

City Council

**Agenda
Tuesday, February 25, 2020**

**City Hall
749 Main Street**

Study Session

5:30 PM

- 1. CALL TO ORDER**
- 2. ANNUAL REPORT – PLANNING COMMISSION**
 - Introductions
 - Annual Report
 - Discussion

Special Meeting

7:00 PM

- 1. DISCUSSION/DIRECTION – INTEGRATED WEED MANAGEMENT PLAN/HERBICIDE USE**
 - Staff Presentation
 - Council Discussion
 - Public Comments (Please limit to three minutes each)
 - Council Discussion/Direction
- 2. ADVANCED AGENDA & IDENTIFICATION OF FUTURE AGENDA ITEMS**
- 3. ADJOURN**

Citizen Information

If you wish to speak at the City Council meeting, please fill out a sign-up card and present it to the City Clerk.

Persons with disabilities planning to attend the meeting who need sign language interpretation, assisted listening systems, Braille, taped material, or special transportation, should contact the City Manager's Office at 303 335-4533. A forty-eight-hour notice is requested.

SUBJECT: ANNUAL REPORT – PLANNING COMMISSION

DATE: FEBRUARY 25, 2020

PRESENTED BY: LISA RITCHIE, SENIOR PLANNER

Staff reached out to Planning Commission to respond to the following questions provided to each Board and Commission prior to discussion with City Council. The following are their responses:

1. LIST HIGHLIGHTS AND SUCCESSES OF THE PAST YEAR:

- *We successfully and seamlessly incorporated three new commissioners into our proceedings and deliberations. The contributions of each have been quite impressive. The blending of experience and new viewpoints has led to a high functioning commission*
- *Approval of the comprehensive new sign code*
- *Managed a planning commission with one seat short for half a year with almost no issues and meeting quorum*
- *Major issues before us that required compromise and collaboration:*
 - *Marijuana policy*
 - *Downtown 2-3 story development proposal*
 - *Sign code revisions*
 - *Multiple Colorado Tech Center PUDs*
 - *Transportation Master Plan*
 - *The Foundry PUD amendment*

2. LIST PLANS/GOALS FOR THE NEXT YEAR:

- *Continue our thorough and efficient consideration of the matters that come before us. Stand ready to provide other support and advice as requested by City Council*
- *Work with our new Mayor and City Council on what support looks like for this new City Council*
- *Finish: trail connections, biking and walking trails, striping and signage; traffic remediation and road projects; street repair program.*
- *Meetings with City Council and other committees as necessary*
- *Review of Old Town Overlay; Joint study issue with the Historical Planning Commission for the Old Town Overlay.*
- *Municipal Code Review: Title 17 has PUD extensions issue-needs Review: Building code for construction staging of dirt piles/debris-needs review.*
- *Hearings for Medtronic PUD*

3. DOES YOUR BOARD HAVE SPECIFIC BUDGET REQUESTS IT WOULD LIKE THE CITY COUNCIL TO CONSIDER AS A PART OF THE BIENNIAL BUDGET PROCESS?

- *No requests noted*

4. ARE THERE AREAS IN WHICH THE BOARD WOULD LIKE CITY COUNCIL INPUT/FEEDBACK? & WHAT QUESTIONS DO YOU HAVE FOR THE CITY COUNCIL?

- *How should we integrate the results of the McCaslin and South Boulder Road area studies into our consideration of proposals that we review?*
- *How can we support this new City Council?*
- *What are the City Council's top priorities for the City?*
- *How is City Council prioritizing expenditures?*

RECOMMENDATION:

Discuss the above and other items of interest by City Council with the Planning Commission.

STRATEGIC PLAN IMPACT:

<input type="checkbox"/>	 Financial Stewardship & Asset Management	<input checked="" type="checkbox"/>	 Reliable Core Services
<input type="checkbox"/>	 Vibrant Economic Climate	<input checked="" type="checkbox"/>	 Quality Programs & Amenities
<input checked="" type="checkbox"/>	 Engaged Community	<input type="checkbox"/>	 Healthy Workforce
<input type="checkbox"/>	 Supportive Technology	<input type="checkbox"/>	 Collaborative Regional Partner

**SUBJECT: DISCUSSION/DIRECTION – INTEGRATED WEED
MANAGEMENT PLAN/HERBICIDE USE**

DATE: FEBRUARY 25, 2020

**PRESENTED BY: NATHAN MOSLEY, PARKS, RECREATION & OPEN SPACE
DIRECTOR
EMBER BRIGNULL, OPEN SPACE SUPERINTENDENT
DEAN JOHNSON, PARKS SUPERINTENDENT**

SUMMARY:

Primary Objective

Staff requests direction from City Council regarding proposed updates to the Integrated Weed Management Plan (IWMP). Additionally staff requests direction from City Council on operational alternatives highlighted in this memo. Council direction will allow staff to further explore preferred approaches and bring additional information for Council consideration and final policy direction in the near future. This approach will ensure that there is alignment between future operations and City Council policy direction.

