# 3.0 ANALYSIS OF RESOURCE MANAGEMENT PLANS

## INTRODUCTION

In the introduction, under "Programs and Actions" we describe all the management actions combined over all the FOs. This will prevent and reduce their repetition under each FO. The next section, "Existing Impact Minimization Measures", addresses actions that reduce impacts and that are prescribed and followed as part of ongoing activities in the RMP. The last section, "Lynx Conservation Assessment Strategy and Lynx Analysis Units", describes the Lynx Conservation Assessment Strategy (LCAS) (Ruediger et al. 2000) and Lynx Analysis Units (LAUs).

In subsequent sections each FO is listed separately and any management actions in the RMP specific to each FO with known lynx habitat, and not encompassed by the general management actions, are reviewed.

The effects analysis involves evaluation of management actions for their potential to affect lynx and their known habitats, including management actions or impact minimization measures that are unique to the particular RMP. The effects analysis also incorporates the Conservation Strategies.

A determination of potential effects is made and is shown in a separate table of all the individual management actions and determinations for each FO. In addition, there is a section on cumulative effects. *Three RMPs, the Great Divide RMP, the Snake River RMP, and the Washakie RMP are addressed but analyses were not conducted because there are no LAUs in the FOs.*

## Programs and Actions

### Access Management Actions

The objective for access management is to provide suitable public access to BLM-administered public lands. This may include acquiring new access where needed, maintaining existing access and expanding existing access facilities, or abandoning and closing access where it is not compatible with resource values and objectives.

Access across private lands will be pursued as needed through a variety of methods including, but not limited to, purchase of rights-of-way or easements, land exchange, reciprocal rights-of-way, and other statutory authorities. Specific routes and acquisition procedures for securing access are determined through route analyses and environmental analyses as part of specific project and activity planning. Access acquisition needs (typically for roads) are most commonly identified for public access for recreational use. This may be for hunting, sightseeing, rockhounding or general exploring. Acquisition of access to public lands has been identified in locations that would provide the public with an opportunity to utilize resources that have previously been unavailable because the public lands had no public access. An increase in access could result in an increase in human activity in an area that previously had little activity, development of roads, trails, parking areas and other facilities to enhance the public's use of the area. The construction of access roads, trails, parking areas, and other associated facilities would require the use of heavy equipment and machinery, as well as surface disturbance at the site.

Where appropriate, land exchanges or cooperative agreements are considered to provide access needs.

A detailed evaluation of areas with a high density of roads may be completed to determine needs for specific road closures or rehabilitation. Specific impact minimization measures and design requirements for roads are developed through environmental analyses as part of specific project or activity planning. Access closure, abandonment, and acquisition are considered and established through activity planning and environmental analysis processes. Road or trail closure and abandonment is based on desired road or trail densities, demands for new roads, closure methods (e.g., abandonment and rehabilitation, closures by signing, temporary or seasonal closures), type of access needed, resource development or protection needs, and existing uses.

## Air Quality Management Actions

The objective of air quality management is to maintain or enhance air quality, protect sensitive natural resources and public health and safety, and minimize emissions that cause acid rain or degraded visibility. Typical air quality management program activities include dust control, weather monitoring, and air quality data monitoring. The air quality management program may evaluate or restrict surface development activities. The BLM ensures that operators cover conveyors at mine sites, restrict flaring of natural gas, limit emissions, and restrict spacing on projects.

BLM-initiated actions or authorizations are planned in accordance with Wyoming and national air quality standards. This is accomplished through the coordination of activities with the Wyoming Department of Environmental Quality (WDEQ) and the U.S. Environmental Protection Agency. Laws controlling air pollutants in the United States are the Clean Air Act of 1970 and its amendments, and the 1999 Regional Haze Regulations. The concentrations of air contaminants in the planning area need to be within limits of Wyoming ambient air quality standards (WAAQS) and national ambient air quality standards (NAAQS). Both WAAQS and NAAQS are legally enforceable standards for particulate matter ($PM_{10}$), nitrogen dioxide ($NO_2$), ozone, sulfur dioxide ($SO_2$), and carbon monoxide (CO). Air quality stations used to monitor particulates, if located in an LAU, could cause disturbances to lynx through the building/construction of the station and associated access roads, maintenance and upkeep, and equipment reading and repair. No monitoring stations are currently in any lynx LAUs on BLM lands in Wyoming, although additional Federal and state funded stations are being placed in western Wyoming annually.

In addition to NAAQS and WAAQS, major new sources of pollutants or modifications to sources must comply with the New Source Performance Standards and Prevention of Significant Deterioration (PSD). The PSD increments measure $PM_{10}$, $SO_2$, and $NO_2$. The PSD program is used to measure air quality to ensure that areas with clean air do not significantly deteriorate while maintaining a margin for industrial growth.

## Areas of Critical Environmental Concern Management Actions

The objectives of special management areas, such as Areas of Critical Environmental Concern (ACECs) are to ensure continued public use and enjoyment of recreation activities, while protecting and enhancing natural and cultural values; improving opportunities for high quality outdoor recreation; and, improving visitor services related to safety, information, interpretation, and facility development and maintenance.

Special Management Areas are those areas where a decision to focus a special emphasis management of some kind was made in the RMPs. Not all of the RMPs specified in detail the kinds of management needed in the ACECs. For some ACECs a plan was to be developed at a later date that would outline and specify management actions. The designation of ACECs in an RMP is simply a designation, and does not automatically convey specific management or protections, although with designation, some resource management protections are spelled out and implemented. If access roads or other types of facilities are specifically required, then these will be described within the appropriate activity section in this document.

Generally, ACEC status is a beneficial impact on wildlife and plant species.

## Cultural Resources Management Actions

The objective of cultural resource management is to protect, preserve, interpret, and manage significant cultural resources for their informational, educational, recreational, and scientific values. Site-specific inventories for cultural resources would be required before the start of surface-disturbing activities, or if BLM-administered lands are proposed to be transferred out of federal ownership.

The BLM performs inventory activities as well as land management activities. During inventory activities, the BLM inventories, categorizes, and preserves cultural resources; conducts field activities; performs excavations; maps and collects surface materials; researches records; and photographs sites and cultural resources. Inventory data collection activities are used for documentation and development of impact minimization plans before other resource program surface-disturbing activities may take place. Inventory activities commonly entail the use of hand tools, power tools, heavy machinery, vehicle use and localized human activity. Inventories are divided into Class I, Class II, and Class III inventories. The BLM does cultural resource inventories normally in response to surface-disturbing projects. Intensity varies between inventories. Inventories may involve 2-7 individuals and trucks, and may last from one day to several weeks.

Cultural resource land management activities involve managing sites for scientific, public, and sociocultural use; developing interpretive sites; restricting certain land uses; closing certain areas to exploration; prohibiting some surface-disturbing activities; preparing interpretive materials; and allowing the collection of certain invertebrate fossils. The cultural resource program may propose installation of protective fencing of trail segments, stabilize deteriorating buildings, acquire access to sites when necessary, perform certain surface-disturbing activities, pursue land withdrawals, pursue cooperative agreements, protect sites with avoidance stipulations or conditions of approval, and identify and interpret historic trails. Cultural resource interpretive sites, such as historic trails or rock art sites, may be developed to provide public benefits such as scenic overlooks, signs, and walking trails.

Adverse effects on significant cultural resources are mitigated. Surface-disturbing activities are avoided near significant cultural and paleontological resource sites and within ¼ mile or the visual horizon of significant segments of historic trails and canals. Sites listed on, or eligible for, the National Register for Historic Places (NRHP) are protected and would be managed for their local and national significance and in compliance with the National Historic Preservation Act, the Archaeological Resources Protection Act, the American Indians Religious Freedom Act, and the Native American Graves Protection and Repatriation Act, as appropriate.

## Fire Management Actions

The objectives of fire management are to restore the natural role of fire in the ecosystem, and to protect life, property, and resource values from wildfire. The two major activities involved with the BLM's fire management activities are prescribed burning and wildfire suppression.

Prescribed fire objectives are to restore natural fire regimes and enhance rangeland habitats for livestock and wildlife. The prescribe fire program writes fire plans for prescribed burns and vegetative treatments and coordinates with interested publics. Some prescribed fires are conducted to dispose of slash and residue from timber sales, improve wildlife habitat and grazing potential, or to reduce hazardous fuel loads.

Wildfires threatening higher resource values, including commercial timber areas, developed recreation sites, and areas of wildland/urban interface, or fires with potential to spread to private, state, or other federal lands are suppressed. Fire suppression activities vary with the intensity of the wildfire and are conducted on an emergency basis. However, wildfire planning is done in advance to determine what kinds of suppression activities will be allowed in a planning unit, where they will be allowed, and what kinds of equipment will be used. In the event of a wildfire and immediate suppression is required, as many conservation measures as possible will be applied that do not hinder safety or property protection. The USFWS will be contacted and emergency consultation will take place at the earliest possible time if T&E species or their critical habitats are affected/impacted. Fire plans also identify any special concerns or values that need to be protected. Fire lines are constructed to contain the wildfire. Water is withdrawn from nearby sources to suppress fires. Chemical fire suppression agents containing chemical dyes may be used, if needed. The use of aerial fire retardant is restricted near water resources. After a fire is extinguished, the BLM may use rehabilitation techniques to restore a burned or suppression area to its previous vegetative cover. The BLM uses a technique called Analysis of Burned Area Emergency Rehabilitation (BAER) on all areas damaged by fire. This technique is used to evaluate the impact of restoration efforts on the ecosystems involved.

Activities authorized by this program include tree thinning, construction of roads and fire lines using hand tools to heavy equipment, application of fire-suppressing chemicals by hand and aerial application, and revegetation and mulching stream banks for rehabilitation. Activities often employ the use of off-road vehicles, hand tools, and heavy equipment such as bulldozers.

## Geology and Minerals Resource Management Actions

The lands administered by the Wyoming BLM contain some of the most prolific oil, gas, coal and trona producing areas in the Rocky Mountain region. Mineral development is subject to leasing, location, or sale based on the Federal mineral law (such as the Mineral Leasing Acts and amendments) covering a particular commodity. Conditions under which the development of these minerals can occur are determined through land use planning. The planning area will be open to consideration for exploration, leasing, and development of leasable minerals including oil, gas, coal, oil shale, and geothermal.

The objective of minerals management actions is to make public lands and federal mineral estate available for orderly and efficient development of mineral resources. BLM's minerals program is divided into salable minerals, leasable minerals and locatable minerals.

### *Salable Minerals*

Deposits of salable minerals are scattered throughout Wyoming. Salable minerals include common varieties of sand, gravel, sandstone, shale, limestone, dolomite, and granite rock. Historical use of these materials includes building materials, road surfaces, and tools. Today salable minerals are mainly used for maintaining roads on public lands and also for activities associated with the oil and gas industry.

