

**City of Carson City
Agenda Report**

Date Submitted: July 12, 2011

Agenda Date Requested: July 21, 2011
Time Requested: 10 Minutes

To: Mayor and Supervisors

From: Parks and Recreation Department - Open Space

Subject Title: For possible action: To accept the annual Monitoring Report for the Horsecreek Ranch Conservation Easement as recommended by the Open Space Advisory Committee.
(Juan F. Guzman / Ann Bollinger)

Staff Summary: Conservation easements, including Horse Creek Ranch, require and allow the easement holder entry to the property subject to the easement, for inspection of the current condition and monitoring for compliance of the uses and practices identified in the easement. Staff conducted the monitoring visit in the fall of 2010 and recently received concurrence of the attached report from the landowner. The property owner was found to be in compliance.

Type of Action Requested: (check one)

Resolution Ordinance
 Formal Action/Motion Other (Specify)

Does This Action Require A Business Impact Statement: Yes No

Recommended Board Action: I move to accept the annual Monitoring Report for the Horsecreek Ranch Conservation Easement as recommended by the Open Space Advisory Committee.

Explanation for Recommended Board Action: One hundred and seventy five acres of the Horsecreek Ranch meadow are deed restricted by the terms of a conservation easement executed by the land owner Mr. Michael Fagen with Carson City on March 9, 2009. As provided in the easement, the staff conducted monitoring visits on November 1, 2010 and November 18, 2010 and found that the property owner is in compliance with the terms of the easement.

Applicable Statue, Code, Policy, Rule or Regulation: Chapter 13.06 of the Carson City Municipal Code and NRS 111.390 to 111.440.

Fiscal Impact: None.

Explanation of Impact: Staff time was part of normal daily operations.

Funding Source: N/A. However, Mr. Fagen donated \$50,000 that was used to establish a stewardship account for the Horsecreek Ranch conservation easement.

Alternatives: Not to approve the monitoring report.

Supporting Material: Monitoring Report

Prepared By:

[Signature]

Juán F. Guzman, Open Space Manager

Date: 7/8/11

Reviewed By:

[Signature]

Roger Moellendorf, Parks & Recreation Director

Date: 7/8/11

[Signature]

Lawrence A. Werner, City Manager

Date: 7/12/11

[Signature]
District Attorney's Office

Date: 7/12/11

[Signature]
Finance Department

Date: 7/12/11

Board Action Taken:

Motion: _____ 1: _____ Aye/Nay

2: _____

(Vote Recorded By)

Carson City Open Space – Conservation Easement Monitoring

Date: November 1, 2010 (and November 18, 2010 by Walker and Associates for the Annual Pasture Utilization and Condition Assessment, see attached report)

Start time: 9:00 a.m.

End time: 5:00 p.m.

Monitor(s): Ann Bollinger, Juan F. Guzman

Persons Attending Inspection (landowner or others): William Michael Fagen

Current Landowner(s): William Michael Fagen

Mailing Address: 15925 Caswell Lane, #4, Reno, NV 89511

Easement Address: Approximately 2.5 miles west of the paved terminus of Kings Canyon Rd

Easement size: 175.33 acres

Parcel size: 3 parcels, 201 acres total

On-site land use(s): Agricultural in the meadow, open sagebrush and forest in the uplands.

Surrounding land uses(s): On west, north, and east, the lands are under public ownership by Carson City Open Space and the U.S. Forest Service. The land use consists of undeveloped, dispersed recreation. On the south, the lands are under private ownership and the land use continues as agricultural.

Conservation Easement, Exhibit C, Prohibited Uses and Practices

1. Impairment of Protected Values

No change. The landowner is in compliance.

2. Commercial or Industrial Use

No change. The landowner is in compliance.

3. Construction

The landowner is in compliance. For the record, it should be noted that there have been improvements to the cabins and fence installation along the east property line.

During this monitoring visit, Carson City staff walked the east property line with Mr. Fagen who expressed concerns with vandalism to several sections of the buck and rail fence and trespass. He requested additional fence construction and Carson City agreed. The new construction will extend the existing fence, thereby reducing impacts and trespass by unauthorized motor vehicles. The cost will be shared 50/50 with Carson City paying from the stewardship account.