History

The use of herbicide within communities has come under additional scrutiny based on a growing number of lawsuits related to herbicide exposure, recent lawsuit verdicts, and large amounts of data that are informing resident concerns about the use of herbicides in their community.

In the spring, staff often receives communications from concerned residents about the use of herbicides in the City. Staff works to address those concerns by implementing best management practices around vegetation management activities, such as posting signage and offering e-notifications which exceeds the notification requirements of the Colorado Department of Agriculture (CDA). In addition, staff follows specific application guidelines for each individual herbicide applied. Staff also receives resident contacts asking to increase the amount of weed control within the City.

Balancing conflicting requests from the community is challenging. Thus staff requests City Council review current operations and potential options for herbicide use to ensure staff and City Council are in alignment related to the use of herbicides on public properties.

Staff and City citizen advisory boards, Parks and Public Landscaping Advisory Board (PPLAB) and the Open Space Advisory Board (OSAB), have reviewed City operations generally on an annual basis to provide feedback to staff on day to day operations related to herbicide use. Here are some highlights regarding herbicide use in Louisville:

- 2008, Herbicide use was discontinued for a period of time. Community reaction about the condition of public spaces resulted in a reversal of this practice.
- 2016, PPLAB recommended the discontinuation of spraying herbicide in playgrounds within the City. This was incorporated into operations in 2017 and continues to this day.
- 2019, PPLAB supported a pilot project to eliminate herbicide use at Elephant Park.
- 2020, PPLAB and OSAB discussed herbicide use and operations in January and provided additional feedback to staff related to the IWMP and operations. OSAB approved of the proposed IWMP updates and staffs current approach to weed control. PPLAB supported continued reduction of herbicide use in turf parks.

Integrated Weed Management Plan (IWMP)

The IWMP was originally drafted in 2008 in response to citizen concerns regarding the use of herbicides on City owned properties. The IWMP was peer reviewed, revised, and supported by the State Weed Coordinator with the Colorado Department of Agriculture, Boulder County Open Space, Colorado State University, Jefferson County Open Space and Lafayette Open Space.

Minor revisions were made in 2016 to the Plan and since that time the Parks, Recreation and Open Space (PROS) Department has continued to use the IWMP as a guiding document related to the use of herbicides on City owned properties.

The IWMP considers the environmental, economic, and social impacts of different methods and helps staff identify appropriate control options. The IWMP currently does not specify the use of or prohibition on any particular control method, but rather speaks to a process for evaluating different control options. City Council may make changes to the IWMP to specifically prohibit or limit the use of certain control methods or herbicides on City property, by herbicide type, property type or location type or in any other desired manner.

Current Operational Practices

Parks

Primarily, herbicides are used in parks, streetscapes, and the Cemetery in two different types of applications, spot spraying and broadleaf control.

- Spot spraying is conducted on an as-needed basis for weeds in areas such as shrub beds, cracks in concrete, baseball infields, etc. The type of herbicide used in this application is non-selective (kills all vegetation).
- Broadleaf control is conducted on turf to eliminate weeds in grass. The type of herbicide used in this application is selective. It selectively targets broadleaf weeds and leaves grass undamaged. This type of application is conducted at

most two times per year but in trying to reduce herbicide use, the City for many years has only conducted one application per year.

For these types of herbicide applications, two types of chemicals account for the majority of use.

- Glyphosate is the non-selective herbicide primarily used in the City's parks for spot spraying. "Roundup" is a common Glyphosate brand people associate with this chemical. Glyphosate is one of the most commonly used non-selective herbicides. In 2019, Parks staff and contractors used approximately 14 gallons of Glyphosate City wide.
- 2, 4-D (2, 4-Dichlorophenoxyacetic acid) is the selective herbicide primarily used in the City's parks for broadleaf control. There are many choices for selective control but 2, 4-D remains one of the commonly used and most effective herbicides. In 2019, Parks staff used 12 gallons of 2, 4-D.

Herbicide use has been reduced by only applying one selective broadleaf application each spring. This application helps control highly visible weeds such as dandelions, but also controls weeds such as puncture vine, bindweed, and a variety of thistles in addition to a long list of other weeds. This approach allows staff to effectively control a wide variety of weed populations with a relatively small amount of herbicide strategically applied.

Herbicide use has also been reduced by applying mechanical control (mowing) instead of herbicides to control weeds in the City's greenways. Greenways are the non-irrigated park properties within the City. Not to be mistaken with open space properties, greenways are routinely mowed (open space properties are primarily left un-mowed) and thus herbicide applications are greatly reduced on many of these properties.

