Dixie Allotment (#107)
Rangeland Health Standards Assessment

The Dixie grazing allotment is located in western Klamath County and includes approximately 5,547 acres of BLM-administered land (see attached map). The allotment boundaries are roughly defined as Highway 66 on the north, Jenny Creek on the west, and the Oregon-California state line on the south. The east edges of the allotment borders the Edge Creek allotment. A portion of this border is fenced along the east side of Sections 5, 8, and 17 in T41S, R5E. The theoretical border then extends north to Highway 66, but is not fenced. The western portion of the allotment is in Jackson County on land normally administered by the Medford District BLM. However, the Klamath Falls Field Office handles the lease administration, livestock compliance duties, and monitoring of resources connected with the grazing allotment.

The base property for the BLM grazing lease is located in the southwestern corner of the allotment. The current lease authorizes 415 AUMs of livestock use from May 1 to September 15.

Prior to 1994, Weyerhaeuser Company (Weyco), leased their private lands (now owned by US Timberlands) within the allotment boundaries to the BLM lessee. This lease was cancelled in 1994. In an effort to control livestock drifting onto their lands, Weyco built a fence across the north border of Sections 5 and 6 in T41S, R5E. This fence has been minimally effective.

The Klamath Falls Resource Area Record of Decision and Resource Management Plan and Rangeland Program Summary (ROD/RMP), was completed in June 1995. Allotment specific management objectives and other information from this document will be referenced.

This allotment is within the Pokegama Herd Management Area (HMA) for wild horses. Successful trapping and removal of horses have occurred in 1996 and 2000 to bring the population down to the designated appropriate management level.

In July 1996 a watershed analysis named the Topsy/Pokegama Landscape Analysis (TPLA) was completed. The Dixie Allotment was included within the analysis area. Information on livestock and wild horse use, riparian conditions and water quality, and wildlife habitat from the analysis will be incorporated into this Rangeland Health Standards Assessment.

Other information to be used in this assessment will come from monitoring studies and surveys completed after the TPLA and the observations and professional judgment of the resource management specialists that have provided input.

For each of the five Standards, the first sentence (in bold type) expresses the physical and biological condition or degree of function necessary to sustain healthy rangeland ecosystems. At the end of each Standard assessment a determination will be made on whether the Standard is being met, if significant progress is being made toward meeting the Standard, or if the Standard is not being met.

Standard 1 - Watershed Function-Uplands

Upland soils exhibit infiltration and permeability rates, moisture storage and stability that are appropriate to soil, climate and landform.

Most of the information for upland conditions will come from vegetation utilization monitoring and trend and condition studies. In addition to the collected data from the studies, general notes are normally recorded about conditions observed. Any information on upland conditions from the TPLA document will be included as appropriate. In the TPLA document, there are also descriptions of the conditions of the forested communities that will be referenced.

Within the Dixie allotment, the uplands range from open, rocky flats with a mix of grasses, forbs and shrubs to densely stocked mixed conifer stands with a grass and forb understory. Livestock grazing use on the uplands is mainly concentrated in the open flats and meadow areas with some use in the immediately adjoining forested areas.

In the ROD/RMP, the following Identified Resources Conflict/Concerns and Management Objectives are applicable to this Standard:

Identified Resources Conflict/Concerns
Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

Management Objectives
Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

There are five key areas for vegetation utilization monitoring in the Dixie allotment. These are located in open flats and meadows throughout the allotment. At each key area, vegetation utilization is ocularly estimated at 10 random points and recorded in a utilization class. These utilization classes are 0-5% (no use), 6-20% (slight), 21-40% (light), 41-60% (moderate), 61-80% (heavy), and 81-100% (severe). For each utilization class the number of points recorded is multiplied by the midpoint for that class. The resulting products for each class are then totaled and the sum is divided by the number of observations (10) resulting in an average utilization for that key area. The following table shows the results of vegetation utilization monitoring completed at the key areas from 1990-1999. The key area locations are shown on the attached map at the end of this document.

