

Standards for Rangeland Health
and
Guidelines for Livestock Grazing Management
for
Public Lands in Oregon and Washington

UPDATE for the
Highway Well and Leehmann Pastures
of the
Abert Seeding Allotment #00522

November 2015

The original Abert Seeding Allotment Rangeland Health Assessment (RHA) was conducted in 2003 for the entire allotment. The majority of the allotment was meeting applicable standards. However, about 200 acres in the Highway Well Pasture were not meeting standards one and three. This assessment is an update to the original RHA, but covers just the Highway Well and Leehmann Pastures. A summary of the 2003 RHA and recent assessment update are presented in the table below.

Table 1 - Summary of Rangeland Health Assessment for the Highway Well and Leehmann Pastures of the Abert Seeding Allotment #00522

Standard	2015 Assessment	Comments 2015	2003 Assessment	Comments 2003
1. Watershed Function – Uplands – Upland soils exhibit infiltration and permeability rates, moisture storage, and stability that are appropriate to soil, climate, and landform	<u>Not Met</u> Highway Well Pasture	This standard is not being met for the Highway Well Pasture of the Abert Seeding Allotment. Plant cover, as recorded from trend studies, is marginally capturing and storing water. Bare ground has increased and litter has decreased in the trend plots read within the pasture, and has decreased the ability to intercept raindrop impaction and retain moisture. Plants have not received adequate rest, and have weakened root systems, reducing soil holding capacity and increasing erosion potential. Trend is downward within the pasture, and it is not meeting this standard. This is attributed to yearly spring grazing use, an increase in shrubs, cheatgrass, and age of the seeding. Periodic growing season rest is recommended.	<u>Not Met</u> on a portion of the Allotment	The majority of the allotment met this standard in 2003; however, 200 acres in the Highway Well Pasture were not meeting standard one. Livestock grazing was found to be contributing towards not meeting the standard. The 2003 assessment also noted that the 200 acre area had reduced perennial grass understory which may be attributed to yearly spring grazing, and the 40 year age of the seeding. A change in livestock grazing to reduce the amount of spring grazing was recommended in the 2003 RHA. Seeding the interspaces with perennial species was also recommended depending on funding.
	<u>Met</u> Leehmann Pasture	This standard is being met for the Leehmann Pasture. Plant cover, as recorded from trend studies, is adequate to capture and store water. Litter amounts are adequate for intercepting raindrop impaction and moisture retention. Plants have adequate root systems to hold soil and prevent erosion; however, this pasture has not received adequate rest, and to maintain a stable trend, periodic growing season rest is recommended. (For a more detail, please refer to the discussion under standard one below.)		

Standard	2015 Assessment	Comments 2015	2003 Assessment	Comments 2003
		(For a more detail, please refer to the discussion under standard three below.)		
4. Water Quality Surface water and groundwater quality, influenced by agency actions, complies with State water quality standards.	<u>Not Applicable</u>	This standard is not applicable to the assessment area. No perennial water occurs on the allotment.	<u>Not Applicable</u>	This standard is not applicable to the assessment area.
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)	<u>Met</u>	This standard is met in 2015. Wildlife species within the area is described below under Standard 5.	<u>Met</u>	This standard was met in 2003.

Standard	2015 Assessment	Comments 2015	2003 Assessment	Comments 2003
appropriate to soil, climate and landform.				

STANDARD 1 - Upland Watershed -Upland soils exhibit infiltration and permeability rates, moisture storage, and stability that are appropriate to soil, climate, and landform

Not Met – Highway Well Pasture

Met – Leehmann Pasture

This standard is not being met for the Highway Well Pasture, and is being met for the Leehmann Pasture. The majority of trend studies conducted within the Highway Well Pasture area are in a downward trend. This is evident by a combination of pace 180° transects and photo trend monitoring. Observed apparent trend (OAT) data was also collected at the trend sites. The monitoring methods that are quantitative in nature are OAT and the 180 pace transects. These two studies all measure attributes that would affect permeability, and soil stability or erosion potential. This includes perennial plant cover, amount of bare ground, biological crust cover, seedling establishment, litter, and plant community composition. Based on this quantitative data and supplemented with qualitative data (photo monitoring), the Leehmann Pasture was found to have a stable trend, and the majority of the Highway Well Pasture was found to be in a downward trend.