Whichever application is used, all herbicides are applied in compliance with Environmental Protection Agency (EPA) regulations. The City only uses herbicides that are legally registered by the EPA and applied in compliance with EPA regulations. All City applicators are either licensed or monitored by a qualified supervisor licensed by the CDA for applying pesticides.

Open Space

Open Space staff rely heavily on the principals of the IWMP as a means to find the most appropriate and responsible method of control for noxious and nuisance weeds on open space properties. Different types of weeds (annual, biennial and perennial) require different approaches for successful control and eradication. The Colorado Department of Agriculture mandates eradication of List A species, containment of List B species and supports municipal control of List C species.

In 2019, Open Space staff treated 130.5 acres of weed infestations on 16 different properties. The Open Space division completed a total of 591.25 hours of weed control in 2019 with 493.5 hours of mechanical control such as mowing or hand pulling. Herbicides used on open space in 2019 include a variety of herbicides to effectively control different weed species. The open space division used a total of 12 ounces of Glyphosate in 2019 and did not use any 2, 4-D. The division also spent an additional 150 hours on restoration (re-seeding) work in an effort for native seed to outcompete weed seeds.

Open Space also utilizes controlled burning as a weed mitigation measure. In 2020, Open Space staff is working with Rocky Mountain Fire Protection district to complete a controlled burn at Davidson Mesa. Prescribed burns mimic the natural process of fire that grasslands have adapted to over thousands of years on the Colorado Front Range. Prescribed burns are a tool within the IWMP that promotes healthy communities of native vegetation. This is just one of many types of control methods that staff will employ in 2020.

Open Space regularly solicits volunteer assistance for mechanical weed removal through the Adopt an Open Space Program, Weed Whackers, HOA and corporate group weed pulls, and one-time community events such as Pull-4-Colorado. City staff as well as the Boulder County Youth Corps are also engaged in mechanical weed control. Additionally, staff hosts educational booths on weed identification and control options.

All of these efforts are ongoing in an attempt to allow native species to out-compete the non-native noxious weeds and allow for a more diverse and healthy ecosystem that benefits the entire community.

Advisory Board Feedback and Options:

Based on discussions with OSAB and PPLAB, staff has prepared the following options for consideration for next steps.

1. Overall recommendations - No major changes to the IWMP. Minor changes are proposed in attachment 1.

- OSAB supports the proposed minor changes to the IWMP.

2. Potential Options regarding herbicide use in Open Spaces

- Status Quo, continued use of IWMP for guiding decisions regarding noxious weed control on open space properties.
 - Allow 2, 4-D and Glyphosate for minimal use on Open Space.
- Allow 2, 4-D and Glyphosate for use on only certain Open Spaces (or prohibit its use on certain Open Spaces).
- Full Ban on 2, 4-D and Glyphosate on our Open Space properties.

OSAB supported the current approach being used by Open Space staff regarding noxious weed management. (The first two bullets above.)

3. Potential Options regarding herbicide use in Parks

- Status Quo, continued contain approach with minimal use of herbicides and continue with Memory Square and Elephant Park as herbicide free pilot parks and monitor impacts.
- Targeted Reductions
 - Identify additional herbicide free Parks.
 - Eliminate 2,4D applications in Parks but continue using Glyphosate in plant beds, ROW, etc.
- Full Ban on 2,4D and Glyphosate in our Parks and Public Landscaping properties.

PPLAB provided the following statement for City Council consideration:

“We as a board feel strongly about reducing the application of herbicides in playgrounds and surrounding turf. We recommend the development of a marketing campaign to foster public awareness and support as we move towards herbicide reduction and elimination in selected parks”.

Cons of the current approach include not further limiting herbicide use, potential impact to adjacent private property and not adequately addressing resident concerns. Some pros of the current approach include a consistent, cost-effective approach and strategic use of herbicide application, as well as effectively controlling noxious weeds.

Additional Resources:

- <https://www.epa.gov/ingredients-used-pesticide-products/glyphosate>
- <https://www.epa.gov/ingredients-used-pesticide-products/24-d>
- <https://www.iarc.fr/featured-news/media-centre-iarc-news-glyphosate/>
- https://www.iarc.fr/wp-content/uploads/2018/07/pr236_E.pdf
- <https://www.nrpa.org/parks-recreation-magazine/2020/february/weeding-through-the-thorny-debate-on-glyphosate/>

FISCAL IMPACT:

Fiscal impact of the different options has not been calculated at this time. Depending on direction provided by City Council staff can look at potential cultural alternatives to minimize the impact of adjustments to herbicide use. Alternatives could require additional staff and/or contractors dedicated to mechanically and manually controlling weeds. Additional staff may also be needed to support more robust cultural practices around turf management (i.e. more aeration, over seeding and fertilization).

PROGRAM/SUB-PROGRAM IMPACT:

Decisions related to herbicide control could impact a number of programs and sub-programs including: Streetscapes, Parks, Cemetery, Open Space and Trails, and athletic fields. The ongoing maintenance and management of our properties will need to adapt as well as people’s expectations regarding the look and feel of properties if changes are implemented.

