

1. BACKGROUND

This Allotment Management Plan was developed following a Decision Notice on the Environmental Assessment for Irishman Dam Allotment, signed by Martie Schramm, Williams District Ranger, on September 1, 2011.

The Irishman Dam Allotment consists of 7 pastures which include approximately 14,867 Forest Service acres south-southeast of Ash Fork, AZ. The Allotment is in both Coconino and Yavapai Counties, and is located on either side of Interstate 40 and Highway 89. The Allotment is located within all or portions of: T22N, R1W, Sections 32-33; T21N, R1W, Sections 4-9, 17-19, 30-31; T20N, R2W, Sections 1-4, 10-12; T21N, R2W, Sections 12-14, 22-27, 34-36.

Piñon/juniper woodland, piñon/juniper savanna, grasslands, and shrublands are the dominant vegetation types on the Allotment. The topography within the Allotment is mostly flat with a mean elevation of 5,300'. The Mogollon Rim is a relatively high elevation escarpment that lies to the east of the Allotment. Johnson Creek and Meath Wash are ephemeral drainages that cross the Allotment and are part of the Verde Watershed. These drainages flow during periods of spring snow melt and heavy monsoon storms. No wetlands or springs are known to occur on the Allotment.

Permitted livestock numbers on the Irishman Dam Allotment were increased in the 2011 Decision from 75 adult cattle (900 Animal Unit Months, AUMs) to 85 adult cattle (1,020 AUMs) because of a 552-acre pasture acquisition from the neighboring Hat Allotment. The permitted grazing period is yearlong. The Allotment is divided into 7 grazing pastures, and utilizes a 7-pasture rest-rotation grazing system (Allotment Map on Appendix A, Figure1).

2. DESIRED CONDITIONS

The overall desired condition is the maintenance of sustainable ecosystems within and surrounding the Irishman Dam Allotment in which livestock grazing does not impair important ecosystem functions. This includes providing habitat to support abundant wildlife populations, providing high-quality water resources, maintaining soil stability and productivity, and maintaining vegetative diversity and productivity.

Specific desired conditions that apply to the Irishman Dam Allotment include the following:

Vegetation

- Maintain a stable to upward trend in total vegetative ground cover and range condition.
- Provide for a diversity of cool and warm season plants, and maintain a stable to upward trend in cool season grasses.
- If detected, protect Threatened, Endangered, and/or Sensitive plant species from adverse effects caused by livestock grazing and grazing management activities.
- Eradicate or control as many existing populations of noxious weeds as possible and prevent new introductions of noxious weeds caused by livestock management activities.

Soils and Watershed

- Minimize erosion caused by livestock grazing and grazing management activities by maintaining a stable to upward trend in soil condition and maintaining or increasing vegetative cover across the Allotment.
- Protect watershed resources such as ephemeral lakes and ephemeral stream channels and downstream water bodies from adverse effects caused by livestock grazing and grazing management activities.

Wildlife

- Maintain sufficient levels of cover and forage throughout the grazing period to support wildlife populations utilizing the Allotment.
- Protect Threatened, Endangered, and/or Sensitive wildlife species from adverse effects caused by livestock grazing and grazing management activities.

Recreation and Heritage

- Manage livestock grazing to minimize adverse effects on recreation activities and developments.
- Protect heritage resources from adverse effects caused by livestock grazing and grazing management activities.

3. MANAGEMENT STRATEGY

Livestock grazing is authorized on the Irishman Dam Allotment under the terms and management prescriptions described below:

- a) The number of permitted livestock is 85 adult cattle with a yearlong grazing period (365 days); a maximum of 1,020 AUMs.
- b) The grazing strategy must allow adequate deferment or rest. Therefore, the grazing strategy will be a 7-pasture rest-rotation system. However, flexibility in this grazing strategy will be provided through an adaptive management approach that provides opportunities for resource benefit when resource issues are identified. See Table 1 for approximate grazing periods in each pasture.

