

**APPENDIX B
DESIGN CRITERIA
And
MITIGATION MEASURES**

APPENDIX B – DESIGN CRITERIA, MITIGATION MEASURES, AND MONITORING

Design Criteria

Design criteria include practices such as Forest Plan Standards and Guidelines (S&Gs), USFS Region 2 Watershed Conservation Practices (WCPs), Best Management Practices (BMPs), and other similar works as they apply to the Mystic Range Project. They are actions that are applicable and expected to be followed or considered as a matter of standard operating procedures, and be consistent with the theme of a given alternative. Specific design criteria and mitigation measures described herein have been developed to be implemented as part of the action alternatives. Project implementation will incorporate all Forest Plan Standards and Guidelines. Forest Plan direction below is italicized.

Fisheries

The following U.S. Army Corps of Engineers, South Dakota Regional Condition should be implemented for any adaptive management actions that would need to be authorized under a Clean Water Act Section 404 Nationwide Permit. Examples include, armoring stream banks at water gaps or in-stream work for water developments. This regional condition is intended to meet Nationwide Permit #3 to protect spawning areas and specifically to protect fall spawning brook or brown trout.

In all South Dakota streams classified as cold water streams, when water flow is present, the discharge of dredged or fill material shall not take place between October 15 and April 1.

Soil, Water and Riparian Resource

Implement the following Region 2 Watershed Conservation Practices (USDA Forest Service 2006) as they pertain to livestock grazing:

Manage land treatments to limit the sum of severely burned and detrimentally compacted, eroded, and displaced land to no more than 15 percent of any land unit. “Land treatments” are human actions that disturb vegetation, ground cover or soil. “Land unit” is mapped land type polygon or a mapped soils unit (Regional WCP Handbook Standard 13) (FP standard 1103). Grazing in post-wildfire situations will be evaluated by an IDT based on burn severity, vegetative re-growth, and management objectives.

Adjust management in riparian areas and wetlands to improve detrimental soil compaction whenever it occurs. (Management Measure 3, Design Criteria (1)).

Manage land treatments to maintain enough organic ground cover in each land unit to prevent harmful increased runoff (Regional WCP Handbook Standard 2). (FP Standard 1112). Maintain the organic ground cover of each activity area so that pedestals, rills, and surface runoff from the activity area are not increased. The amount of organic ground cover needed will vary by different ecological types and should be commensurate with the potential of the site. (Management Measure 2, Design Criteria (a))

Manage land treatments to conserve site moisture and to protect long-term stream health from damage by increased runoff (FP Standard 1116). In each watershed containing a 3rd-order and

larger stream, limit connected disturbed areas so the total stream network is not expanded by more than 10%. Progress toward zero connected disturbed area as much as practicable. In watersheds that contain stream reaches in diminished stream health class, allow only those actions that will maintain or reduce watershed-scale Connected Disturbed Area. (WCP Management Measure 1, Design Criteria (a))

In the water influence zone next to perennial and intermittent streams, lakes and wetlands, allow only those actions that maintain or improve long-term stream health and riparian ecosystem condition. (Regional WCP Handbook Standard 3) (FP Standard 1301).

- Adjust management in riparian areas and wetlands to improve detrimental soil compaction whenever it occurs. (Management Measure 3, Design Criteria (l)).
- Allow no action that will cause long-term change to a lower stream health class in any stream reach. In degraded systems (i.e. At-risk or diminished stream health class), progress toward robust stream health within the next plan period. (Management Measure 3, Design Criteria (a))
- Allow no action that will cause long-term change away from desired condition in any riparian or wetland vegetation community. Consider management of stream temperature and large woody debris recruitment when determining desired vegetation community. In degraded systems, progress toward desired condition within the next plan period. (Management Measure 3, Design Criteria (b)).
- Manage livestock use through control of time/timing, intensity, and duration/frequency of use in riparian areas and wetlands to maintain or improve long-term stream health. Exclude livestock from riparian areas and wetlands that are not meeting or moving towards desired condition objectives where monitoring information shows continued livestock grazing would prevent attainment of those objectives. (Management Measure 3, Design Criteria (f))
- Keep stock tanks, salt supplements, and similar features out of the Watershed Influence Zone (WIZ) if practicable and out of riparian areas and wetlands always. Keep stock driveways out of the WIZ except to cross at designated points. Armor water gaps and designated stock crossings where needed and feasible. (Management Measure 3, Design Criteria (g))
- Maintain the extent of stable banks in each stream reach at 74 % or more of reference conditions. Consider degree of livestock trampling and riparian vegetation utilization on or immediately adjacent to stream banks when timing livestock moves between units. (Management Measure 3, Design Criteria (k))