Both pastures have been grazed during the spring/summer (between 3/19-6/12) for the last 17 years. Since 2003, grazing time periods changed to alternate early spring and later spring/summer season; however, the early grazing treatment lasted well into April most years, and the late spring/early summer treatment lasted into May. Post grazing regrowth in May is dependent on precipitation and corresponding soil moisture. Livestock have not been removed from the May use pasture early enough most years to provide herbaceous plants opportunity to regrow. Grazing during this time period each year has promoted a shrub-dominated vegetative community. This is because grazing has occurred during the critical growth periods for herbaceous species with no time for plants to recover or rest. The increase in shrubs, in both pastures, is evident from monitoring data and photos. Grazing the perennial grass species at the same time each year has prevented the plants from completing life cycles, and over time has decreasing overall plant productivity and health. Over time yearly spring use has, along with other factors (an increase in shrubs, cheatgrass, and age of the seeding), resulted in a downward trend in the Highway well Pasture. The downward trend is indicated by the perennial grass species decreasing in abundance, size and vigor. Decreases in the perennial grass species will reduce the root holding capacity within the soil. Plant cover is marginally capturing, storing, and safely releasing moisture associated with normal precipitation events. Bare ground has increased and litter has decreased in the trend plots read within the pasture, and has decreased the ability to intercept raindrop impactation, and decrease the ability to protect the soil surface from erosion. (The monitoring summary is attached in appendix A below, and provides data and a more detailed discussion at each trend site.)

Recommendations:

Incorporating periodic growing season rest or deferment is recommended to allow plants to complete its life cycle every other year or every third year. This recommendation would help maintain the perennial grass component within the two pastures, and would make significant progress towards meeting the Standards for Rangeland Health and conform with the applicable Guidelines for Livestock Grazing Management.

Summary:

Based on the reasons stated above, this standard is being met for the Leehmann Pasture. Plant cover, as recorded from trend studies, is adequate to capture and store water. Litter amounts are adequate for intercepting raindrop impaction and moisture retention. This standard is being met for the Leehmann Pasture; however, if the above mentioned rest for the Highway Well Pasture is not implemented in this pasture, the perennial grass species will move toward a downward trend.

Based on the reasons stated above, this standard is not being met for the Highway Well Pasture. Plant cover, as recorded from trend studies, is marginally capturing and storing water. Bare ground has increased and litter has decreased in the trend plots read within the pasture, and has decreased the ability to intercept raindrop impaction. This standard is not being met due to the downward trend within the pasture, and is attributed to the yearly spring grazing use, an increase in shrubs, cheatgrass, and age of the seeding.

STANDARD 2 -Riparian/Wetland-Riparian-wetland areas are in properly functioning physical condition appropriate to soil, climate, and landform.

Not Applicable.

Since there are no perennial streams, riparian areas, or wetlands on BLM-administered lands within the two pastures, this standard is not applicable.

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 hydrologic cycle.

Not Met – Highway Well Pasture

Met – Leehmann Pasture

Utilization data has been collected in these pastures for over 17 years. Table 3 in the monitoring summary below shows the Actual Use and Utilization data that has been collected for each pasture since 1992. Moderate or less (Moderate category is 40-60 percent) utilization is represented in all but one instance in the last 10 years. There was one occurrence of heavy (60-80 percent) use in the Highway Well Pasture. AUMs within the pastures have been well within the 788 AUM of active preference over the last 10 years.