Table 1: Pastures, AUMs, and estimated grazing periods for the Irishman Dam Allotment				
Pasture	Acres	Total Estimated AUMs Available to Livestock and Wildlife	Estimated Days/Pasture	Estimated Months/Pasture
Meath	2,313	593	45	1.48
Mexican	2,175	710	54	1.77
Middle	3,152	1,055	80	2.63
Miller	1,744	647	49	1.61
North	2,571	709	54	1.77
Putney	2,360	907	69	2.26
West Winter	552	197	15	0.49
Total	14,867	4,818		

Values shown are estimates based on 2010 comparative yield data. These values are expected to vary annually. Monitoring and adaptive management will be implemented to address changing conditions.

The following items were approved in the 2011 Decision. The Permittee must coordinate with the Forest Service at least 2 weeks prior to the initiation of any ground disturbing project. Forest Service funds may or may not be available for these projects. See Appendix A, Figure 1 for general locations of the proposed improvements.

1. Three new livestock corrals will be constructed to improve livestock handling capabilities in Meath, Mexican and Middle Pastures (one in each pasture) by the grazing permittee following archeological clearances. Mexican and Middle Pasture corrals will be approximately 150' by 150' (0.52 acres) and the Meath Pasture corral will be approximately 300' by 300' (2.1 acres). The grazing permittee will be responsible for the maintenance of new corrals.
2. Two Trick Tanks with 12,000 gallon storage tanks will be constructed near the proposed corrals in Meath and Middle Pastures (one in each pasture) to improve livestock distribution following archeological clearances. Escape ramps will be installed in all water troughs and storage tanks that wildlife can access. The grazing permittee will be responsible for the maintenance of new trick tanks.
3. Two roadside earthen tanks will be constructed in the Meath and Mexican Pastures (one in each pasture) to improve livestock distribution following archeological clearances. The grazing permittee will be responsible for the maintenance of new earthen tanks.
4. Approximately ¼ to ½ mile of new fence will be constructed to better secure the southern boundary of the West Winter Pasture. This east/west fence will be built just north of the current fence, and north of the cinder pit.

- 4. RESOURCE PROTECTION AND MITIGATION MEASURES** –The Annual Operating Instructions will incorporate specific and/or additional measures as needed per the adaptive management strategy.

Grazing Practices

- a) The maximum allowable use will be 40% utilization in Key Areas. These grazing utilization limits can be exceeded in the limited areas where livestock concentrate (e.g., areas within 1/4 mile of water developments and temporary water hauls, salt and supplement stations, areas within 1/10 mile of pasture gates, etc.).
- b) Consider a variety of factors related to drought when making decisions on annual authorization of livestock numbers and grazing period, including:
 - The amount and timing of precipitation received at weather stations nearest to the Allotment.
 - Current and past forage production as they both contribute to available forage.
 - Current and projected amount and distribution of water available to livestock (Howery 1999, Forest Service 2006).
- c) Permittees must distribute livestock throughout the suitable grazing areas of each pasture using appropriate methods. These methods include, but are not limited to, the placement of salt and supplements, water hauling, and/or herding.

Soil and Watershed

- d) Follow applicable Best Management Practices for range management from the *Soil and Water Conservation Practices Handbook* (Forest Service Handbook 2509.22) to minimize soil and watershed impacts caused by livestock grazing and grazing management activities. The following are the primary practices for this Allotment:
 - Monitor ground conditions before and during any future construction activities to avoid wet ground conditions that can negatively affect soil condition and water quality. Work on all projects (stock tanks, pipelines, trick tanks, fences, power line, roads, etc.) may only be conducted when soils are dry enough to support heavy equipment without creating compaction, ruts, or erosion.
 - Graze at a level that maintains adequate cover to protect soils and maintain or improve the quantity and quality of desirable vegetation. This practice will be applied through the utilization guidelines described above.

- Microphytic (cryptogamic) soil crusts may exist on the Irishman Dam Allotment primarily on soils that contain a high proportion of sand. Livestock can trample microphytic crusts when they trail through the area. To mitigate the potential negative affect to microphytic soils from livestock, salting would not be allowed on soil types within TES Units that contain a high proportion of sand and are readily accessible to livestock grazing. See Appendix B (Figure 2) for a map showing areas where caution should be taken when salting. However, not all soils in these areas have sandy surface textures. Placing of mineral supplements should be avoided on large areas (i.e. 100 ft. radius) where surface textures are sandy. Please see Appendix B for a method of determining sand content.

