

OPEN SPACE ADVISORY COMMITTEE

STAFF REPORT

MEETING DATE: July 15, 2013

AGENDA ITEM NUMBER: 3G

STAFF: Juan F. Guzman, Open Space Manager
Ann Bollinger, Natural Resource Specialist



REQUEST: Discussion only regarding other projects –BLM Resource Management Plan, Federal Lands Bill, fuels reduction, NDEP grant for Ash Canyon Road, U.S. Forest Service graphite mine exploration permit, volunteers, and weeds.

GENERAL DISCUSSION:

BLM Resource Management Plan:

Staff attended a BLM Cooperating Agency meeting on June 13, 2013. There was discussion on the associated studies and reports as well as a glimpse at the methodology for the Environmental Impact Statement (EIS) alternatives and matrices. The City submitted a letter and comments, previously reviewed by various advisory committees, on the identified issues. (Exhibit A)

Federal Lands Bill:

BLM anticipates completing the transfer of lands in approximately three months. Staff is ready to process the transfer of funds for the Conservation Easement Endowment, approximately \$350,000.

NDEP grant for Ash Canyon Road:

The road maintenance and some extra items were completed prior to the July 4th weekend, at an approximate cost of \$14,000. This sum will be used as a match for the \$10,000 NDEP grant. The purpose of the grant is to complete a management-erosion mitigation plan for the Ash Canyon Road. A copy of the NDEP Progress Report is attached. (Exhibit B)

U.S. Forest Service graphite mine exploration permit:

First and foremost, this proposal is in the very early stages of development. In June, the USFS Carson Ranger District received a copy of the "Notice of Intent" for graphite mine exploration in Voltaire Canyon, on a historic and previously mined area. The District Ranger, Genny Wilson, contacted Carson City regarding initial comments and concerns. The applicant is currently working on a "Plan of Operations" and if accepted by the USFS, the NEPA (National Environmental Policy Act) process is anticipated to begin in the fall 2013. (Exhibit C)

Volunteers:

The Carson City Human Resources Department and Risk Manager have initiated a very comprehensive project to develop a standard city policy applicable to all volunteer programs. During this period, staff has been asked not to recruit any more volunteers.

During the month of June, there was a total of 765 hours worked by approximately 80 volunteers. The majority of this time is attributed to Muscle-Powered.

Fuels Reduction:

Due to the drought conditions, just one band of sheep was used to graze on cheatgrass and other vegetation for approximately six weeks in April and May. The project was visited by the UNR Principles of Range Management class. The students, ranging from freshman to senior, are studying range management, forestry, and/or wildlife.

Weeds:

Throughout the past 2-3 years, grant funding from American Recovery and Reinvestment Act (ARRA) assisted with the hiring of seasonal workers for weed control projects along the Carson River. With this significant funding source, the Carson City Weed Coalition was able to implement a more integrated pest management (IPM) program and apply a double-whammy control effort. The four-person crew hand-clipped flower heads in the spring and applied chemical in the early summer, primarily on perennial pepperweed. It appears these efforts were fairly effective towards weed control.

Due to decreased grant funding, Carson City has hired a contractor to assist with chemical treatment of invasive and noxious weeds. Prior to July 1, 2013, the Open Space Program treated the Fulstone Wetlands, Moffat Open Space, the Vidler-donated parcel, and the cottonwoods near Deer Run Road. The contractor is in progress on the Lompa Wetlands and Carson River Canyon. The primary weeds are perennial pepperweed, poison hemlock, Bull thistle, and Canada thistle. Unfortunately, Canada thistle has become more prevalent. Select locations of hoary cress have also been treated.

A new issue relates to mayweed chamomile, a state-listed noxious weed in Nevada and Colorado. Due to state laws and federal requirements, seed producers and suppliers in the Pacific Northwest have expressed hardship and have requested changes or exemptions to state law by the Nevada Department of Agriculture. A few years ago, the seed producers and suppliers unsuccessfully requested that mayweed chamomile be removed from the Nevada Noxious Weed List. This year, they are requesting an exemption, particularly as it relates to turf and revegetation seed mixes. The seed producers and suppliers state the mayweed chamomile is found in areas of higher precipitation and therefore shouldn't be a concern in Nevada. However, a University of Nevada Cooperative Extension Fact Sheet 04-08 states that mayweed chamomile is present in Nevada and found primarily in irrigated agricultural areas. Additionally, the factsheet states the plant's ability to quickly spread, its lack of beneficial uses, damage to neighboring plants, and potential harmful effects to humans and livestock. It is staff's opinion that a state-listed noxious weed should not intentionally be imported for turf or revegetation purposes. (Exhibit D)

RECOMMENDED ACTION: Discussion only. No action may be taken.

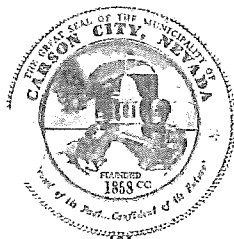


Exhibit A

CARSON CITY, NEVADA

CONSOLIDATED MUNICIPALITY AND STATE CAPITAL

July 2, 2013

Ms. Colleen Sievers
Bureau of Land Management
Carson City District Office
5665 Morgan Mill Road
Carson City, Nevada 89701

Re: Revision of the 2001 Carson City Field Office Consolidated Resource Management Plan

Dear Ms. Sievers,

Carson City has agreed to participate in the Bureau of Land Management, Consolidated Resource Management Plan Update planning process as a cooperating agency. In addition to our staff's continued participation at meetings, Carson City submits the attached comments addressing several of the issues that have been identified through the scoping sessions and our advisory boards. We look forward to this collaborative effort and further discussion as it relates to Carson City. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Crowell", written over a horizontal line.