Year	Key Area 1	Key Area 2	Key Area 3	Key Area 4	Key Area 5	% Util.
1990	74%	70%	26%	44%	34%	50%
1991	80%	42%	74%	40%	50%	57%
1992	76%	50%	54%	73%	5%	52%
1993	44%	43%	9%	16%	8%	24%
1994	64%	39%	13%	**	**	39%
1995	70%	63%	40%	**	**	58%
1996	64%	62%	27%	**	**	51%
1997	65%	52%	45%	38%	**	50%
1998	86%	73%	31%	14%	**	51%
1999	81%	31%	18%	**	**	43%
% util.	%	53%	34%	38%	24%	

* * - no reading taken at this point

Key area 1 is located in an open meadow area to the east of Dixie Spring. This area is currently dominated by annual grasses and weedy forbs with a high percentage of bare ground. Utilization monitoring and use mapping have shown repeated heavy to severe use in this meadow. The narratives that accompany the use mapping note the evidence of heavy spring use by both cows and horses as indicated by the density of hoof prints formed during wet soil conditions.

Key Area 2 is located to the south and west of Dixie Spring and Long Prairie Creek in a wedgeleaf ceanothus brushfield with openings that have varying amounts of grasses and forbs. This area has also had high levels of utilization. Medusahead, *Poa* and *Bromus* species, and other weedy grasses and forbs are increasing in the openings.

Key Area 3 is located in an area known as Grizzly Flat. This is rolling, rocky upland area with scattered shrubs and small oak trees. This area has had historic heavy use and the vegetation is shifting to mainly weedy annual grasses and forbs. Livestock use in recent years has varied from slight to moderate. The area appears to be used mainly for trailing from Dixie Spring and Long Prairie Creek to Wild Gal Spring and the Beaver Creek area to the west.

Key Area 4 is located in the northwestern portion of the allotment near Fall Creek. This is an open, rocky meadow that is becoming dominated by medusahead and annual bromes. Some livestock use is made here early in the year when these grasses are still green.

Key Area 5 is located in the southwest corner of the allotment near Jenny Creek. This area has not been visited for monitoring in recent years because it has been inaccessible behind locked gates.

The table above shows that Key Areas 1 and 2 are receiving moderate to heavy use on an annual basis. The present vegetation in these areas as well as in areas 3 and 4 is shifting to invasive annual grasses and weedy forbs with a decreased native grass component.

In the Klamath Falls Resource Area Record of Decision and Resource Management Plan and Rangeland Program Summary, June 1995 (ROD/RMP), degrees of allowable use for rangeland vegetation were established to serve as a guideline to evaluate the impact grazing utilization levels have on the plant community. The following table shows the levels identified for upland areas.

Degree of Allowable Use (by Percentage) for Upland Areas

Plant Category	**Spring**	**Summer**	**Fall**	**Season-long**
Perennial grasses & grasslike	50	50	60	50
Perennial & biennial forbs	50	50	60	50
Shrubs, half shrubs & trees	30	50	50	45
Annual grasses & forbs	**	**	**	**

** No annuals are expected to be key species

The grazing season on the Dixie allotment would be considered spring and summer for use with this table. Following these guidelines, utilization levels should not exceed 50% if upland conditions are to be maintained or improved. Key areas 1 and 2 have exceeded this level several times as indicated in the utilization monitoring table above.

Use mapping has also been completed on the allotment for several years. This monitoring involves looking at a majority of the allotment and breaking the forage utilization into areas or zones based upon the utilization classes of none to slight, light, moderate, heavy, and severe use. A review of the use maps and the accompanying narratives has shown use patterns similar to those recorded for the key areas. The areas around Key Areas 1 and 2 have been in the moderate to heavy use classes during most years. The area to the north of Wild Gal Spring has also shown moderate to heavy use patterns. Severe use has been reported during several years in the area along Long Prairie that is immediately below the Dixie exclosure.

The continued high levels of utilization by livestock and wild horses in these areas has likely had a negative impact on the upland soils. Comments on the utilization forms and the use mapping narratives indicate high levels of soil trampling and evidence of hoof prints in wet soil conditions. This can cause compaction of the soils which leads to decreased infiltration and higher levels of surface water runoff. The increase in annual grasses noted at most monitoring sites also can decrease the soils ability to withstand erosion due to the shallow-rooted nature of these grasses versus the deeper rooted perennials that are being displaced.