Carson City Open Space – Conservation Easement Monitoring

The above actions are permitted by the following conservation easement provisions:

Exhibit B, Permitted Uses and Practices:

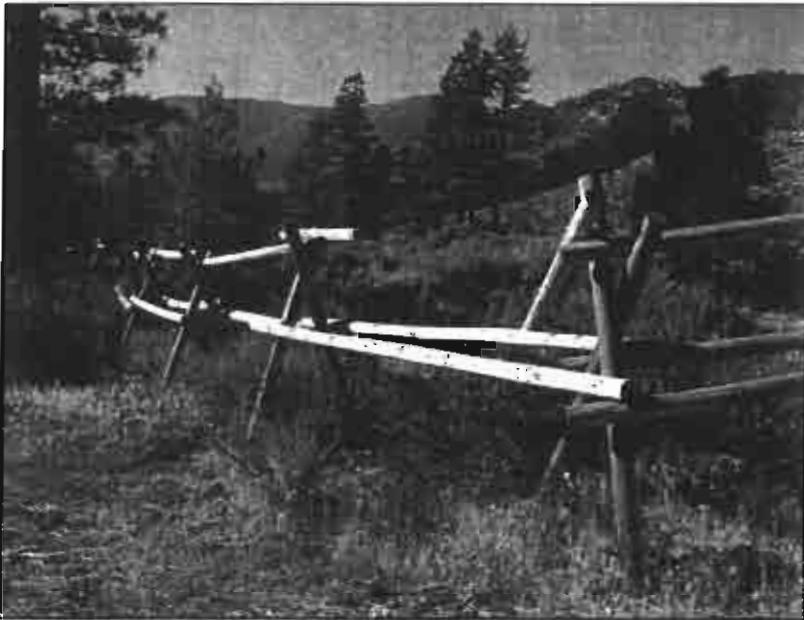
3. *Improvements and Facilities*

(a) *Maintenance and Repair of Existing Improvements and Facilities. To maintain, repair, and improve existing structures, housing, fences, ... and other improvements and facilities anywhere on the Property.*

(b) *Construction of Additional Improvements and Facilities. Additional improvements and facilities..., and additional structures, such as inter alia, ... fences... shall be permitted.*

Exhibit C, Prohibited Uses and Practices:

3. *Construction. The construction, reconstruction, or replacement of structures, housing, roads, and other improvements and facilities except as provided in section 11 of this Easement and sections 1 and 3 of Exhibit B.*



Note the vandalism and removal of the top fence rail.

Carson City Open Space – Conservation Easement Monitoring



Note the vandalism and removal of several fence rails.

4. Subdivision

No change. The landowner is in compliance.

Carson City Open Space – Conservation Easement Monitoring

5. Motorized Vehicles

Mr. Fagen pointed out a few areas of trespass and unauthorized vehicle use. The off-road tracks demonstrate dirt bike use. Additionally, the upper gates have been vandalized. The mitigation measure is additional fence construction, as discussed above.



Note the trespass and dirt bike tracks. View from the adjacent USFS lands on the east into the conservation easement.



Note the trespass and dirt bike tracks. View from the conservation easement uphill to the adjacent USFS lands on the east.
N 39° 08' 11.4"
W 119° 50' 09.9"

Carson City Open Space – Conservation Easement Monitoring

6. Tree Cutting

No change. The landowner is in compliance.

7. Dumping

No change. The landowner is in compliance.

8. Soil Degradation

The landowner is in compliance. As previously identified in the Baseline Report, there are significant wash-outs located east and south of the cabins. Mr. Fagen has placed numerous rocks and boulders along one slope located east of the cabins (see Repeat Photo Documentation, Photo 3).

While these areas seem to appear unchanged since the development, signing and execution of the conservation easement, additional stabilization may be suggested. Trina Johnson from NRCS and Paul Pugsley from the Carson Valley Conservation District toured the property on October 15, 2010. It's recommended that Mr. Fagen contact NRCS (775) 782-3661 for technical assistance and possible funding opportunities. Paul Pugsley may be able to assist with the labor and equipment for the repair and stabilization. He can be contacted at (775) 782-3661 ext 112.



Photo of the wash-outs located south of the cabins.

Carson City Open Space – Conservation Easement Monitoring

9. Water Quality Degradation

No change. The landowner is in compliance.

10. Surface Alteration or Excavation

A small pipeline to carry water from a spring to the cabins was installed prior to the signing and execution of the conservation easement. This linear excavation area has not revegetated well, and it should continue to be monitored. If natural revegetation is not successful within a few years, a mix of meadow grasses may need to be purchased and raked into the soil during the late fall months. The baseline report should identify the existing grass species. Carson City Open Space staff can also prepare a specification.

The above actions are permitted by the following conservation easement provisions:

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10. *Surface Alteration or Excavation. Any alteration of the general topography or natural drainage of the Property including, without limitation, the excavation or removal of soil... except as many required for uses on the Property incidental to agricultural and residential uses permitted herein...*



Photo of the pipeline excavation area.