BLM provides sand, gravel, and stone from federal mineral deposits as necessary to meet the needs of federal, state, and local road construction and maintenance projects in the planning areas. Before issuing contracts or free use permits for salable minerals, the BLM conducts the appropriate environmental analyses including special studies or inventories of cultural values, threatened or endangered plant and wildlife species, and other resources. Stipulations or conditions may be included in the terms of the contract or permit to ensure protection of the natural resources present and reclamation of the land following project completion. Sand and gravel, scoria, flagstone, moss rock, and other minerals are available for free use or sale but are subject to conditions and stipulations developed on a case by case basis. Generally salable minerals are extracted using heavy equipment and moved using large haul

trucks.

Site reclamation is required following any surface disturbing activity by mining for salable minerals. Reclamation includes removing all surface debris, recontouring, reducing steep slopes, and planting vegetation, all requiring the use of heavy equipment. All reclamation proposals must conform to State agency requirements and must be approved by BLM.

Salable minerals are disposed of (sold) under the Materials Act of 1947, as amended, and are discretionary actions.

### Leasable Minerals

Leasable minerals include fluid (oil, gas, geothermal) and solid minerals such as coal, trona, and phosphate. Bentonite and Uranium are leasable on acquired lands.

Current use of coal is primarily for electric generation. Coal in Wyoming is most generally extracted using surface mining methods although in the past some coal was mined underground. Underground mining method is proposed for some future operations. Surface mining requires a federal coal lease from the BLM, mining permits from the State, mine plans approved by OSM. Surface mining involves the use of large equipment such as draglines, shovels, haul trucks, etc. Small drill rigs are used for exploration to determine the location, thickness, and obtain cores (for determining quality). Extracting coal using surface mining methods often results in large areas of surface disturbance from road construction, removal of topsoil and overburden, and stockpiling of these materials. Once an area is mined out, reclamation begins and includes recontouring as closely to the original landscape as possible the reconstruction of drainages, reseeding and monitoring to assure the habitat is returned to pre-mining vegetative composition and condition. Coal is leased under the Mineral Leasing Act of 1920 and the Federal Coal Leasing Amendments Act of 1976.

Current uses of trona include baking soda, in paints, glass, toothpaste, soaps, ceramic tiles, porcelain fixtures, paper, water softeners and pharmaceuticals. Wyoming is the largest producer of trona in this country and has the largest known reserve of trona in the world. Trona is generally mined underground by the long-wall mining method. Surface facilities are generally processing plants, offices, and maintenance buildings along with associated roads.

Current uses of uranium are as a nuclear fuel for generation of electricity; nuclear explosives; in medicine, agriculture and industry as radiation for diagnostic tools, to detect welding problems, in the manufacture of steel products, or used to reduce the spoilage of certain foods. Uranium is generally categorized as a locatable, but becomes leasable on acquired lands. Uranium is generally mined underground. Surface facilities include processing plants, equipment maintenance buildings, parking areas and offices.

Leasable bentonite also occurs on acquired lands. Bentonite is surface-mined with heavy equipment including: shovels, haul trucks, etc. Drilling is used to locate the bentonite. Large areas of surface disturbance occur through removal of the overburden, overburden stockpiles, surface facilities and roads. Surface facilities include processing plants, equipment maintenance buildings, parking areas and offices.

Fluid leasable minerals include oil, gas, and geothermal steam. Leasing of oil and gas resources is under the authority of the Mineral Leasing Act of 1920 as amended. Leasing is administered by the BLM through a competitive and non-competitive system. BLM receives nominations of lands to be put up for sale at the bimonthly competitive oil and gas sales. These nominations are gathered together into a parcel list and are sent to the respective field offices for the attachment of stipulations. These stipulations are

derived from the Land Use Plan. The parcel list is returned to the BLM state office and once verified, is put together into the Notice of competitive oil and gas sale booklet. This Notice must be posted for the public 45 days before the lease sale is held. Once the parcel is sold, it is then issued as a lease.

Initial exploration for oil and gas resources is often conducted using geophysical methods. Geophysical exploration involves the use of ATVs and vehicles to lay geophones and drill holes for shot charges, or the use of vibroseis trucks (weighing 50-64,000 lbs.) to create sound waves instead of using charges, and then the removal of the geophones and reclamation of shot holes if used. Exploration for oil and gas (including coal bed natural gas) may also include the drilling of one or more wells to test for a reservoir and its productive viability. During the exploration phase of drilling, surface disturbing activities include the construction of roads, well pads, well drilling, reserve pits, and other facilities.

Prior to conducting site-specific drilling activities, a site specific EA is completed for each APD, or group of APDs. APDs are subject to site-specific conditions of approval which may be more restrictive than lease stipulations. Based on the environmental review, further timing and location restrictions may be added to protect local resources. Once an APD is approved, ground operations may begin. In traditional oil and gas operations, a minimum road capable of handling a well drill rig is constructed to the site. Roads may be two track unimproved roads to crown and ditched roads designed by an engineer. A level 'pad' ranging in size from 1-5 acres is constructed for drill rig and ancillary facility (e.g., pipe racks, production pits, parking areas, etc.) setup. Generally, there is an average of 3 acres of disturbance for each drill pad and 1 mile of road and 1 mile of pipeline for each drill site. This can vary widely with each project. Directional drilling requires a larger pad than required for conventional vertical wells. Size is dependent on the number of wells drilled from each pad.

A drillhole is started (i.e., spudded) and drilling continues until the targeted geologic formation is reached. One day to over a month may be required to drill the well depending on the type of well (vertical or directional), depth and type of rock strata encountered. If a well is not capable of producing economic quantities of oil or gas, it is shut in and plugged and marked and the surface is reclaimed to its previous condition. If a well is a producing well, production facilities (e.g., pipelines and/or storage tanks, water treaters, pipeline compressor stations, powerlines, pumpjacks, fencing, etc.) will be constructed, and road upgrades may occur to accommodate tank trucks used to haul the oil to a terminal or local refinery. Discovery of a producing area may result in additional wells being drilled and a pipeline system established to transport the oil or gas to a storage facility or terminal. Other localized surface uses associated with oil and gas development include construction of storage tank batteries and facilities to separate oil, gas and water. Compressor engines (can be gas/diesel powered or electric) may be required to move gas to a pipeline, and diesel, gas, or electric pumps and other related equipment may be needed to lift the oil, gas, or water from the well to the surface. If extensive reserves of oil are located field development may occur which would result in additional wells and transport systems with well spacing determined by the Wyoming Oil and Gas Conservation Commission. Development of oil and gas fields includes construction of the same types of facilities used during exploration, but in addition it may be necessary to obtain federal rights of ways for product pipelines and power lines. Drilling and production operations and facilities are inspected and maintained regularly, and varying amounts of human and vehicle activity is present with all the above actions.

Water is often produced concurrently with oil and gas production and disposal methods can range from subsurface re-injection to direct surface discharge to discharge into a containment pond or pit. Some fields may have large volumes of water or very little water. Water that cannot be discharged to the surface because of its chemical makeup may be treated before surface discharge or may be reinjected.

When oil and gas wells are no longer capable of producing economic quantities of product, the field is closed out and abandoned. At each well location, all the "down-hole" and surface facilities are removed

and the drillhole is plugged. The pad and production pits are reclaimed to existing standards, and a hole marker is placed at the well site. Reclamation involves revegetation by reseeding or planting and the recontouring of unneeded roads and unneeded portions of the well pads. Various types of heavy equipment and vehicles are used for these activities. Finally, the site is inspected, bonds are released as appropriate, and the site is declared closed.

Geothermal resources are available for exploration, development, and production and are subject to the same surface disturbing and other restrictions applied to oil and gas exploration, development and production. Similar to oil and gas leasing, the BLM administers geothermal leases through a competitive and non-competitive system. The Geothermal Steam Act of 1970 authorizes leasing. There are currently no geothermal steam leases in Wyoming at this time.

### *Locatable Minerals*

Locatable minerals include gypsum, silver, gold, platinum, cobalt and other precious and base minerals. Bentonite and uranium are also locatable except on acquired lands.

Minerals are locatable under the 1872 Mining Law. Most public lands are open to location with the exception of lands withdrawn for other special management uses. The Mining Law of 1872 sets the requirements for lode claims, placer claims, and mill sites as well as discovery, location, annual filings, assessment work, and mineral examinations to establish validity.

BLM has no jurisdiction (non-discretion) over split estate lands for locatable minerals (private surface, federal subsurface) in the event the mining claimant receives *written* permission to proceed with operations from the surface owner, or the mining claimant owns the surface lands and wishes to mine their lands. This exception applies to Stockraising Homestead Act (SRHA) lands. These lands are those patented under the former provisions of the Taylor Grazing Act (TGA), U.S.C. 315 (p) and Homestead Act (HA) lands that were patented under the provisions of the SRHA, as amended.

## Forest Resources Management Actions

The objective of forest management is to maintain and enhance the health, productivity, and biological diversity of forest and woodland ecosystems and to provide a balance of natural resource benefits and uses, including opportunities for commercial forest production. BLM multiple use management prescriptions shall provide for forest products, recreation, livestock grazing, wildlife habitat, as well as the protection and enhancement of other resources.

The forestry program allows the commercial cutting and removal of diseased trees, disease treatment by spraying, herbicidal spraying of grasses and shrubs, and pre-commercial thinning, chaining, and shearing, as well as clearcuts, slash disposal, logging, helicopter logging, and skidder-type and cable yarding may be allowed during timber harvest. Other commercial uses may include post and pole harvest and the removal of wildlings for transplanting purposes. Non-commercial timber harvest under individual permits involves collection and cutting of firewood, Christmas trees, posts, poles, and wildling removal in stands or areas with good public access. The BLM ensures that site regeneration and stand replacement follow timber harvesting. Forest management activities may include conducting surveys; acquiring easements on private, state and other federal agency lands; designing and developing roads; and installing erosion control, such as drain culverts and water bars.

Timber harvesting occurs on commercial forestlands with slopes less than 45%. Commercial operations are authorized under sale contracts or permits. Individual authorized clearcuts may not exceed 20 acres. Areas within 200 feet of surface water are prohibited from harvest. Slash is to be lopped and scattered,

roller chopped, or burned. Regeneration areas are often enclosed by fence to prevent wildlife and livestock from damaging seedlings.