Most of the monitoring of livestock grazing occurs on the open meadows, rocky flats, and shrubby areas. However, the majority of the allotment has plant communities that are dominated by trees. Logging activities, road building, and grazing can all have effects on the plant communities and soils in these areas. The following excerpts from the TPLA document address the effects that management activities have had on the soils in the general area of the Dixie allotment:

> (TPLA, Core Topic: Soils, Page 38 and 39)
>
> *The types of land management activities determined to have the most potential for impacting soils in the TPLA area are road building and timber harvest. Although adverse impacts to soils have occurred from recreation activities and livestock grazing, the effect of these activities do not have the cumulative extent and impact in this watershed as do road building and timber harvesting....*
>
> *No attempt was made to quantify the acreage in the TPLA area impacted by the various land management activities. Almost all of the federal land in the watershed has been entered at least once for timber harvest... The extent to which soil productivity has been affected in the watershed by management activities has not been quantified, due to the lack of research on the subject conducted in the area, the lack of on-the-ground surveys with which to quantify the extent of impacted soils, and time constraints....*
>
> *Growth losses from soil compaction of 4.8 percent have been factored into models of timber yields for BLM-administered lands... The impacts from tractor yarding were deemed significant enough to quantify a reduction in yields (4.8 percent)....*

(TPLA, Core Topic: Soils, page 45)
Because soils with a high compaction susceptibility rating occur in much of the TPLA area, it is likely that impacts from human activity (livestock grazing, road building, and timber harvest) have occurred. Because of the repeated number of entries into many stands, the high road density in areas, and the common use of tractor yarding during timber harvest, it is likely that soils in the TPLA area have had reductions in productivity from compaction....

Highly impacting activities such as road building, scarification and tractor piling, and burning may occur on nonfederal lands and to some extent on federal lands, and can cause decreased soil productivity in some areas. On federal lands, the number of acres in the TPLA area expected to be subjected to these activities in the future is expected to be low, and impacts should be mitigated by Best Management Practices....

Also, because of the generally reduced harvest activities prescribed in the newest land use plans for the federal lands, less land may be impacted by timber harvest activities, particularly within the Riparian Reserves. However, this effect could be counteracted by more acres being treated for forest health objectives (for example, there are many areas in the TPLA area where the understory needs to be thinned or treated with fire)....

In summary, the existing monitoring data and observations along with the information from the TPLA document indicate that upland conditions in many areas of the Dixie allotment have been degraded to a point where they are not providing adequate soil protection. Native vegetation communities are being replaced by exotic annuals in many of the meadow, rocky flats, and shrubby openings. Continued heavy vegetation utilization levels by livestock are contributing to the decline in the functionality of these areas. Past and current timber harvest activities including road building have also contributed to compaction and displacement of soils and a reduction in the canopy cover.

This Standard is not being met on many areas of the Dixie allotment. Past and current livestock grazing is contributing to the nonattainment of this Standard.

Standard 2 - Watershed Function - Riparian/Wetland Areas

Riparian-wetland areas are in properly functioning physical condition appropriate to soil, climate, and landform.

The information used to determine this standard will include allotment monitoring data, Proper Functioning Condition surveys, information from the TPLA document, and observations and knowledge of local resource specialists.

Within the Dixie allotment, riparian/wetland resources include intermittent and perennial stream sections, developed and undeveloped springs, constructed waterholes, and seasonally wet meadows.

In the ROD/RMP, the following Identified Resources Conflict/Concerns and Management Objectives are applicable to this Standard:

Identified Resources Conflict/Concerns	Management Objectives
Riparian or aquatic habitat is in less than good habitat condition.	Improve and maintain riparian or aquatic habitat in good or better habitat condition.

The western portion of the allotment is within the Jenny Creek watershed which flows into the Klamath River. A watershed analysis for Jenny Creek has been completed, but a review of this document did not reveal much specific information about the Dixie allotment area. In the TPLA document, most of the area within the Dixie allotment was hydrologically assessed as part of the Long Prairie Creek subwatershed which flows into the Klamath River. The following excerpts from the TPLA document address the change between historic and current hydrologic conditions:

(TPLA, Core Topic: Hydrology, pages 90-91)

Base flows in the TPLA have been reduced by drought and poor channel and riparian condition in certain areas... There is a moderate to high probability that peak flows have been increased, primarily due to the road network.

Historically, the meadows surrounding Long Prairie Creek and Hayden Creek functioned as a wetland system, attenuating flood peaks and storing water to be released in the summer and fall months... With the decline in channel condition, this function has been lost and reductions in riparian and floodplain function along these streams could influence base flow.