Noxious Weeds Management

e) Follow applicable direction in the *Final Environmental Impact Statement for Integrated Treatment of Noxious or Invasive Weeds* to minimize the risk of new weed infestations caused by livestock grazing and grazing management activities. Examples includes:

- Implement weed prevention and control practices in the management of grazing Allotments.
- Utilize weed-free hay to the extent possible.
- Maintain healthy, desirable vegetative communities to promote resistance to weed invasions.
- Minimize soil disturbance to the extent practical.
- Promote weed awareness and prevention efforts among community members and grazing permittees.
- Remove mud, dirt, and plant parts from equipment before moving it into the area. This practice does not apply to vehicles traveling frequently in and out of the project area that will remain on a clean roadway.
- Prohibit work in areas that have large infestations of weeds until the weeds are controlled.
- Control the weeds means at least removing all above ground plant parts and seeds that could be spread by project activities. Clean all equipment before leaving the infested project site. Seeds and plant parts need to be collected when practical and incinerated (or bagged and solarized before sending to a landfill).

Wildlife

- f) Remove existing fence on the Allotment that is considered unnecessary by the grazing permittee and the Forest Service.
- g) Where necessary, install “goat bars” on fencing to facilitate pronghorn antelope passage at specific locations identified by Forest Service Biologists. Bottom wires (i.e., strands) that are currently barbed will be replaced with smooth wire 18 inches above the ground on all rebuilt fences within the Allotment. Top strands are to be no higher than 42 inches above the ground. All new fences will meet standards for wildlife passage as stated by Forest Service Biologists. Completion of such fence improvements will be dependent on funding.

Sensitive Plant Species

- h) Sensitive plant surveys would be completed in suitable habitat before the construction of new range improvements. Surveys will not be necessary if the construction will occur in an area that is already disturbed, such as existing roads and ditches or existing earthen tanks. If sensitive plant species are located, coordination with a Forest Service Botanist would occur to mitigate impacts as needed (i.e. flagging specific plants and adjusting the location of the improvement).

Recreation and Visual Resources

- i) Newly constructed features will be designed to meet the scenic integrity level requirements. Materials, colors, and textures will be selected so that the structure is not evident to the casual observer (i.e. materials for corrals and trick tank will be matte finish and blend with the vegetation, if possible made of wood or other natural material; the design of roadside tanks will take implement a low-profile design).
- j) Water developments will be avoided in the foreground (0 - 1,320' from the highway shoulder) from of the Highway 89 corridor and will be designed to blend into natural contours or landforms where-ever possible and will utilize the low-profile design. Scenery and Recreation Mangers will be consulted for the placement and design of the roadside earthen tanks.
- k) Access clearing along fence lines will not exceed 15 feet and is restricted primarily to one side of the fence line.
- l) When performing maintenance on existing range and wildlife improvements, take measures to reduce or minimize negative or unnatural appearing features whenever possible. Consult with Scenery and Recreation Managers prior to maintenance.
- m) Scenery and Recreation Mangers will be consulted for the placement of the two trick tanks with 12,000 gallon storage tanks in Meath and Middle Pastures.

Heritage Resources

- n) Proposed activities associated with Allotment improvements will be evaluated and managed to avoid adversely effecting cultural resource in accordance to Appendix H Standard Consultation Protocol for Range Land Management, of the Region 3 First Amended Programmatic Agreement 17 Irishman Dam Allotment Environmental Assessment. Before initiating any construction activities, the South Zone Archaeologist will be notified at least 2 weeks in advance to ensure the proposed activities have heritage resource clearance prior to implementation.
- o) Livestock management practices that concentrate cattle, such as placement of salt and construction of water developments, will be located so that there are no effects to heritage resources.
- p) Should any unrecorded prehistoric or historic archaeological sites be encountered within these Allotments, they should be reported to the South Zone Archaeologist.
- q) Archeological sites within these Allotments will be monitored. If cattle are using these sites for shelter and impacting the site, the shelter should be excluded from future livestock grazing.
- r) Should any tribes identify any plants within the Allotments having traditional importance, rangeland specialists and South Kaibab heritage staff would work together to ensure that grazing management is allowing for natural regeneration of such plants.