As stated under Standard 1 above, both pastures have been grazed during the spring/summer (between 3/19-6/12) for the last 17 years. Since 2003, grazing time periods changed to alternate early spring and

later spring/summer season; however, the early grazing treatment lasted well into April most years, and the late spring/early summer treatment lasted into May. Post grazing regrowth in May is dependent on precipitation and corresponding soil moisture. Livestock have not been removed from the May use pasture early enough most years to provide herbaceous plants opportunity to regrow. Grazing during this time period each year has promoted a shrub-dominated vegetative community, as evident from monitoring data and photos. Grazing the perennial grass species at the same time each year has prevented herbaceous plants from completing life cycles, and over time has decreasing overall plant productivity and health. Over time yearly spring use has, along with other factors (an increase in shrubs, cheatgrass, and age of the seeding), resulted in a downward trend in the Highway Well Pasture. This is indicated by the perennial grass species decreasing in abundance, size and vigor. A decrease in perennial grass species has reduced the ability of the pasture to capture and store nutrients and sunlight throughout the season, and has reduced plant vigor, health, community structure (including grasses, forbs, and shrubs), and composition. Nutrient cycling has been limited by litter accumulation and lack of plant productivity. The monitoring summary is attached in appendix A below, and provides data and a more detailed discussion of trend at each trend site.

Recommendations:

Incorporating periodic growing season rest or deferment is recommended to allow plants to complete their life cycle every other year or every third year. This recommendation would help maintain the perennial grass component within the two pastures, and would make significant progress towards meeting the Standards for Rangeland Health and conform with the applicable Guidelines for Livestock Grazing Management.

Weeds:

Noxious weed inventories took place across the Highway Well and Leehmann Pastures during the 2014 field season. Isolated infestations of Mediterranean sage and cocklebur were documented along roadsides and near the wells. These infestations will be managed through the most updated integrated weed management plan. Infestations of cheatgrass were also noted during the surveys, and are a contributing factor to not meeting this standard. Once new herbicides are approved for use on the Lakeview Resource Area these cheatgrass infestation could be managed, however large scale treatments will be dependent on funding.

Summary:

Based on the reasons stated above, this standard is being met for the Leehmann Pasture. The trend plot within the Leehmann Pasture shows adequate diversity of community structure including grasses, forbs, and shrubs appropriate for the site. This diversity ensures that the capture and storage of energy occurs throughout most of the season. Nutrient cycling is evident by litter accumulation and overall plant productivity. However, if the above mentioned rest for the Highway Well Pasture is not implemented in this pasture, the perennial grass species will not remain in a stable trend.

Based on the reasons stated above, this standard is not being met for the Highway Well Pasture. The trend plots within the Highway Well Pasture lack diversity of community structure including grasses, forbs, and shrubs appropriate for the site. This lack of diversity limits the capture and storage of energy occurring throughout the season. Nutrient cycling is limited by litter accumulation and lack of plant productivity. This pasture has a downward trend that is attributed to the yearly spring grazing use, an increase in shrubs, cheatgrass, and age of the seeding.

STANDARD 4: Surface water and groundwater quality, influenced by agency actions, complies with State water quality standards.

Not Applicable.

This standard is not applicable to the assessment area as no perennial water occurs on the allotment.

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.

Met:

Special Status Plants:

There are no known populations of BLM special status plants present.

Wildlife:

Special status wildlife species or their habitats that are present within the Highway Well and Leehmann Pastures include bald eagle (*Haliaeetus leucocephalus*), ferruginous hawk (*Buteo regalis*), peregrine falcon (*Falco peregrinus*), burrowing owl (*Speotyto cunicularia*), kit fox (*Vulpes macrotis*), sage-grouse (*Centrocercus urophasianus*), and pygmy rabbit (*Brachylagus idadoensis*). Other wildlife species and habitat with high public interest also occur within the pastures. These are mule deer (*Odocoileus hemionus*), California bighorn sheep (*Ovis Canadensis*) and pronghorn antelope (*Antilocapra americana*).

Potential habitat is present for kit fox and pygmy rabbit; however, no known locations exist within the allotment for these species. There are no resource conflicts for these species.

Bighorn sheep also inhabit the Highway Well and Leehmann Pastures; however, there is little overlap in range between cattle, and no conflicts exist between bighorn sheep and livestock grazing within the pastures.

Pronghorn antelope are common within the pastures and habitat use is concentrated in the burned areas without tall shrubs. These areas have been reseeded with crested wheatgrass following wildfire. No major conflicts exist between pronghorn antelope and livestock grazing within in the pastures.