Robert L. Crowell
Mayor

Attachment

Robert L. Crowell, Mayor
201 North Carson Street, Suite #2, Carson City, Nevada • 89701
(775) 887-2100 • Fax: (775) 887-2286
e-mail: bcrowell@carson.org

Carson City Concerns and Needs
Regarding
Carson BLM RMP/EIS

1. Wildland Urban Interface (WUI) – Carson has aggressively planned for and carried out an ongoing fuels management program at the WUI where threat of wildfire is constantly an issue. To continue active treatment of fuels and assure safe conditions around the City, it is imperative that the BLM and City work closely to bring sound science, updated planning and timely treatment to areas identified as threats. BLM manages significant acreage within Carson City, both at the interface and in the remote areas. Both areas are of concern, but the interface represents an area where the two entities can accomplish the greatest need at the present time. Provisions should be made to allow for cooperative plans and ongoing maintenance for brush and invasive weed control by using all potential tools (grazing, mechanical, herbicides, etc). Plans should include seeding selected areas with fire resistant species such as crested wheatgrass, Siberian wheatgrass, Sandberg's bluegrass, and forage kochia. While several of these are exotic species, they have shown to be competitive with cheatgrass and can stop wildfires when managed properly.
2. Fire – The City is sensitive to the growing number of wildfires on public lands in our region that have not only devastated resources and watershed, but also private properties, including some loss of life. For example, the Pine Nut Mountains have experienced several wildfires within recent years with a loss of public land and some private property. The ongoing drought conditions further exacerbate an already brittle and dry fuel-laden rangeland in our region and thus warrant the City and BLM meeting to discuss and strategize alternative approaches to reduce rangeland fuels. Because Carson City has an active and much valued Open Space program, recreationists (i.e. hiking, mountain biking, running, etc.) are at continual risk from threat of wildfires during the fire season when the backcountry trails are used the most. As such, the City requests provisions for close coordination and aggressive initial attack on fires that start on BLM lands and that have the potential to burn into the WUI. In addition, developing more remote water sources for fire suppression should be a consideration. Spring developments might well serve as backup waters for this purpose. Where possible, providing large diameter water tanks, and/or impoundments that can be utilized for fire suppression (drafting water for engines and helicopter dips) could prove beneficial to help protect rangeland resources. Some ranchers owning private stockwater on the public lands might also be interested in cooperating on some of these types of developments.

3. Upland Recreation – As recreation grows in the area, the City wants to continue coordination with BLM to plan for additional trails, access areas, and means of dispersing recreation in a manner that minimizes conflict between users and to avoid future resource problems. Examples of conflicts might include mountain bikes on jogging / hiking trails, horseback riding in inappropriate areas, and off-highway vehicle (OHV) use in areas not suitable or designated for these activities. Any recreational trail can become a source of active erosion and spread of invasive species. In Carson City, specific concerns include user-built routes on steep hillsides leading to the Carson River as well as the problem of OHVs driving in the riverbed during low-flow years. This is particularly important for BLM planning because most of the feasible OHV recreational use is on BLM land. There is a designated motorized-use area at the south end of the Prison Hill Recreation Area, but in other areas the conflicts with motorized vehicles on trails are an increasing problem. Coordinated planning, signs, maps, etc. will help to avoid such conflicts.

Please note that the Carson City Community Vitality Act of 2009 states that OHV use is limited to designated trails and roads in existence at the time of adoption of the lands bill, until superseded by a vehicle management plan.

The slopes and hills around Carson City are an important component of the scenic and natural resources and must be managed to avoid degradation. This is particularly important for the habitats and water quality associated with the Carson River.

4. Mining – *Please note that the Carson City Community Vitality Act of 2009 provides for the withdrawal of mining uses within the wildland urban interface.*
5. Water Based Recreation – The Carson River has grown to be a very desirable focal point for recreationists, particularly with the provision of river access for rafting and kayaking. The BLM has been a partner in efforts to identify and plan for the river recreation activities and the city wishes to build on this relationship to expand water recreation experiences for the public. Safety is an ongoing concern along the river corridor, as medical and police services are a fair distance away, affecting response time for potential emergencies. The City appreciates any opportunities to plan and cooperate with BLM regarding safety concerns along the river corridor.
6. Water Resources – The City is aware that natural springs occur on the public lands throughout the District, many of which are not presently privately owned waters. Developing these springs to allow for wildlife, wild horses, livestock, and where possible, backcountry recreationists to utilize as safe water sources would greatly enhance the quality of backcountry experience and add value to our public land resources.

7. Wild Horses – The City supports careful and ongoing management of wild horses where the public can enjoy these animals in a safe, managed environment. Unfortunately, some herd stallions are known to sometimes demonstrate a threatening behavior to the public who recreate in the park environment along the Carson River. The City would like to work with the BLM to develop safe conditions in the park area that allows for families to recreate and enjoy the wild horses without fear of harm. Despite the ongoing controversy concerning the wild horses, they should be managed for appropriate management levels within the herd management areas and not be allowed to damage or overgraze the rangelands or riparian areas critical to wildlife, watershed, water quality, etc. The BLM should be decisive in managing wild horses and support all proposed decisions with sound monitoring data to help avoid lengthy and costly legal challenges. Monitoring will also help to avoid conflicts with other users such as livestock grazing and wildlife. *It is the City's position that BLM must continue to manage as provided by the authority granted through the Wild and Free-Roaming Horses and Burros Act of 1971.*
8. Livestock Grazing – Following the devastating 2004 Waterfall Fire, the City worked to implement its fuels management program to help avert a reoccurrence of this tragic event. A vital component of the fuels management program has been prescribed sheep grazing at the WUI as a biological means of reducing fuels and encouraging green conditions through the spring and early summer. The success of this program is a product of careful planning and public education. The public now anxiously awaits the arrival of the domestic sheep in the spring of the year to assist in this vital fuels reduction program. Mechanical treatment is also an essential component for brush control in combination with the grazing. The City is supportive of livestock grazing on public lands as a valued tool to help reduce the invasive species such as cheatgrass, an annual flashy fuel, and also to help manage perennial fuels. Carefully planned grazing can help harvest excess fuels, reduce cheatgrass occurrences and promote conditions more conducive to less destructive wildfires. Clearly, fire is a part of the natural processes but reducing or managing the fuels is essential to help prevent catastrophic events. The City is aware that bighorn sheep have been, or planned to be, introduced on private lands near Virginia City. These bighorns were introduced with the understanding that there would be no limitations on the existing sheep allotments around Carson City. The City supports the potential use of sheep grazing on these allotments and the WUI perimeter of Carson City.
9. Weed Control – The City is concerned with the occurrence of invasive and noxious weeds. While grazing may help to control some invasive species such as cheatgrass, chemical herbicides may be the only means of eradicating others such as medusahead wildrye. Noxious weeds remain a high priority for eradication or control, and the local weed coalition works to identify and address the problem. Carson City appreciates the

opportunity to coordinate with BLM on weed control efforts, especially when noxious weeds are located on BLM managed lands. Similar to fuels management, the City recommends that the RMP include provisions that allows the use of multiple tools to manage noxious weeds and a collaborative relationship to ensure infestations adjacent to City-owned lands are treated in the most effective and efficient manner possible. BLM staff should be informed regarding new herbicides and make efforts towards their use on lands throughout the region.