5. MONITORING

Monitoring frequency varies by each activity and may be accomplished by either the permittee and/or Forest Service personnel. Monitoring is adaptive, and as improved methods are developed these new methods would be considered.

Implementation Monitoring: Within key areas of the Irishman Dam Allotment, annual monitoring will be conducted, and may include the evaluation of grazing intensity during the grazing season and/or at the end of the growing season. This information will facilitate adaptive management and allow the implementation of management changes needed for plant development and plant recovery from the grazing event. Managing for plant development and recovery will provide for increased ground cover and potential changes in species composition. Example methods for implementation monitoring may include, but is not limited to, permit compliance, Allotment inspections, range readiness, forage production, rangeland utilization, comparative yield, grazed plant count, paired plot clipping and weighing.

Effectiveness Monitoring: Long term condition and trend monitoring will be used to assess the effectiveness of management in achieving desired objectives. This monitoring may include, but is not limited to measurements that evaluate upland vegetation and soil conditions to ensure that they are moving towards the desired conditions. Example methods for effectiveness monitoring may include condition and trend, invasive species, soil and watershed conditions, dry weight rank, pace transects, pace quadrat frequency, ground cover, and repeat photography. Monitoring will occur on historic benchmarks, which correspond with key areas. Depending upon the method selected, monitoring should occur at an interval of at least every 5-10 years in key areas.

Permit Compliance: Throughout each grazing season Forest Service personnel will monitor to determine accomplishments of the permit terms and conditions, the AMP, and the AOI.

Allotment Inspections: Allotment inspections are a written summary documenting compliance monitoring to provide an overall history of that year's grazing. This document may include weather history, the year's success, problems, improvement suggestions for the future, and a monitoring summary.

Range Readiness: Forest Service personnel and/or the grazing permittee would assess range readiness prior to cattle coming onto spring pastures to determine if vegetative conditions are ready for cattle grazing. The range is generally ready for grazing when cool season grasses are leafed out, forbs are in bloom, and brush and aspen are leafed out. These characteristics indicate the growing season has progressed far enough to replenish root reserves so that grazing would not seriously impact these forage plants.

Rangeland Utilization: Long-term condition and trend monitoring is the primary standard for monitoring of this grazing management system. Utilization is used as a tool to understand and achieve the goals of long-term management. Utilization guidelines are intended to indicate a level of use or desired stocking rates to be achieved over a period of years.

The definition of utilization and seasonal utilization is adapted from standard protocols established by the Society of Rangeland Management and the new guidelines established by Region 3 Regional Forester (Smith et al. 2005). The following definitions and procedures for utilization were taken and adapted to fit this project:

Utilization is the proportion or degree of current year's forage production that is consumed or destroyed by animals (including insects). It is a comparison of the amount of herbage left compared with the amount of herbage produced during the year. Utilization is measured at the end of the growing season when the total annual production can be accounted for and the effects of grazing in the whole management unit can be assessed. Utilization guidelines are intended to indicate a level of use or desired stocking rate to be achieved over a period of years.

Utilization measurements (ocular and/or actual measure) will be taken in key areas which would reflect grazing effects within the Allotment. Utilization guidelines are not intended as inflexible limits. Utilization measurements can indicate the need for management changes prior to this need being identified through long term monitoring. Utilization data would not be used alone, but would be used along with climate and condition/trend data, to set stocking levels and pasture rotations for future years.

Cattle will move when utilization in a pasture approaches the 40% level. This is an approximate value because it takes into account any additional growth which might occur later that year and considers season of use, wildlife use, weather conditions, availability of forage, and water in pastures. This utilization level leaves residual cover for wildlife and soils and provides for long term health of the grazed plants.

If monitoring shows utilization rates exceed the utilization guideline in a given year, the grazing schedule and/or permitted numbers would be adjusted the following year so utilization guidelines are not exceeded again. If utilization is exceeded after these adjustments are made, then the grazing management system would be changed to ensure this does not happen in the future.