Mule deer inhabit much of the area, but are widely spread and in low numbers. No high concentrations of wintering mule deer exist in these pastures in part due to the lack of abundant bitterbrush. The sagebrush that occurs appears to be stable at this time. No conflicts exist between mule deer and livestock grazing within the pastures.

Approximately 2,802 acres of the Highway Well and Leehmann Pastures are within greater sage-grouse General Habitat Management Area (GHMA), and approximately 231 acres of the Highway Well Pasture are Priority Habitat Management Area (PHMA). Approximately 158 acres of within the Highway Well Pastures are within the Sagebrush Focal Area (SFA). However, the PHMA and GHMA currently does not support sage-grouse seasonal habitat due to plant structure characteristics or because of edaphic conditions, and steep slopes.

No major conflicts exist between livestock grazing and sage-grouse within the pastures.

Summary:

Overall, the pastures provide an appropriate mix and diversity of wildlife habitats and assemblages of wildlife species, typical of the sagebrush steppe of the Northern Great Basin. Therefore, this standard is being met for wildlife species of the Highway Well and Leehmann Pastures within the Abert Seeding Allotment.

Table 2 - 2015 ID Team Members

Name	Title
Jayna Ferrell	Rangeland Management Specialist
John Owens	Wildlife Biologist
Theresa Romasko	Assistant Field Manager
Grace Haskins	Weed Management Specialist
Jimmy Leal	Fisheries Biologist
Jami Ludwig	Assistant Field Manager
Ian Grinter	Botanist
Paul Whitman	Planning and Environmental Coordinator

Guidelines for Livestock Management

Existing grazing management practices and levels of grazing use on the Highway Well and Leehmann Pastures of the Abert Seeding Allotment are not currently consistent with the Guidelines for Livestock Grazing Management (August 12, 1997). These pastures have been grazed during the spring/summer (between 3/19-6/12) for the last 17 years. Since 2003, grazing time periods changed to alternate early spring and later spring/summer) season; however, the early grazing treatment lasted well into April most years, and the late spring/early summer treatment lasted into May. These pastures are not currently receiving periodic growing season rest needed to be consistent with the Guidelines of Livestock Grazing Management (6).

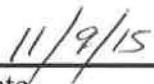
2015 Determination

() Existing grazing management practices on the Highway Well and Leehmann Pastures of the Abert Seeding Allotment promote achievement of, or significant progress towards, meeting the Oregon Standards for Rangeland Health and conform with the applicable Guidelines for Livestock Grazing Management.

(X) Existing grazing management practices on the Highway Well and Leehmann Pastures of the Abert Seeding Allotment will require modification or change prior to the next grazing season to promote achievement of, or significant progress towards, the Oregon Standards for Rangeland Health and conform with the applicable Guidelines for Livestock Grazing Management.

Recommendations

The ID team recommends incorporating periodic growing season rest or deferment, allowing plants to complete life cycles every other or every third year. The recommended grazing system and alternatives will be analyzed under a permit renewal Environmental Assessment (EA). This EA is scheduled to be available for public comment by fall of 2016.

J. Todd Forbes Date
Field Manager
Lakeview Resource Area

Appendix A - Monitoring Summaries

Abert Seeding (Highway and Leehmann Pastures) Allotment #00522

The Highway Well and Leehmann Pastures have been grazed during the spring/summer (between 3/19-6/12) each year for the last 18 years, alternating early spring and later spring/summer season. The Leehmann Pasture was rested two of those 18 years. Use has occurred within the permit dates of 12/1-6/18 over the last 18 years. The total permitted AUMs for the Highway Well and Leehmann Pastures are 788 (permit #3601273). The total average actual use over the last 10 years is 287 AUMs for Highway Well and 197 AUMs for Leehmann. Utilization levels have generally been at or within the target utilization levels of 50% within the last ten years. Please refer to Table 3 below for the Actual Use AUMs and utilization levels by pasture.