In addition, poor channel and riparian conditions along various sections of streams in the TPLA area cause streams to act like canals (transporting water out of the watershed) instead of sponges (soaking up water and releasing it slowly). These effects serve to reduce base flows and exacerbate poor water quality conditions.

The condition of the Long Prairie stream channel was also analyzed in the TPLA document.

(TPLA, Core Topic: Channel Conditions, pages 96-97, and 99)

The entire BLM-administered reach of this stream can be classified as a F system according to Rosgen (1994). Type F streams are entrenched, meandering, gentle-gradient riffle pool types with a high width to depth ratio (wide and shallow channels) with little to no developed floodplain...

Channel roughness has been reduced by the loss of large wood and reductions in woody vegetation... Historic logging activities...likely initiated bank erosion. Furthermore, at least two dams were constructed on Long Prairie Creek,...both of which failed. Because the failures were likely sudden in nature, it is possible that up to eight feet of stored water was abruptly released... scoured the stream channel and increased lateral instability and bank sloughing. These raw streambanks still persist and are very slow to heal. Roads are routing water directly to the stream channel... Livestock grazing and grazing by wild horses contributes to bank erosion and sedimentation. The combination of mechanical

breakdown of banks from trampling and increased sedimentation results in the alteration of bed material composition and channel geometry.

...cattle and wild horses have detrimentally impacted many areas in the lower gradient segments (F channel)...Armoring of banks from vegetation and root mass greatly limits the rate of erosion; grazing removes the armoring, initiating accelerated adjustment and associated sediment. Additionally, floodplain vegetation is reduced allowing for increased flow velocities during "out of bank" flow events; the process of deposition on the floodplain is reduced proportionately. Bank erosion from these reaches is a relatively high contribution to the total increase in the sediment budget.

The segments of Long Prairie Creek discussed in the TPLA document have also been assessed through Proper Functioning Condition surveys completed during 1994. The Riparian Photo Points were used as location indicators for the surveys. These locations are shown on the attached maps at the end of this document. The results of the surveys are as follows:

Point LP-R-1

This section is located below the exclosure at Dixie Spring. This stream section was rated as Functional-At-Risk. Excessive cattle trampling damage has occurred on the streambanks with grazing of the sedge and rush species. Riparian vegetation observed included willows, rushes, and sedges, but only in scattered patches. Also at this point, a stream crossing has washed out and is supplying high levels of fine sediments to the stream.

Point LP-R-2

This section is inside of the lower end of the Dixie exclosure. This section was rated as being in Proper Functioning Condition. Some raw banks were noted, but riparian vegetation was increasing throughout this section. This section is below the outflow of the Dixie spring, which is perennial.

Points LP-R-3 and 4

This section is in the upper end of the Dixie exclosure. This section was rated as Nonfunctional. There was a lack of riparian vegetation present with actively eroding stream banks.

Point LP-R-5

This section is upstream of and outside the Dixie exclosure. This section was rated as Functional-At-Risk. Areas of willow and other riparian vegetation were noted. Raw banks and mesic grasses were also present. There were also signs of hoof trampling on the streambanks.

There are five Riparian Photo Points located on Long Prairie Creek as mentioned above. These photo points were established in 1990 and were read annually for four years and have been read on a 2-3 year interval since then. The locations of these photo points is shown on the attached

maps at the end of this document. Following are observations from these photos:

Point LP-R-1

This point is below the Dixie exclosure. Most of the photos show evidence of livestock use as indicated by hoofprints, grazed and trampled vegetation, and cloudy water conditions. Fine sediments can be seen on the stream bottom in many photos. Vegetation conditions appear to have remained static to somewhat downward. The streambanks are broken down and appear to be widening.

Point LP-R-2

This point is within the Dixie exclosure, just below the main spring flow. This area has been severely down cut in the past. Willows appear to be increasing along the banks with some evidence of rushes in the stream bottom. Heavy sediment loads are seen along the stream bottom during several years. The streambanks are not in a condition to withstand spring runoff flows. The lowered stream channel appears to keep the adjacent streambanks in a drier condition with riparian vegetation only evident right along the low flow level.

Point LP-R-3

This photo point is at the upper end of the Dixie exclosure. This area also has been severely down cut in the past. From 1990 through 1998, there is not much evidence of change. Some vegetation is starting to establish in the bottom of the channel, but there are still some raw, vertical streambanks. High spring flows appear to be moving sediments out of the area as evidenced by an area of cobbles present in the photos.