10. Wildlife – Wildlife on public lands are important to Carson City and its residents. Wildfires have greatly impacted the wildlife habitat surrounding Carson City and are likely a major factor that has encouraged the presence of a resident deer herd that once was migratory. Deer fawn in and around the City and forage on neighborhood grasses, forbs, and ornamental plants year round. This concern will further exacerbate unless the deer can be drawn back to their natural environment. The City is anxious to explore opportunities to work with BLM and other agencies to identify cooperative habitat improvement projects on the public lands to help address this concern. Habitat improvement projects throughout the District are encouraged, and planning needs to be integrated so that wildlife values and fuels / WUI projects do not interfere (i.e. use of forage kochia in the interface areas rather than bitterbrush and sagebrush).
11. Threatened and Endangered Species – While Carson City is not aware of any threatened and endangered species on the BLM-managed lands near the City, there is an ongoing concern that a listing could have negative impacts on the multiple uses of BLM lands. If listed, sage-grouse are recognized as a species that could have far reaching consequences across the public and private rangeland areas. While the City is not aware of any critical sage-grouse habitat within Carson City, there may be potential habitat areas such as stringer meadows and springs that can be cooperatively improved to entice sage-grouse use and help to avert a listing of the species. The City supports all reasonable approaches, in balance with multiple use and industry, short of listing directed toward conservation of sage-grouse. The City strongly encourages the BLM to utilize the recommendations recently set forth by the Nevada Governors Sage-Grouse Advisory Committee.
12. Cultural Resources – Historic land occupancy by Native Americans in Nevada, and later settlements by pioneers throughout the District, is of great interest to many Carson City residents. The City supports carefully developed plans that when implemented assure protection of these resources while affording public education and enjoyment of these sites. When historic sites are identified within the Carson City limits, the City wishes to become actively involved in the planning effort to help educate and benefit the public. In addition the City requests aggressive action by BLM to inventory and clear the WUI area to allow for weed/fuels management and timely rehab should a

wildfire occur in this area. The time required for cultural clearances can greatly impact critical area treatment and the most effective season needed for treatments such as drill seeding.

Carson City, the Nevada State Historic Preservation Office, and the Bureau of Land Management have entered into a programmatic agreement providing for the procedures to be used for the management of cultural resources on areas approved to be transferred to Carson City through the Carson City Community Vitality Act of 2009. These procedures also apply to the Bently property acquisition located within the Carson River Canyon and partially funded from the Southern Nevada Public Land Management Act – Parks, Recreation and Natural Areas.

13. Pinyon-Juniper Woodlands – These woodlands exist in several parts of the District and when properly managed contribute an array of values including watershed, wildlife habitat, pine nuts, scenic, firewood, etc. that are important to Carson City residents. The BLM action to thin these woodlands and reduce the higher density stands to appropriate stages and placement on the landscape is imperative to the health of the woodlands. Treatment will help restore habitat important to sage-grouse and other species representative of the sagebrush-grass ecosystem. It is reported that 50-60,000 acres of pinyon-juniper woodland is converting from phase II to phase III woodlands each year. This means that they are crossing a threshold to a declined condition where management will be unable bring about a natural response to regain a desired seral condition. New studies underway, such as those occurring at Porter Canyon in the Desatoya Mountains, suggest that it may be possible to increase understory vegetation, free up ground water and reestablish or rejuvenate meadows and springs by pinyon-juniper woodland thinning in appropriate locations. The City supports this kind of research and proactive work, particularly as climate change continues to impact the West with ongoing drought. The City is also aware of and supports the statewide cooperative efforts being carried out by the Nevada Pinyon Juniper Partnership to encourage much needed treatment and utilization, wherever possible, of the pinyon-juniper woodlands. Carefully planned harvest treatments and utilization of excess biomass from these woodlands can improve rangeland and watershed health while providing much needed jobs and improved economies. Biofuels, wood pellets, biochar and combined heat and power (CHP) facilities are examples of the many valued uses for biomass from the pinyon- juniper woodlands which may potentially be the best form of alternative (green) energy in Nevada going forward. The City encourages and supports the use of such activities as commercial wood cutting permits, stewardship contracts (10-20 years), etc. as tools to promote necessary treatments at a cost savings to the BLM while also providing jobs.

14. Solar, Geothermal, and Wind Power Sources – The City supports alternative (green) energy when it is properly located and acceptable to the public. Energy farms (wind/solar) take considerable land area and can potentially affect other uses and/or scenic values on public lands. Proposals for such developments should be brought before the local communities early in the process and allow adequate time to assess the project and its potential impacts on the land and communities.
15. Public Education – Outdoor recreation users are generally interested in their environment and the concepts of sustainable use. However, many are in need of the tools and education to become true stewards of the open space and associated resources. A comprehensive outreach program to include workshops, maps, brochures, educational programs, signage and other educational tools will help tremendously in making users knowledgeable and responsible. There will still be some enforcement needs, but the goal should be education as a key element in advance of enforcement.
16. Lands and Realty – The City is interested in working with the BLM through the RMP planning process to identify parcels of land that might be designated or transferred to the City for public purposes.

The City wishes to complete the transfer of lands approved through the Carson City Vitality Community Act of 2009. Some of the “clean up” issues that remain are:

- There are two encroachments from the State of Nevada previously authorized by the Bureau of Land Management into areas designated as part of the transfers to Carson City.
 - An approximately 38 acre parcel at Koontz Lane and Edmonds Drive that should be transferred to Carson City.
 - Approximately 58 acres of Silver Saddle Ranch should be transferred to Carson City. This area was inadvertently missed as part of the mapping for the Carson City Community Vitality Act.
17. Special Designations – Carson City does not recommend any special designation within our jurisdiction. The Silver Saddle Ranch, Prison Hill Recreation Area, and the Ambrose Carson River Natural Area are being transferred to Carson City subject to a conservation easement that ensures resource protection.