Carson City Open Space – Conservation Easement Monitoring

11. Fencing Restrictions

The landowner is in compliance. The fence installation along the east property line, as discussed above, is not constrained by the fencing restrictions identified for specific areas of the Property.

Additional Comments:

- The irrigation ditch known as “Neil’s Flume” was found in good working condition.
- Bull thistle was observed throughout the meadow. Though not considered a noxious weed in the State of Nevada, it can be invasive and may spread throughout the meadow and decrease desirable vegetation. A University of Nevada Cooperative Extension Fact Sheet 10-19 provides information on various control methods and has been attached. Carson City may be able to assist by coordinating a volunteer project for weed removal.



Photo of the bull thistle found throughout the meadow.

- During the photo documentation, it was realized that two GPS coordinates did not match with the photo viewpoints in the Baseline Condition Report. The position of Photo 2 is located a short distance to the north, near Photo 4. The position of Photo 7 is located a short distance to the west. The staff recommendation is to keep the photo viewpoints as-is since these reflect on-the-ground conditions at the time of the Baseline Condition Report, but then update or change the GPS coordinates and map to accurately reflect the physical location.

Carson City Open Space – Conservation Easement Monitoring

The adjusted coordinates are –

Photo 2 N 39 07' 54.9"

W 119 50' 11.3"

Photo 7 N 39 08' 19.8"

W 119 50' 13.5"

- **Fuels Reduction:** In 2009 the USFS conducted a mastication project on their property adjacent to the east boundary of the conservation easement. The brush and ladder fuels were thinned in a mosaic pattern, generally keeping the bitterbrush which is valuable for mule deer. If fuels reduction is desired on the conservation easement, Mr. Fagen may contact Tim Rochelle at the Carson City Fire Department (775) 887-2210 ext. 7161 for possible assistance in developing a fuels prescription and/or information for area contractors. Additionally, Pat Murphy with the Nevada Fire Safe Council (775) 846-5500 may be helpful.
- **Stewardship Account:** There were no expenses, and the account has a balance of \$50,000. At the request of Mr. Fagen, staff is looking into the procedures to account for accrued interest.

Summary:

The results of the 2010 audit of the Horsecreek Conservation Easement by Carson City demonstrated that the property continues in good condition and that the landowner is in full compliance with both the letter and the spirit of the Easement. The landowner continues to improve the property in a number of ways, all consistent with the purpose of the Easement. The landowner is cooperative about addressing, over time and in consideration of available resources, additional improvements to the conditions on the property in a joint effort with Carson City and other local agencies. In 2010 the two biggest negative impacts to the property were by trespassers via motor vehicle use and by vandalism to the fences on the property. Perhaps the single largest threat to the overall condition of the property is the threat of wildfire – and potentially caused by uncontrolled camp fires on USFS land immediately adjacent to the property. Consistent with the terms of the Easement, the landowner has asked Carson City to assist in curtailing both trespassing and fires coming to the property from public lands. Carson City has agreed to continue patrol of these areas with their Park Ranger and volunteer ambassadors.

Carson City Open Space - Conservation Easement Monitoring

Written by: Ann Bollinger Date: 6/16/11

Ann Bollinger

Reviewed by: Juan F. Guzman Date: 6/16/11

Juan F. Guzman

Landowner: William Michael Fagen Date: 6/16/11

William Michael Fagen

Carson City Open Space – Conservation Easement Monitoring

Please indicate the number of the following attachments to this report. Be sure to date and sign all materials and provide a description or map showing where on-site photos and illustrations were taken:

Aerial photos

Ground photos (digital or other)

- 17 ground photos – Repeat Photo Documentation
- Digital photos taken, copied into a written report

Maps and illustrations

Other:

- University of Nevada Cooperative Extension, Fact Sheet 10-19, A Northern Nevada Homeowner's Guide to Identifying and Managing Bull Thistle
- Walker & Associates, Horse Creek Ranch Annual Pasture Utilization and Condition Assessment

Date Inspection Report Sent To Landowner: June 9, 2011

Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 1A (north)



Photo 1B (north)



Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 2 (south)



Photo 3 (south)



Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 4A (north)



Photo 4B (detail)



Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 4C (detail)



Photo 5 (east)



Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 6A (north)