Point LP-R-4

This photo point is located outside of and above the Dixie exclosure. From 1990 through 1998, there has been down cutting in the stream bottom evident. Some years show high levels of loose sediments in the bottom and others show evidence of scouring of the bottom and sides. The stream bottom appears to be down to bedrock in the later photos.

Point LP-R-5

This photo point is above Point 4. This area has also been down cut in the past. Some small willows are establishing in the bottom, but not many grasslike species are establishing. Fine sediment areas are also seen with hoofprints in them. The streambanks are also continuing to degrade.

Use mapping has been completed on the allotment for several years. Along with the map that is produced, there is a narrative describing conditions. These narratives contain observations about use on Long Prairie Creek, the Dixie Spring exclosure, and Wild Gal Spring. A review of these narratives indicates that livestock forage use in these riparian areas has been in the heavy to severe range in most years. Observations of mechanical damage to soils and stream banks from livestock hooves has also been recorded during nearly all years that use mapping was completed.

At Wild Gal spring, observations of repeated heavy to severe use by livestock has been noted. Use inside of the Dixie and Wild Gal spring exclosures was noted during several years. There were also some notes on wild horse and elk use in these same areas.

The ROD/RMP established guidelines for utilization levels in riparian areas based upon the results of the Proper Functioning Conditions surveys. For riparian areas without management, in Functional-At-Risk status, the maximum annual utilization percent should be between 0% and 30% (ROD/RMP, page H-76). The areas of Long Prairie Creek outside of the Dixie exclosure are both rated as Functional-At-Risk. Use mapping narratives describe use in these areas as heavy to severe in most years. This would coincide with a utilization levels above 70%, which is well above the guideline of 0-30%..

In summary, monitoring data and observations are showing that livestock grazing is having a negative impact on the riparian/wetland resources in the Dixie allotment. Many of the current stream channel conditions on Long Prairie Creek were caused by past disturbance from timber harvest activities (logging, road building, etc.), possible reservoir failures, and wild horse and livestock use. The continued heavy to severe use by livestock on these areas is not allowing the areas to reestablish an adequate riparian vegetation community to protect the stream banks during flow events. Conditions at Wild Gal spring are also being negatively impacted by livestock use.

This Standard is not being met on the Dixie allotment. Continued livestock use in the riparian areas of Long Prairie Creek and Wild Gal spring is not allowing these areas to recover from past disturbances. Spring flow rates and durations have also been changed due to road building and timber harvest activities in the watershed.

Standard 3 - Ecological Processes

Healthy, productive and diverse plant and animal populations and communities appropriate to soil, climate and landform are supported by ecological processes of nutrient cycling, energy flow and the hydrologic cycle.

The information used to determine this standard will be basically the same as was used in Standard 1. Indicators for this Standard include: plant composition and community structure; root occupancy in the soil profile; plant litter and organic matter distribution and incorporation; and biological activity including plant growth, herbivory, and rodent, insect and microbial activity.

As noted under Standard 1 above, monitoring of the allotment has shown a shift in the vegetation communities that are found in the open meadows, rocky flats, and open brush fields. Invasive exotic grass species including cheatgrass and other annual bromes and medusahead have been increasing and displacing the native perennial grasses. This is causing a change in the ecological process of nutrient cycling. These shallow rooted annuals utilize soil moisture at different times of the year (early winter through early spring) and at shallower soil depths than the natives they are displacing. They also reach maturity early in the growing season and then are not a source of nutrition for dependent vertebrate species. Medusahead also has a mechanical advantage to exclude other grass and forb species. High levels of silica in the stems of medusahead slows the

decomposition process and results in a mat of litter that inhibits the germination of seeds other than it's own. Both cheatgrass and medusahead tend to spread more rapidly onto disturbed areas, germinate in late fall/early winter when moisture is adequate, and then rapidly develop in early spring as soil temperatures warm. This allows them to utilize the available moisture and nutrients before native annuals and perennials begin active growth.

Monitoring notes also refer to high percentages of bare ground at utilization monitoring sites. Several of these areas have had utilization levels that are consistently above 50%. This is the level that should not be exceeded if upland conditions are to be maintained or improved as outlined in Standard 1. The combination of invasive exotics and large areas of bare soil do not favor the accumulation, distribution, or incorporation of plant litter and organic matter into the soil.