Maintain long-term ground cover, soil structure, water budgets, and flow patterns in wetlands to sustain their ecological function, per 404 regulations. (Regional WCP Handbook Standard 6) (FP standard 1302). Avoid any loss of rare wetlands such as fens and springs. (Management Measure 6, Design Criteria (e))

*Allow use of forage by livestock and wildlife in fenced riparian pastures also long as it meets the objectives of maintain, enhancing, or conserving the riparian ecosystem and emphasis species persistence(**FP Standard 2507**).* Manage dry meadow and upland plant communities, including Kentucky bluegrass types that have invaded into wetland/riparian areas in a manner that will contribute to their replacement over time by more mesic native plant communities to the extent

practicable. Develop site-specific riparian stubble height standards or use the following default levels for Carex and Juncus species: 3-4 inches in spring-use pastures and 4-6 inches in summer or autumn use pastures; to leave adequate residual stubble height to retain effective ground cover. (Management Measure 3, Design Criteria (h)).

Convert season-long grazing systems to systems which require more intensive management, such as multiple-pasture deferred or rest rotation systems, as opportunities permit (FP guideline 2502). Do not allow livestock grazing through an entire growing season in pastures that contain riparian areas and wetlands. Apply short-duration grazing as practicable (generally less than 20 days) to minimize re-grazing of individual plants, to provide greater opportunity for re-growth and to manage utilization of woody species and reduce soil compaction. During the hot season (mid-to-late summer) manage livestock herds to avoid concentrating in riparian areas and wetlands. Apply principles of the Grazing Response Index to livestock management (USFS, 1996a). (Management Measure 3, Design Criteria (i))

Provide riparian habitat by maintaining or establishing shrub and tree species, and protect riparian habitat from animal damage if needed (FP Guideline 3210).

Provide riparian habitat diversity through vegetation treatments or in conjunction with other resource activities designed to maintain or improve wildlife or fisheries habitat and stream stability (FP Guideline 3211). Riparian enclosures or other structures that protect sensitive areas from livestock (i.e., archaeological site, springs, fens) that are not the responsibility of the permittee, should be inspected and maintained prior to “turn on” by the assigned resource group.

Manage for high quality riparian communities.

- a. *Provide for stable stream banks.*
- b. *Retain woody vegetation along streams and lakes to provide shading for aquatic life and habitat for terrestrial species.*
- c. *Provide large woody material for aquatic life (FP Guideline 3212).*

Range and Noxious Weeds/Invasive Plants

Acceptable type of livestock to be grazed is cattle. Acceptable classes of livestock are mature (cow with/without calf, bull - as needed for herd breeding) and yearling.

Proper Use or Residual Levels – Riparian/Uplands

2505 Livestock and wild herbivore allowable forage use or residual levels on rangelands by grazing system and range condition are as follows:

Proper Allowable Use Guidelines
(Percent Utilization by Weight Each Year)

<i>Season of Use</i>	<i>Satisfactory Condition</i>	<i>Unsatisfactory Condition</i>
<i>Continuous Use Spring/Summer</i>	0-45%	0-40%
<i>Continuous Use Fall/Winter</i>	55-60%	0-55%
<i>Deferred Rotation</i>	0-50%	0-45%
<i>Rest Rotation</i>	0-55%	0-55%

- *Residual levels (or remaining height of key plant species) will be prescribed for riparian areas in the allotment management plan (AMP) or the annual letter of operating instructions (AOI) to the livestock permittee. Residual levels will be based upon specific objectives for the location in question and will consider season of use and range conditions. Standard.*

Allowable use and/or residual levels:

- c. *Utilization of willows, shrubs, woody vines, or young deciduous trees (such as aspen, birch and oak) in any year by livestock or wildlife is limited to browsing 40 percent of the total individual leaders produced in that year (not to be confused with 40 percent use on each and every leader produced).*
- d. *Remove livestock from the grazing unit or allotment when further utilization of key areas in that year will exceed proper allowable use or prescribed residual level in the Forest Plan, AMP, or AOI for either grass and forbs or shrubs.*
- e. *No authorized utilization will be allowed by domestic livestock on known occurrences of willow emphasis species (e.g., *Salix candida*, *Salix serissima*, *Salix lucida*).*
- f. *Implement additional measures to assure avoidance of livestock use on *Carex alopecoidea*. Restrict livestock use of all portions of 5 of the largest geographically spaced occurrences at site number: (CAAL8-19, CAAL8-20, CAAL8-22, CAAL8-30, CAAL8-31).*

Design grazing systems to limit utilization of woody species. Where woody species have been historically suppressed, or where the plant community is below its desired condition and livestock are a key contributing factor, manage livestock through control of time/timing, intensity, and duration/frequency of use so as to allow for riparian hardwood growth extension and reproduction. Manage woody species in riparian areas to provide for stream temperature, bank stability and riparian habitat. (Management Measure 3, Design Criteria (j)).

Use salting to influence livestock distribution patterns. Do not salt within ¼ mile of water sources, eligible heritage sites, developed recreation sites, or hardwood stands.

Management of rangelands determined to be neither meeting nor moving toward satisfactory rangeland condition in an acceptable timeframe, shall cause actions designed to move toward satisfactory rangeland condition within a state timeframe to be implemented. (FP Objective 302). Maintain rangelands in satisfactory range conditions.

- *In the absence of a site-specific planning process and an Allotment Management Plan, management direction for ongoing rangeland management activities on active allotments need to be address rangeland conditions and trends and species viability will be incorporated into the grazing permits through the annual operating instructions (AOI).*
- Maintain existing range improvements as assigned in the term grazing permits.
- Reconstruct/replace existing range improvements as their useful life expectancy is amortized or to respond to natural disasters.
- Evaluate range readiness annually and adjust turn-on date as needed.

Locate new livestock/wildlife water sites (i.e., drinking structures) outside of hardwood communities, except when no other option is available (FP Standard 2207). Design and location of future water sites should evaluate the effects to hardwood communities within close

proximity (e.g., 1/8 mile) of proposed location and if necessary mitigate the effects of concentrated use on hardwood regeneration.

Convert season-long grazing systems to systems which require more intensive management, such as multiple-pasture deferred or rest rotation systems, as opportunities permit (FP Guideline 2502).

- Allotment conversion to Holistic Management will require commitment to the entire process of this type of management. Training, acceptance of methodology, and active participation for the entire livestock operation is necessary for success.
- Any allotment that becomes vacant in part or whole should be evaluated for designation as a “Forage Reserve Allotment.” Once designated, the allotment may be used in conjunction with authorized livestock use when there is a loss of forage availability from a variety of factors such as drought, fire – wildfire or prescribed, rangeland restoration activities, or litigation or consultation needs (FSH 2209.13, Section 13.3)

Developed recreation sites will be closed or restricted to grazing through use of fencing, as opportunities permit. However, grazing may be used as a management tool in these areas. Recreational livestock will normally be fed in designated areas (FP Guideline 2503).

The site-specific rangeland analysis necessary for preparation of allotment management plans shall document selected desired conditions and evaluate whether the designated area is at, moving towards, or moving away from, the desired conditions (FP Guideline 2504).

a. Satisfactory range conditions occur when the existing conditions are at, or progressing towards the desired conditions identified through the project planning process.

b. When trends toward satisfactory range conditions are not achieved within 5 years by changes in grazing systems, allowable use or residual guidelines, more restrictive use or residual guidelines, changes to the grazing system shall be adopted, or cattle use be removed or relocated for a period of time.

- Evaluate utilization and adjust pasture move dates and move-off dates based on allowable use standards.
- When long-term drought situations occur, range permittees should be notified with a personal contact and followed up in writing that reductions in season or livestock numbers may be anticipated.
- Develop Drought Management approach based on any anticipated changes in rainfall and snowfall patterns, or shifts in phenology of growing season.

