Plants. *Conservation Biology* 17(6):1,681–1,693.

Lal R. 2004. Soil Carbon Sequestration Impacts on Global Climate Change and Food Security. Science. Vol. 304. No. 5677. pp. 1623-1627/

Lower Rio Grande Water Users Association (LRGWUA). 2004. *The New Mexico Lower Rio Grande Regional Water Plan.* Report to the New Mexico Interstate Streams Commission. Santa Fe.

Lowry, J.H, Jr., R.D. Ramsey, K. Boykin, D. Bradford, P. Comer, S. Falzarano, W. Kepner, J. Kirby, L. Langs, J. Prior-Magee, G. Manis, L. O'Brien, T. Sajwaj, K. A. Thomas, W. Rieth, S. Schrader, D. Schrupp, K. Schulz, B. Thompson, C. Velasquez, C. Wallace, E. Waller and B. Wolk. 2005. *Southwest Regional Gap Analysis Project: Final Report on Land Cover Mapping Methods.* Logan, Utah: RS/GIS Laboratory, Utah State University.

Mack, Greg H. 2004. The Cambro-Ordovisian Bliss and Lower Ordovician El Paso Formations in Southwestern New Mexico and West Texas. In *The Geology of New Mexico,* page 33. Socorro, New Mexico: New Mexico Geological Society, Katherine Giles.

McAuliffe, Joseph R. 1988. Markovian Dynamics of Simple and Complex Desert Plant Communities. *The American Naturalist* 131(4):459-490.

McLemore, V.T., C.B. Krueger, P. Johnson, J.S. Raugust, G.E. Jones, G.K. Hoffman, and M. Wilks. 2005. New Mexico Mines Database. *Mining Engineering*, February, pages 42-47.

Meyer, Ray. 2008. Aplomado Falcon Survey on Otero Mesa, 2008. Unpublished report. 31pp.

Molina, C.L., Jobin, D.A., O'Conner, J.T., and Kottlowski, F.E.. 1991. Coalfields of New Mexico: Geology and Resources: US Geological Survey Bulletin 1972, 77 p.

Nature Conservancy, The. 2004. Other Projects in New Mexico: Dripping Springs (website). Arlington, Virginia: The Nature Conservancy. Available at http://nature.org/wherewework/northamerica/states/newmexico/preserves/art1155.html (accessed September 2005).

National Oceanic and Atmospheric Administration. 2012. North American Drought Monitor Percent of Average Precipitation Maps. http://www.ncdc.noaa.gov/temp-and-precip/drought/nadm/indices.php?mdf=map&divstn=div&indicator=pctpcp

National Weather Service. 2012. New Mexico Meteorological Drought Status and Climate/Weather Outlook. Albuquerque, New Mexico.

National Weather Service Forecast Office. 2009. Phoenix Monthly Precipitation 1896 to Present. http://www.wrh.noaa.gov/psr/climate/ (accessed October 30, 2009).

New Mexico Bureau of Geology and Mineral Resources (NMBGMR). 2005. Well Files and Scout Tickets.

New Mexico Department of Game and Fish (NMDGF). 2007. Biota Information System of New Mexico: BISON-M (website). Santa Fe: NMDGF. Created in cooperation with the Bureau of Land Management, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, Bureau of Reclamation, U.S. Forest Service, and the University of New Mexico. Available at http://www.bison-m.org/simplespeciessearch.aspx. August 2005.

_____. 2006. *Comprehensive Wildlife Conservation Strategy for New Mexico*. Version 4. Santa Fe: NMDGF. No. TR-1734-6.

_____. 2003. *Plan for the Recovery of Desert Bighorn Sheep in New Mexico: 2003-2013.* Santa Fe: NMDGF. Available at http://www.wildlife.state.nm.us/conservation/documents/everythingfinalBighornSheepPlan.pdf.