Ash Canyon Road Erosion Control Project
NDEP # S13-019
RCI Project # 06-191.5

Project Progress Report
From April 1, 2013 to June 30, 2013

Summary of Work Done This Quarter:

1. Project Coordination

- Coordinated the project and timeline with Juan and George Mahe

2. Project Area Team Site Assessment and Mapping

- On May 1, 2013, Juan Guzman, George Mahe, and Lynn Zonge performed a joint field site assessment. During the assessment different alternatives or solutions were brainstormed for various erosion and sedimentation issues.
- Following the assessment, a working map was prepared showing landmarks, the mile markers and various proposed improvements.
- Plan content was brainstormed with the engineering team and the contractor and a field approach for developing the road erosion control plan was established for July.

3. Project Area Review with the NDEP and Contractor

- On June 4, 2013, Juan Guzman, Lynn Zonge, and Brian with Horizon drove the length of the project area with Mary Kay to familiarize her with the area and get her feedback on the proposed water quality improvement measures.

4. Conduct Road Erosion Control Improvements

Originally, it was envisioned that the roadway improvements would occur all at once after the management plan was prepared. However, due to the amount of traffic over the 4th of July holiday weekend, it was agreed that the bulk of the road improvements as we had discussed in the field, should occur prior to the holiday.

- The weeks of June 10th and 17th, the contractor made a variety of erosion and sediment control improvements to the Ash Canyon Road as follows:
 1. 4 boulders at NDOW road closer, remove tree from creek and place at Closed Road #1, 3 boulders at Closed Road #2 with water bar and two parking spaces, relocate Boy Scouts sign and widen area for parking at approximate mile 1.75.
 2. Road maintenance as directed from mile 1.7 to mile 2.5 including removing berms, removing berms of eroded soil, and reinforce approximately 20 water bars.
 3. Road maintenance as directed from mile 2.5 to Landing #4 including removing berms, removing berms of eroded soil, and reinforce approximately 10 water bars.
 4. Road maintenance from tanks to mile 1.7 including removing a couple of berms and only minimal grading consisting of removing loose rocks.
 5. Road maintenance from Landing #4 to mile 5 including trimming brush and only minimal grading consisting of removing loose rocks.

5. Review Contractor Work

- On June 28, 2013, Lynn Zonge drove up to landing #4 and photo-documented representative areas that were improved by Horizon Construction.

Summary

According to the workplan (Contract Attachment A) we have focused on our Project Measures of Success:

- Restore/rehab/ 18,050 square feet of eroding / closed roadways
- Eliminate roadway water from 3 large gullies
- Reinforce a minimum of 10 water-bars
- Delineate parking for 2 landing areas
- Install at least 1 informational public awareness sign
- Install 5 mile markers

Forecast of Activities During Next Quarter:

1. *Plan Development*

- The long-term road management plan including specific erosion and sediment control improvements will be drafted.
- The Plan will include addressing Task 3 of our contract Attachment A: NDEP approved signage for public outreach and education regarding the importance of:
 1. Staying off dirt roads when they are wet (seasonal road closures)
 2. Staying on existing roadways
 3. Controlling speed on the steep downhill areas
 4. High clearance vehicles only
 5. Mile markers

Ann Bollinger

From: Juan Guzman
Sent: Tuesday, June 11, 2013 3:48 PM
To: Larry Werner; Lee Plemel; Roger Moellendorf; Andy Burnham; Ann Bollinger; Darren Schulz; Jeff Sharp; Marena Works; Stacey Giomi; Ken Furlong
Subject: FW: Chedic Graphite Mine Proposal - Surveys Needed?
Attachments: Intent to Operate.pdf

Hello Team:

FYI, Genny is asking us what issues come to mind? This is at one of our sheep camps. There is some motorized recreation use and some single tract riding in the vicinity. Fire???. Scenic resource ???. The jurisdiction is USFS so if we have concerns Genny is trying to help us getting them address. Marena would the Health Dept. have concerns?

From: Wilson, Genny E -FS [<mailto:gewilson@fs.fed.us>]
Sent: Tuesday, June 11, 2013 3:08 PM
To: Juan Guzman
Subject: FW: Chedic Graphite Mine Proposal - Surveys Needed?

Hey Juan,

Check this out—what issues come to your when looking at the map and the proposal? Pretty much right in Carson Cities back yard.

Genny

From: Gusey, Aili -FS
Sent: Tuesday, June 11, 2013 2:52 PM
To: Champion, Sally -FS; Easton, Maureen A -FS; Garrotto, Joseph M -FS; Bergstrom, Elizabeth -FS; Howell, Steven R -FS; Morris, Daniel -FS; Brinnand, Amanda -FS
Cc: Wilson, Genny E -FS
Subject: Chedic Graphite Mine Proposal - Surveys Needed?

Hi everyone,

GeoXplor Corp is moving forward with a Plan of Operations (POO) for their plans to drill 5 holes at the Chedic Graphite Mine outside of Carson City. They had submitted a Notice of Intent to us but we determined that they would need to submit a POO in order to do the drilling. SWCA Environmental Consultants is working on the POO for GeoXplor Corp; however, they would also like to know what surveys would be necessary for this project. Although, we haven't received a POO, their Notice of Intent does have their overall plan and we do have a map of the proposed drill sites (See attached).

Summary of the Proposal

All of the drill hole locations are situated on existing access roads utilizing an all-terrain rubber tire type drill rig. No drill pads will be required to complete the holes. The projected depth of the drill holes will range from 700 to 1,000 feet at an angle of 45 degrees. The estimated duration of the drill program is 10 days. The areas that would be disturbed during the exploration drilling will consist of an 8 inch diameter drill hole. It is estimated that less than 1.0 acres of NFS land would be disturbed. All exploration drill holes will be plugged upon completion with on-site drill equipment, using bentonite chips and/or grout emplaced by injection pipe, depending on whether dry or wet hole conditions are encountered. Drill holes will not be left open at any time during the life of the project. Carson City Municipal Water Treatment Plant will be the source of the non-potable drilling water, if needed. Access to the sites would be by the Voltaire Canyon road from the south and a trail road from Kings Canyon. No road maintenance or construction will be required to complete the proposed drill program.