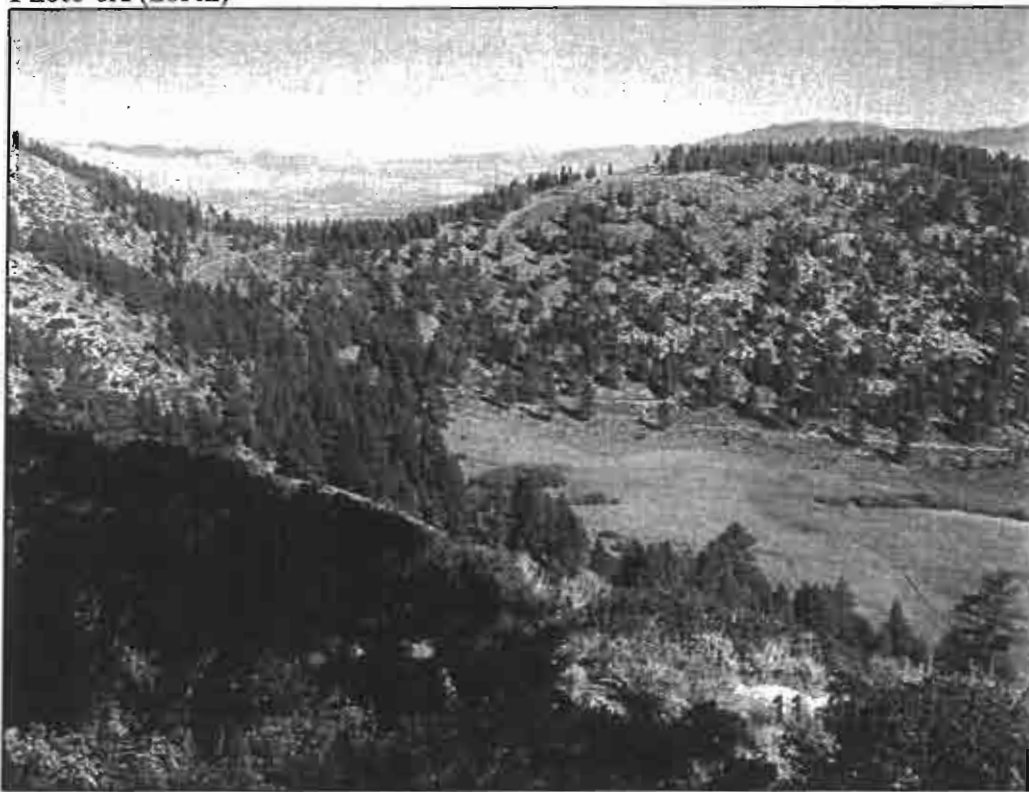


Photo 6B (center)



Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 6C (south)



Photo 7A (south)



Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 7B (south)

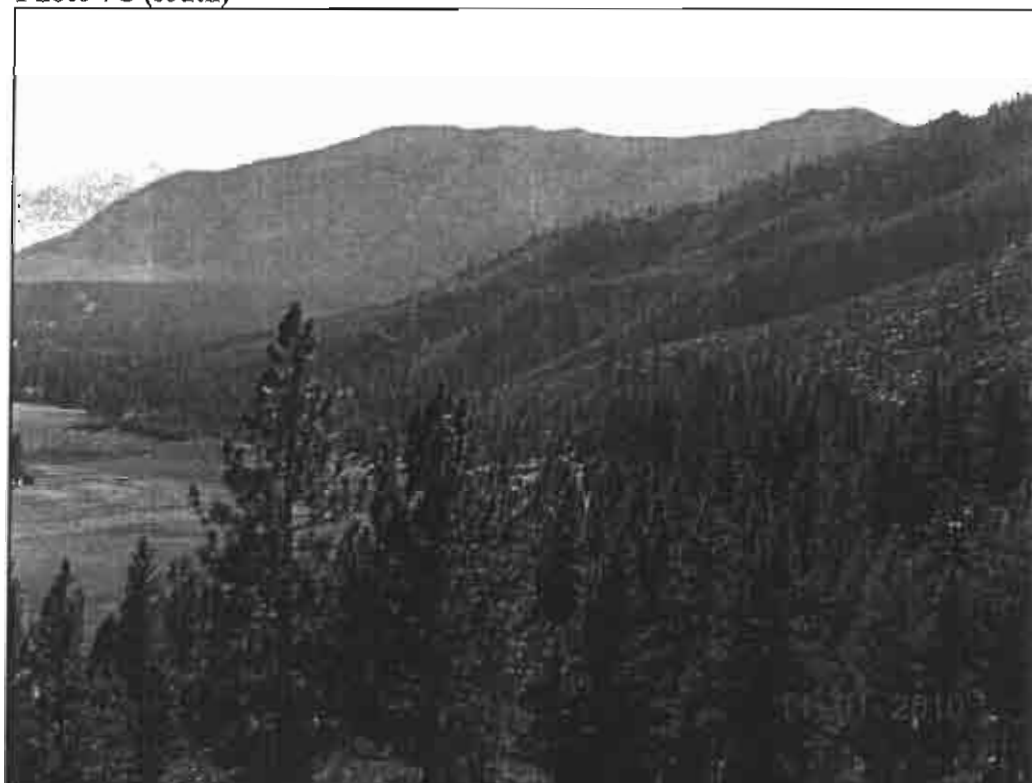


Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 7B (south)