RECOMMENDATION:

Integrated Weed Management Plan

Staff requests direction from Council on the proposed edits for the IWMP. Staff plans to bring the final document to City Council for formal adoption with an expectation that the plan would then be formally updated every five (5) years and approved by City Council.

Open Space Properties

OSAB has recommended no changes to practices on City properties managed as Open Space. Staff requests Council concur or discuss the other options presented above.

Parks Properties

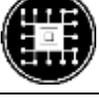
PPLAB has recommended the City continue reductions in the use of herbicides. Staff requests Council concur or discuss the other options presented above.

Any changes in the City’s use of herbicides resulting from Council policy direction would be communicated through onsite signage as well as a coordinated effort to inform residents and guests through all communication channels available to staff (social media, website, quarterly newsletters, etc).

ATTACHMENT(S):

- 1. Integrated Weed Management Plan – Redline

STRATEGIC PLAN IMPACT:

<input checked="" type="checkbox"/>		Financial Stewardship & Asset Management	<input checked="" type="checkbox"/>		Reliable Core Services
<input type="checkbox"/>		Vibrant Economic Climate	<input type="checkbox"/>		Quality Programs & Amenities
<input checked="" type="checkbox"/>		Engaged Community	<input checked="" type="checkbox"/>		Healthy Workforce
<input type="checkbox"/>		Supportive Technology	<input type="checkbox"/>		Collaborative Regional Partner

CITY OF LOUISVILLE

**PARKS, ~~RECREATION~~ & OPEN SPACE
INTEGRATED WEED MANAGEMENT PLAN**



City of Louisville, Department of Parks ~~and~~, Recreation and Open
Space

February 17, 2009
Revised December ~~17, 2019~~ 22, 2016

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I. Document History

The Integrated Weed Management Plan (IWMP) was originally drafted in 2009 in response to citizen concerns regarding herbicide use. The plan was peer reviewed, revised, and supported by the State Weed Coordinator with Colorado Department of Agriculture, the Weed Coordinator with Boulder County Parks and Open Space, a Professor of Weed Sciences with Colorado State University, the Weed and Pest Management Specialist with Jefferson County Open Space, and the Open Space Superintendent with the City of Lafayette Open Space.

Revisions to the document were made in 2016 with unanimous approval from the Open Space Advisory Board ([OSAB](#)). The Parks and Public Landscape Advisory Board supported the IWMP but did not feel review of revisions was necessary. [The IWMP will be reviewed and revised every 5 years by staff and OSAB. Staff will annually update the noxious weed list.](#)

II. Purpose

Noxious weeds are one of the most serious threats facing City of Louisville public lands. Noxious weeds out-compete native vegetation for resources such as sunlight, water, growing space, and soil nutrients. They are able to do so because they have few natural predators or diseases, are not as palatable to wildlife and livestock as native vegetation, have deep and extensive root systems which more easily sequester water and nutrients, produce thousands of seeds per plant, and ~~or some weeds~~ have allelopathic capabilities which inhibit the growth of surrounding native plants.

Once established, noxious weeds cause severe ecological and agricultural impacts to our public lands by decreasing biodiversity, diminishing habitat and forage for wildlife, and decreasing crop yield. Additionally, management of weed control efforts requires a considerable amount of funding and time for planning and implementation. For these reasons it is essential that, as land managers, the City develop an integrated weed management plan to establish guidelines that will aid the City in controlling noxious weeds.

The Purpose of this integrated weed management plan is to provide weed management guidelines that:

- Identify weed control options for integrated weed management as mandated by the Colorado Noxious Weed Act.
- Consider the environmental, economic, and social impacts of different control methods.
- Protect visitors and applicators, water quality, non-target vegetation, federally endangered or threatened species, and local species of concern.
- Reduce the spread of weeds from City of Louisville properties to adjacent or down-stream and down-wind properties.

This IWMP is intended to be a dynamic document. It will be reviewed and updated to reflect advancements in professional weed control management and changes to the Colorado Department of Agriculture regulations and species lists.

III. Scope

This integrated weed management plan will be implemented on properties that are managed by the Parks, ~~and~~ Recreation and Open Space Department in which the City of Louisville is the sole owner.

Golf Course, Parks, and Open Space staffs manage approximately 1,435 acres or 2.2 square miles of land. More specifically, the Coal Creek Golf Course manages approximately 210 acres. The Parks Division, which is made up of the sports complex, community and neighborhood parks, parkways, greenbelts, cemetery, and facility grounds manages approximately 538 acres. The Open Space Division manages approximately 687 acres of land (not including properties owned jointly with other municipalities).