Based on these plans, what surveys do you anticipate will be needed for your respective resource? I believe it would likely be a CE but that of course could change if something were to come up during on-the-ground evaluations or during scoping. Once I hear from everyone, I will pass the information on to SWCA Environmental Consultants.

Please forward on to anyone that I may have missed.

If you have any questions, please let me know.

Thanks!

Aili Gusey
Detailed Zone Geologist
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Humboldt-Toiyabe National Forest
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agusey@fs.fed.us

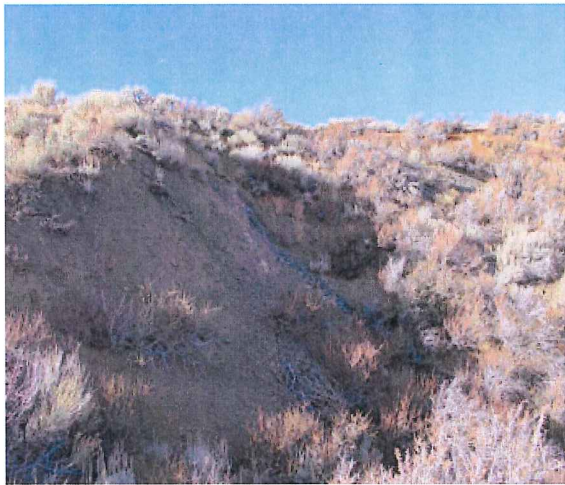
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Introduction

The Chedic Graphite property consists of 20 VC mineral lode claims in Township 15 North, Range 19 East, Sections 25 and 26, Carson City, Nevada. The Chedic Graphite Mine is located within the Carson Range, a north-trend mountain range that borders Lake Tahoe on the east and is considered to be part of the prominent Sierra Nevada Mountain Range.

The graphite mine is located approximately 4 miles west of Carson City, Nevada at an elevation of 6,000 feet. Access to the mine is provided by Voltaire Canyon Road passable by two-wheel drive vehicles.

Mine History



The Chedic (Voltaire) Graphite Mine is located about 4 miles southwest of Carson City. The mine was opened by Walter Chedic during the early 1900s. The Chedic Graphite Mine was the only steadily producing mine in the county for years and shipped a limited tonnage of graphite to the Pacific Graphite Works of Richmond, California. The products manufactured from the Chedic graphite include paint, foundry facings and lubricants.

The graphite mine was never fully developed with only a small amount of graphite ore mined from the deposit.

Graphite

Graphite is a black lustrous mineral that crystallizes in the hexagonal system with rhombohedral symmetry. The carbon atoms are arranged on a single layer facilitating easy cleavage making graphite one of the softest substances known. The crystals have tabular form and are six-sided; the faces commonly are striated. The flakes have perfect basal cleavage and are opaque. The flakes have a black metallic luster and feel greasy. Graphite is an excellent conductor of heat and electricity. It melts at 3,550 degrees centigrade.

Amorphous graphite is commonly found as minute microcrystalline particles more or less uniformly distributed in metamorphosed rocks, such as slates and shales with the beds consisting of almost entirely graphite. The graphite content of amorphous deposits is dependent on the amount of carbon originally present in the sediments. The amorphous graphite deposits occur as altered carbonaceous sediments formed by contact metamorphism with no evidence of enrichment by the intrusive rocks. In some instances, amorphous graphite deposits have been formed by contact or thermal metamorphism, while others have been formed by regional dynamic metamorphism.

All graphite is crystalline and amorphous. The terms flake and amorphous applies to the crystal size of the graphite and it is understood that amorphous graphite is the fine particles of crystalline graphite. Amorphous graphite is graded on its graphitic carbon content. Commercial products contain about 50 to 94% carbon depending on its source or beneficiation.

Graphite occurs in marble, gneiss and schist rock types. In most cases the rocks have been intruded by igneous rocks. Flake graphite deposits occur as disseminations in metamorphosed silica-rich sedimentary rocks. Flake graphite is also found in disseminations in marble. Most amorphous deposits have formed by metamorphism of coal or carbon-rich sediments.

The natural graphite market consists of the manufacturing of batteries, bearings, brake lining, carbon brushes, crucibles, foundry facings and molds, lubricants, lubricant packing, pencils, and refractories.

Grades

Graphite is graded on the combination of carbon content, particle size and particle size distribution, plus ash content and ash chemistry, with certain uses having specific needs. In China, flake graphite is graded according to National Standard GB/T 3518-95 with four categories based on Carbon content: high purity (LC) >99.9%; high carbon (LG) 94-<99.9%; medium carbon (LZ) 80<94%; and low carbon (LD) 50-<80%. These are subdivided into 212 grades (10 for LC, 124 for LZ, and 12 for LD) according to the content of fixed carbon, volatiles, moisture, and retained percentage.

Graphite Prices

Carbon Content	Size	Price Range - Ton
99 to 99.9%	50 Mesh	\$4,000.00 to \$6,000.00
94 to 97%	+80 Mesh	\$2,500.00 to \$3,000.00
90%	+80 Mesh	\$2,000.00 to \$2,500.00
94 to 97%	+100 – 80 Mesh	\$2,200.00 to \$2,500.00
90%	+100 – 80 Mesh	\$1,500.00 to \$2,000.00
85 to 87%	+100 – 80 Mesh	\$1,500.00 to \$1,900.00
94 to 97%	-100 Mesh	\$2,000.00 to \$2,400.00
90%	-100 Mesh	\$1,400.00 to \$1,800.00
Amorphous Powder 80%		\$600.00 to \$800.00

Industrial Minerals Magazine – 2012

Graphite Flotation

Numerous graphite mines located throughout the world concentrate the graphite material by flotation. Graphite has a natural floatability with hydrophobic characteristics and readily attaches to air bubbles even the large particles up to 2 mm in size.

The flotation process consists of crushing and grinding in a rod or ball mill with classifiers and then sent to the flotation circuit. The graphite flotation process uses nonpolar oil, such as kerosene or fuel oil with a combination of standard frothers. The pH of the pulp is

adjusted to pH 8. Sodium silicate is added to disperse the gangue minerals and increase the selectivity.

The flotation treatment can produce a graphite product with 92 to 95% carbon content with 75 to 80% recovery. Additional upgrading can be achieved by chemical methods.