Condition and Trend: Watershed and vegetative condition and trend monitoring would determine the effectiveness of the Allotment Management Plan, and long-term range and watershed trends.

Parker Three-Step and paced transect monitoring points were established throughout the Allotment in the 1953. Transect data from these monitoring points is the best historic records of range condition and trend available. The photo points and vegetative ground cover data show how the site has changed over time. One-tenth acre canopy cover plots and pace-frequency transects were established on top of the Parker Three-Step transects in 2010 to supplement this historic data.

Frequency and ground cover data were collected using the widely accepted plant frequency method (Ruyle 1997). These plots monitor trends in species abundance, composition, and ground cover. This would provide information on plant composition and additional information on plant community dynamics.

Precipitation: Precipitation is currently recorded at the Flagstaff National Weather Service Office at Bellemont. Precipitation data may be recorded within or near the Allotment for more localized information. Precipitation data may be recorded throughout the year and summarized in the annual inspection. This data assists managers with forage utilization and production data collection.

Noxious Weeds: Noxious and invasive weeds located within the Allotment would be treated as necessary. The grazing permittee and Forest Service would coordinate weed inventory and treatment activities with responsibilities identified through the AOI. The design features, best management practices, and mitigation measures in Appendix B of the Three Forest Integrated Treatment of Noxious or Invasive Weeds Environmental Impact Statement will be implemented (USDA Forest Service 2005).

Soil and Watershed Condition: The current and proposed cattle grazing system incorporates best management practices (BMP) and grazing practices and constitutes compliance with Arizona State and Federal Water Quality Standards. Arizona Department of Water Quality (ADEQ) would continue to monitor water quality in the area.

Watershed condition can be assessed using information from the monitoring schemes above. Monitoring of plant abundance, ground cover, species diversity, and estimates of overall soil condition (using the methods described throughout this monitoring section) would indicate whether or not management practices are effectively meeting management goals. Trends toward improvements in species abundance and diversity should indicate that management practices are effectively improving soil condition and, by inference, maintaining or improving downstream water quality and complying with water quality standards. Conversely, decreases in plant abundance and species diversity may indicate that management practices are not effective and need to be changed. Environmental factors, especially precipitation, would be considered when evaluating monitoring results. If plant cover, litter cover, and/or soil condition decline, changes would be made to the livestock numbers, grazing period, grazing time, or pasture rotation.

6. RANGE IMPROVEMENTS

1) Existing Structures

Range improvements (fencing, waters, handling facilities, etc.) are critical components of any grazing management plan. All range improvements assigned to the permittee (Appendix A, Table 2, page 16) need to be maintained in order to facilitate proper management of the Allotment.

Permittees are required to follow the District's Heavy Equipment Policy prior to beginning any ground disturbing activities which may require an archaeological survey and/or wildlife clearances.

No heavy equipment use will be authorized until:

- a) We receive your request for heavy equipment use in writing;
- b) Your request includes the name of the improvement to be worked on, their range improvement number, and/or a legal description, and/or include a map of the improvement;
- c) It includes a detailed description of the work to be done;
- d) Your request includes a timeframe for completion, an original signature and date;
- e) No work will begin until we get necessary clearances (archaeology, wildlife, NEPA, etc), and provide you with a written authorization for the work, including an agreement to the extent of work.
- f) The Forest Service will provide you with a list of certified Archaeologists and NEPA consultants that you may wish to use to expedite the process.

2) New Construction

New range improvements are identified on page 4, in the Management Strategy section.

7. FLEXIBILITY/ADAPTIVE MANAGEMENT

It is imperative that flexibility and adaptive management be considered when following this Allotment management plan. Adjustments to the grazing sequence may be necessary due to weather constraints (i.e. precipitation patterns favor or do not favor certain portions of the Allotment), or management activities in an Allotment or pasture (P/J treatment or prescribed burning).

There may also be a need to vary livestock numbers to meet objectives. Drought may force the reduction of livestock numbers while on the other hand additional numbers above term permit may be appropriate in certain situations.