Photo 7C (south)



Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 8A (east)



Photo 8B (east)



Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 9 (south)





A Northern Nevada Homeowner's Guide to Identifying and Managing Bull Thistle

Susan Donaldson, Water Quality and Weed Specialist

Wendy Hanson Mazet, Master Gardener Program Coordinator and Horticulturist

Other common names: Common thistle, spear thistle

Scientific name: *Cirsium vulgare*

Family: Asteraceae

Description: Bull thistle grows as a rosette (ground-hugging form) in the first year, and then sends up stems and flowers in the second year, growing to 6 feet tall.

Leaves: Lobed, hairy and rough on the upper side; soft on the underside, with a raised center vein. Leaves are rough when rubbed towards the base. Lobe tips have long, stiff spines. The lobe at the end of the leaf is elongated.

Stems: Hairy, spiny-winged and branched.

Flowers: Pink to purple, vase-shaped and in branched clusters at the ends of the stems. Bracts (modified leaves located under the flower petals) are spiny. Blooms from summer to fall.

Seeds: Produces many wind-borne seeds, up to 4,000 per plant.

Roots: Has a fleshy, branched taproot.

Native to: Eurasia; naturalized to much of the United States.

Where it grows: Rangeland, roadsides, edges of fields, burned areas and other disturbed or mismanaged sites

Life cycle: Biennial (flowers and dies in the second year)

Reproduction: Reproduces by seed



Typical plant growing in disturbed site.



Rosettes have fuzzy leaves with visible bumps.

Control methods: Bull thistle is easiest to control in the rosette stage. Prevent seed production to avoid spread by blowing seeds. However, simply cutting off the blooms does not provide sufficient control, as the plant will produce more flowers.

Mechanical: Dig or pull plants, removing 2 inches of the top of the root. Mowing is not effective, as the weed can regrow from the roots and bloom close to the ground.

Cultural: Plant desirable, thick stands of vegetation to compete with bull thistle. Tall grasses can help shade out the weed.

Biological: A seedhead-feeding fly, *Urophora stylata*, is available for use in controlling large infestations.

Chemical: Spot-treat young plants with broadleaf-selective herbicides. Use a surfactant to increase absorption of the herbicide by the fuzzy leaves.

References:

- Colorado State Parks. 2005. Colorado State Parks Weed Profile: Bull Thistle, <http://parks.state.co.us/SiteCollectionImages/parks/Programs/ParksResourceStewardship/Bull%20Thistle.pdf>.
- DiTomaso, J.M. and E.A. Healy. 2007. Weeds of California and Other Western States. University of California Publication 3488.
- Forest Health Staff. 2005. Bull Thistle. USDA Forest Service, <http://www.invasive.org/weedcd/pdfs/wow/bull-thistle.pdf>.
- Whitson, Tom D. (editor). 2002. Weeds of the West. University of Wyoming, Jackson, Wyoming.



The leaves are lobed and rough in texture, and the tip of the leaf is elongated. The spines on the tips of the lobes are long and stiff.



Flowers are purple and vase-shaped with spiny bracts.



Stems are spiny and winged.

(All photos by S. Donaldson)

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Walker & Associates

661 Genoa Lane, Minden, Nevada 89423

November 29, 2010

TO: Juan Guzman, Open Space Manager – Carson City, Nevada

FROM: Steve Walker, Walker & Associates

SUBJECT: Horse Creek Ranch Annual Pasture Utilization and Condition Assessment

On November 18th, 2010 Walker & Associates conducted the annual pasture utilization and condition assessment at the Horse Creek Ranch property. This assessment is part of the property monitoring requirements as described in the Baseline Report for the Horse Creek Ranch Conservation easement. Annual vegetative assessment of a 100 foot by 100 foot plot in the irrigated area of the ranch – see Baseline Report map – is used to insure that grazing use of the irrigated pasture is maintained at a level that maintains herbaceous plant vigor and does not cause any resource deterioration – soil erosion/introduced annual weed invasion.

The 100 foot by 100 foot pasture-monitoring site is located immediately south of the center wood post that marks the southern boundary of the excluded parcels. The western side of the monitoring area starts at the post and goes directly toward the large pine tree that sits between the two cottages to the south for 100 feet. From that point a right angle is established to go east 100 feet and then again to go north and then west. Right angles are developed at the south-west, south east and north-east corners by using a tape and stakes to create a right angle with 30 by 40 foot sides and a 50-foot hypotenuse. The 40-foot side is the measured along the previously established line.