Currently, all Open Space parcels have infestations of noxious weeds which vary in species composition, density, and patch size. Latest monitoring efforts indicate that there are at least ~~3027~~ different species of noxious weeds found on Open Space ranging from A, B, and C list species. Please see the appendix for the complete list of noxious weed species.

IV. Definitions

A. Noxious Weed

As written in the Colorado Noxious Weed Act, a noxious weed “means an alien plant or parts of an alien plant that have been designated by rule as being noxious or has been declared a noxious weed by a local advisory board, and meets one or more of the following criteria:

- (i) Aggressively invades or is detrimental to economic crops or native plant communities;
- (ii) Is poisonous to livestock;
- (iii) Is a carrier of detrimental insects, diseases, or parasites;
- (iv) The direct or indirect effect of the presence of this plant is detrimental to the environmentally sound management of natural or agricultural ecosystems” (Colorado Noxious Weed Act, 35-5.5)

B. Integrated Weed Management

According to the Colorado Noxious Weed Act, integrated weed management (IWM) is “the planning and implementation of a coordinated program utilizing a variety of methods for managing noxious weeds, the purpose of which is to achieve desirable plant communities” (Colorado Noxious Weed

Act, 35-5.5). Methods used in integrated weed management include, but are not limited to, preventative measures, education, monitoring, mechanical control, cultural control, biological control, and chemical control. The process of integrated weed management takes into account each method's potential hazard to people, the environment, and property while also taking into consideration limitations of budget and human resources.

C. List A Species

List A species are uncommon noxious weeds that are found in Colorado in small populations or are not yet found in Colorado but are in surrounding states and threaten to become established. These weeds are mandated for eradication by the Colorado Noxious Weed Act. Please see the appendix for List A species occurring within the City of Louisville.

D. List B Species

List B species are so well established and common throughout Colorado that their total eradication in the State is not feasible. However, isolated populations are recommended for eradication. Suppression and containment are the goals for all other populations. Please see the appendix for List B species occurring within the City of Louisville.

E. List C Species

List C species are widespread and well established within Colorado. The State's goals are to provide education, research, and biological controls to local governments. List C species are the lowest priority for control for the City of Louisville Open Space and Parks Divisions. As resources of time, budget, and staff permit, controls will be conducted to help suppress and contain their spread. Please see the appendix for List C species found within the City of Louisville.

F. Watch List Species

Watch List Species were added to the noxious weed list in 2011 to help with early detection of potential noxious weeds. The impact of these species has not been identified yet and they may be present in adjacent states where they could potentially spread to Colorado.

V. Weed Management Strategies

Using a combination of methods for noxious weed control increases the effectiveness and efficiency of control. This is accomplished by continually depleting nutrient reserves and reducing the ability of the weed to reproduce. Being able to use a variety of methods also allows for the flexibility required to control different species of weed infestations in varying locations under varying and unpredictable environmental conditions. The following list of control methods is not exhaustive. Alternative

methods that are not listed below will be evaluated for effectiveness by Open Space and Park staff. Also, some methods may be considered in multiple categories.

A. Prevention

The most effective way to control noxious weeds is to prevent their initial establishment. Once noxious weeds become established, their control is costly and time consuming.

1. Methods

- a. Limit disturbance to landscapes, especially those that create bare ground
- b. Clean boots, clothing, and equipment of seed before entering and leaving City properties
- c. Monitor and amend soil where appropriate
- d. Require dogs to be leashed
- e. Limit social trails
- f. Require contractors and utility maintenance personnel to reseed or plant native vegetation, where appropriate, after creating a disturbance to the soil-
- g. Require weed-free restoration materials
- h. Ongoing property monitoring

B. Education

Noxious weed education is an important step in IWM for both the City staff and the public. Weed management is a complex and evolving field of study that requires staff to continually increase their knowledge and understanding so that weed control methods can be used in the most effective means possible. Also, it is important to educate the public about noxious weeds so that they understand the necessity of their control and will support the City's efforts. Furthermore, a more educated public will be able to more effectively control noxious weeds on their own property.

1. Methods to Educate Staff

- a. All applicators will have the oversight of an individual licensed by the Colorado Department of Agriculture as a public pesticide applicator
- b. For licensed public pesticide applicators, obtain continuing education credits as required by the Colorado Department of Agriculture
- c. Attend noxious weed workshops, presentations, and conferences
- d. Network and communicate with other Colorado weed managers
- e. Form collaborative partnerships with stakeholders involved with noxious weed management

2. Methods to Educate the Public

- a. Presentations given by staff and other weed control professionals
- b. Create interpretive signage
- c. Host volunteer weed pull events
- d. Make field contacts
- e. Distribute weed identification and control pamphlets to system users and homeowners adjacent to public lands that have List A species in their private yards
- f. Submitting articles to the local newsletter and newspapers
- g. Provide information through the City's website
- h. Form collaborative partnerships with stakeholders involved with noxious weed management

C. Monitoring

Monitoring is a critical tool in integrated weed management as it helps to detect initial weed infestations before they get out of control and also helps to determine if the current methods of control are effective. A goal of Open Space and Parks is to hand-map weeds and make general observations which will be recorded throughout the season as weed control takes place. All herbicide treatments will be recorded as required through the Colorado Pesticide Applicators' Act.