Graphene

The term graphene was created by Hanns-Peter Boehm who described single layer carbon foils in 1994. Graphene is the name given to a flat monolayer of carbon atoms tightly packed into a two-dimensional honeycomb lattice and is the basic building block for graphitic materials of all other dimensionalities. It can be wrapped into fullerenes (balls) rolled into nanotubes or stacked into 3D graphite layers.

Graphene has been created by exfoliating graphite in a liquid medium. Ultrasonic irradiation has been a very useful tool in the fields of chemistry and material engineering. When ultrasonic waves pass through a liquid acoustic cavitation takes place and produces localized hot spots with temperature as high as 5000 degrees centigrade and local pressure as high as 500 atm. Acoustic cavitation near a solid surface can create localized erosion, induce high-velocity interparticle collisions, cause fragmentation of brittle materials, and improve mass transport. Therefore, the soft and sticky exfoliated graphite, which is very difficult to be powdered by other mechanical methods, can be effectively powdered by ultrasonic irradiation in an aqueous medium.

It has been just over two years since graphene was first reported with the most immediate application for graphene is its use in composite materials. It has been demonstrated that a graphene powder of micrometer-size crystallites will create conductive plastics at less than one percent volume fillings. Additional graphene applications are:

- The use of graphene powder in electric batteries with its large surface-to-volume ratios and high conductivity provided by graphene powder can improve the efficiency of batteries.
- Graphene is also an excellent material for solid-state gas sensors. Due to its 2D structure the entire volume is exposed to its surrounding makes it very efficient to detect adsorbed gas molecules.
- Due to its electronic quality, graphene has attracted interest as a way to construct ballistic transistors.
- Graphene has the ideal properties to be an excellent component of integrated circuits.
- Engineering labs have reported that the large scale production of highly transparent graphene films by chemical vapor deposition can create inexpensive flexible solar cells.
- Graphene has a high surface area to mass ratio which creates the potential for the production of ultra-capacitors with greater energy storage than is currently available.
- Research has found that sheets of graphene oxide is highly effective in killing bacteria and could be useful in the application of hygiene products or packaging that will keep food fresh for longer periods of time.

Conclusions

The Chedic Graphite mineralized zone has a strike length exceeding 3,000 feet and has a width that ranges from 30 to 75 feet. The self-potential geophysical survey has delineated a continuous enriched graphite structure from the mine workings to Exploration Pit #2 located about 2,200 feet west of the Chedic Mine open cut. The geological mapping, sampling and self-potential geophysical survey results indicate:

- The graphite enriched zone varies from 30 to 75 feet in width, a strike length of 3000 feet and has the potential to exceed 1,000 feet in depth based on the vertical dimension of the metavolcanic pendant. Based on the above assumptions the Chedic Graphite enriched structure has the potential to contain over one million tons of graphite mineralization.
- The preliminary self-potential geophysical survey was successful in defining the graphite mineralized structure. Recommendations are made to complete a detailed self-potential survey to the east and west of the mine workings and exploration pits. Based on the prior survey results and geological mapping the graphite structure may have a strike length exceeding 4,500 feet.
- The surface sampling of the graphite enriched structure has determined the graphite in the hanging wall and small mine dumps have a carbon content exceeding 25%. Historical data indicate the Chedic Mine produce a graphite ore that contained 30% to 50% carbon.

BRIAN SANDOVAL
Governor

STATE OF NEVADA

JAMES R. BARBEE
Director



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April 15, 2013

Dear Noxious Weed Control Community,

Attached you will find a notice of workshop to solicit comments on proposed regulation change to **NAC 587.173 Prohibited noxious weed seeds** to be held on Friday, May 24th, 2013. These changes will address relaxing the restriction on the State of Nevada listed noxious weed Mayweed chamomile (*Anthemis cotula*) **seed** in turf and re-vegetation seed mixes. This workshop is being held in response to a number of Pacific Northwest seed producers' claim that Nevada's prohibition of *A. cotula* seed in turf and re-vegetation seed mixes is causing a hardship and monetary loss to their industry. **This is not a workshop to determine if *A. cotula* should be removed from the State noxious weed list; *A. cotula* WILL remain on Nevada's noxious weed list regardless of the outcome of this workshop.** This workshop is to determine if *A. cotula*'s status of prohibited seed in seed mix can be relaxed.

All discussion and proposed regulation changes are limited to *A. cotula* seed only and will not affect the current standing on Nevada's other noxious weed seeds. A number of interested parties in Nevada's noxious weed control community had earlier expressed their opinions when *A. cotula* was being considered for removal from Nevada's noxious weed list. This workshop will be the forum where interested parties can express their opinions for consideration on this proposed regulation change.

The workshop will be held on Friday, May 24th, 2013 at 10:00am at the Nevada Department of Agriculture (NDA) office located at 405 S. 21st Street Sparks, NV, 89431. This workshop will also be simultaneously video conference to the Elko and Las Vegas NDA offices (addresses listed below).

Please forward this email to any interested party and post the workshop notice where you see appropriate. If you have any questions regarding this workshop please feel free to contact me.

Sincerely,

Robert Little
Nevada Noxious Weed Program Coordinator
775-353-3673, rlittle@agri.nv.gov

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Managing Mayweed Chamomile

Jessica Graham, Undergraduate Research Assistant, University of Nevada, Reno

Wayne S Johnson; Associate Professor, Applied Economics and Statistics, College of Agriculture Biotechnology and Natural Resources; IPM Specialist, University of Nevada Cooperative Extension

Mayweed chamomile, commonly called stinking chamomile or dog fennel, is an ill-smelling member of the Asteraceae (sunflower) family. This bushy annual is very attractive. It is native to the Mediterranean, but is now widespread throughout the Pacific Northwest, California, and Nevada, especially where irrigated agriculture has occurred. University of Nevada Herbarium records show this plant present in Carson City, Douglas, Lincoln, Lyon, Storey, and Washoe Counties. Mayweed chamomile quickly spreads. It has no beneficial uses, is damaging to neighboring plants, and is potentially harmful to humans and livestock.

Identification

Mayweed chamomile (*Anthemis cotula* L.) has small, oval seed leaves (cotyledons). They are thick and smooth with green stems that become maroon on the underside with age. They are rarely seen, though, because they dry up rapidly.

The first true leaves grow opposite of each other on the stem, and are pointed and deeply divided. Subsequent leaves grow alternately along the stems, sparsely produce short hairs, and are finely divided several times (Fig. 1).