Forest stand inventories are conducted prior to any management activities, and regeneration surveys are performed following stand management activities. During forest management activities for timber harvest, the BLM allows forest stand improvement activities (initial thinning) of young trees (i.e., regeneration growth usually less than 15 feet in height) in forest stands. This activity may or may not require minimal road construction, and the trees are simply laid down with a chainsaw at a set spacing distance and left where they drop to decay. Pre-commercial harvest and removal of diseased trees and pre-commercial thinning of young trees is conducted to reduce the density of smaller trees, and thereby allowing the remaining trees to have better access to available nutrients, water, and light. These activities generally require creation of minimum to light road or two-track trail construction for access, and use of chainsaws and possibly some light yarding equipment for lay down and retrieval of trees. During commercial harvest activities, the BLM allows removal of commercial size trees (i.e., saw logs), ensures slash piling or lop-and-scatter disposal of debris, allows commercial thinning of saw logs under some types of silvicultural treatment, and allows use of both skidder and cable yarding of harvested trees. Generally, light to medium roads are constructed to the harvest stand and yarding areas and load out landings are built in the sale area to facilitate the removal of logs, utilizing heavy equipment. Trees are laid down with chain saws or harvester machines. During restoration efforts following timber harvest activities, the BLM ensures site re-contouring of landings and most roads, and revegetation of the sale area, as needed. All the above activities require the use of vehicles and human presence.

Currently, cottonwood and willow trees are not harvested by the BLM in Wyoming. Non-commercial woodlands (e.g., riparian areas) are managed to optimize cover and enhance habitat for wildlife and to protect the soil and watershed values.

## Hazardous Materials Management Actions

The primary objective of hazardous materials management is to protect public and environmental health and safety on public lands administered by BLM. Hazardous materials management also seeks to comply with federal and state laws, prevent waste contamination due to any BLM-authorized actions, and to minimize federal exposure to the liabilities associated with waste management on public lands.

Hazardous materials and waste management policies are integrated into all BLM programs. Public lands contaminated with hazardous wastes are reported, secured, and cleaned according to federal and state laws, regulations, and contingency plans. The clean-up of hazardous sites generally requires the use of heavy equipment, transport trucks, other vehicles and human presence. Warnings are issued to potentially affected communities and individuals if hazardous material is released on public land. If a spill of hazardous materials occurs, the site will be reported, secured, and cleaned and an emergency consultation conducted with the USFWS.

## Lands and Realty Management Actions

The objective of the lands and realty management program is to support multiple-use management goals of the BLM resource programs; respond to public requests for land use authorizations, sales, and exchanges; and acquire and designate access to serve administrative and public needs.

Public land tracts not critical to current management objectives will be disposed of through the realty management program. Non-federal lands may be acquired through exchange in areas with potential for recreation development or in areas containing important wildlife, cultural, scenic, natural, open space, or

other resource values. Generally lands with special status species (SSS), which includes threatened and endangered species, are not eligible for disposal and are retained in Federal ownership for management of those species. Protective withdrawals from mineral entry may be established to protect and preserve important resource values, but require extensive mineral investigations.

Realty management authorizes occupancy of public lands for roads, power lines, pipelines, communication sites, and irrigation ditches authorized by granting a right-of-way. Rights-of-way management actions respond to public requests for access, land authorizations, sales, and exchanges. These rights-of-way may be temporary or may extend for years. If restricted types of rights of way are required in avoidance areas or when such areas cannot reasonably be avoided, the adverse effects of construction will be intensively mitigated in these areas. Most rights-of-way require the use of medium to heavy equipment, vehicles and human presence during their construction.

The program pursues cooperative agreements and considers and processes proposed withdrawals and temporary use permits. Unauthorized uses are investigated, documented, and steps are taken to resolve the trespass.

Public lands can be considered for sale or disposal on a case-by-case basis when a definite need for the land is identified and the proposal meets the requirements of the Recreation and Public Purpose (R&PP) Act and local land use plans. Leasing public lands for landfills, public recreation facilities, and other uses is allowed under the R&PP Act.

## Livestock Grazing Management Actions

The management objective of livestock grazing management is to maintain or improve forage production and range condition as a sustainable resource base for livestock grazing on the public lands while improving wildlife habitat and watershed condition. Management actions on grazing allotments are prioritized by, and classified into, one of three management categories: maintain (M), improve (I), and custodial (C). Certain areas may be closed to livestock grazing because of conflicts with other resource uses including, but not limited to, timber sale areas being re-harvested, crucial wildlife or endangered species habitat, areas managed for prescribed fire, developed recreation sites, or education areas. Vegetation manipulation to change composition or productivity (including noxious weed control) may be accomplished by the range program by using prescribed fire, mechanical, chemical or biological treatments. Cattle are the predominant class of livestock grazed on Public lands in Wyoming, however, sheep, horses and bison are also authorized. Livestock grazing on Public lands can cause trampling of plants and removal of vegetation to various stubble heights dependent on the number of livestock and the length of time livestock are allowed to graze an allotment.

Fencing activities authorized by the livestock grazing management program may include fence construction and repair, designing and implementing grazing systems, and building livestock exclosures for important riparian habitat. Water management activities associated with range management may include the development of reservoirs, springs, pipelines, and wells, and access authorization. Permit and lease management activities include conducting monitoring studies, performing project work to enhance and improve riparian zones and uplands, managing stock driveways, and developing management plans and agreements.

In some cases cross fencing (subdividing an allotment, pasture or ranch by fencing) is used to accomplish management needs or when a parcel is leased by more than one lessee. Temporary fencing, including electric fencing may be authorized to accomplish management goals. Fencing might be used to reduce grazing intensity, distribute grazing away from important resources (streams, springs, riparian areas, wetlands, cottonwood galleries, etc.). When fencing is proposed, either permanent or temporary, fences

are built to standards developed in the Fencing BLM Manual Handbook (H-1741-1, Fencing, Rel. 1-1572, 12/6/1989). These standards are required to reduce the amount of restriction or hazards to wildlife. Fence construction and maintenance would likely require access to the site, possible removal of vegetation or uneven surface materials (rocks, trees, sand, etc.), stringing wire, digging postholes, building fence braces, building rock jacks, cutting or removing on or off site building materials (fence posts, rails, gathering rocks, etc.), weed management (spraying, cutting, pulling, etc.), or if the project is large enough, the possibility of camps for workers. The use of corrals for confinement of livestock for various purposes (sheep shearing, overnight holding of livestock, etc.) would require construction and maintenance activities including, hauling building materials, heavy equipment use, access to the corral site, etc.

The livestock grazing program may also include rangeland improvements such as stock water ponds, pits, or reservoirs; pipeline and trough systems; spring developments; storage tanks and troughs; wells; or temporary tanks and water hauling. These off-stream water improvements better distribute the use and intensity of use by livestock away from streams, rivers or wetlands and help protect important riparian areas, but could require the use of hand tools, mechanical or heavy equipment, hauling/transporting materials (gravel, dirt, tanks, etc.), and clearing vegetation. Placement of salt and mineral blocks or riding horseback and physically moving livestock are other forms of livestock distribution.

Rangeland restoration to improve range health is also a part of livestock management. These activities might include aerial seeding and possibly herbicide application, seeding by disking or drilling (using a tractor or other heavy equipment), fertilizing, plowing, chaining, or rangeland pitting.

Most livestock operators use off-highway vehicles (OHVs), i.e.: pick-up trucks; off road vehicles (ORVs), i.e.: motorcycles or "4-wheelers," or ride horseback or walk to access their allotments. "Herding " (moving) livestock through walking, horseback riding, and the use of dogs to distribute livestock on allotments or trailing (move them from one location to another - on or off of allotments), and the use of domestic sheep bed grounds (a temporary site to bed down flock(s) of sheep) and associated sheep herder camps are commonly employed methods of livestock operations. Road construction and maintenance, for access to various livestock operations would again require heavy equipment use, possible mechanical vegetation removal or spraying with herbicides, and material hauling.

Forage needs for wildlife and adequate vegetation cover for watershed protection are considered before additional livestock use is authorized. Livestock management includes, authorizing livestock grazing, and adjusting season of use, distribution, kind, and number of livestock. Salt or mineral supplements may be provided, which causes livestock concentrations, but can also move or distribute livestock away from water sources.

## Off-Highway Vehicle (OHV) Management Actions

The objective of OHV management is to offer outdoor recreational opportunities on BLM-administered public land while providing for resource protection, visitor services, and the health and safety of public land visitors. BLM-administered public land is enrolled in the Wyoming State Program Off-Road Vehicle Registration Program. This program requires the purchase of a Wyoming State registration sticker to be displayed on motorized vehicles (four-wheelers, motorcycle, etc.) that are not currently licensed for highway use. The State manages the registration program in cooperation with its partner agencies (BLM, USFS, WGFD, Wyoming State Parks and Cultural Resources). However, the use of OHVs on the BLM administered lands is restricted, depending on the designation contained in the resource management plans for the various field offices (e.g., closed, limited, or open).

Off-Highway Vehicle use on BLM-administered lands is designated by area as either limited to designated roads and travel routes, limited to existing roads and travel routes, or in a few areas, designated as open which allows cross-country travel. Additional restrictions with seasonal closures or restrictions to type of vehicle can also be imposed. Some areas and roads are closed to all OHV use. Over snow vehicles can also be limited to their use by being designated to roads or travel routes or they may be allowed for cross country travel. Off-Highway Vehicle management designates closed, limited, or open areas for OHV use; posts signs, maps, or brochures; permits OHV rallies, cross-country races, and outings; monitors OHV use; and performs necessary tasks requiring OHV use. OHVs can be used off road to conduct necessary tasks (i.e.; set up a camp, collect firewood or retrieve a big game animal) or in the performance of authorized activities (i.e.; firefighting, etc.).

Until signing has occurred, OHV use in "limited" areas will only be permitted on existing roads and vehicle routes. Off-Highway Vehicle travel may be prohibited on wet soils and on slopes greater than 25% if damage to vegetation, soils, or water quality would result. Seasonal restrictions may be applied in crucial wildlife habitats as needed.

## Paleontological Resources Management Actions

The objective of paleontological resources management is to manage paleontological resources that are part of the BLM-administered public land surface estate for their informational, educational, scientific, public, and recreational uses.

Using the land for scientific purposes such as paleontological exploration is authorized through a permit system. Since 1985, 53 permits have been issued, and it was estimated that about 12 more could be issued between 1991 and 2005. Fossils fall under paleontological resources and are part of the surface estate, such that whoever owns the surface consequently owns the fossils. A paleontological collecting permit is required before collecting any fossil vertebrates, significant fossil invertebrates, and plants on BLM-administered public lands.