1. Beneficial Uses

- a. Monitoring restoration sites or newly disturbed sites for weed encroachment and restoration progress
- b. Monitoring locally uncommon weed species populations
- c. Monitoring trail corridors for weed dispersal and establishment
- d. Monitoring pastures for overgrazing and weed encroachment
- e. Monitoring high priority weed infestations

2. Limitations

- a. Difficulty in determining cause and effect of weed control actions
- b. Can become time consuming

3. Methods

- a. Transects and plots
- b. Photopoints
- c. Ocular observations
- d. Mapping by hand or with GPS units

D. Mechanical Control

Mechanical controls are those methods that physically remove all or part of a weed, often using hand tools or machinery.

1. Beneficial Uses

- a. Controls many annual and biennial weed species

- b. Controls smaller infestations or infestations where the use of chemicals may be undesirable-
- c. May prevent seed production and seed spread, if timed correctly
- d. Provides excellent opportunities for volunteer events and work for the Boulder County Youth Corps

2. Limitations

- a. Can cause soil disturbances and leave bare areas
- b. Often ineffective at controlling rhizomatous perennials (Colorado Natural Areas Program, 2000)
- c. Are labor intensive
- d. Are not cost or time effective for larger infestations of weeds
- e. May cause plants to re-sprout seed heads in greater number
- f. Can injure desirable plants

3. Methods

- a. Hand pulling
- b. Clipping seed heads
- c. Using shovels and similar bladed hand tools to sever tap roots below ground
- d. Mowing/weed trimmers
- e. Using weed whips
- f. Using chainsaws
- g. Using a propane torch

E. Cultural Control

Specific to Open Space, cultural controls involve the re-establishment and promotion of desirable, competitive vegetation through revegetation and mimicking natural disturbances by conducting prescribed burns and grazing.

Revegetation of degraded Open Space through reseeding and planting a diverse mix of native grasses, forbs, shrubs, and trees is a long term goal. Many Open Space properties were acquired in a degraded state that is susceptible to noxious weed infestations. Healthy, native flora communities are more able to resist and compete against invasions of noxious weeds, ultimately reducing the costs of weed control.

1. Benefits of Revegetation

- a. Controls noxious weeds in the long term
- b. Changes degraded sites into ecologically healthy lands
- c. Increases native plant diversity
- d. Increases native plant competition against noxious weeds
- e. Increases structural value of habitat
- f. Increasing nutrient value of forage

2. Limitations of Revegetation

- a. Difficulty and length of time necessary to establish native and/or desirable vegetation
- b. Risk of seed mixes or hay/straw mulches containing weed seed
- c. Difficult environmental conditions to seed in

- d. Cost of reseeding can be expensive
- e. Cost of seeding and soil bed preparation equipment

3. Methods of Revegetation

- a. Broadcast seeding
- b. Drill seeding
- c. Direct planting trees and shrubs
- d. Direct planting wetland vegetation plugs

Prescribed burns mimic the natural process of fire that grasslands have adapted to over thousands of years on the Colorado Front Range. Prescribed burns are increasingly used as a tool by land managers to reduce weeds and promote healthy communities of native vegetation.

1. Beneficial Uses of Prescribed Burns

- a. Creates species and stand structure diversity in plant communities
- b. Invigorate root growth of perennial grasses
- c. Reduces infestations of certain weeds

2. Limitations of Prescribed Burns

- a. Difficulty burning in areas surrounded by residential neighborhoods
- b. Availability of experienced fire crews to conduct a prescribed burn
- c. Time it takes to properly plan a prescribed burn that will meet resource objectives
- d. Short windows of time to conduct a prescribed burn due to the need for specific weather conditions to meet resource objectives
- e. Some weeds are favored by fire and may increase in density following a prescribed burn.

3. Methods of Prescribed Burns

- a. Local fire departments/districts, or qualified staff, to write burn plans and conduct prescribed burns
- b. Independent contractors

Grazing by ungulates has historically been a part of the Front Range ecosystem which invigorated root growth and created diverse grassland communities. Grazing by cattle and horses on Open Space helps to simulate this process that was once performed by buffalo. Mowing can also be used to serve as a substitute for grazing. Beneficial uses, limitations, and methods can be found ~~previously~~ in section ~~IV.F.D.~~ **Biological Control**.

F. Biological Control

Biological controls involve using a weed's natural insect predators or grazing animals to control the weed.

Biocontrol Insects for specific noxious weeds are reared by ~~t~~he Colorado Department of Agriculture's Insectary. Most are available free-of-charge or for a small fee.