Use of roads and trails by permittees or their employees should be in compliance with the Black Hills National Forest Travel Management Plan. Deviations for administrative use needs may need evaluation and authorization by the District Ranger.

Permittees will not trail livestock across another permittee’s assigned allotment or pasture without consultation with the affected permittee and authorization from the Forest Service.

Ground disturbing activities such as installation of water developments, pipelines, fences or enclosure require both heritage resource and sensitive species surveys and approval by a Forest Service archeologist, botanist, and wildlife biologist prior to construction.

Initiate re-vegetation as soon as possible, not to exceed 6 months after termination of ground-disturbing activities. Re-vegetate all disturbed soils with native species in seed/plant mixtures that are noxious-weed free. On areas needing immediate establishment of vegetation, non-native, non-aggressive annuals (E.G., wheat, oats, rye) or sterile species may be used while native perennials are becoming established, or when native species are not available (e.g., during drought years or years when wildfires burn large acreages in the United States). Other aggressive non-native perennials (e.g., smooth brome, timothy) will not be used. Seed will be tested for noxious weeds. If mulches are used they are to be noxious-weed free. Weed-free alfalfa seed may be used only when native legume seed is not available and only when there is extensive disturbance associated with road construction or mine reclamation where top soil is no longer available (FP Standards 1110). Ground disturbing equipment used for construction or maintenance of range improvement should be free of weed seed or plant parts that could result in introduction or spread of non-native invasive plants.

For all proposed projects or activities, determine the risk of noxious-weed introduction or spread, and implement appropriate mitigation measures and treatment (FP Standard 4301).

Wildlife, Botany and Biodiversity

Management Indicator Species: *The following species should be used as management indicator species (MIS). The indicators or their habitats will be monitored to indicate overall changes in the forest ecosystem. MIS will generally be monitored using trends in habitat; however, when available, population trends may be used as a strong indicator of management response.*

Population monitoring will be discretionary as provided by 35 CFR 219.14f (Forest Plan p. II-32)

- *Black-backed woodpecker (Picoides arcticus)*
- *Brown creeper (Certhia americana)*
- *Golden-crowned kinglet (Regulus satrapa)*
- *Grasshopper sparrow (Ammodramus savannarum)*
- *Ruffed Grouse (Bonasa umbellus)*
- *Song sparrow (Melospiza melodia)*
- *Beaver (Castor canadensis)*
- *White-tailed deer (Odocoileus virginianus)*
- *Mountain Sucker (Castostomus platyrhynchus)*

The following are objectives for management indicator species (MIS). MIS will be monitored using trends in habitat; however, when available, population trends may be used as a strong indicator of management response. Monitoring will be conducted at a Forest scale and not at the project level. Population monitoring will be discretionary as provided by 219.14. f (Objective 238).

- a. *Maintain or enhance habitat for ruffed grouse, beaver, song sparrow, grasshopper sparrow, white-tailed deer and brown creeper; as outlined in specific direction pertaining to aspen, other hardwoods, riparian areas, grasslands, spruce and ponderosa pine (e.g., Objectives 201, 205, 211, 239-LVD, 5.1-204).*

- Avoid any ground disturbing activities within montane grasslands (i.e., Lemming Draw, Gillette Prairie, Slate Prairie, Reynolds Prairie, and Bald Hills) and meadows to protect from invasion of non-native species, increaser species, and noxious weeds.
 - Development of livestock facilities (corrals, water developments) in montane grasslands should be avoided to protect native plant habitat.
 - Prevent degradation of beaver complexes by livestock use. Monitor livestock use of beaver ponds. Use various methods to control livestock damage to beaver dam structures and surrounding habitat.
- a. *Maintain or enhance habitat quality and connectivity for mountain suckers, as outlined in specific direction pertaining to aquatic resources (e.g., Objectives 103, 104, 215, Standards 1201, 1203, 1205, Guideline 1115)*
- Where water development structures intercept water from a seep, spring or creek, install floats and/or shut-off valves to regulate inflow to livestock watering tanks, to allow natural flow from spring, seep or creek to continue.
 - Water impoundments on intermittent streams should be designed to allow a majority of water to flow downstream and not create a barrier to fish species.