New Mexico Department of Labor, Economic Research and Analysis. 2004. *Quarterly Census of Employment and Wages: Fourth Quarter 2004.* Albuquerque, New Mexico: New Mexico Department of Labor, Economic Research and Analysis. Available from http://www.dol.state.nm.us/pdf/qcew4qtr04.pdf. August 2005.

New Mexico Energy, Minerals and Natural Resources Department (NMEMNRD), Mining and Minerals Division; New Mexico Bureau of Geology and Mineral Resources; and New Mexico Institute of Mining and Technology. 2001. *Mines, Mills, and Quarries in New Mexico.* Available at http://www.emnrd.state.nm.us/Mining/etc/MinesComplete.pdf (accessed August 2005).

New Mexico Environment Department. 2010. Inventory of New Mexico Greenhouse Gas Emissions: 2000-2007.

_____. 2006. High Levels of Particulate Matter in Doña Ana County (website) Available at http://www.nmenv.state.nm.us/aqb/NEAP/naaqs.html (accessed March 28, 2006).

New Mexico Environment Department, Surface Water Quality Bureau. 2007a. 2006-2008 State of New Mexico Integrated Clean Water Act Section 303(d)/Section 305(b) List and Report. Santa Fe: Surface Water Quality Bureau, NMED. Available at http://www.nmenv.state.nm.us/swqb/303d-305b/2006-2008/2006-2008NMIntegrated303d-305bReport.pdf.

_____. 2007b. Air Quality Standards. Santa Fe, New Mexico: New Mexico Environment Department, Surface Water Quality Bureau.

New Mexico Museum of Natural History and Science. 2005. New Mexico Paleontology. Available at http://www.museums.state.nm.us/nmmnh/sci_main (accessed August 2005). OR List of paleontological localities in Doña Ana, Otero, and Sierra counties, NMMNH&S database.

New Mexico Ornithological Society. 2007. Searchable database available at http://nhnm.unm.edu/partners/NMOS/results.php5

New Mexico State University. 2005. NMSU Weed Information (website). Available at http://weeds.nmsu.edu (accessed August 2005).

Ohmart, R.D. 1995. Ecological Condition of the East Fork of the Gila River and Selected Tributaries: Gila National Forest, New Mexico. In *Desired Future Conditions for Southwestern Riparian Ecosystems: Bringing Interests and Concerns Together,* technical coordination by D.W. Shaw and D.M. Finch, pages 312-317. Forest Service, U.S. Department of Agriculture. General Technical Report RM-GTR-272.

Otero County. 2005. *Draft Otero County Comprehensive Plan.* Otero County Planning Commission. February 2005.

Paradzick, C.E., and A.A. Woodward. 2003. Distribution, Abundance, and Habitat Characteristics of Southwestern Willow Flycatchers (*Empidonax traillii extimus*) in Arizona, 1993 – 2000. *Studies in Avian Biology* 26:22–29.

Platz, J.E., and J.S. Mecham. 1979. *Rana chiricahuensis,* a New Species of Leopard Frog (*Rana pipiens complex*) from Arizona. *Copeia* 1979(3):383-390.

Public Opinion Strategies. 2006. *Turning Questions into Answers: A Survey of 400 Likely Voters in Doña Ana County.* January.

Rasker, R., B. Alexander, J. van den Noot, and R. Carter. 2004. Public Lands Conservation and Economic Well-being. Tucson, Arizona. The Sonoran Institute. 160 pp.

Renz, M. 2005. New Mexico State University. Personal communication (email) regarding noxious weed data for Doña Ana, Sierra, and Otero counties. July 18.

Ridgely, R.S., and G. Tudor. 1994. *The Birds of South America: Suboscine Passerines.* Austin: University of Texas Press.

Rominger, E. M., and E. J. Goldstein. 2006. *Synopsis of a 5-Year Mountain Lion Control Management Action on endangered Desert Bighorn Sheep Recovery.* Santa Fe, New Mexico: New Mexico Department of Game and Fish.