Potential effects on paleontological resources on BLM-administered public lands will be considered in site-specific environmental analyses before authorizing surface-disturbing activities. Site-specific inventories will be required where significant fossil resources are known or are anticipated to occur. Hobby collection of invertebrate fossils and petrified wood are allowed except in specified areas. Excavation or "digs", typically involving less than an acre, may be performed with hand tools, power tools, or heavy equipment that could involve intensive human activity at the site by field crews; placement of crew and evaluation facilities; intense, though usually localized, ground disturbance at the immediate site; and periodic use of primitive access roads and trails. Rarely, a site will have *in situ* interpretive value, and when this takes place, intensive development could occur which might include the construction of permanent access and service roads, power sources, facilities (including protective fencing), and relatively heavy, though usually localized, human use. The closing of BLM-administered public lands or restricting uses to protect paleontological resources are evaluated case-by-case.

Paleontological resource values are managed in much the same manner as cultural resources, and the management activities are also similar, however, the statutory authorities are different.

## Recreation Resources Management Actions

The objective of recreation resources management is to offer outdoor recreational opportunities on lands administered by BLM while providing for resource protection, visitor services, and the health and safety of public land visitors.

Categories of activities of the BLM for recreation management include allowing recreational access and use by the public, developing recreational areas, imposing restrictions, acquiring recreational access, and assessing effects of recreational use to the environment. The BLM monitors recreational use, develops management plans, and evaluates and updates recreational potential.

Recreational activities allowed by the BLM include hiking, hunting, mountain biking, boating, and fishing, OHV use (including snowmobiles), horseback riding, and camping. Casual use of BLM-administered public land for hiking, bicycling, hunting, fishing, and similar uses are allowed without charge. Large recreational events may include organized group hikes, motocross competitions, or horse endurance rides. The BLM develops recreational and camping sites, and where these take place, intensive development could occur which might include the construction of permanent access and service roads, power sources, facilities (including protective fencing), and relatively heavy, though usually localized, human use. Recreational site development also includes maintaining or developing recreational sites and facilities, developing campgrounds, providing fishing and floating opportunities, maintaining developed and undeveloped recreation sites, adding developments as opportunities arise, adding interpretive markers, and constructing roads and interpretive sites. Most recreation use on Public lands is dispersed human use by low numbers of individuals (i.e; hiking, hunting, bicycling, horseback riding, etc.), although individuals often concentration during activities such as forming hunting camps in the fall.

The Recreation program may place boundary signs, identify hazards on rivers, restrict recreational uses, limit motorized vehicles to existing trails, designate road use and recreation areas, require facilities to blend with the natural environment, and conduct field inventories. Most Public land recreation use occurs on or near existing trails or roads.

Recreation areas may have specific restrictions to protect other important resources. Development and enforcement of stipulations and protective measures includes designating OHV use, enforcing recreation-oriented regulations, patrolling high-use areas, and contacting users in the field.

## Riparian Areas Management Actions

The objectives for riparian areas management will be to maintain, improve, or restore riparian value to enhance forage, habitat, and stream quality. Priority for riparian areas management will be given to those areas identified as Wyoming BLM sensitive fish species habitat, including habitat for native cutthroat trout.

Riparian areas management is an integral part of all resources and related management programs. Management actions may include reductions in livestock numbers, adjustments in grazing distribution patterns, fencing, herding, and livestock conversions. Riparian area management may require short-term disturbances from construction activities such as fencing or livestock herding. Those activities that affect or are affected by riparian values, will take into account the riparian areas management objectives and direction. Resource values and uses that affect or are affected by riparian values include wildlife and fisheries habitat, forest resources, livestock grazing, OHV use, visual resources, cultural and historical resources, minerals exploration and development activities, lands and realty activities, watershed and soils resources, recreation uses, fire management, and access.

Laws and guidelines abided by during riparian management include Executive Orders 11990 (wetland) and 11988 (floodplain), and section 404 of the Clean Water Act. In addition, there are species-specific management plans for some riparian areas (i.e., Bonneville and Colorado River Cutthroat Trout Strategy and Management Plans).

## Sensitive Plants Management Decisions

The objective for sensitive plants (those plant species designated as such by each respective BLM State Director – see BLM Manual 6840 – Special Status Species Management) management is to maintain and enhance known populations of sensitive plant species within BLM-administered public lands.

Known populations of sensitive plant species will be protected from disturbance by maintaining or establishing fencing around the populations and/or by intensively managing surface-disturbing activities within sensitive plant habitat and in adjacent areas that could affect the populations. Sensitive plant species management may require short-term disturbances from construction activities such as fencing, inventory or monitoring of sensitive plants and their habitats. Case-by-case examination of any proposed surface-disturbing activity will be made to determine potential adverse effects and appropriate impact minimization measures to minimize those effects. Developments, uses, and facilities will be managed temporally and spatially to avoid damage to the sensitive plant species. Sensitive species is beneficial to plant species and usually wildlife.

While Federally listed plant species do not fall under the sensitive designation, protective measures will be developed for their habitats or sites within a FO in consultation with the USFWS.

## Soil Management Actions

The objective for soil resources management is to maintain soil cover and productivity and provide for improvement in areas where soil productivity may be below potential on surface lands administered by BLM.

Activities associated with soil mapping/sampling may include surveying, core drilling, use of pick-up truck mounted soil augers and core samplers (1 ½" to 2" in diameter) and back-hoes (usually around 12-24" in width and pits may be up to 6' deep) for digging soil characterization pits and trenches, using hand held shovels to dig holes or pits, and associated human and vehicle disturbances. These trenches are backfilled and revegetated/reseeded when surveys are complete. Disturbances are usually very small of short duration in nature and will reclaim to the native terrain/vegetation quickly. Surface soil erosion studies may also be conduced. These soil resource related activities in the planning area are mainly in support of other programs. Soil mapping and identification may require the digging of trenches to identify and measure soil horizons below the surface. Formal soil surveys are conducted under a contract with the Natural Resource Conservation Service (NRCS).

Other activities associated with soil resources may include reclamation of abandoned mine lands (AML) and open shafts, removal of waste rock in floodplains or streams, or cleanup of tailings. These reclamation programs are covered under the hazardous materials section of this document.

To keep soil from eroding and to protect the water quality, timber harvest activities will be limited to slopes of 45% or less . OHV travel will be prohibited on wet soils and on slopes greater than 25% if unnecessary damage to vegetation, soils, or water quality would result. Roads and trails will be closed and reclaimed if they are heavily eroded, washed out, or if access roads in better condition are available. No surface disturbance or occupancy will be allowed in areas susceptible to severe erosion between March 1 and June 15.

## Surface Disturbance Restriction Decisions

Surface disturbance restrictions are necessary to protect certain sensitive resources and areas from adverse affects of surface-disturbing activities and human presence, and are inclusive of the various management actions developed in and analyzed for the approved RMP. These restrictions apply to all types of activities involving surface disturbance or human presence impacts and are applied in accordance with the guidelines described in the BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities. These guidelines include, where applicable, proposals for waiver, exception, or modification, based on analysis for individual actions. This would allow for situations where a surface-disturbing activity may actually benefit sensitive resources, and allow for those occasions when analysis determines that an activity will not affect those resources.

The Surface Disturbing Guidelines will be used, as appropriate, to condition development activities in all programs where surface-disturbing activities occur and where the objectives of the RMP include the protection of important resource values. On a case-by-case basis, activities will be conditioned by any one or more of the mitigations in the Guidelines to avoid or minimize impacts to other important resource values and sensitive areas. Use restrictions (e.g., dates and distances) may be made more or less stringent, depending on the needs of specific situations. The restrictions identified under the various resource programs are complementary to the standards in the Guidelines and are not all-inclusive. They represent both actual requirements applicable to specific circumstances, and examples of requirements that will be considered and that may be applied, if necessary. Additional restrictions may be placed on surface-disturbing activities as necessary.

The impact minimization measures identified in a particular RMP serve to provide a degree of protection to affected resources, not to unnecessarily restrict activities. The RMP provides the flexibility for modifications or exceptions to restrictions in specific circumstances where a restriction is determined not to apply or is not needed to achieve a desired objective.

Surface disturbance is characterized by the removal of vegetative cover and soil materials. Where actual excavation does not occur, activities may be allowed to occur with less stringent limitations provided that the objectives and purpose for the surface disturbance restrictions are met. Examples where less stringent application of the Guidelines would apply are timber harvesting within 500 feet of streams or riparian areas and on slopes greater than 25%. This would be applicable to those timber harvest activities, such as tree cutting, skidding, and slash disposal that do not fully remove vegetative cover and soil materials. In the past, allowing these activities with a 100-foot streamside buffer distance and on slopes greater than 25% did not produce detrimental effects. However, road construction or staging/loading areas for logging equipment would not meet the less stringent definition and would be subject to the standard requirements of 500 feet and 25% slope.

The impact minimization measures prescribed for Federal mineral development on split estate lands (Federal minerals beneath a non-Federal surface) apply only to the development of the Federal minerals. These impact minimization measures do not dictate the surface owner's management of their lands. The impact minimization measures present restrictions on only those surface activities conducted for purposes of developing the Federal minerals and that are permitted, licensed, or otherwise approved by the BLM.

When the BLM is considering issuing a mineral lease, the agency has a statutory responsibility under the National Environmental Policy Act to assess the potential environmental impacts of the Federal undertaking. It also has the statutory authority under the Mineral Leasing Act (MLA) of 1920, the Mineral Leasing Act for Acquired Lands (MLAAL), and the Federal Land Policy and Management Act (FLPMA) of 1976 to take reasonable measures to avoid or minimize adverse environmental impacts that may result from Federally authorized mineral lease activities. This authority exists regardless of whether

or not the surface is Federally owned.

The MLA, the MLAAL, and the FLPMA are not the only statutes that establish such authority. Other statutes that may be applicable include the Clean Water Act, the Clean Air Act, the National Historic Preservation Act, the Endangered Species Act of 1973, the Federal Coal Leasing Amendments Act of 1976, and the Surface Mining Control and Reclamation Act of 1977. Moreover, the recently enacted Federal Onshore Oil and Gas Leasing Reform Act of 1987 specifically requires the BLM to regulate surface disturbance and reclamation on all leases.

## Threatened, Endangered, and Candidate Species Protection Actions

The management objectives of threatened, endangered and candidate (TEC) species protection are to maintain biological diversity of plant and animal species; to support WGFD strategic plan population objective levels to the extent practical and to the extent consistent with BLM multiple use management requirements; to maintain and improve forage production and quality of rangelands, fisheries, and wildlife habitat; and to provide habitat for threatened and endangered and special status plant and animal species on all public lands in compliance with the Endangered Species Act (ESA) and approved recovery plans.

Known populations of threatened and endangered species will be protected, as mandated by law. BLM will not authorize activities or commit resources that may jeopardize the continue existence of a species or population (BLM Manual 6840).