1. Beneficial Uses of Insects

- a. Controls infestations that are not easily accessible to people and equipment
- b. Controls very large and dense infestations where other control methods would not be cost effective
- c. Controls low priority List C species in which budget and time may not be available for other control methods

2. Limitations of Insects

- a. May reduce but not eradicate a weed infestation (Colorado Natural Areas Program, 2000)
- b. Limited availability
- c. Lack of biological control insects for all noxious weeds
- d. Variable successes (Colorado Natural Areas Program, 2000)
- e. Difficulty and length of time to establish
- f. Inability to try other methods once insects have been released
- e.g. Predation by other insects
- f.h. Although low, risk of insects attacking native vegetation
- g.i. Difficult to integrate with some other control methods

3. Methods

- a. There are dozens of different insects that specialize in consuming different noxious weeds.

Specific to Open Space, **livestock** can be used to help control noxious weeds by limiting seed production and depleting nutrient reserves. The use of livestock requires the supervision of a knowledgeable herder who can manage the duration and intensity of the grazing so as not to damage the landscape and native vegetation. Associated costs can vary widely depending on the person contracted to manage the grazing and the infrastructure required.

1. Beneficial Uses of Livestock

- a. Controls infestations that are inaccessible to people and equipment
- b. Controls very large and dense infestations where other control methods would not be cost effective
- c. Invigorates root growth of perennial grasses
- d. Creates diverse grassland communities

2. Limitations of Livestock

- a. Limited availability of experienced and knowledgeable herders
- b. Need for infrastructure such as fencing and a water source
- c. Predation of livestock by coyotes, mountain lions, or bears
- d. Some noxious weeds are poisonous to certain livestock
- e. Some noxious weeds are only palatable to certain livestock
- f. Palatability of weeds varies throughout the season

- g. Risk of spreading weed seed through manure or fur
- h. Risk of overgrazing or trampling native vegetation
- i. Will not eradicate a weed infestation (Tu et al., 2001)
- j. Timing must be specific to prevent seed production
- k. Cost

3. Methods

- a. Goats
- b. Sheep
- c. Cattle

G. Chemical Control

Chemical control involves the use of herbicides to kill noxious weeds. The City of Louisville only uses herbicides that are legally registered by the Environmental Protection Agency. The use of herbicides is an effective means of noxious weed control when used by trained professionals in accordance with accompanying labels.

All applicators will have the oversight of an individual licensed by the Colorado Department of Agriculture as a public pesticide applicator. All contractors will be licensed as commercial pesticide applicators. Licensing requires continuing education on pesticide safety and use. Application equipment is also calibrated to ensure accurate delivery rates. Furthermore, herbicide labels, which are legal documents, are followed precisely and are kept with the applicator in the field.

Public concern over herbicide usage is always considered by the City. The City of Louisville refers to the Colorado Pesticide Sensitive Registry to be able to notify landowners adjacent to City owned properties when an herbicide application will be conducted. To reduce public interaction with treated areas, herbicide applications will be conducted when there is minimal impact to visitors. For example, areas adjacent to a school will not be treated during hours when children are walking to and from school. Alternatively, such properties may be treated on weekends or holidays when children are not present. Also, depending on the size and location of the application, properties may be closed to the public in the event that a broadcast application is necessary and will remain closed until the labeled re-entry interval is met.

The City uses herbicides in a responsible manner by doing the following:

- Reducing the amount of herbicides used through the use of IWM.
- Using herbicides that are in the Environmental Protection Agency's Toxicity Category III or IV, indicating low toxicity levels.
- Considering the use of herbicides in a Toxicity Category of I or II only when other methods have been determined to be ineffective, cost prohibitive, or unsafe. Having the ability to use various herbicides with different modes of action is critical to prevent the build up of herbicide resistance by populations of noxious weeds.

- Using herbicides at the lowest recommended rates that are effective to control the targeted weed species. Sometimes using the lowest rate may not control the targeted weed and result in the need for a second herbicide application. Also using low rates that are ineffective may create herbicide resistance in the targeted weed species. For these reasons, the use of higher rates may be recommended.
- Spot spraying weed infestations whenever possible. Broadcast spraying will only be used on large infestations where spot spraying would be ineffective or too time consuming and costly.

1. Beneficial Uses

- Controls large infestations in which other methods would be time consuming and cost prohibitive
- Controls infestations of rhizomatous and perennial weed species (Colorado Natural Areas Program, 2000)
- Eradicate high priority List A species that require a fast response as required by the Colorado Noxious Weed Act
- Clear fields of vegetation in preparation for grassland reseeding
- Prevent weed establishment following a prescribed burn
- Prevent seedling establishment of undesirable species

2. Limitations

- Inability to spray certain herbicides near water
- Public sensitivity to herbicide use
- Formation of herbicide resistance
- Possible damage to non-target vegetation
- Possible bare-ground areas
- Possible tree damage

3. Methods

- Backpack sprayer
- Spray bottles
- Wicks
- Paintbrushes
- ATV or truck mounted hand guns/wands
- ATV or truck mounted booms
- Aerial applications

VI. Priority Weed Infestations

The City of Louisville recognizes that it has limited resources in terms of staff and budget which prevents all weed infestations from being controlled. Thus it is important to prioritize which populations of noxious weeds will be controlled so that these resources can be used efficiently and where they will be most effective.