Appendix A

Allotment Map and Range Improvements

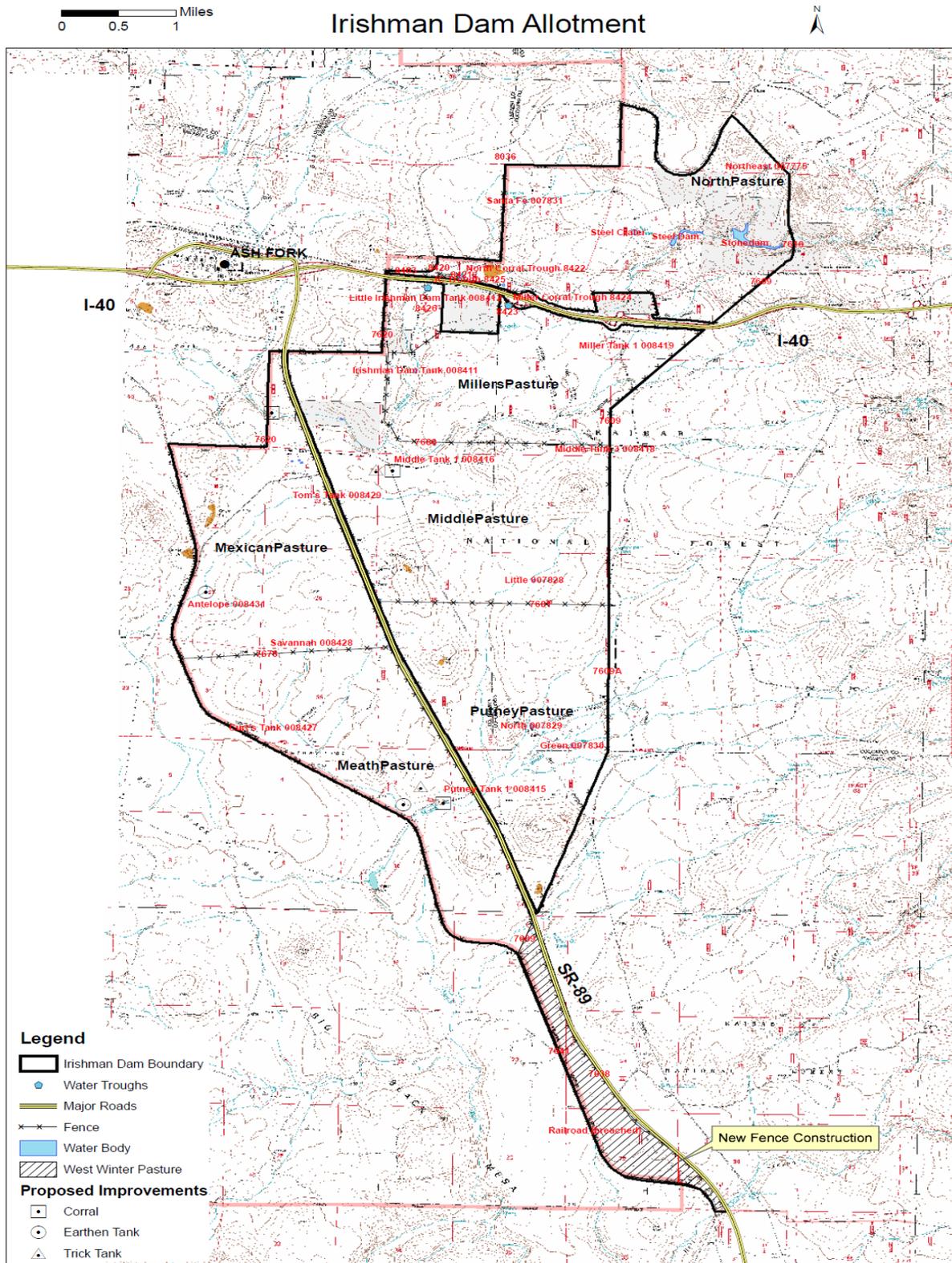


Figure 1: Irishman Dam Allotment, Range Improvements, and Proposed Improvements. Exact locations of proposed improvements will be identified on the ground with both the grazing Permittee and Forest Service personnel present.