During the planning period conserve existing hardwood communities by 10 percent over 1995 conditions on sites capable of supporting these communities (FP Objective 201). Maintain or enhance existing riparian area biodiversity, physical structure, and size (FP Objective 213).

- Establish annual monitoring items for browsing of hardwoods in riparian areas and outside of riparian areas.
- Develop associated adaptive management triggers that would prevent degradation of hardwood communities. Maintain a mix of young and mature aspen stands within allotment pastures. Restrict livestock grazing in hardwood (e.g., aspen/birch) regeneration areas for at least 2 years or until suckers are established above grazing height.

Manage for 122,000 acres of prairie grassland and 3,600 acres of meadow during the life of the Plan. Restored acres will not be considered suitable for timber production (FP Objective 205).

Maintain suitable grassland areas (>30 ha) to support populations of grasshopper sparrows. Utilization standards and grazing systems should allow climax successional stages in grasslands, create mosaic of various stubble heights (patches), and leave some areas untreated to provide refuge for fledglings or late or re-nesting pairs. If feasible in these grassland areas, grazing should be conducted after (August 15) nesting season. Ungrazed areas (refugia) should be away from trees, private land buildings to reduce disturbance, predation, and nest parasitism.

Manage known sensitive species and species of local concern snail colonies to:

- a. *Retain overstory sufficient to maintain moisture regimes, ground level temperatures, and humidity.*
- b. *Retain ground litter, especially deciduous litter.*
- c. *Avoid burning, heavy grazing, off-highway vehicles (OHVs), heavy equipment, and other activities that may compact soils or alter vegetation composition and ground cover.*
- d. *If prescribed burning is unavoidable, burn when snails are hibernating, usually below 50 degrees Fahrenheit, and use fast-moving fires to minimize effects to snails.*
- e. *Control invasive weeds, but use herbicides when snails are not on the surface, and treat*

individual plants rather than broadcast application (FP Standard 3103).

A R2 sensitive species or species of local concern located after contract or permit issuance will be appropriately managed by active coordination between permittee, contractor or purchaser, Forest Service line officer, project administrator, and biologist and/or botanist. Solutions need to be based on the circumstances of each new discovery and must consider the species need, contractual obligations and costs, and mitigation measures available at the time of discovery (FP Standard 3115).

When completing structure maintenance, improvement or construction: *From April 1 through August 15, minimize additional human-caused noise and disruption beyond that occurring at the time of nest initiation (e.g., road traffic, timber harvests, construction activities) within one-half mile of all active goshawk nests up until the nest has failed or fledglings have dispersed (FP Standard 3111).*

Protect known raptor nests. Consider potential effects of disturbance, nesting phenology, human activities existing at onset of nest initiation, species, topography, other R2 sensitive species and plant species of local concern, forest cover, nest protection standards and recommendations used by state or federal agencies, and other appropriate factors when designing protection (FP Standard 3204).

Where livestock management conflicts with bighorn sheep lambing areas, preference shall be give to bighorn sheep from April 1 through June 15 (FP Standard 3216). In pastures that overlap bighorn sheep concentrated use areas, look for opportunities to reduce livestock use of foraging areas during the summer and early fall to increase lamb survival and reduce their susceptibility to enzootic diseases.

Manage and/or install structures to provide water for livestock and to protect the aquatic, shoreline and upland vegetation around ponds or water catchments containing leopard frogs (FP Objective 240-HAB). Expand spring/seep exclosures (new and existing) to include associated riparian communities (e.g., willows, sedges) to protect the water source from livestock trampling.

Do not develop springs or seeps as water facilities where sensitive species or species of local concern exist unless development mitigates an existing risk (FP Standard 3104).

- Limit the amount of springs/seeps developed in a pasture to ensure natural conditions for wildlife and aquatic species.
- Prior to development of new watering facilities in the allotments, existing watering facilities should be improved and/or maintained to acceptable standards. Funding should focus on maintenance of current structures unless there is an identified resource concern that warrants a new water development.
- Install and maintain wildlife escape ramps in all watering tank structures to prevent accidental death of birds and small mammals due to drowning. Design and installation of escape ramps should be proven to be the most effective in preventing drowning of wildlife. Annually clean stock tanks to remove floating debris and algae.