There was no grazing occurring at the time of monitoring.

Results –

The pasture monitoring site was chosen to represent the two components of the irrigated pasture area – areas that are mostly saturated through the growing season and support wetland type plants - sedges, wire-grass and meadow foxtail - and areas more well drained that support facultative pasture grasses – tall fescue, timothy, blue grass and cinquefoil.

The utilization of the area was generally about 60% but was unevenly distributed with the saturated sites dominated by sedges and wire-grass receiving less utilization than the better drained upland areas. Overall the utilization was about right and the saturated sites would have been more grazed if livestock used the area more extensively in the fall when upland plants become less palatable. The sedge (*Carex rostratum*) was much more utilized in the saturated areas compared to the wire-grass (*Juncus balticus*). The tall fescue, blue grass and creeping wildrye in the better drained areas were uniformly grazed. Forbs, dominated by cinquefoil with some red clover, were only partially utilized.

Trends –

Generally the transect area look like it had received adequate irrigation and utilization. The well-drained, unsaturated portions had some scattered invasion by bull thistle that should be monitored and if it appears to be spreading or dominating particular sites then a spraying program with possible pasture rest might be necessary. Pocket gopher activity was extensive on the un-saturated area. This activity is related to the fall cessation of irrigation allowing the soils to dry out and be accessible to these rodents. The fall green-up of the basal area of most species due to abundant fall precipitation was impressive. Utilization particularly by deer of this green-up was evident.

Recommendations –

Based on observations the irrigation and livestock utilization within the monitoring area was adequate. The bull thistle population needs to be monitored and in livestock utilization become more managed – pasture rotations become utilized if pasture condition starts to show a downward trend based on the annual observation.

Steve Walker - Walker & Associates

Carson City Open Space – Conservation Easement Monitoring

Date: November 1, 2010 (and November 18, 2010 by Walker and Associates for the Annual Pasture Utilization and Condition Assessment, see attached report)

Start time: 9:00 a.m.

End time: 5:00 p.m.

Monitor(s): Ann Bollinger, Juan F. Guzman

Persons Attending Inspection (landowner or others): William Michael Fagen

Current Landowner(s): William Michael Fagen

Mailing Address: 15925 Caswell Lane, #4, Reno, NV 89511

Easement Address: Approximately 2.5 miles west of the paved terminus of Kings Canyon Rd

Easement size: 175.33 acres

Parcel size: 3 parcels, 201 acres total

On-site land use(s): Agricultural in the meadow, open sagebrush and forest in the uplands.

Surrounding land uses(s): On west, north, and east, the lands are under public ownership by Carson City Open Space and the U.S. Forest Service. The land use consists of undeveloped, dispersed recreation. On the south, the lands are under private ownership and the land use continues as agricultural.

Conservation Easement, Exhibit C, Prohibited Uses and Practices

1. Impairment of Protected Values

No change. The landowner is in compliance.

2. Commercial or Industrial Use

No change. The landowner is in compliance.

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During this monitoring visit, Carson City staff walked the east property line with Mr. Fagen who expressed concerns with vandalism to several sections of the buck and rail fence and trespass. He requested additional fence construction and Carson City agreed. The new construction will extend the existing fence, thereby reducing impacts and trespass by unauthorized motor vehicles. The cost will be shared 50/50 with Carson City paying from the stewardship account.

Carson City Open Space – Conservation Easement Monitoring



Note the vandalism
and removal of
several fence rails.

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Carson City Open Space – Conservation Easement Monitoring

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(a) *Maintenance and Repair of Existing Improvements and Facilities. To maintain, repair, and improve existing structures, housing, fences, ... and other improvements and facilities anywhere on the Property.*

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View from the conservation easement uphill to the adjacent USFS lands on the east.
N 39 08' 11.4"
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Photo of the wash-outs located south of the cabins.