Rosenberg, K.V., R.D. Ohmart, W.C. Hunter, and B.W. Anderson. 1991. *Birds of the Colorado River Valley.* Tucson, Arizona: University of Arizona Press.

Sanford, A. R., Lin, K., Tsai, I., and Jaksha, L. 2002. Earthquake catalogs for New Mexico and Bordering Areas: 1869-1998. NM Bureau of Geology and Mineral Resources, Circular 210.

Saunders, S., C. Montgomery, T. Easley, and T. Spencer. 2008. Hotter and Drier: The West's Changed Climate. The Rocky Mountain Climate Organization, Natural Resources Defense Council.

SCMRCDC (South Central Mountain Resource Conservation and Development Council. 2002. Tularosa Basin and Salt Basin Regional Water Plan. Carrizozo, New Mexico.

Schmidt, Kirsten M., James P. Menakis, Colin C. Hardy, Wendall J. Hann, and David L. Bunnell. 2002. *Development of Coarse-Scale Spatial Data for Wildland Fire and Fuel Management.* General Fort Collins, Colorado: Rocky Mountain Research Station, Forest Service, U.S. Department of Agriculture. Technical Report RMRS-GTR-87.

Schuman, G. E., Herrick, J. E. and Janzen, H. H. 2001. The Dynamics of Soil Carbon in Rangelands. Pp. 267-290. In: Follett, R.F., Kimble, J.M., Lal, R. (eds.) The Potential of US Grazing Lands to Sequester Carbon and Mitigate the Greenhouse Effect, Chapter 11. Boca Raton, FL: Lewis Publishers.

Scott, N.J., Jr., and R.D. Jennings. 1985. The Tadpoles of Five Species of New Mexican Leopard Frogs. *Occasional Papers for the Museum of Southwestern Biology* 3:1-21.

Sogge, M.K. 1995. *Southwestern willow flycatcher (*Empidonax traillii extimus*) monitoring at Tuzigoot National Monument.* Progress report to the National Park Service. Flagstaff, Arizona: National Biological Service Colorado Plateau Research Station/Northern Arizona University.

Sogge, M.K., R.M. Marshall, S.J. Sferra, and T.J. Tibbitts. 1997. A Southwestern Willow Flycatcher Natural History Summary and Survey Protocol. Washington, D.C.: National Park Service, U.S. Department of the Interior; and Flagstaff, Arizona: Colorado Plateau Research Station, Northern Arizona University. Technical Report NPS/NAUCPRS/NRTR-97/12.

South Central Mountain Resource Conservation and Development Council. 2002. *Tularosa Basin and Salt Basin Regional Water Plan.* Carrizozo, New Mexico: South Central Mountain Resource Conservation and Development Council.

Toweill and Geist. 1999. Return of Royalty: Wild Sheep of North America. Boone and Crockett Club, Missoula, Montana.

Unitt, P. 1987. *Empidonax traillii extimus:* An Endangered Subspecies. *Western Birds* 18:137-162.

University of Idaho. 2004. *2004 BLM Visitor Survey Results.* Moscow, Idaho .

University of New Mexico. 2004. Bureau of Business and Economic Research.

URS Corporation. 2005a. Meeting Summary: Economic Profile System Workshop. Alamogordo, New Mexico. April 20.

URS Corporation. 2005b. Meeting Summary: Economic Profile System Workshop. Truth or Consequences, New Mexico. April 19.

U.S. Census Bureau. 2003. Poverty in the United States: 2002. Poverty Thresholds in 2002 by Size of Family and Number of Related Children Under 18 years.

_____. 2002. Poverty Thresholds in 1999, by Size of Family and Number of Related Children Under 18 Years. Revised 22 August.

_____. 2001 Population Change and Distribution. Census 2000 Brief. April.

_____. 2000. Census 2000 Summary File 3 (SF3) – Sample Data. Available from www.census.gov.

U.S. Department of Agriculture, National Agricultural Statistics Service. 2002. Census of Agriculture. http://www.agcensus.usda.gov/Publications/2002/USVolume104.pdf. Accessed January 2006.