Structures, such as fences and roads will be designed and built so that they do not create unnecessary or unreasonable barriers or hazards for wildlife and people (FP Guideline 3202).

Riparian areas or wetlands where populations of sensitive species are located are to be avoided during ground disturbing activities. Use one or more of the following (or other mitigation measures) tied to the site-specific conditions for disturbances adjacent to known occurrences:

- a. Avoid removing riparian or wetland vegetation; filling or dredging the riparian area or wetland; diverting stream flow from the current channel.*
- b. Prevent storm runoff from washing silt into the stream or wetland.*
- c. Reseed and/or replant cut and fill slopes with native seed and/or native plants promptly to control erosion and for prevention of noxious-weed infestations. Use appropriate measures to control erosion on disturbed areas that are steep, are highly erosive, and/or adjacent to the riparian area.*
- d. Timing, placement, and installation of temporary stream diversions shall allow passage of aquatic life and protect sensitive and species of local concern (FP Standard 3106).*

Prescribed Burning

Consider habitat needs (survey as appropriate) of regal fritillary and Atlantis fritillary butterflies prior to prescribed burning on prairies and meadows. This is especially important for prescribed burns scheduled from September through April. Design the project to conserved important habitat components of known sightings (FP Guideline 3105). Prescribed burns within montane grasslands should be low intensity to maintain soil/litter layer and plant rooting zone of most native plants. Treatments should be completed in the late fall and winter months after the nesting season (mid-May through early August) and prior to spring green-up to maintain host and nectar species for butterflies, and provide suitable nesting cover for grassland bird species.

For Fire Control Lines: Protect heritage resources, R2 sensitive species and plant species of local concern (SOLC), botanical areas (BAs), research natural areas (RNAs), streams, stream banks, shorelines, lakes and associated vegetation from degradation by wildfire suppression efforts.

- b. Avoid the use of earth-moving equipment within natural register eligible heritage resource sites, known locations of R2 sensitive species and SOLC plants, BAs, RNAs, or in stream channels, except at designated points and with proper mitigation (FP Standard 4102).*

Defer prescribed burned areas from livestock grazing for a portion or all of the following growing season to ensure re-growth of forage species (FP Guideline 4107).

Promote revegetation of prescribed burned areas.

- a. Following broadcast burning, seed to initiate revegetation if ground cover is 60 percent or less and slopes are 30 percent or more (FP Guideline 4106).*

Prescribe burn no more than 60 percent of any contiguous grassland area at a time and burn in early spring or fall (FP Standard 3125). Avoid large, uniform, continuous treatments in grasslands to maintain a variety of stubble heights, maintains plant species that are considered larval host and nectar species, and provides foraging and cover habitat for wildlife species. Treatment blocks should be small (approximately 27-40 acres in size) and scattered with

treatments patches as part of a larger mosaic, ensuring a variety of successional grassland community stages. Treatments should be on a long rotation of ≥ 5 years, with less than 50% of these small units being affected in a given year. No treatment should occur at the same time or in consecutive years in adjacent blocks within the larger grassland area.

Management Area Specific:

Allow livestock grazing if it does not conflict with the values for which the botanical area was designated (FP Standard 3.1-2501)

Allow new improvements only when they are necessary to maintain, restore or enhance the values for which the botanical area was designated (FP Guideline 3.1-2502).

Restrict access of domestic livestock to protect R2 sensitive and species of local concern occurrences in designated Botanical Areas (FP Standard 3.1-2503).

Locate or design structural improvements to meet Scenery Integrity Objectives (FP Guideline 4.1-2502).

Design livestock management strategies including distribution and stocking rates to be compatible with big-game habitat objectives (FP Standard 5.4-2501). Feature big game use of forage increases that result from the vegetative improvements, while also allowing for livestock increases. Follow forest-wide proper allowable use guidelines or residual levels documented in AMPs or AOIs for combined use by wildlife and livestock (FP Guideline 5.4-2502). In MA 5.4 and MA 5.4a, when opportunities arise, consider not re-issuing livestock permits when they become vacant and removing livestock from pastures during the late summer and early fall in order to leave adequate forage for big game, and prevent over utilization of hardwoods and shrubs (See FP Norbeck Direction). During drought conditions, livestock use should be limited to provide forage and cover habitat for big game and other wildlife species.