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Carson City Open Space – Conservation Easement Monitoring

Written by: _____

Date: _____

Ann Bollinger

Reviewed by: _____

Date: 7/9/11

Juan F. Guzman

Landowner: _____

Date: _____

William Michael Fagen

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Other:

- University of Nevada Cooperative Extension, Fact Sheet 10-19, A Northern Nevada Homeowner's Guide to Identifying and Managing Bull Thistle
- Walker & Associates, Horse Creek Ranch Annual Pasture Utilization and Condition Assessment

Date Inspection Report Sent To Landowner: June 9, 2011

Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 1A (north)



Photo 1B (north)



Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 2 (south)



Photo 3 (south)



Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 4A (north)



Photo 4B (detail)



Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 4C (detail)



Photo 5 (east)



Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 6A (north)



Photo 6B (center)



Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 6C (south)



Photo 7A (south)



Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 7B (south)



Photo 7C (south)



Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 8A (east)

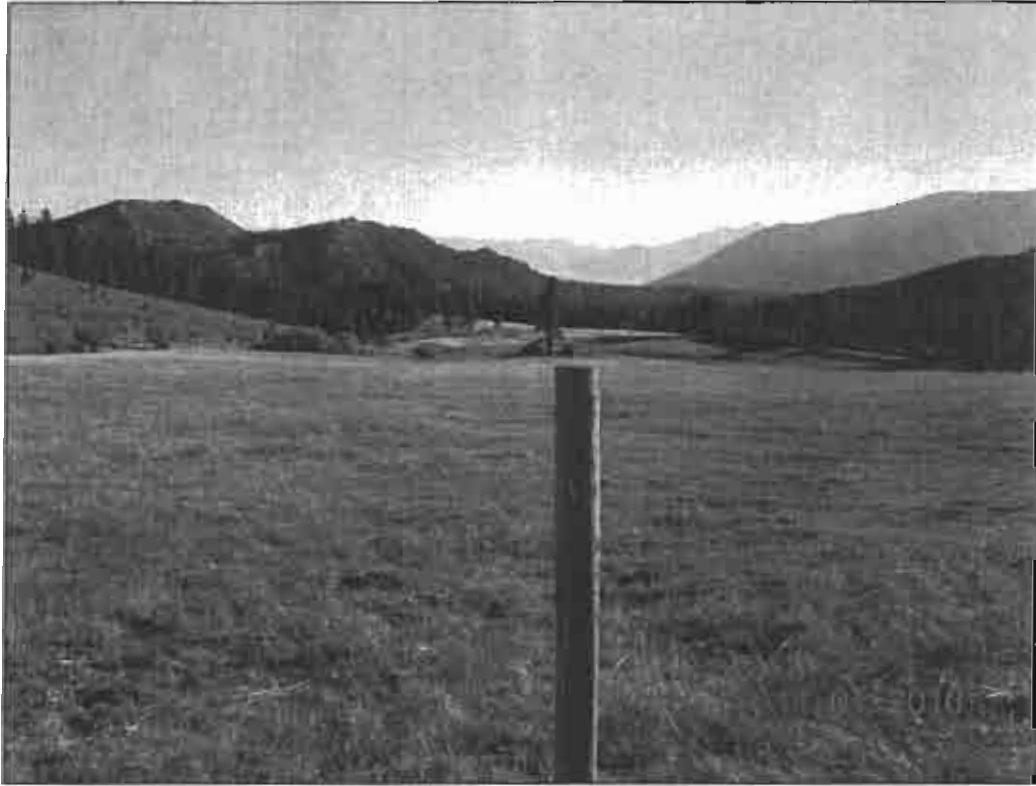


Photo 8B (east)



Repeat Photo Documentation (as compared to the Baseline Condition Report)

Photo 9 (south)





WEEDS



A Northern Nevada Homeowner's Guide to Identifying and Managing Bull Thistle

Susan Donaldson, Water Quality and Weed Specialist

Wendy Hanson Mazet, Master Gardener Program Coordinator and Horticulturist

Other common names: Common thistle, spear thistle

Scientific name: *Cirsium vulgare*

Family: Asteraceae

Description: Bull thistle grows as a rosette (ground-hugging form) in the first year, and then sends up stems and flowers in the second year, growing to 6 feet tall.

Leaves: Lobed, hairy and rough on the upper side; soft on the underside, with a raised center vein. Leaves are rough when rubbed towards the base. Lobe tips have long, stiff spines. The lobe at the end of the leaf is elongated.

Stems: Hairy, spiny-winged and branched.

Flowers: Pink to purple, vase-shaped and in branched clusters at the ends of the stems. Bracts (modified leaves located under the flower petals) are spiny. Blooms from summer to fall.

Seeds: Produces many wind-borne seeds, up to 4,000 per plant.

Roots: Has a fleshy, branched taproot.

Native to: Eurasia; naturalized to much of the United States.

Where it grows: Rangeland, roadsides, edges of fields, burned areas and other disturbed or mismanaged sites

Life cycle: Biennial (flowers and dies in the second year)

Reproduction: Reproduces by seed



Typical plant growing in disturbed site.



Rosettes have fuzzy leaves with visible bumps.