Figure 1. Leaves are arranged alternately and are divided into narrow segments.

They release a distinctly foul odor and grow about three-quarters to two and one-half inches long and one inch wide.

The mature plant is one-half foot to two feet tall with erect, branching, hairless stems. The plant produces a tap root and an extensive, fibrous root system that grows near the soil's surface.

Flowers are borne at the ends of branches and on one and one-half to four inch long, unbranched stalks in the axils of the leaf from May to October. The many yellow disk flowers are surrounded by twelve (up to twenty) white ray flowers in one head (Fig. 2). The white ray flowers each have three distinct teeth at their tips. Flower heads are about three-quarters to one inch in diameter, and the bracts (involucre) at their bases are lightly hairy.



Figure 2. Daisy-like heads of yellow disk and white ray flowers bloom from May to October.

Each flower head produces numerous (thousands per plant) single, smooth seeds (achenes). Each is about one-sixteenth inch long and inside a covering with ten ribs that run lengthwise along the seed. Germination of the seeds occurs spring through fall, and seeds remain viable in the soil for many years. Seeds are the only way mayweed chamomile spreads.

Corn chamomile (*Anthemis arvensis* L.) may be confused with mayweed chamomile. They are nearly identical, but corn chamomile does not produce a foul odor when the leaves are crushed. Pineapple-weed (*Chamomilla matricarioides* (Less.) Porter) is also a similar species, but the flower does not have ray flowers, and the leaves of mayweed chamomile are more finely divided. The leaves of pineapple-weed tend to clasp the stem and they give off a pineapple scent when crushed.

Habitat

This European native is now found worldwide. Infestations have been limited to low, wet areas, but mayweed chamomile is now found in other areas. It adapts to various growing conditions, but prefers heavily disturbed, rich, gravelly soil. It is commonly found in waste areas, barnyards, cultivated fields, roadsides, alfalfa fields, meadows, overgrazed pastures, dry tailwater ponds, and along ditches, particularly if moisture is available or regularly applied.

Threat

Caution: Contact with mayweed chamomile can cause skin rashes to workers. Livestock that graze it have blistered noses and mouths, and irritated mucous membranes. It also imparts a strong off-flavor to the milk of dairy animals if they graze it or eat it in hay.

Mayweed chamomile is competitive, allelopathic (slows or stops growth of other plants), requires control in cropping systems, and may contaminate seed crops, requiring costly seed cleaning.

Weed Management Options

Prevention: It is most important to prevent the production and spread of mayweed chamomile seed. Seed is dispersed by water in ditches and streams, in contaminated crop seed, and physically by animals and on equipment. Prevent seed production whenever possible, sow clean seed, manage animal movement to avoid infested areas, and clean equipment whenever it is moved from infested to uninfested areas. Minimizing soil disturbances, identifying and eliminating weed introductions early, and establishing competitive grasses are important.

Revisit previously infested sites each year and eliminate any new plants. Agricultural seed, hay, and livestock feeds may become contaminated with mayweed chamomile seed. Always select and use certified weed-free forage, feed, and seed to prevent reinfestation of an area. Quarantine livestock known to have been in areas infested with mayweed chamomile. It may be necessary to clean the animals' coats and purge them by feeding them weed-free hay for five days or more before they are moved to uninfested land.



Figure 3. Mature plants are bushy, one-half to two feet tall, and produce numerous flowers all season long.

Mechanical Control: Isolated plants and small infestations can be removed by hand pulling and digging, but this is not practical for large infestations. Hand pulling mayweed chamomile before it goes to seed will prevent new infestations. Cultivation is most successful if done when the plant is in the seedling stage, before an extensive root system develops and before the plant flowers and produces seeds. Cultivation should be performed as often as necessary to control this weed.

Mowing or flailing mayweed chamomile is not very effective. However, some success may

be achieved if performed immediately before the plant flowers. If mowed too early, the plant grows more prostrate and can produce flowers below the height of a mower blade set to minimize damage to other desirable plants. A second mowing may be required to remove flowers when the season is long, moisture is available and the plants regrow and flower after the first mowing.

Cultural Control: Mayweed chamomile is not an exceptionally strong competitor, so maintain a vigorous pasture with proper irrigation, fertilizer application, and harvesting. Avoid overgrazing and excessive cultivation.

Biological Control: There are currently no biological control methods available for mayweed chamomile. Manage livestock grazing to improve the competition of desirable grasses and legumes.

Chemical Control: There are several herbicides available to provide control of mayweed chamomile. In grasses grown for seed, the selective herbicides Buctril and Clarity can be applied and should provide adequate control.

For use on small grain crops, the herbicides Ally[®], Buctril[®], Bronate[®], Canvass[®], dicamba, Express[®], Finesse[®], Glean[®], Harmony Extra[®], Harmony GT[®], Maverick[®], Peak[®], and Tordon[®] will all control mayweed chamomile. Tordon[®] is a restricted use herbicide and by law can only be purchased and applied by a certified applicator or someone under his or her direct supervision.

For control on noncrop sites and rights-of-way, Garlon[®] can be applied to mayweed chamomile. This growth regulator herbicide will cause abnormal growth, and may lead to the disruption of the phloem and prevent energy movement into the root system, which eventually kills the plant.

For control in wheat, chlorsulfuron with metsulfuron (Finesse[®]), diuron (Karmex[®], Direx[®]), thifensulfuron with tribenuron (Harmony Extra[®]), tribenuron (Express[®]), and metribuzin with chlorsulfuron will all provide excellent control of mayweed chamomile.

The soil-applied herbicides diuron and terbacil (Sinbar[®]) will provide good control in tree fruits, as will the post-emergent non-selective herbicide glyphosate.

Herbicides should be combined with other control methods, such as cultivation. Repeated herbicide applications may be needed to achieve control of an infestation.

Always check the herbicide label before use. The label is the law and provides information to keep the applicator and others safe, along with specifics on the use of the product for various applications and rates. Proper use near water is important in this case as mayweed chamomile occurs near water and in wet meadows. As well, herbicides have different soil persistence and application rates that can affect future crops and treatment costs.

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Photographs are courtesy of *Weeds of the West*.