As noted in Standard 1, timber harvest activities have also made significant changes in the plant community composition of the forested areas. Harvest activities on the BLM lands have reduced the overstory components and caused soil disturbance including compaction and displacement. Harvest activities on adjacent private lands have been more intensive with a greater change in the plant community and greater impacts to the soils.

This Standard is not being met in the Dixie allotment where exotic annuals are displacing the native grass and forb species. This is due in part to continued utilization by livestock at higher than desired levels.

Standard 4 - Water Quality

Surface water and groundwater quality, influenced by agency actions, complies with State water quality standards.

In the ROD/RMP, the following Identified Resources Conflict/Concerns and Management Objectives are applicable to this Standard:

Identified Resources Conflict/Concerns	Management Objectives
Water quality may not currently meet the Department of Environmental Quality water quality standards for beneficial use.	Maintain and improve water quality on public lands to meet or exceed standards forbeneficial use, as specifically established by the Department of Environmental Quality, where BLM authorized actions are having anegative effect on water quality.

The following excerpts from the TPLA document address water quality in Long Prairie Creek:

> TPLA, Core Topic: Water Quality, pages 117-125
>
> *Water quality measurements on BLM-managed segments of Long Prairie Creek and Hayden Creek consist of a single measurement from each stream taken in 1993 during collection of macroinvertebrate samples.*

Stream temperature increases in Hayden Creek and Long Prairie Creek have been caused by the following factors: changes in channel shape to one that is wider and shallower than would occur if the streams were functioning properly; low flows due to drought and in-channel water impoundments; and removal of or reductions in shading vegetation in many reaches. Because the general orientation of the Long Prairie and Hayden Creek watersheds is to the south, reductions in shading allow for much larger increases in input of solar radiation...

Based on the limited data available, turbidity does not appear to be a concern. However, without extensive monitoring it will not be possible to determine whether management activities are causing the water quality standard for turbidity to be exceeded.

Based on macroinvertebrate community indicators, impacts to water quality in Hayden Creek and Long Prairie Creek are apparent from high summer water temperatures, nutrient/organic enrichment and fine sediment. Overall water quality impacts appear to be higher in Long Prairie Creek...

Roads in the TPLA area are a significant contributor of fine sediment to streams. The high number of road crossings and miles of road within 100 feet of streams results in the delivery of water and sediment directly to stream channels. Stream bank erosion is also contributing sediment and causing adverse impacts to aquatic resources...

The preceding excerpts from the TPLA document point out that there are definite indications of poor water quality conditions in Long Prairie Creek. Actual monitoring of water quality parameters has been done in 1993, 1996, and 1997. Most of the TPLA discussion appears to be based upon observations of conditions along with the 1993 monitoring data. Macroinvertebrate sampling from 1993 and 1996 showed a mixed group of positive and negative indicators. Flow conditions were too low in 1997 to take a macroinvertebrate sample. Stream temperature readings taken during 1996 and 1997 of 73 and 72 degrees exceeded the State water quality standard of 64 degrees for fish bearing streams. However, the data was collected on one day only, not the required seven day average period required by regulations. However, if there is insufficient data to establish a seven day average maximum temperature, the numeric criteria can be applied as an instantaneous maximum. Based upon this, the stream would not meet State water quality standards. The monitoring discussed under Standards 1 and 2 also refers to degraded riparian and upland conditions that could lead to poor water quality conditions.

The meeting of this Standard can not be fully determined from the information available. From the data collected and conditions observed, it appears that the water quality in Long Prairie Creek is likely not meeting State water quality standards. Additional monitoring data needs to be collected to produce a more definitive answer.

Standard 5 - Native, T&E, and Locally Important Species

Habitats support healthy, productive and diverse populations and communities of native plants and animals (including special status species and species of local importance) appropriate to soil, climate and landform.

Much of the information and discussion from the previous four Standards can be used to evaluate the meeting of this Standard. In addition, information from the TPLA document on plants, animals, and habitat will be referenced.

As covered in Standard 1, range monitoring of the allotment has shown a shift in the vegetation composition in the meadows and open, rocky areas. Introduced species, particularly cheatgrass and medusahead, are displacing the native grasses and forbs. This is leading to a decrease in the diversity of the plant communities and is likely negatively impacting the native animal species that are dependent upon these communities.