Control methods: Bull thistle is easiest to control in the rosette stage. Prevent seed production to avoid spread by blowing seeds. However, simply cutting off the blooms does not provide sufficient control, as the plant will produce more flowers.

Mechanical: Dig or pull plants, removing 2 inches of the top of the root. Mowing is not effective, as the weed can regrow from the roots and bloom close to the ground.

Cultural: Plant desirable, thick stands of vegetation to compete with bull thistle. Tall grasses can help shade out the weed.

Biological: A seedhead-feeding fly, *Urophora stylata*, is available for use in controlling large infestations.

Chemical: Spot-treat young plants with broadleaf-selective herbicides. Use a surfactant to increase absorption of the herbicide by the fuzzy leaves.

References:

- Colorado State Parks. 2005. Colorado State Parks Weed Profile: Bull Thistle, <http://parks.state.co.us/SiteCollectionImages/parks/Programs/ParksResourceStewardship/Bull%20Thistle.pdf>.
- DiTomaso, J.M. and E.A. Healy. 2007. Weeds of California and Other Western States. University of California Publication 3488.
- Forest Health Staff. 2005. Bull Thistle. USDA Forest Service, <http://www.invasive.org/weedcd/pdfs/wow/bull-thistle.pdf>.
- Whitson, Tom D. (editor). 2002. Weeds of the West. University of Wyoming, Jackson, Wyoming.



The leaves are lobed and rough in texture, and the tip of the leaf is elongated. The spines on the tips of the lobes are long and stiff.



Flowers are purple and vase-shaped with spiny bracts.



Stems are spiny and winged.

(All photos by S. Donaldson)

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Walker & Associates

661 Genoa Lane, Minden, Nevada 89423

November 29, 2010

TO: Juan Guzman, Open Space Manager – Carson City, Nevada

FROM: Steve Walker, Walker & Associates

SUBJECT: Horse Creek Ranch Annual Pasture Utilization and Condition Assessment

On November 18th, 2010 Walker & Associates conducted the annual pasture utilization and condition assessment at the Horse Creek Ranch property. This assessment is part of the property monitoring requirements as described in the Baseline Report for the Horse Creek Ranch Conservation easement. Annual vegetative assessment of a 100 foot by 100 foot plot in the irrigated area of the ranch – see Baseline Report map – is used to insure that grazing use of the irrigated pasture is maintained at a level that maintains herbaceous plant vigor and does not cause any resource deterioration – soil erosion/introduced annual weed invasion.

The 100 foot by 100 foot pasture-monitoring site is located immediately south of the center wood post that marks the southern boundary of the excluded parcels. The western side of the monitoring area starts at the post and goes directly toward the large pine tree that sits between the two cottages to the south for 100 feet. From that point a right angle is established to go east 100 feet and then again to go north and then west. Right angles are developed at the south-west, south east and north-east corners by using a tape and stakes to create a right angle with 30 by 40 foot sides and a 50-foot hypotenuse. The 40-foot side is the measured along the previously established line.

There was no grazing occurring at the time of monitoring.

Results –

The pasture monitoring site was chosen to represent the two components of the irrigated pasture area – areas that are mostly saturated through the growing season and support wetland type plants - sedges, wire-grass and meadow foxtail - and areas more well drained that support facultative pasture grasses – tall fescue, timothy, blue grass and cinquefoil.

The utilization of the area was generally about 60% but was unevenly distributed with the saturated sites dominated by sedges and wire-grass receiving less utilization than the better drained upland areas. Overall the utilization was about right and the saturated sites would have been more grazed if livestock used the area more extensively in the fall when upland plants become less palatable. The sedge (*Carex rostratum*) was much more utilized in the saturated areas compared to the wire-grass (*Juncus balticus*). The tall fescue, blue grass and creeping wildrye in the better drained areas were uniformly grazed. Forbs, dominated by cinquefoil with some red clover, were only partially utilized.

Trends –

Generally the transect area look like it had received adequate irrigation and utilization. The well-drained, unsaturated portions had some scattered invasion by bull thistle that should be monitored and if it appears to be spreading or dominating particular sites then a spraying program with possible pasture rest might be necessary. Pocket gopher activity was extensive on the un-saturated area. This activity is related to the fall cessation of irrigation allowing the soils to dry out and be accessible to these rodents. The fall green-up of the basal area of most species due to abundant fall precipitation was impressive. Utilization particularly by deer of this green-up was evident.

Recommendations –

Based on observations the irrigation and livestock utilization within the monitoring area was adequate. The bull thistle population needs to be monitored and in livestock utilization become more managed – pasture rotations become utilized if pasture condition starts to show a downward trend based on the annual observation.

Steve Walker - Walker & Associates