Table 2: Range Improvements for the Irishman Dam Allotment

Imp. Number	Improvement Name	Feature	Improvement Type	Units or Miles
7609	IRISHMAN DAM/HAT	FENCE	ALLOTMENT BOUNDARY	3
7620	FOREST BOUNDARY	FENCE	ALLOTMENT/PROPERTY BOUNDARY	3.6
7678	MEATH/MEXICAN	FENCE	ALLOTMENT INTERIOR	1.75
7679	BULL PASTURE FEN	FENCE	RANGE, ALLOTMENT INTERIOR	1
7680	MILLER/MIDDLE	FENCE	ALLOTMENT INTERIOR	3
7681	MILLER/PUTNEY	FENCE	ALLOTMENT INTERIOR	2
7775	NORTHEAST TANK	WATER SYSTEM	SURFACE	1
7828	LITTLE TANK	WATER SYSTEM	SURFACE	1
7829	NORTH TANK	WATER SYSTEM	SURFACE	1
7830	GREEN TANK	WATER SYSTEM	SURFACE	1
7831	SANTA FE TANK	WATER SYSTEM	SURFACE	1
8036	ALLOTMENT BOUNDARY	FENCE	ALLOTMENT BOUNDARY	3
8411	IRISHMAN DAM TANK	WATER SYSTEM	SURFACE	1
8412	LITTLE IRISHMAN DAM	WATER SYSTEM	SURFACE	1
8413	PIPELINE TANK #1	WATER SYSTEM	SURFACE	1
8414	PIPELINE TANK #2	WATER SYSTEM	SURFACE	1
8415	PUTNEY #1 TANK	WATER SYSTEM	SURFACE	1
8416	MIDDLE #1 TANK	WATER SYSTEM	SURFACE	1
8418	MIDDLE #3 TANK	WATER SYSTEM	SURFACE	1
8419	MILLER #1 TANK	WATER SYSTEM	SURFACE	1
8420	NORTH SHIPPING PASTURE	FENCE	ALLOTMENT INTERIOR	1
8421	NORTH CORRAL	FENCE	HANDLING FACILITY	1
8422	NORTH CORRAL TROUGH	WATER SYSTEM		1
8423	MILLER CORRAL	FENCE	HANDLING FACILITY	1
8424	MILLER CORRAL TROUGH	WATER SYSTEM	WATER TROUGH	1
8425	J.C. TROUGH	WATER SYSTEM	WATER TROUGH	1
8426	LITTLE IRISHMAN DAM WATERLOT	FENCE	WATER SOURCE	
8427	CURT'S TANK	WATER SYSTEM	SURFACE	1
8428	SAVANNAH TANK	WATER SYSTEM	SURFACE	1
8429	TOM'S TANK	WATER SYSTEM	SURFACE	1
8431	ANTELOPE TANK	WATER SYSTEM	SURFACE	1

Appendix B

Potential Habitat for Biological Soil Crusts and a Method for Identifying Sandy Soils on the Irishman Dam Allotment