Existing livestock grazing may continue: permits may be reissued to existing or new permittees. Do not permit any increase in livestock numbers (animal months) (FP Standard 5.4A-2501).

Take advantage of opportunities to transfer forage use from livestock to wildlife (FP Guideline 5.4A-2502).

Livestock grazing may be used intermittently as a management tool (even in areas designated unsuitable for livestock grazing) to improve habitat conditions, e.g., to control noxious weeds (FP Guideline 5.4A-2505).

In Norbeck Wildlife Preserve: Prevent habitat degradation adjacent to water sources.

- a. Do not permit livestock access to created water sources except impoundments of less than three acres.*
- b. Unregulated livestock access to water impoundments behind dams must be less than 50 percent of the impoundment perimeter.*
- c. Maintain late seral stage vegetation on at least 20 to 50 percent of the area within a 100 to 400 foot radius around all created water resources, except*

impoundments behind dams (FP Guideline 5.4A-2503).

Heritage

Recognize American Indian religious and spiritual beliefs regarding the disposition of human remains and make provisions for their proper reburial and treatment according to applicable FSM. (FP standard 7102). Tribes will be notified if culturally significant artifacts or burial sites are found during project implementation.

Consider long-term Forest management needs in determining appropriate use of mitigation of effects to, or avoidance of, heritage resources during project planning (FP Guideline 6101).

Local Native American groups have been contacted and responses solicited concerning this project. On-going consultation with members of the local Native American community would aid in identification of specific locations and issues of concern. Any identified religious or sacred site would be protected in accordance with the Native American Religious Freedom Act (P.L. 95-341). Additionally, contemporarily used Native American resource areas would be identified and protected, and perpetuation of traditionally used flora and fauna encouraged by Forest Service land management.

Heritage sites located within treatment areas will be marked according to specifications provided in FS Manual 2309.24 and FSH 2361.28. Marked heritage sites will be avoided during any land disturbing activities associated with the proposed treatments.

It is recognized heritage resources may be present in the subsurface with no surface manifestation. Therefore if additional heritage resources are discovered during earth disturbing (i.e. cattle guard installation) activities, all operations must cease within a 300 ft. (100 meter) radius of the site and a forest archeologist notified immediately. Any additional heritage resources located during project implementation will be protected based on recommendations of the district archeologist and State Historic Preservation Officer. All sites will be evaluated under the terms specified in 36 CFR 60.4 and 36 CFR 800 and applicable Forest guidelines [FP Guidelines 4102, 6101, 6106] (USDA Forest Service 2001). If a heritage resource site is damaged during project implementation, work at and within the immediate vicinity of the site will cease until a Forest Service archeologist evaluated the damage, make stabilization recommendations, and determines what additional protective measures are needed to protect the site. Project work will not restart until authorized by either the District or Forest Archeologist.

Heritage sites with exposed burnable material will be protected by manually removing surrounding/interior fuels, foaming wooden structures, building fire lines around sites, using back-fires or a combination of measures to be determined on-site by the District or Forest Archaeologist, depending on the site's location. If no protective measures can be effectively applied, sites will be avoided during prescribed burning activities. Each of the proposed prescribed burn areas has protected sites within the boundaries. These areas will need to be avoided by broadcast burn activities. Some pile burning may occur within or adjacent to the protected sites with coordination with the district archeologist. A detailed information packet will be available for these fuel reduction projects, and on the ground identification of the site boundaries will be accomplished by the heritage resource staff prior to implementation. All Forest Service and out-service personnel who may be working in the area of a site will be

advised that under the provisions of 36 CFR 261.9, the following are prohibited: digging in, excavating, disturbing, injuring, or destroying any archeological, paleontological or historic site; or removing, disturbing, injuring, or destroying an object in such a site. A Burn Plan will need SHPO concurrence prior to any burning activity.

No ground disturbing activities (operating heavy machinery) will be allowed within a 35m-perimeter of the designated site boundary. Any maintenance to existing roads must stay within existing road prisms. Heavy equipment will not drive through or park within the site boundary, except within existing road prisms.

There is one known cave in the project area. As per Guideline 1401, this resource will be managed to protect or enhance biological, cultural, ecological, hydrological, and physical characteristics.