Priority will be placed on populations of noxious weeds that fulfill one or more of the following criteria:

- Is a List A noxious weed
- Located in environmentally sensitive area such as riparian areas, wetlands, or within populations of rare or imperiled native plant species

- Is small enough where eradication is possible
- Local rarity of weed
- Located along movement corridors such as trails and riparian areas
- Located within a restoration unit or park priority areas
- Located adjacent to private lands
- Weed infestations that cause a profit loss that is greater than the cost of control such as infestations at the Golf Course or other revenue driven properties

References

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Appendix A: List A, B and C Species

Last updated: December 2019⁶

* - Toxic or injurious to livestock and/or people

List A species occurring within the City of Louisville:

- Cypress Spurge (*Euphorbia cyparissias*) – rhizomatous perennial*
- Hairy Willow-herb (*Epilobium hirsutum*) – perennial
- Myrtle Spurge (*Euphorbia myrsinites*) – rhizomatous perennial*
- Purple Loosestrife (*Lythrum salicaria*) – perennial

List B species occurring within the City of Louisville:

- Absinth Wormwood (*Artemisia absinthium*) – perennial
- Bouncing Bet (*Saponaria officinalis*) – rhizomatous perennial*
- Bull Thistle (*Cirsium vulgare*) – biennial, sometimes annual
- Canada Thistle (*Cirsium arvense*) – rhizomatous perennial
- Common Teasel (*Dipsacus fullonum*) – biennial
- ~~†~~ Cutleaf Teasel (*Dipsacus ~~fullonum~~ laciniatus*) – biennial
- Dalmatian Toadflax (*Linaria dalmatica*) – rhizomatous perennial
- Dame's Rocket (*Hesperis matronalis*) – biennial or short lived perennial
- Diffuse Knapweed (*Centaurea diffusa*) – biennial, sometimes perennial
- Eurasian Watermilfoil (*Myriophyllum spicatum*) – rhizomatous perennial submersed aquatic
- Hoary Cress (*Cardaria draba*) – rhizomatous perennial
- Houndstongue (*Cynoglossum officinale*) – biennial*
- Leafy Spurge (*Euphorbia esula*) – rhizomatous perennial*
- Musk Thistle (*Carduus nutans*) – biennial
- Moth Mullein (*Verbascum blattaria*) – biennial
- Russian Olive (*Elaeagnus angustifolia*) – tree
- Scentless Chamomile (*Tripleurospermum perforatum*) – annual
- Scotch Thistle (*Onopordum acanthium*) – biennial
- Sulfur Cinquefoil (*Potentilla recta*) – perennial

List C species occurring within the City of Louisville:

- Cheatgrass or Downy Brome (*Bromus tectorum*) – winter annual
- Chicory (*Cichorium intybus*) – rhizomatous perennial
- Common Burdock (*Arctium minus*) – biennial
- Common Mullein (*Verbascum Thapsus*) – biennial
- Field Bindweed (*Convolvulus arvensis*) – rhizomatous perennial
- Puncturevine (*Tribulus terrestris*) – annual*
- Redstem Filaree (*Erodium cicutarium*) – winter annual or biennial

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Watch List (these noxious weeds are List A species which have been identified in Boulder County and could appear in Louisville)

- ~~Hairy Willow herb (*Epilobium hirsutum*) – rhizomatous perennial~~
- ~~Giant Reed (*Arundo donax*) – perennial~~
- ~~Knotweed (*Polygonum x bohemicum*) – perennial~~
- ~~Mediterranean Sage (*Salvia aethiopsis*) – biennial or perennial~~
- ~~Orange Hawkweed (*Hieracium auriacum*) – perennial~~

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Other Nuisance Weed Species within the City of Louisville (sometimes controlled)

- American Pondweed (*Potamogeton epihydrus*) – rhizomatous perennial
submersed aquatic
- ~~Common Mallow (*Malva neglecta*) – annual~~
- ~~Common Ragweed (*Ambrosia artemisiifolia* L.) – annual~~
- Curly Dock (*Rumex crispus*) – perennial
- Dandelion (*Taraxacum officinale*) – perennial
- Broadleaf Plantain (*Plantago major*) – perennial
- Prickly Lettuce (*Lactuca serriola*) – annual or biennial
- Russian Thistle (*Kali tragus*) – annual
- White Clover (*Trifolium repens*) – perennial

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