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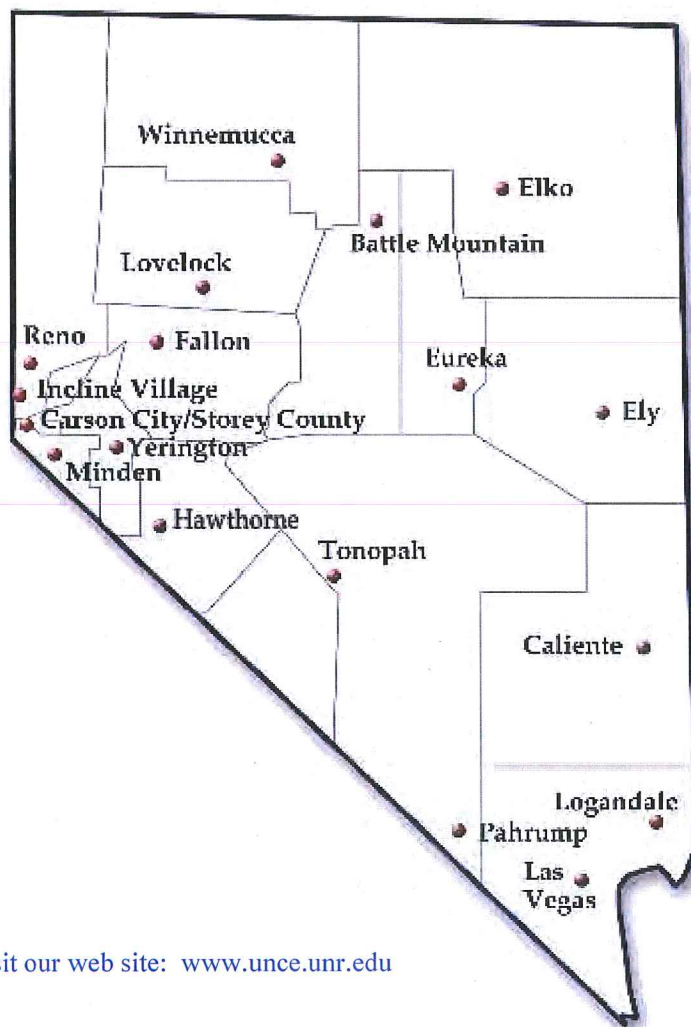
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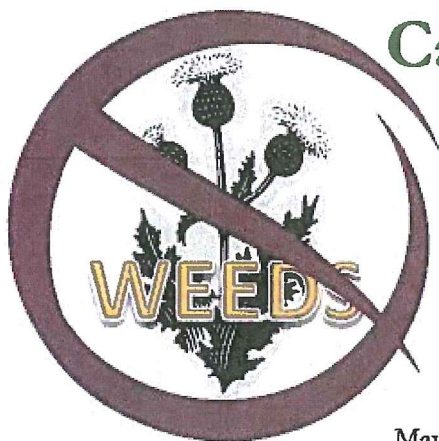
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May 22, 2013

Cooperators:

- Andersen Home Ranch
- Bureau of Land Management
- City of Carson City
- Carson Valley Conservation District
- Carson Water Subconservancy District
- Eagle Valley Golf Course
- Empire Ranch Golf Course
- Friends of Silver Saddle Ranch
- Nevada Department of Agriculture
- Nevada Department of Transportation
- Nevada Division of State Parks
- Nevada Division of State Lands
- Nevada Division of Forestry—Western Region
- Washoe Tribe of Nevada and California
- University of Nevada Cooperative Extension
- USDA Forest Service
- Silver State Industries Ranch

Robert Little

Nevada Department of Agriculture
State Noxious Weeds Coordinator
405 South 21st Street
Sparks, Nevada 89431

Re: Proposed changes to NAC 587.173 – Prohibited Noxious Weed Seeds, Mayweed Chamomile

Dear Mr. Little:

I have been directed by the Carson City Weed Coalition (CCWC), a cooperative weed management area active within the Nevada state Capital, to write this letter to formally oppose Nevada Department of Agriculture's proposal to relax the restriction of mayweed chamomile (*Anthemis cotula*) seed in turf and revegetation seed mixes. The Carson City Weed Coalition actively treats 13 species of recognized noxious weeds as described in NAC 555; we are also on high alert for another four noxious species that are growing in adjacent counties. Purposely introducing a weed seed that is on Nevada's noxious weed list is counterproductive and short-sighted. Introduction of mayweed chamomile threatens an increased economic hardship on Nevada landowners. Consideration of that should weigh more heavily in your decision-making process than the perceived hardship that seed growers outside of Nevada are suggesting.

Specifically, our objections are as follows:

- Noxious weeds are most likely to infest an area of disturbance. Revegetation/restoration products are the materials of choice to rehabilitate a site and adding a known invasive weed to a disturbed site is an invitation for uncontrolled infestation.
- It has been proven that prevention is the best and cheapest method of controlling exotic invasive weeds, including mayweed chamomile.

The Carson City Weed Coalition is a group of private landowners and public agency staff that work together to control and/or eradicate noxious weeds in our city.

- Mayweed chamomile needs moisture to establish. We have many drainages, wetlands, and riparian areas within our jurisdiction that would provide an optimum environment for germination and establishment.
- Mayweed chamomile, while an annual, is a prolific seed producer, with research showing that viable seeds persist in the seed bank for four to six years past the production year.
- When mayweed chamomile germinates on project sites, it will bind scarce and valuable resources needed by native plants, lessening the success of our rehabilitation efforts.
- Mayweed chamomile presence in seed mixes would increase the need for monitoring and increase project costs, resulting in less time and funding to monitor other critical sites. The persistence of seed in the seed bank will necessitate intensive site surveys be conducted for many more years than is currently needed following restoration.
- The relaxation of the seed mix requirement is not advantageous for Nevada land managers, growers and agriculturists. Nevada laws and statutes should be used to protect Nevada lands.

To recap, the Carson City Weed Coalition strongly urges the Nevada Department of Agriculture to maintain the existing regulation within NAC 587.173 and prohibit mayweed chamomile in turf and revegetation seed mixes. Thank you for considering our viewpoint in this matter and if you have any questions please contact me using the details below. The CCWC would also like to ensure we are on the list of interested parties to receive further notifications on this issue

Sincerely,



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The Carson City Weed Coalition is a group of private landowners and public agency staff that work together to control and/or eradicate noxious weeds in our city.