_____. 1997. 1997 Census of Agriculture. Available at http://www.nass.usda.gov/census/index1997 (accessed September 2005).

U.S. Department of Agriculture, National Resources Conservation Service. 2005. Land Resource Regions And Major Land Resource Areas Of The United States. Agricultural Handbook 296. Available at http://soils.usda.gov/technical/handbook/contents/part649.html.

_____. 1984. Soil Survey of Sierra County, NM. 1:24000. February.

U.S. Department of Agriculture, National Resources Conservation Service and BLM. 1980. Soil Survey of Doña Ana County Area, New Mexico. 1:24000. August.

U.S. Department of Agriculture, National Resources Conservation Service and U.S. Forest Service. 1981. Soil Survey of Otero Area, New Mexico – Parts of Otero, Eddy, and Chaves Counties. 1:24000. June.

U.S. Department of Commerce, Bureau of Economic Analysis. 2008 and 2010. Website. (www.bea.gov/regional/reis/action.cfm)

U.S. Department of Commerce, Bureau of Economic Analysis. 2002. Regional Economic Information System CD-ROM, Tables CA25, CA25N, CA30, CA05N, CA05, CA35, CA45.

U.S. Department of Energy. 2003. Assessing The Potential For Renewable Energy On Public Lands. U.S. Department of Energy, Energy Efficiency and Renewable Energy, and U.S. Department of the Interior, Bureau of Land Management. February. 27 pages.

U.S. Department of the Interior. 2000. Assessment of Fossil Management on Federal and Indian Lands.

U.S. Department of the Interior. 2000. National Fire Plan, USDOI and U.S. Department of Agriculture. Available on www.forestsandrangelands.gov.

U.S. Department of the Interior, Bureau of Land Management. 2012a. Manual 6400, Wild and Scenic River Policy and Program Direction for Identification, Evaluation, Planning, and Management.

_____. 2012b. Manual 6330, Management of Wilderness Study Areas.

_____. 2012c. Final Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States. With the Department of Energy.

_____. 2012d. Draft Environmental Impact Statement and Resource Management Plan Amendments (EIS/RMPA) for the Sun Zia Southwest Transmission Project.

_____. 2011. Travel and Transportation Manual. Manual No. M-1626. Washington, D.C.

_____. 2010. Socorro Field Office Resource Management Plan.

_____. 2009. *Draft Timber Mountain Recreation Management Plan/Environmental Impact Statement.* Medford, Oregon: Medford District Office, BLM. February. Available at http://www.blm.gov/or/districts/medford/plans/files/DEIS_Timber_Mtn_RMP.pdf

_____. 2008a. Special Status Species Management. BLM Manual 6840 Release 6-125 (December 2008).

_____. 2008b. Programmatic Environmental Impact Statement (PEIS) Designation of Energy Corridors on Federal Land in the 11 Western States (DOE/EIS-0386).

_____. 2008c. Programmatic Environmental Impact Statement (PEIS) Geothermal Leasing in the Western States.

_____. 2007. Federal Mineral Estate Acreages by Surface Management Responsibility in the TriCounty Planning Area.

_____. 2006. TriCounty Analysis of the Management Situation. Las Cruces District Office. June.

_____. 2005a. Land Use Planning Handbook . Handbook No. H-1601-1. Washington, D.C.

_____. 2005b. Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States. http://windeis.anl.gov/documents/fpeis/index.cfm (accessed December 2005).

_____. 2004a. El Camino Real de Tierra Adentro National Historic Trail Comprehensive Management Plan. With the National Park Service. Final EIS.

_____. 2004b. Fire Management Plan. Las Cruces District Office, New Mexico.

_____. 2004c. Decision Record and Resource Management Plan Amendment for Fire and Fuels Management on Public Land in New Mexico and Texas. BLM-NM-PL-013-2824. Santa Fe: BLM New Mexico State Office. September.