The BLM's threatened and endangered species management activities include protecting habitat and known populations, enforcing timing stipulations, conducting surveys, and closing known locations of sensitive populations or habitat to surface-disturbing activities.

Most TEC management activities temper other impacting activities. However, if methods required to protect TEC species include fencing, or other construction, then some short-term, low intensity disturbance may occur. TEC management is beneficial to wildlife and plant species.

## Vegetation Resource Management Actions

The objectives of vegetation resource management are to maintain or improve the diversity of plant communities to support timber production, livestock needs, wildlife habitat, watershed protection, and acceptable visual resources; to enhance essential and important habitats for special status plants species on BLM-administered public land surface and prevent the need for any special status plant species being listed as threatened and endangered; and to reduce the spread of noxious weeds.

Vegetation treatments, including timber harvesting, sagebrush spraying or burning, will be designed to meet overall resource management objectives. Cooperative integrated weed control programs implement weed control work on adjoining deeded and state lands in cooperation with county weed and pest districts. The three types of control used by the BLM on public lands are chemical, biological, and mechanical. Biological control can involve the use of insects such as weevils or beetles, and herbivores like controlled, high intensity goat grazing. This method may be used in cooperation with mechanical control (e.g., dozing, cutting, chaining, or chopping). Mechanical methods employ the use of a tractor or caterpillar to pull mowers or brush hogs, or to use two caterpillars to pull large chains in a "U" shape to knock down vegetation. Sagebrush control measures are also implemented by the BLM with control methods using primarily chemical, mechanical, or prescribed fire. Prescribed fire is used as a management tool to improve range forage production, wildlife habitat, timber stand improvement, sale

debris disposal, and to reduce hazardous fuel buildup. Noxious weed control is typically implemented along rights-of-way.

Trees will be planted on timber harvest areas that fail to regenerate naturally in order to achieve minimum stocking levels within five years after completing harvest and rehabilitation activities. Pre-commercial tree thinning will be initiated on overstocked seedling- and sapling-size stands. Temporary use of heavy equipment may be associated with these authorized activities.

If herbicides are proposed for use, minimum-toxicity herbicides will be used with appropriate buffer zones along streams, rivers, lakes, and riparian areas, including those along ephemeral and intermittent streams. Only Federally approved pesticides and biological controls are used. Local restrictions within each county are also followed. Projects that may affect threatened or endangered plants or animals will be modified to protect these species. Pesticide Use Proposals (PUPs) and Biological Use Proposals (BUPs) are developed conjunctively with the County Weed and Pest Districts and the BLM. All PUPs and BUPs are reviewed by the state Noxious Weed Coordinator and approved by the BLM Assistant State Director.

## Visual Resources Management Actions

The objective of visual resources management is to maintain or improve scenic values and visual quality, and establish visual resources management priorities in conjunction with other resource values. Visual resources are managed in accordance with objectives for visual resources management (VRM) classes that have been assigned to each FO. Visual resource classification inventories have been developed for some, but not all, of the areas in Wyoming. The designation of VRM classes in an RMP is simply a designation, and tempers or stipulates from a visual resource viewpoint, specific protections or management of other BLM authorized actions. VRM classifications, in and of themselves, do not place on-the-ground projects or ground disturbing activities. Examples of the types of actions or projects required to meet VRM criteria are in the following paragraph.

To improve visual resources, the BLM designs facilities to blend in with the surroundings, reclaims watershed projects and water wells, regulates discharge of produced water, and restricts activities that might degrade visual resources. No activity or occupancy is allowed within 200 feet of the edge of state and Federal highways. Facilities or structures such as power lines, oil wells, and storage tanks are required to be screened, painted, and designed to blend with the surrounding landscape, except where safety indicates otherwise and dependent upon the VRM classification. Any facilities or structures proposed in or near wilderness study areas will be designed so as not to impair wilderness suitability. Generally, VRM classification benefits wildlife and plant species.

## Watershed and Water Resources Management Actions

The objective of watershed and water resources management is to maintain or improve surface and groundwater quality consistent with existing and anticipated uses and applicable state and federal water quality standards, to provide for availability of water to facilitate authorized uses, and to minimize harmful consequences of erosion and surface runoff from BLM-administered public land.

Passing of the Water Resources Research Act, Water Resources Planning Act, and the Water Quality Act of 1965 allowed the BLM to expand its water resources program and increased cooperation with soil conservation districts.

Activities authorized under water resources management may include implementation of watershed plans, identification of heavy sediment loads, monitoring and treating soil erosion, evaluating and restricting surface development activities, and monitoring water quality.

Monitoring of streams and rivers for water quality would be very small and short term in nature (a few hours or less). Monitoring would be done with small, hand held kits on site, or water samples would be collected and analyzed in a laboratory off site. Other activities would be to measure stream channelization and evaluate streambank and riparian conditions. Access for these activities would be primarily by vehicle (pickup truck, etc.) and monitoring would be done by personnel walking into and along streams and rivers. Permanent in-stream flow monitoring and continuous water quality analysis gauging stations would be small structures that would require some construction to build (backhoe, concrete truck or a lift to place a pre-built structure) and some disturbance to streams or rivers during construction and occasional maintenance activities.

Other smaller scale water resource activities would include plugging abandoned wells to prevent contamination or cross contamination of water aquifers and reclaiming (recontouring and revegetating) the associated drill pad. This activity would consist of pouring concrete into the well casing to plug the well, requiring: vehicles, concrete trucks, concrete pumper trucks, personnel, etc. Reclamation of the drill pad after plugging would require the use of loaders, backhoes, graders or bulldozers, seeding equipment, and trucks and trailers to haul the equipment. Instream flow control structures such as drop structures (made of logs, rock baskets, or concrete); weirs; revetments (streambank erosion control structures (trees, logs, etc.)); rip-rap (rocks, boulders, logs, etc.); placing gravel or concrete in streams for crossings and fish spawning; culverts, all requiring equipment and personnel to construct. Equipment might include: vehicles, backhoes, bulldozers, skid loaders, concrete trucks, etc. Planting of riparian plant species to reduce erosion and sediment movement along watercourses would be done either using hand held tools (shovels, augers, or just jamming stems into the ground (willows, cottonwoods, etc.)) or with smaller equipment like motorized augers, backhoes, tree spades, etc.).

Water is produced as a bi-product of the extraction process of developing Coal Bed Natural Gas (CBNG), natural gas, and oil. The area has been drilled to try and produce some of these shallow coal seams for CBNG with little success. Most produced water in western Wyoming is cycled back into the ground via re-injection wells. Some produced water could possibly flow down perennial, ephemeral, or dry drainages, increasing flows and changing the dynamics of the drainage systems. Some of this produced water can be high in trace metals and sodium, which may be detrimental to plants. Much of the produced water is more “pure” and can also be beneficial to wildlife and plant species. This produced water may also be stored in ponds or reservoirs, requiring construction (see below) and changes in landscape to the area.

Larger scale activities associated with water resource management would include the construction, maintenance (of existing), and rehabilitation (of failed) of impoundments/reservoirs for salt and sediment control. These impoundments would be constructed using heavy equipment (graders, bulldozers, loaders, backhoes, dump trucks, etc. and the trucks and trailers to haul them). They usually require: the removal of soil and materials for the catchment basin; building of earthen dams and protecting the dam face with vegetation, mesh material, or rock; and hauling, placement and contouring of fill material and possible building of access roads. Maintenance would consist of using loaders, backhoes, bulldozers, etc. to clean out and haul or contour nearby the sediment removed from the catchment basin to increase water holding capacity. Water diversions may be allowed in some situations (livestock or wildlife watering projects, the use of existing water rights by farmers/ranchers, etc.) and while construction of diversion structures may be of small scale, dewatering of streams/rivers may have a long-term affect on aquatic systems. Few of the water resource management projects listed above would be accomplished on public lands in the Wyoming due to limited water courses, the need for improvement, scattered land ownership tracts, and

limited budgets to accomplish the work. This trend is expected to continue over the life of the nine RMPs listed in this BA.

No surface disturbance will be allowed within 500 feet of any spring, reservoir, water well, or perennial stream unless waived by the authorized officer. Pollution prevention plans are developed for actions that qualify under the Wyoming Storm Water Discharge Program to reduce the amount of non-point pollution entering waterways. The rights to water-related projects on public lands will be filed with the Wyoming state engineer's office in order to obtain valid water rights.

## Wild and Scenic Rivers Management Actions

The objectives of wild and scenic rivers management for public lands administered by the BLM that meet the wild and scenic rivers suitability factors are to maintain or enhance their outstandingly remarkable values and wild and scenic rivers (WSR) classifications until Congress considers them for possible designation. Wild and Scenic Rivers Management activities of the BLM include studying segments of the river for potential classification by Congress. The suitable determination is based on the uniqueness of the diverse land resources and their regional and national significance, making them worthy of any future consideration for addition to the WSR system.

Five river segments that were eligible and determined to be suitable for WSR classification fall with in LAUs and are listed in the respective RMP section of this document. The designation of WSR status is simply a designation, and tempers or stipulates from a WSR resource viewpoint, specific protections or management of other BLM authorized actions. WSR classifications, in and of themselves, do not place on-the-ground projects or ground disturbing activities. Generally, WSR status is a beneficial impact on wildlife and plant species.

## Wilderness Resources Management Actions

Wilderness Study Areas (WSAs) on public lands are single-use resources managed in accordance with decisions issued by the U.S. Congress. The BLM managers ensure that proposed actions are consistent with the land use plan in effect for the area. Absence of roads, total aerial extent, naturalness, solitude, or a primitive and unconfined type of recreation, and other ecological, geological, educational, scenic, or historical features may be considered wilderness values.

Activities associated with this program may include inventories to identify wilderness areas, public involvement with the wilderness study process, authorization of mining claims under unique circumstances, or evaluations of proposed actions to determine potential impacts to known or potential wilderness values.

All WSAs are managed under the Interim Management Policy (IMP) until Congress issues management guidelines. There are three categories of public lands to which the IMP applies: (1) WSAs identified by the wilderness review required by Section 603 of the Federal Land Policy Management Act (FLPMA), (2) legislative WSAs (i.e., WSAs established by Congress, of which there are none administered by the BLM in Wyoming), and (3) WSAs identified through the land-use planning process in Section 202 of the FLPMA.

A Plan of Operation is prepared by operators before any mining exploration begins. The plan identifies the mining strategy and attempts to minimize environmental impacts. Discovery work for WSAs under Section 603 must be done to non-impairment standards. Only “unnecessary and undue degradation” requirements apply to Section 202 WSAs.