Table 3 - Highway Well and Leehmann Pastures (Abert Seeding Allotment #00522) Actual Use and Utilization Data by Year

Year	Highway AUMs	% Utilization (Highway)	Leehmann AUMs	% Utilization (Leehmann)	Total AUMs (Highway + Leehmann)
2015	254	30	70	21	324
2014	85	37	124	44	209
2013	260	11	213	55	473
2012	236	50	165	31.8	401
2011	312	34	178	13	490
2010	379	47	191	36	570
2009	257	45	355	36.6	612
2008	472	65	-	-	472
2007	196	45	276	45	472
2006	414	58	-	-	414
2005	103	50	100	29	203
2004	240	55	153	43	393
2003	259	46	91	55	350
2002	314	47	262	31	314
2001	412	-	525	-	937
2000	428	52	199	30	428
1999	421	36	455	-	421
1998	748	42	282	-	1030
1997	-	-	780	39	780
1996	875	57	-	-	875
1995	-	-	147	-	147
1994	353	53	-	-	353
1993	-	-	-	-	-
1992	579	37.2	-	-	579
1991	-	-	-	-	-
1990	-	-	-	-	-
Avg 10 yrs	287	42	197	35	444
Overall	351	44	210	37	489

Average					
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The majority of the two pastures is comprised of crested wheatgrass, of which was established in 1961 and 1962 by method of plowing and seeding. The crested wheatgrass is slowly reverting to a shrub dominated plant community. This progression, along with lack of periodic rest, has over time, decreased the abundance and vigor of the crested wheatgrass plants within the pastures.

Highway Pasture Trend Plots

AS-01 (Photo and Pace 180) - Downward

Observed Apparent Trend at AS-01

	2012
Vigor	4
Seedlings	5
Surface Litter	4
Pedestals	4
Gullies	5
Total	22
Rating	<i>Stable</i>

% Cover at AS-01

	1985	2012
Bare Ground	26	37
Litter	40	29
Rock	9	-
Vegetation	25	33
Crust/Moss	-	1

% Composition at AS-01

	1985	2012
Green rabbitbrush	1	8
Cheatgrass	3	-
Misc. forb	32	-
Sandberg bluegrass	7	2
Crested wheatgrass	56	75
Moss	1	-
Sagebrush	-	15

Years in which photos were taken: 2010, 1990, and 1985.

This trend site was established in 1985. In 2012, observed apparent trend was stable. Pace 180 data was read twice, 1985 and 2012. In 2012, the original plot was not found, but pictures and data were collected close to the original plot.

Percent cover bare ground increased approximately ten percent between years. Percent litter decreased in 2012 as compared to 1985; however, percent cover of vegetation increased between years. The percent composition of crested wheatgrass increased significantly between years. Percent composition of green rabbit brush also shows an increase between years. Sagebrush was not recorded in 1985, but comprised 15% of the vegetation composition in 2012. Forbs were seen in 1985, though they were not present in 2012.

Photo analysis shows increase in size and abundance of sagebrush and rabbit brush. The crested wheatgrass plants are larger and appear more vegetative in the 1985 photos as compared to the 2012 photos. Photo analysis does not indicate a significant change in the abundance of crested wheatgrass plants between years; however, plants appear to have decreased slightly in size and vigor since 1985.

This pasture has been grazed during the spring/summer (between 3/19-6/12, alternating early spring and later spring/summer) season for the last 17 years. Incorporating periodic growing season rest or deferment would allow crested wheatgrass to complete life cycles every other or every third year.

Overall, trend at this site (AS-01) is downward.

AS-07 (Photo) – Downward

Observed Apparent Trend at AS-07

	2010	2012	2014
Vigor	5	6	5
Seedlings	5	7	4
Surface Litter	4	4	4
Pedestals	4	5	5
Gullies	5	5	5
Total	23	27	23
Rating	<i>Stable</i>	<i>Upward</i>	<i>Stable</i>

Years in which photos were taken: 2014, 2012, 2010, 2007, 1990, 1978, 1976, 1973, 1972, 1971, 1970, 1969, 1967, and 1965.