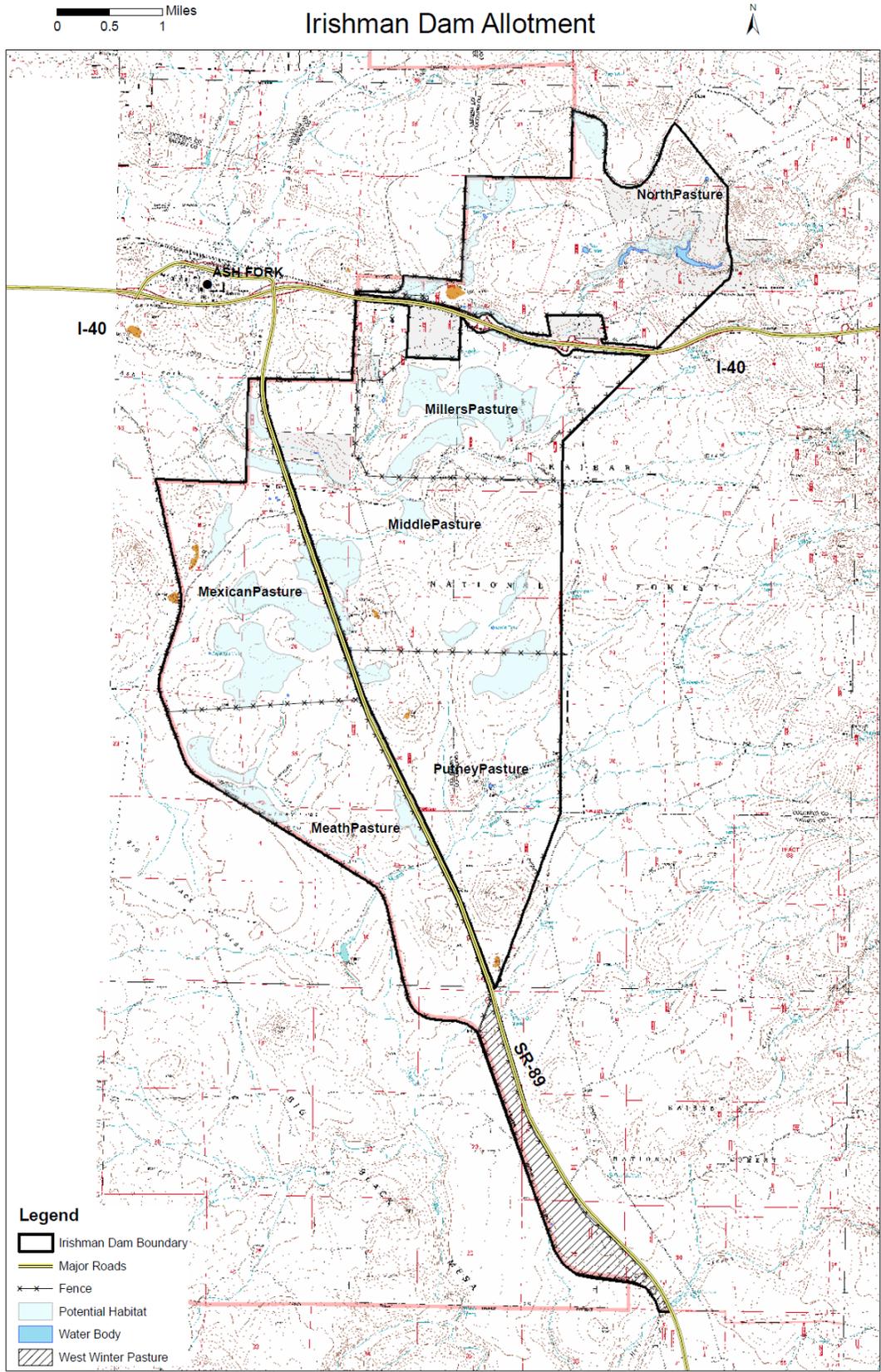


Figure 2: Potential habitat for biological soil crust on the Irishman Dam Allotment.

A Method for Identifying Sandy Soils on the Irishman Dam Allotment

TES map units 523 and 592 generally have sandy surface textures (sandy loam and loam). However, not all soils in these TES units have sandy surface textures. Placing of mineral supplements (salt licks) should be avoided on large areas (i.e. 100 ft. radius) where surface textures are sandy.

The easiest way to identify soils with high sand content at the surface is by using the texture-by-feel method. Place some soil from the ground surface in the palm of your hand, add water and knead the soil to break down aggregates (clumps). If the soil will not form a ball when moist, it has a high sand content. If the soil will form a ball when moist, attempt to form a ribbon with the soil by placing the ball between the thumb and forefinger and squeezing the ball while pushing out the ribbon with your thumb. If the soil will not form a ribbon without breaking off, then the soil has a high sand content. If the soil forms a weak ribbon less than 1 inch long before breaking off, then the soil has a high sand content. If the soil forms a strong ribbon greater than 1 inch long, then the soil has a relatively low sand content in proportion to silt and clay.

If surface cracking is observed in the field during dry ground conditions, the soil most likely has a low sand content. Areas along drainages where slope gradient decreases (toe of slopes) and soil deposition is evident may have sandy textures. These areas should be investigated for sandy soil textures using the method outlined above. If soils feel sticky or plastic when moist, they would likely have a high proportion of silt and clay in relation to sand.