A mining claim may be staked at any time in an existing WSA. National Environmental Policy Act (NEPA) analysis is required, however, before any activity is authorized in a WSA. Environmental Assessments (EAs) or Environmental Impact Statements (EISs) are prepared to determine if a proposal meets non-impairment criteria. The use of categorical exclusion to eliminate this analytical process for uses and facilities on lands under wilderness review is not allowed.

The designation of WSA status is simply a designation, and tempers or stipulates from a WSA viewpoint, specific protections or management of other BLM authorized actions. WSA classifications, in and of themselves, do not place on-the-ground projects or ground disturbing activities. Generally, WSA status is a beneficial impact on wildlife and plant species.

## Wild Horse Management Actions

The management objective of wild horse management is to maintain a viable herd that will preserve the free-roaming nature of wild horses in a thriving ecological balance and to provide opportunity for the public to view them. The FLPMA amended the Wild and Free Roaming Horse and Burro Act to authorize the use of helicopters in horse and burro roundups. Wild horse and burro numbers on BLM lands in Wyoming were estimated at 37,000 in 2004 (Breckenridge 2004); this compares with 17,000 in the entire West in the late 1960s.

The Wild Horse Program herds, corrals, transports, monitors, and rounds up horses for wild horse management. Herds are monitored by airplane census and counted each year. Helicopters may also be used to round up wild horses. The construction of corrals and capture facilities could cause impacts through ground disturbance and concentrated human presence. Horse round-up generally causes concentrated compaction by horse hooves in corral and load-out areas. Placement of capture corrals and capture facilities outside of special status species habitat is important as the concentrated disturbance could potentially be an adverse affect to these species and/or their habitats.

Land Use Plans are used to plan wild horse management. The BLM decides how many horses to allow on a certain area. This is termed the Approximate Management Level and the BLM can adjust horse numbers as needed. Issues taken into consideration include carrying capacity, trends in utilization, and public input. The BLM's wild horse management specialists coordinate with wildlife biologists and archaeologists to ensure that wild horse management will not cause adverse impacts to biological or cultural resources. No LAUs are located within any wild horse herd management areas in Wyoming. No wild horse herd management areas occur in the Kemmerer or Pinedale FOs, although both FOs have wild horse herd areas that are not currently being managed for wild horses.

## Wildlife Habitat Management Actions

The objectives of wildlife habitat management are to maintain the biological diversity of plant and animal species; support the strategic plan population objective levels of the Wyoming Game & Fish Department (WGFD) to the extent practical and to the extent consistent with BLM multiple-use management requirements; maintain and, where possible, improve forage production and quality of rangelands, fisheries, and wildlife habitat; and, to the extent possible, provide habitat for threatened and endangered and special status plant and animal species on all public lands in compliance with the Endangered Species Act (ESA) and approved recovery plans. Habitat management plans are developed with goals and objectives specifically aimed at the conservation of special status species and/or their habitats.

Approximately 90% of wildlife program activities are in support of other resource programs such as fuels reductions, density of timber stands in deer and elk winter habitats, oil and gas exploration, timber harvest, or prescribed fires. Specific management goals and actions are for several wildlife groups and

habitats including big game ranges, wetland and riparian areas, elk habitat, raptor and grouse breeding areas, and animal and insect damage control. Wildlife management maintains and, where possible, improves forage productions and quality of rangelands, fisheries, and wildlife habitat, and provides habitat for threatened, endangered, and special status animal and plant species on BLM-administered public land surface in compliance with the ESA and approved recovery plans.

Big game and fisheries management levels identified in the WGFD 1990-1995 strategic plan are supported by the BLM. The BLM cooperates with the WGFD in introducing or reintroducing native and acceptable non-native wildlife and fish where potential habitat exists. Wildlife habitat is monitored and population adjustments and habitat improvements are recommended to the WGFD, as appropriate. The BLM works with the U.S. Fish and Wildlife Service and the WGFD in evaluating and designating critical habitat for threatened and endangered species on BLM-administered public lands.

Wildlife program projects may include surveying, monitoring, habitat improvement activities such as developing habitat management plans, and creating cooperative management areas. The categories of wildlife management activity for the BLM include developing stipulations and protective measures, acquiring land, conducting inventories, performing livestock or forestry-related activities, and wildlife and fisheries habitat improvement projects.

Plant and animal resource inventories often include sampling and documenting plant and animal population and habitat occurrence and conditions. Techniques can include anything from satellite imagery mapping and interpretation; to the actual measurement of resource transect parameters on the ground, or the collection of information for laboratory analysis. These activities often include off-road field travel, but generally no significant surface disturbance requiring large reclamation efforts. Many of the same techniques are often used for monitoring management implementation effectiveness following implementation of a set of management projects or actions.

Habitat development and improvement projects may include, but are not limited to; the development of water sources or water regulating structures including spring developments, guzzlers, dikes or water spreading devices, development of islands in ponds and reservoirs, modification of existing projects, construction of artificial waterfowl or raptor nesting structures, construction of small game cover brush piles, and construction and maintenance of fences. Fencing projects in the wildlife program are typically small in area, to create an exclosure or to protect a guzzler or spring development and would usually not exceed 100 to 200 feet on a side. These actions could require the use of hand tools, mechanical or heavy equipment, hauling or transporting materials (gravel, dirt, tanks, etc.), and clearing vegetation. When fencing is proposed, whether permanent, temporary, or electric, they are built to fencing standards developed in the BLM Fencing Manual Handbook (H-1741-1, Fencing, Rel 1-1572, 12/6/1989). These standards are required to reduce the amount of restriction or hazards to wildlife. Fence construction and maintenance would likely require access to the site, possible removal of vegetation or uneven surface materials (rocks, trees, sand, etc.), digging postholes, stringing wire, building fence braces, building fence jacks, cutting or removing building materials on or off site, (fence posts, rails, rocks, etc.) weed management (spraying, cutting, pulling, etc.). Construction of waterfowl ponds and islands typically requires major surface disturbance and earth work with heavy dirt moving equipment like bulldozers and scrapers. Generally, permanent roads are not constructed for access to wildlife program project sites.

The BLM develops stipulations and protective measures to enhance wildlife and fisheries habitat. These include authorizing withdrawals of some areas from mineral entry; limiting access of four-wheel drives, snowmobiles, horseback, and pedestrians; prohibiting surface development; and imposing road closures. The BLM may acquire riverfront land or easements, and conducts inventories of potential habitat and occurrences of threatened, endangered, and sensitive species.

Livestock-related wildlife management activities include the development of water sources, construction and maintenance of fences, the management of other resource activities to conserve forage and protect habitat, the improvement of forage production and quality of rangelands, and the improvement of range with mechanical treatment. Forestry-related wildlife management activities include the management of timber and the promotion of cutting, thinning, planting, seeding, and pitting.

Other wildlife management activities for terrestrial species include introducing species, monitoring habitat, fencing modifications for antelope passage, implementing public use closures for wintering elk, development of water areas for waterfowl and shorebirds, development of springs or seeps, rock or manmade catchments for collecting water for wildlife watering, recommending habitat improvement projects, treatment to control exotic plants, prescribed burns, meadow restoration, cabling of junipers, changing types of grazing and season of grazing, prescribed burning, developing islands, allowing farming, managing accesses, authorizing agricultural entry and disposal, and using surface protection impact minimization measures.

Other wildlife management activities for aquatic species include establishing a baseline fisheries inventory, fish habitat improvement, bank stabilization, development of watering sources, modification of barrier fences, exotic fish removal, construction of instream barriers to protect species from non-native invaders, installation of revetments and fish passage structures, installation of log overpours, macroinvertebrate sampling and analysis, installing gabion baskets, and placement of large boulders for instream fish habitat.

## Existing Impact Minimization Measures

Certain existing guidance serves to mitigate potential actions on lynx, and they are reviewed below.

The Wyoming BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities are intended to attain statewide consistency in establishing requirements for avoiding and mitigating environmental impacts and resource and land use conflicts. They include several guidelines that are applicable to a variety of resources, including the lynx. These guidelines apply to all surface-disturbing activities on lands administered by BLM and are considered in the assessment of potential affects. Under the wildlife impact minimization measure guideline, the following guidance applies to the lynx:

- To protect important nesting habitat for raptors, sage grouse, and sharp-tailed grouse, activities or surface use will not be allowed from February 1 to July 31 in certain areas encompassed by the authorization. The same criteria apply to defined raptor and game bird winter concentration areas from November 15 to April 30. These guidelines will be considered for all surface-disturbing activities. Sage grouse may occasionally be used as alternate prey by lynx, and the February 1-July 31 closure, within an LAU, may protect lynx during the vulnerable denning period (subpart 2b of Wildlife Mitigation Guideline).

- No activities or surface use will be allowed on the portion of the authorization area for the purpose of protecting habitats (e.g., sage/sharp-tailed grouse breeding grounds, and/or other species/activities) (subpart 2c of Wildlife Mitigation Guideline).

- Portions of the authorized use area legally described as (legal description), are known or suspected to be essential habitat for (name – i.e.; Canada lynx) which is a threatened or endangered species. Prior to conducting any onsite activities, the lessee/permittee will be required to conduct inventories or studies in accordance with BLM and U.S. Fish and Wildlife Service guidelines to verify the presence or absence of this species. In the event that (name – i.e.;

> Canada lynx) occurrence is identified, the lessee/permittee will be required to modify operational plans to include the protection requirements of this species and its habitat (e.g., seasonal use restrictions, occupancy limitations, and facility design modifications) (subpart 2d of Wildlife Mitigation Guideline).

The BLM Guidelines for Livestock Grazing Management also applies to surface disturbing activities. The guidelines apply to all actions that may disturb or disrupt the surface in all of the FOs. Although all the protective standards listed in the guidelines are valuable to habitat protection, Standard #2 and Standard #4 relate directly to lynx. Standard #2 addresses protection of riparian vegetation, which is an important habitat type for snowshoe hares because of the forage it supplies. Standard #4 related to endangered species.

In addition, there are other laws and regulations that BLM must follow that apply to the section on minerals. The mining laws, particularly the General Mining Law of 1872 (as amended), allow for citizens of the United States to enter open public lands for the purpose of prospecting for locatable mineral resources, locating and exploring on mining claims, mining of the mineral commodities within the boundaries of those claims, and for patenting of the claims when a discovery of a valuable mineral resource has been made. The Federal Land Policy and Management Act of 1976 is the basis for the BLM to prohibit activities on the public lands which could cause unnecessary and undue degradation, including mining operations. On January 1, 1981, the BLM began enforcing the first regulations for mining activities on public lands known as the Surface Management Regulations, 43 CFR Subpart 3809. On November 21, 2000, new and more comprehensive surface management regulations were published in the Federal Register and were placed into effect by the BLM. These regulations were again amended October 30, 2001. These regulations state that there are 3 classes of mining operations: a) casual use, b) notice-level operations, and 3) plan-level operations (USDI-BLM 2001).