_____. 2004d. 2004 BLM Visitor Survey Results, prepared by Hoger, Jennifer L., Steven J. Holenhorst, and Lena Le from the University of Idaho.

_____. 2003a. Preparation Plan. White Sands Resource Management Plan Revision and Mimbres Resource Management Plan Amendment. BLM, Las Cruces District Office, New Mexico.

_____. 2003b. Manual H-8410-1. Visual Resource Inventory.

_____. 2001a. Record of Decision for the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management.

_____. 2000. New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management. Bureau of Land Management, New Mexico State Office, and the State of New Mexico. BLM/NM/PL-00-001-1020.

_____. 1997a. Otero County ACEC RMP Amendment. U.S. Department of the Interior, Bureau of Land Management, Las Cruces District Office Assessment. Las Cruces, New Mexico.

_____. 1997b. Mining claims and sites on Federal lands. BLM Solid Minerals Group Brochure.

_____. 1996. Partners Against Weeds – An Action Plan for the Bureau of Land Management. January. http://www.blm.gov/weeds/PAW/index.htm (accessed September 2005).

_____. 1995. Interim Management Policy for Lands under Wilderness Review.

_____. 1993. Mimbres Resource Management Plan. U.S. Department of the Interior, Bureau of Land Management, Las Cruces District Office, New Mexico.

_____. 1991a. New Mexico Wilderness Study Report, Volume 1: Wilderness Study Area Recommendations.

_____. 1991b. New Mexico Statewide Summary. September.

_____. 1990. Mimbres Management Situation Analysis. BLM Las Cruces District Office, New Mexico.

_____. 1988a. New Mexico Statewide Wilderness Study, Volume 3: Wilderness Analysis Reports.

_____. 1986a. White Sands Resource Area Resource Management Plan. Las Cruces District Office, New Mexico. OR New Mexico Wilderness Study Report, Volume 4: Wilderness Analysis Reports.

_____. 1986b. Southern Rio Grande Management Framework Plan Amendment. BLM, Las Cruces District Office.

_____. 1984a. White Sands Resource Area Management Situation Analysis. BLM, Las Cruces District Office, New Mexico.

_____. 1984b. Section 8400: Visual Resource Management. BLM Manual. Washington DC.

_____. 1978. Wilderness Inventory and Study Procedures Handbook, BLM. http://www.onda.org/defending-desert-wilderness/campaign-to-protect-desert-wilderness/BLM%20%20Wilderness%20Study%20-%20Inventory%20Procedures%20%282001%29.pdf. Accessed September 2005.

_____. n.d. Rediscover the West, Lake Valley National Back Country Byway (information pamphlet). Las Cruces Field Office, New Mexico with contributions from the New Mexico State University Public History Department, Dr Tracy K'Meyer, Eric Meringer, and Roger Walker. OR BLM Manual Subpart 8310 – Recreation Inventory.

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 2012. Listing and Designation of Critical Habitat for Chiricahua Leopard Frog. Federal Register Vol. 77., No. 54.

_____. 2009. Spotlight Species Action Plan. Scaramento Prickly Poppy. Fish and Wildlife Service, New Mexico Ecological Services Field Office, Albuquerque. Available at http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q1T1

_____. 2005. New Mexico Listed and Sensitive Species List. Fish and Wildlife Service, New Mexico Ecological Services Field Office, Albuquerque. Available at http://ifw2es.fws.gov/New Mexico/SBC.intro.cfm (accessed 7 July 2005).

_____. 2004. Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for the Mexican Spotted owl; Final Rule. Federal Register 69(168):53182-53230.

_____. 2002a. Endangered and Threatened Wildlife and Plants; Listing of the Chiricahua Leopard Frog (*Rana chiricahuensis*); Final Rule. Federal Register 67(114):40790-40811.

_____. 2002b. 2001 National Survey of Fishing, Hunting, and Wildlife Associated Recreation. October. http://www.census.gov/prod/2002pubs/FHW01.pdf (accessed September 2005).