Observed apparent trend was recorded in 2010, 2012, and 2014. Vigor, seedlings, and pedestals values increased from 2010 to 2012.

This long-term photo monitoring plot was established near the Highway Well Rest Area, and is located near water. Photo analysis shows a significant increase in size and abundance of sagebrush within the area. Crested wheatgrass plants close to water have decreased, and the more recent photos show that cheatgrass and mustard have increased in the interspaces. The landscape photos show that crested wheatgrass plants have decreased in size and abundance over time at this site. The crested wheatgrass plants in the most recent photos appear to be smaller in size and less vegetative. Bareground in the foreground of the photos has increased over time, allowing opportunity for noxious weed species to increase.

Age of the seeding, increase of brush (sagebrush and rabbit brush), and spring use are reasons for the downward trend at this site. This pasture has been grazed during the spring/summer (between 3/19-6/12), alternating early spring and later spring/summer) season for the last 17 years. Incorporating periodic growing season rest or deferment would allow crested wheatgrass to complete life cycles every other year or every third year.

Overall, trend at this site (AS-07) is downward.

AS-09 (Photo) - Downward

Observed Apparent Trend at AS-09

	2010	2012	2014
Vigor	5	5	6
Seedlings	5	7	4
Surface Litter	4	4	4
Pedestals	4	3	4
Gullies	5	5	5
Total	23	24	23
Rating	<i>Stable</i>	<i>Stable</i>	<i>Stable</i>

% Shrub Cover

Transect 1	Transect 2	Transect 3	Average
13%	15%	23%	17%

Years in which photos were taken: 2014, 2012, 2010, 1990, 1985, 1984, 1983, 1982, 1981, 1980, 1978, 1976, 1972, 1971, 1970, 1969, 1968, and 1965.

This trend plot is located near the Leehmann well in approximately .3 miles to water within the Highway Pasture. Observed apparent trend was stable at this site in 2010, 2012, and 2014. Photo analysis indicates a significant increase in sagebrush in the last 25 years. The average percent sagebrush cover was 17%. Photo analysis indicates crested wheatgrass plants have decreased in abundance between 1985 and 2010. The age of the seeding, increased brush (sagebrush and rabbit brush), and spring use are reasons for the downward trend at this site. This pasture has been grazed during the spring/summer (between 3/19-6/12, alternating early spring and later spring/summer) season for the last 17 years. Incorporating periodic growing season rest or deferment would allow crested wheatgrass to complete life cycles every other year or every third year.

Overall, trend at this site (AS-09) is downward.

Leehmann Pasture Trend Plots

AS-05 (Photo) - *Stable*

Observed Apparent Trend at AS-05

	2010	2012	2014
Vigor	6	4	5
Seedlings	6	6	7
Surface Litter	4	5	4
Pedestals	4	5	4
Gullies	5	5	5
Total	25	25	25
Rating	<i>Stable</i>	<i>Stable</i>	<i>Stable</i>

Years in which photos were taken: 2014, 2012, 2010, 1990, 1981, 1978, 1973, 1972, 1971, 1970, 1969, 1968, 1967, and 1966.