Casual use means activities ordinarily resulting in no or negligible disturbance of the public lands or resources. Casual use includes such things as the collection of geochemical, rock, soil, or mineral specimens using hand tools, hand panning, use of metal detectors and other battery-operated devices for sensing the presence of minerals. Operator may use motorized vehicles for casual use activities provided the use is consistent with the regulations governing such use, off-road vehicle use designations contained in BLM land-use plans, and the terms of temporary closures ordered by BLM. Casual use does not include use of mechanized earth-moving equipment, truck-mounted drilling equipment, motorized vehicles in areas when designated as closed to “off-road vehicles”, chemicals or explosives.

Notice-level operations are those disturbing 5 acres or less, and extracting less than 1000 tons of ore per year. However, if the operations cause surface disturbance greater than casual use in the following special status areas, a plan of operations must be filed: a) lands in the California Desert Conservation Area (CDCA) designated in the CDCA plan as “controlled” or “limited” use areas; b) areas in the National Wild and Scenic Rivers System, and areas designated for potential addition to the system; c) designated Areas of Critical Environmental Concern; d) areas designated as part of the National Wilderness Preservation System and administered by BLM; e) areas designated as “closed” to off-road vehicle use; f) any lands or waters known to contain Federally proposed or listed threatened or endangered species or their proposed or designated critical habitat, unless BLM allows for other action under a formal land-use plan or threatened or endangered species recovery plan; and g) National Monuments and National Conservation Areas administered by BLM.

In addition, all operations authorized by the mining laws must prevent unnecessary or undue degradation of public lands. An operator must comply with the terms and conditions of the notice or approved plan of operation, and other Federal and State laws related to environmental protection. Reclamation must include rehabilitation of fisheries and wildlife habitat. Specifically, the operator shall take such action as

may be needed to prevent adverse impacts to threatened or endangered species and habitat that may be affected by operations.

## Lynx Conservation Assessment Strategy and Lynx Analysis Units

The Canada Lynx Conservation Assessment Strategy (LCAS) "was developed to provide a consistent and effective approach to conserve Canada lynx on federal lands in the conterminous United States" (Ruediger et al. 2000). The document was initiated by U.S. Forest Service, BLM, and U.S. Fish and Wildlife Service as a consequence of the inadequacy of existing regulatory mechanisms of Land Use Plans. Because of the guidance set forth in the LCAS, there are now clear objectives, standards, and guidelines to follow (See Section 4.0).

There are three documents and/or regulations that commit the Wyoming BLM to the LCAS guidance:

- BLM and USFWS entered a Canada Lynx Conservation Agreement, signed in August 2000. This agreement serves to coordinate assessment and planning efforts between the two agencies and other agencies (such as the USFS) to assure a comprehensive approach to conserving lynx. BLM committed to mapping LAUs, lynx habitat, and key linkage areas, and to coordinate with USFWS on approaches to the programmatic planning process for the lynx.

- A Biological Assessment (Hickenbottom et al. 1999) of the effects of BLM Land Use Plans on lynx which made a determination of may affect and likely to adversely affect the lynx, and a Biological Opinion issued by the USFWS (dated 25 October 2000) on that BA. The BO states that the LCAS will be used as the basis for streamlining section 7 consultations (p. 2), and commits BLM to map lynx habitat, LAUs, and key linkage areas on all administrative units, using direction in the LCAS (p. 2).

- Wyoming BLM is also committed to the LCAS as a consequence of the Endangered Species Act (ESA): the LCAS is the best known and available science.

The approach of the present document is the result of these three documents and/or regulations. LAUs have been mapped by the field offices and coordinated with adjacent USFS LAUs (**Map 2**). Lynx habitat within LAUs has been mapped. Coordination with USFWS has been part of this document from the very beginning and throughout.

The guidance presented in the LCAS for lynx conservation measures indicates the amount of allowable disturbance in lynx habitat, and is contained in Section 4 of the present document; it is being implemented and followed in the field offices. The present document serves to further formalize the commitment to the Conservation Measures as binding measures. We then evaluated the management actions with these measures in place, and applied to lynx habitat within LAUs. However, BLM also has some lynx habitat not inside LAUs, and the Conservation Measures may be applied there as well.

Lynx Analysis Units (LAUs) have been selected as the unit to use for evaluation of the effects of management actions on the lynx. The approach here follows the recommendations of the LCAS to incorporate LAUs as the analysis unit for lynx habitat:

"LAUs are not intended to depict actual lynx home ranges, but are intended to provide analysis units of the appropriate scale with which to begin the analysis of potential direct and indirect effects of projects or activities on individual lynx, and to monitor habitat changes. LAUs should approximate the size of a female's annual home range and encompass all seasonal habitats. LAUs will also likely contain areas of non-lynx habitat, such as lower elevation drier sites, especially in mountainous regions. Generally, lynx

conservation measures apply only to lynx habitat within LAUs, although considerations related to connectivity may be appropriate for other areas" (Ruediger et al. 2000, p. 73).

The guidance provided by the LCAS (Ruediger et al. 2000) defines the extent and limit of potential impacts on LAUs. Broad-scale assessments comparing historical and current ecological processes and vegetation patterns (e.g., age-class distributions and patch size characteristics) are encouraged. In the absence of such guiding assessments, disturbance is limited to 30% of the specified lynx habitat within LAUs. If 30% of the lynx habitat within a LAU is presently in non-suitable condition, then no further disturbance is allowed. This can happen as a consequence of clear-cuts or burns and must be factored in to the percent disturbance within lynx habitat within a LAU (Root 2003). The 30% limitation on disturbance also requires coordination with the agency or landowner of whatever portion of the LAU is not on BLM land; typically this will be the USFS.

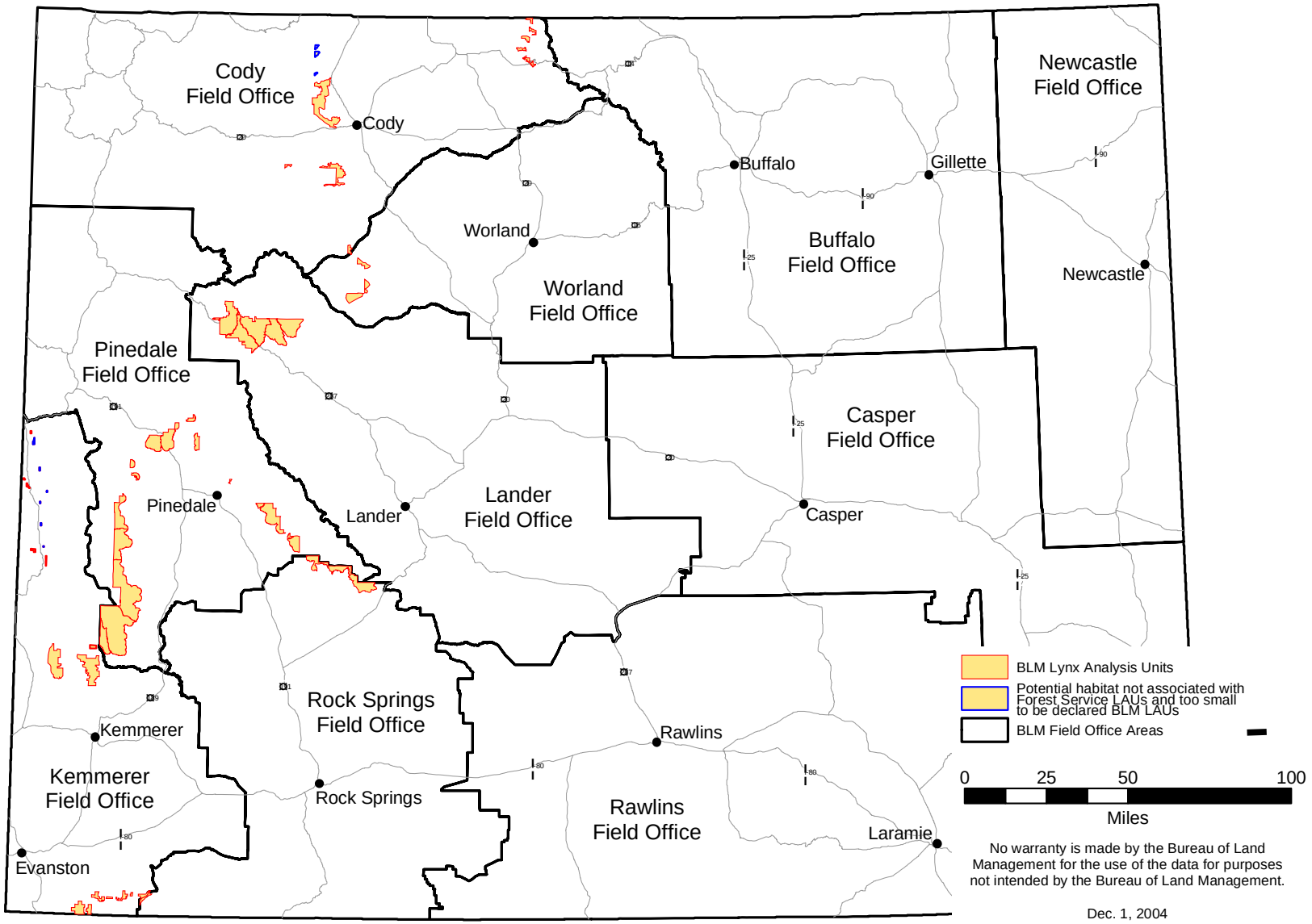
The LAU may be too small a unit to address direct, indirect, and cumulative effects of particular actions. In this case, LAUs can be lumped together. Within each LAU, optimal habitat mapping should show potential denning, foraging, and movement habitats. Non-forest vegetation adjacent to and intermixed with forested lynx habitat should also be mapped as it may provide habitat for alternate lynx prey. Denning habitat should be in patches larger than 5 acres and comprise at least 10% of lynx habitat. Where denning habitat is less than 10%, management actions that would delay development of denning habitat structure should be deferred (Ruediger et al. 2000). The size of LAUs and the amount of lynx habitat within LAUs in each FO is shown in **Table 3**.

The vast majority of the acreage of LAUs in Wyoming is on USFS land: 3,104,692 acres, compared with 477,187 acres (14%, **Table 3**) on BLM land. In fact, most of the LAUs on BLM land were mapped by extending the FS LAUs out onto BLM land where there was potential habitat. The Forest Service LAUs occur on the Bighorn, Bridger-Teton, Shoshone, Medicine Bow, and Wasatch National Forests in Wyoming (Loose 2004, USFS and BLM 2004, Williams 2004).