_____. 2001. U.S. Fish and Wildlife Service (FWS). 2001. Todsen's Pennyroyal (*Hedeoma todsenii*) Revised Recovery Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 31 pp.

_____. 1995a. Recovery Plan For The Mexican Spotted Owl: Vol. I. Albuquerque, New Mexico. 172 pp.

_____. 1995b. Final Rule Determining Endangered Status For The Southwestern Willow Flycatcher. Federal Register 60(38):10694-10715.

_____. 1994. Sacramento prickly poppy (*Argemone pleiacantha* ssp. *pinnatisecta*) Recovery Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 42pp.

_____. 1993. Proposed Rule to list the Southwestern Willow Flycatcher as Endangered with Critical Habitat. Federal Register 58(40):39495-39522.

_____. 1985a. Endangered and Threatened Wildlife and Plants; Interior Population of Least Tern Determined to be Endangered. Federal Register 50(102)21784-21792.

_____. 1985b. Recovery Plan For The Kuenzler Hedgehog Cactus. Region 3, Forest Service, USDA. Albuquerque, NM.

_____. 1979. Endangered Species Determinations for Ancistrocactus tobuschii (Tobusch fishhook cactus); Echinocereus viridiflorus var. davisii (Davis' green pitaya) and Coyphantha minima (Nelli Cory cactus); Coryphantha sneedii var. sneedii (Sneed pinchushion cactus); and Echinocereus triglochidiatus var. inermis (Spineless hedgehog cactus); Final Rules. Federal Register44(217)64736-64746.

U.S. Department of the Interior, Geological Survey. 2005. NWISWeb Data for New Mexico. Available at http://waterdata.usgs.gov/nm/nwis/nwis (accessed August 2005).

_____. 2004. SW ReGap Landcover Legend Descriptions. Available at http://earth.gis.usu.edu/swgap/legend_desc.html.

U.S. Department of Labor, Bureau of Labor Statistics. 2003. Unemployment Rates.

U.S. Energy Information Administration. 2009. Emissions of Greenhouse Gases Report. Internet Website: http://www.eia.gov/oiaf/1605/ggrpt/carbon.html (accessed on July 9, 2011).

U.S. Environmental Protection Agency. 2012. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2010.

_____. 2011. National Ambient Air Quality Standards. http://www.epa.gov/air/criteria.html.

_____. 1999. National Air Quality and Emissions Trends Report, 1999. Available at http://www.epa.gov/air/aqtrnd99/toc.html (accessed December 30, 2003).

U. S. Global Change Research Program. 2010. Regional Climate Information: Southwest. http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/regional-climate-change-impacts/southwest (accessed March 26, 2010).

Wakeling, Brian F. 2003. Status of Bighorn Sheep in Arizona, 2002-2003. Desert Bighorn Council Transactions: Volume 47 :18-19.

West, N.E. 1993. *Biodiversity of Rangelands*. Journal of Range Management. 14:2-13.

Western Association of Wildlife Agencies. 2006. Habitat Guidelines for Mule Deer. Southwest Deserts Ecoregion.

Witcher, James C. 2004. A Strategic Plan For New Mexico Geothermal Resources Development. U.S. Department of Energy. August 31.

Wright, Henry A. 1980. The Role and Use of Fire in the Semidesert Grass-Shrub Type. General Technical Report INT-85. Ogden, Utah: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station.

Young, K.E., B.C. Thompson, D.M. Browning, Q.H. Hodgson, J.L. Lanser, A. Lafón Terrazas,W.R. Gould, and R.Valdez. 2002. Characterizing and predicting suitable aplomado falcon habitat for conservation planning in the northern Chihuahuan Desert. New Mexico Cooperative Fish and Wildlife Research Unit. Las Cruces, New Mexico. 171 pp + appendices.

Zweifel, R.G. 1968. Reproductive Biology of Anurans of the Arid South-West, With Adaptation of Embryos to Temperature. Bulletin of the Museum of Natural History 140:1-64.

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