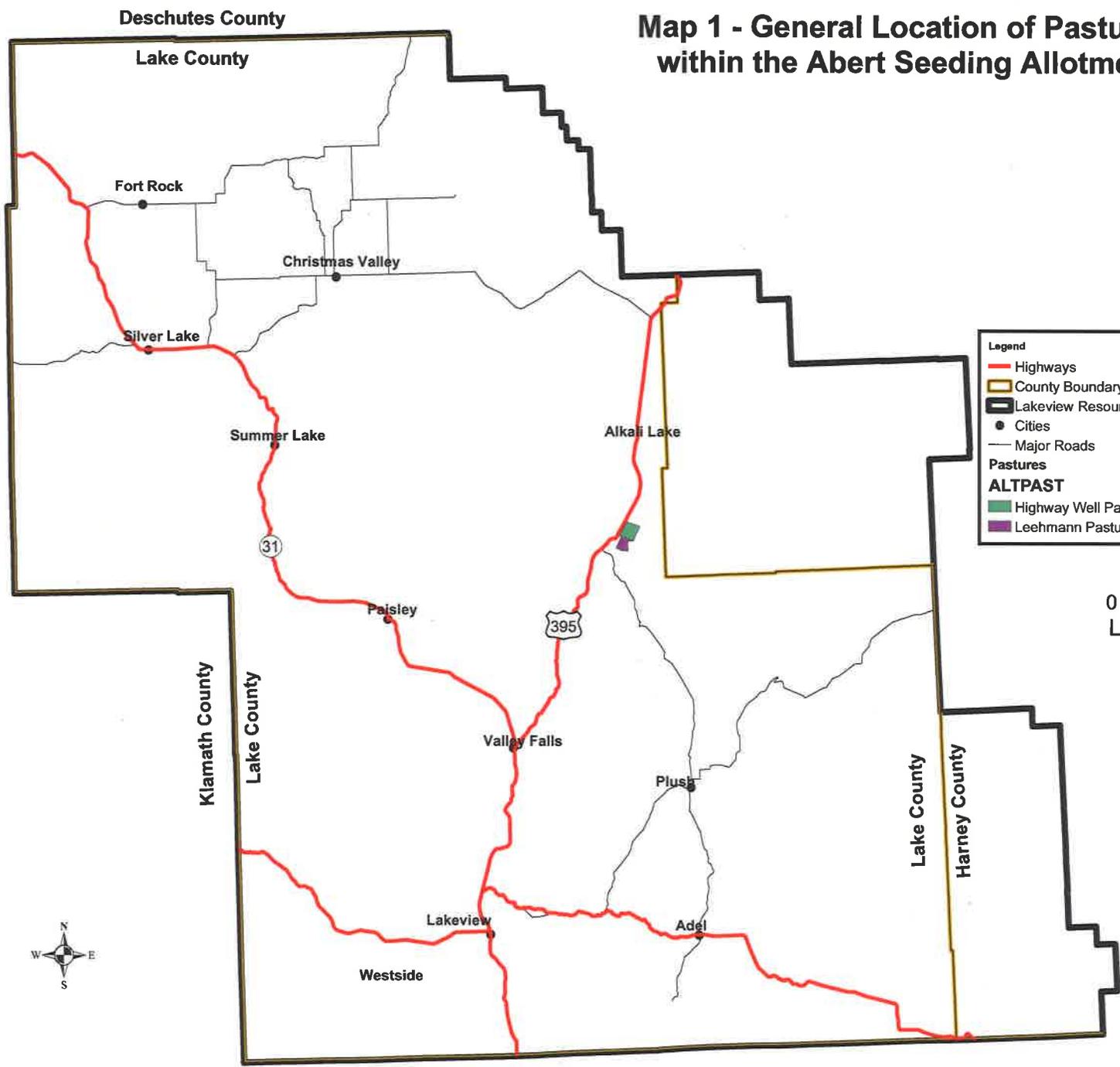
Observed apparent trend was recorded in 2010, 2012, and 2014 and was stable all three years.

This photo plot is located along the fence line between the Leehmann and Center West Pasture. This area receives some trailing along the fence lines. Sagebrush and rabbitbrush has increased within the Leehmann Pasture over the long-term. Crested wheatgrass plants, in recent photos, appear slightly less vegetative; however, the overall abundance of plants has not changed significantly. Photo analysis throughout the years, especially between 1990 and 2014, indicate a fairly stable trend at this trend site.

This pasture has been grazed during the spring/summer (between 3/19-6/12, alternating early spring and later spring/summer) season for the last 17 years. Incorporating periodic growing season rest or deferment would allow crested wheatgrass to complete life cycles every other year or every third year.

Overall, trend at this site (AS-05) is stable.

Map 1 - General Location of Pastures within the Abert Seeding Allotment



Legend

- Highways
- County Boundary
- Lakeview Resource Area
- Cities
- Major Roads

Pastures

ALTPAST

- Highway Well Pasture - Not Meeting Standards 1 & 3
- Leehmann Pasture - Met Standards