Lynx habitat on BLM land within LAUs is mapped and acreages have been calculated (**Table 3**). In addition to the mapped habitat within LAUs, some FOs have habitat on BLM land that is not in an LAU. This occurs typically when the USFS has determined that their portion of a given area does not qualify as an LAU, and the BLM portion is not of sufficient size to justify delineating an LAU. Two field offices, Cody and Kemmerer, have delineated this type of lynx habitat independent of LAUs. For all FOs combined, habitat within LAUs comprises 27% of BLM LAU acres. All other FOs have non-delineated areas of potential habitat not in LAUs. These are areas such as potential travel corridors and linkages that do not meet the criteria of lynx habitat, but serve to address potential connectivity issues (USFWS 2000).

Pinedale has the largest area in LAUs (227,769 acres) and the largest area of habitat (47,098 acres, 21%). Lander and Kemmerer also have large acreages in LAUs (115,611 and 60,153 acres, respectively). Of this, 9% (10,893 acres) and 45% (27,163 acres) are potential habitat in Lander and Kemmerer, respectively.

# Map 2: Lynx Analysis Units (LAUs) in Wyoming



## TABLE 3 LYNX ANALYSIS UNITS AND HABITAT ACREAGES IN EACH FIELD OFFICE.

**Cody Field Office**

| Forest Service LAU Name | Forest Service LAU Acres | BLM LAU Name | BLM LAU Acres | Combined Acres | % BLM Acres | BLM LAU Habitat Acreage | BLM LAU % Habitat |
|---|---|---|---|---|---|---|---|
| Dead Indian | 65,112 | BLM - Dead Indian | 13,700 | 78,811 | 17 | 12,834 | 94 |
| Lower South Fork | 199,719 | BLM - Lower South Fork | 10,008 | 210,388 | 5 | 7,958 | 80 |
| | | BLM - Lower South Fork 2 | 661 | | 0 | 251 | 38 |
| Porcupine/Mann Creek | 83,800 | BLM - Porcupine/Mann Creek 1 | 1,100 | 84,900 | 1 | 653 | 59 |
| | | BLM - Porcupine/Mann Creek 2 | 1,148 | | 1 | 807 | 70 |
| | | BLM - Porcupine/Mann Creek 3 | 1,682 | | 2 | 1,207 | 72 |
| | | BLM - Porcupine/Mann Creek 4 | 1,375 | | 2 | 998 | 73 |
| | | BLM - Porcupine/Mann Creek 5 | 1,189 | | 1 | 775 | 65 |
| | | BLM - Porcupine/Mann Creek 6 | 777 | | 1 | 380 | 49 |
| Wood River | 168,451 | BLM Wood River | 1,485 | 181,505 | 1 | 936 | 63 |
| | | Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 289 acres | | | | | |
| | | Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 513 acres | | | | | |
| | | Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 954 acres | | | | | |
| **Total** | **517,081** | | **33,125** | **555,604** | **6%** | **26,798** | **81%** |

**Kemmerer Field Office**

| Forest Service LAU Name | Forest Service LAU Acres | BLM LAU Name | BLM LAU Acres | Combined Acres | % BLM Acres | BLM LAU Habitat Acreage | BLM LAU % Habitat |
|---|---|---|---|---|---|---|---|
| 31 | 55,422 | BLM - 31-1 | 223 | 55,645 | 0 | 61 | 27 |
| | | BLM - 31-2 | 1,894 | | 3 | 186 | 10 |
| | | BLM - 31-3 | 408 | | 1 | 112 | 27 |
| | | BLM - 31-4 | 1,738 | | 3 | 348 | 20 |
| 32 | 50,012 | BLM - 32 | 79 | 50,091 | 0 | 18 | 23 |
| 33 | 36,063 | BLM - 33-1 | 3,259 | 39,322 | 8 | 602 | 18 |
| | | BLM - 33-2 | 643 | | 2 | 287 | 45 |
| 34 | 46,991 | BLM - 34 | 2,259 | 49,250 | 5 | 1,298 | 57 |
| 35 | 53,785 | BLM - 35 | 6,720 | 60,505 | 11 | 2,779 | 41 |
| Fontenelle Creek | 40,326 | BLM - Fontenelle Creek | 1,241 | 53,155 | 2 | 705 | 57 |
| Greys River Northwest | 60,373 | BLM - Greys River Northwest | 233 | 60,606 | 0 | 233 | 100 |
| LInkage | 555,277 | BLM - Linkage 1 | 129 | 555,406 | 0 | 129 | 100 |
| | | BLM - Linkage 2 | 314 | | 0 | 314 | 100 |
| | | BLM - Linkage 3 | 39 | | 0 | 39 | 100 |
| Thomas Fork/ Upper Salt | 77,284 | BLM - Thomas Fork/Upper Salt 1 | 633 | 77,917 | 1 | 633 | 100 |
| | | BLM - Thomas Fork/Upper Salt 2 | 534 | | 1 | 534 | 100 |
| | | Commissary Ridge | 21,031 | | 100 | 10,205 | 49 |
| | | Dempsey Ridge | 18,776 | | 100 | 8,680 | 46 |
| | | Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 40 acres | | | | | |
| | | Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 81 acres | | | | | |
| | | Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 81 acres | | | | | |
| | | Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 123 acres | | | | | |
| | | Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 139 acres | | | | | |
| | | Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 436 acres | | | | | |
| **Total** | **975,531** | | **60,153** | **1,001,897** | **6%** | **27,163** | **45%** |

## Lander Field Office

| Forest Service LAU Name | Forest Service LAU Acres | BLM LAU Name | BLM LAU Acres | Combined Acres | % BLM Acres | BLM LAU Habitat Acreage | BLM LAU % Habitat |
|---|---|---|---|---|---|---|---|
| East Fork | 113,601 | BLM - East Fork | 18,163 | 113,601 | 16 | 995 | 5 |
| Fontier | 77,503 | BLM - Frontier | 29,127 | 77,503 | 38 | 1,080 | 4 |
| Warm Springs | 89,554 | BLM - Warm Springs | 23,197 | 89,554 | 26 | 2,326 | 10 |
| Wiggins | 135,187 | BLM - Wiggins | 19,992 | 135,187 | 15 | 1,317 | 7 |
| Wind River/Dunoir | 140,359 | BLM - Wind River / Dunoir | 25,134 | 140,359 | 18 | 5,175 | 21 |
| **Total** | **556,203** | | **115,611** | **556,203** | **21%** | **10,893** | **9%** |

## Pinedale Field Office

| Forest Service LAU Name | Forest Service LAU Acres | BLM LAU Name | BLM LAU Acres | Combined Acres | % BLM Acres | BLM LAU Habitat Acreage | BLM LAU % Habitat |
|---|---|---|---|---|---|---|---|
| Big Twin/Middle Beaver | 35,185 | BLM - Big Twin/Middle Beaver | 16,889 | 52,074 | 32 | 902 | 5 |
| Birch/South Beaver | 49,627 | BLM - Birch/South Beaver | 52,248 | 101,875 | 51 | 13,375 | 26 |
| Boulder Creek | 76,403 | BLM - Boulder Creek | 1,535 | 77,938 | 2 | 130 | 9 |
| Cottonwood Creek | 48,372 | BLM - Cottonwood Creek | 14,836 | 63,208 | 23 | 3,259 | 22 |
| Fontenelle Creek | 40,326 | BLM - Fontenelle Creek | 11,588 | 53,155 | 22 | 268 | 2 |
| LaBarge Creek | 52,406 | BLM - LaBarge Creek | 61,294 | 113,700 | 54 | 13,337 | 22 |
| Middle Beaver Creek | 21,539 | BLM - Middle Beaver Creek | 1,911 | 23,450 | 8 | 65 | 3 |
| Muddy Creek North | 37,036 | BLM - Muddy Creek North | 19,055 | 56,091 | 34 | 6,547 | 34 |
| Muddy Creek South | 52,354 | BLM -Muddy Creek South | 7,818 | 60,172 | 13 | 1,663 | 21 |
| North Horse Creek | 31,907 | BLM - North Horse Creek | 1,556 | 33,463 | 5 | 16 | 1 |
| Pine Creek | 63,992 | BLM - Pine Creek | 258 | 64,250 | 0 | 17 | 7 |
| South Beaver | 50,777 | BLM - South Beaver | 21,996 | 72,773 | 30 | 4,867 | 22 |
| South Horse Creek | 19,843 | BLM - South Horse Creek | 259 | 20,102 | 1 | 40 | 15 |
| Upper Hoback North | 78,835 | BLM -Upper Hoback North | 12,297 | 91,132 | 13 | 2,461 | 20 |
| Upper New Fork | 66,144 | BLM - Upper New Fork | 4,229 | 70,373 | 6 | 152 | 4 |
| **Total** | **724,746** | | **227,769** | **953,755** | **24%** | **47,098** | **21%** |

## Rock Springs Field Office

| Forest Service LAU Name | Forest Service LAU Acres | BLM LAU Name | BLM LAU Acres | Combined Acres | % BLM Acres | BLM LAU Habitat Acreage | BLM LAU % Habitat |
|---|---|---|---|---|---|---|---|
| 31 | 55,422 | BLM - 31-RS | 1,804 | 57,226 | 3 | 421 | 23 |
| Sandy/Lander | 55,820 | BLM - Sandy/Lander | 19,971 | 75,791 | 26 | 7,088 | 35 |
| Upper Big Sandy | 51,438 | BLM - Upper Big Sandy | 7,185 | 58,623 | 12 | 4,768 | 66 |
| **Total** | **162,680** | | **28,960** | **191,640** | **15%** | **12,277** | **42%** |

## Worland Field Office

| Forest Service LAU Name | Forest Service LAU Acres | BLM LAU Name | BLM LAU Acres | Combined Acres | % BLM Acres | BLM LAU Habitat Acreage | BLM LAU % Habitat |
|---|---|---|---|---|---|---|---|
| Wood River | 168,451 | BLM - Wood River 1 | 2,993 | 181,505 | 2 | 1,650 | 55 |
| | | BLM - Wood River 2 | 2,253 | | 1 | 1,412 | 63 |
| | | BLM - Wood River 3 | 6,323 | | 3 | 2,840 | 45 |
| **Total** | **168,451** | | **11,569** | **181,505** | **6%** | **5,902** | **51%** |

## Total for All Field Offices

| Forest Service LAU Name | Forest Service LAU Acres | BLM LAU Name | BLM LAU Acres | Combined Acres | % BLM Acres | BLM LAU Habitat Acreage | BLM LAU % Habitat |
|---|---|---|---|---|---|---|---|
| **Total** | **3,104,692** | | **477,187** | **3,440,604** | **14%** | **130,131** | **27%** |