The southern portion of the allotment is considered critical deer winter range and elk winter range. The diet of elk is similar to that of livestock and any degradation to livestock forage species can negatively impact elk. Deer make significant use of shrub species and also use grass species, especially during the spring. Fecal studies completed by the Medford BLM office show that livestock tend to utilize shrub species in the late summer which can have a negative impact on this deer winter forage source.

Riparian and wetland areas have also been impacted by livestock as covered under Standard 2 and 4. Along some areas of Long Prairie Creek, riparian vegetation is lacking or is in severely degraded conditions. This is contributing to stream channel erosion and sediment inputs into the stream which is having a negative effect on habitat for riparian and aquatic dependent species.

In the TPLA document, there are a few references to the effect of livestock grazing upon wildlife habitat.

> TPLA, Core Topic: Wildlife,
>
> Bats, including Townsend's Big Eared Bat, page 68
>
> *A study was conducted within the landscape area where bats were netted at ponds which were developed to provide water for livestock and/or wildlife (Cross 1994). Currently, many of these ponds and springs in the landscape area are trampled by livestock. The changes in plant diversity and the increased sediment and nutrient loading at these sites could affect the insect prey base available to the bats. This in turn could have an affect on the population of bats in the area.*
>
> Elk, page 70
>
> *Provided the number of elk does not exceed 700, it is believed there would be no direct conflicts for forage or cover between livestock, wild horses, deer, and in the overall health of riparian areas.*
>
> Core Topic: Aquatic Species and Habitats, page 129 and 130
>
> *Long Prairie Creek, a type F channel in the BLM reach, is characterized by an entrenched channel with no developed floodplain, high width/depth ratio, poor bank stability, lack of in-channel coarse roughness elements and little streamside vegetation. These attributes, translated into fish habitat parameters, include high incident solar*

radiation, high input of fine sediments from streambanks, low availability of refugial habitat (pools and overflow channels), reduced hiding cover, and poor quality substrate for insects and spawning habitat. Long Prairie Creek is the only tributary stream in the TPLA occupied by native fish.

Most of the spring areas in the analysis area are (or have been) in a degraded vegetative condition due to grazing. Many have been developed as stock watering areas and therefore have had water diverted from the natural condition. Species such as snails and some aquatic insects have low mobility and therefore have a high rate of endemism. This dependancy on specific spring sites combined with their relative immobility makes them very vulnerable to disturbance.

Based upon the available information, it is evident that current livestock grazing in the Dixie allotment is contributing to degraded habitat conditions for native plants and animals. This Standard is not being met in areas where exotic annuals are displacing native grasses and forbs. Livestock grazing in riparian areas is also not allowing these areas to recover from past disturbances.

Contributors/Reviewers	**Title**
Dana Eckard	Rangeland Management Specialist
Bill Lindsey	Rangeland Management Specialist
Lou Whiteaker	Botanist
Scott Snedaker	Fisheries Biologist
Mike Turaski	Hydrologist
Gayle Sitter	Wildlife Biologist
Barbara Ditman	Supervisory NRS

Determination

The Rangeland Health Standards Assessment for the Dixie grazing allotment has concluded that Standards 1, 2, 3 and 5 are not being met and that livestock grazing is a contributing factor. The meeting of Standard 4 can not be fully concluded from the existing data and resource information. The causal factors leading to these conclusions are discussed in the Assessment.

It is my determination that the existing grazing management practices and/or levels of grazing use (i.e. potential grazing use as per RMP) on the Dixie allotment will require modification or change prior to the next grazing season to promote achievement of the Oregon Standards for Rangeland Health and conform with the Guidelines for Livestock Grazing Management.

/s/ *Teresa A. Raml* 9/28/01

Manager, Klamath Falls Resource Area Date

Appendix 1 - Guidelines for Livestock Grazing Management

Guidelines for livestock grazing management offer guidance in achieving plan goals, meeting standards for rangeland health and fulfilling the fundamentals of rangeland health. Guidelines are applied in accordance with the capabilities of the resource in consultation, cooperation, and coordination with permittees/lessees and the interested public. Guidelines enable managers to adjust grazing management on public lands to meet current and anticipated climatic and biological conditions.

General Guidelines

1. Involve diverse interests in rangeland assessment, planning and monitoring.

2. Assessment and monitoring are essential to the management of rangelands, especially in areas where resource problems exist or issues arise. Monitoring should proceed using a qualitative method of assessment to identify critical, site-specific problems or issues using interdisciplinary teams of specialists, managers, and knowledgeable land users.

Once identified, critical, site-specific problems or issues should be targeted for more intensive, quantitative monitoring or investigation. Priority for monitoring and treatment should be given to those areas that are ecologically at-risk where benefits can be maximized given existing budgets and other resources.

Livestock Grazing Management

1. The season, timing, frequency, duration and intensity of livestock grazing use should be based on the physical and biological characteristics of the site and the management unit in order to:

a. provide adequate cover (live plants, plant litter and residue) to promote infiltration, conserve soil moisture and to maintain soil stability in upland areas;
b. provide adequate cover and plant community structure to promote streambank stability, debris and sediment capture, and flood water energy dissipation in riparian areas.
c. promote soil surface conditions that support infiltration;
d. avoid sub-surface soil compaction that retards the movement of water in the soil profile;
e. help prevent the increase and spread of noxious weeds;
f. maintain or restore diverse plant populations and communities that fully occupy the potential rooting volume of the soil;
g. maintain or restore plant communities to promote photosynthesis throughout the potential growing season;
h. promote soil and site conditions that provide the opportunity for the establishment of desirable plants;
i. protect or restore water quality; and
j. provide for the life cycle requirements, and maintain or restore the habitat elements of native (including T&E, special status, and locally important species) and desired plants and animals.

2. Grazing management plans should be tailored to site-specific conditions and plan objectives. Livestock grazing should be coordinated with the timing of precipitation, plant growth and plant form. Soil moisture, plant growth stage and the timing of peak stream flows are key factors in determining when to graze. Response to different grazing strategies varies with differing ecological sites.
3. Grazing management systems should consider nutritional and herd health requirements of the livestock.
4. Integrate grazing management systems into the year-round management strategy and resources of the permittee(s) or lessee(s). Consider the use of collaborative approaches (e.g., Coordinated Resource Management, Working Groups) in this integration.
5. Consider competition for forage and browse among livestock, big game animals, and wild horses in designing and implementing a grazing plan.
6. Provide periodic rest from grazing for rangeland vegetation during critical growth periods to promote plant vigor, reproduction and productivity.
7. Range improvement practices should be prioritized to promote rehabilitation and resolve grazing concerns on transitory grazing land.
8. Consider the potential for conflict between grazing use on public land and adjoining land uses in the design and implementation of a grazing management plan.

Facilitating the Management of Livestock Grazing

1. The use of practices to facilitate the implementation of grazing systems should consider the kind and class of animals managed, indigenous wildlife, wild horses, the terrain and the availability of water. Practices such as fencing, herding, water development, and the placement of salt and supplements (where authorized) are used where appropriate to:

    a. promote livestock distribution;
    b. encourage a uniform level of proper grazing use throughout the grazing unit;
    c. avoid unwanted or damaging concentrations of livestock on streambanks, in riparian areas and other sensitive areas such as highly erodible soils, unique wildlife habitats and plant communities; and
    d. protect water quality.

2. Roads and trails used to facilitate livestock grazing are constructed and maintained in a manner that minimizes the effects on landscape hydrology; concentration of overland flow, erosion and sediment transport are prevented; and subsurface flows are retained.

Accelerating Rangeland Recovery

1. Upland treatments that alter the vegetative composition of a site, like prescribed burning, juniper management and seedings or plantings must be based on the potential of the site and should:

    a. retain or promote infiltration, permeability, and soil moisture storage;
    b. contribute to nutrient cycling and energy flow;
    c. protect water quality;

d. help prevent the increase and spread of noxious weeds;
e. contribute to the diversity of plant communities, and plant community composition and structure;
f. support the conservation of T&E, other special status species and species of local importance; and
g. be followed up with grazing management and other treatments that extend the life of the treatment and address the cause of the original treatment need.

2. Seedings and plantings of non-native vegetation should only be used in those cases where native species are not available in sufficient quantities; where native species are incapable of maintaining or achieving the standards; or where non-native species are essential to the functional integrity of the site.

3. Structural and vegetative treatments and animal introductions in riparian and wetland areas must be compatible with the capability of the site, including the system's hydrologic regime, and contribute to the maintenance or restoration of properly functioning condition.