

Calgary



Targeted grazing project guidelines

A guide for scoping a livestock grazing
project to accomplish specific invasive plant
species and land management goals

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Title:	Targeted Grazing Project Guidelines
Intent:	This document provides a guide for City of Calgary staff and/or a proponent. It should be used to establish a scope of work and a terms of reference for the application of livestock. The aim of the project should be for invasive plant species and land management objectives on City of Calgary-owned lands. This document was developed in conjunction with the Society for Range Management's guideline on targeted grazing. ⁱ
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Revision notice

Date of review	Description

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Purpose

This document acts as an outcomes-based guide to implement a targeted grazing project at a specified season, duration and intensity to accomplish specific invasive plant species and land management goals on City of Calgary-owned land.

Applicability

This document applies to City of Calgary staff and/or a proponent implementing a target grazing project on City of Calgary-owned land, as allowed under the City of Calgary Land Use Bylaw (1P2007) and Responsible Pet Ownership Bylaw (23M2006).

Targeted grazing overview

Targeted grazing for vegetation management is the practice of using a select type of livestock to intentionally alter plant communities and lands for specific invasive plant species and landscape management goals.

Considerations

- Targeted grazing can be integrated with prescribed fire, herbicide application and mechanical treatments to improve the efficacy of managing invasive plant species
- To determine a plant's response to grazing, it should be grazed during its growth stage
- To be effective, targeted grazing must be applied with the right type of livestock at the right time and the correct amount of pressure for each vegetation situation
- Two or more grazing treatments may be needed during a growing season to suppress undesirable vegetation
- Care must be taken to avoid overgrazing desirable species
- Targeted grazing, like any form of land management or weed control, should consider a long-term time horizon
- A long-term monitoring plan and success criteria for the land being managed is a key asset to success

Developing a project scope of work

City staff should determine a project scope prior to implementing a targeted grazing project. Establishing project objectives will help ensure the correct type of livestock grazing is selected. The scope of work may align with The City's Corporate Project Management Framework Project Charter document and The City's Habitat Restoration Project Framework. In order to best implement a targeted grazing project, specific sections of the scope of work should be considered. The following explains the sections that could be contained within the scope of work document:

1. Executive summary

This is a summary of the rationale and scope of the project and includes a link to BU/Council direction for the project.

2. Objectives

Objectives should address specific intended outcomes of the grazing project. Example project objectives may include, but not be limited to,

- A. Invasive plant species management
- B. Wildlife habitat improvement; specifics may include,
 - i. Reducing invasive plant biomass relative to desired plant species
 - ii. Creating access and opening canopy into heavily overgrown areas
 - iii. Stimulating re-growth of desired plants with higher nutritional value for wildlife

- C. Fuel load reduction; specifics may include,
 - i. Creating a defensible space from all dwellings
 - ii. Removing ladder fuels
 - iii. Creating canopy gaps
 - iv. Trampling brush
 - v. Removing mature tree leaves from limbs up to 1.5m
- D. Restoration management; specifics may include,
 - i. Clearing undesired vegetation blocking or encroaching into dry a water channel
 - ii. Reducing biomass in dry flood plain
 - iii. Reducing invasive plant species seed spread downstream
 - iv. Breaking up soil and incorporating seeds of desirable plant species
- E. Vegetation management; specifics may include,
 - i. Improving visibility and access to uncover homeless shelters
 - ii. Creating appropriate human access by reducing overgrowth

3. Regulations

City of Calgary staff and the proponent should note all regulatory requirements and ensure adherence; for example, the *Alberta Wildlife Act* and *Migratory Birds Convention Act* for wildlife surveys and The City of Calgary's BIA Framework for rare plant surveys. Additional regulations may be applicable for certain land uses (Land Use Bylaw 1P2007), right-of-ways, when working near an active land fill or a water body.

4. Roles and responsibilities

Identify the positions and specific tasks of the project team and proponent. Each team member should be assigned a particular position and be assigned specific duties expected to be completed. For example, as per the project's specific procedures, it should be identified who is responsible for mapping the project parcel of land; vegetation/weed identification/mapping, etc.

5. Budget

This should be as per the approved procurement contract and may or may not include staff time and City resources for reporting purposes.

6. Terms of reference

Develop a terms of reference for the project including defining the activities to be done, the location, period, duration, safety procedures, etc. For further details, see the section in this document, "Developing a terms of reference."

7. Communications

Document a high-level strategy for project communication between team members, the contractor and may include advising the 311 BU of the project to properly direct citizen-inquiries.

8. Completion criteria

Document what determines project success, including specific deliverables. This may be further detailed in the project's Terms of Reference.

Developing a terms of reference

A targeted grazing project should establish a terms of reference to be agreed on by both the City of Calgary land steward and the proponent. A project-level terms of reference should include a statement summarizing the project and outlining objectives and purpose of the work (as per the scope of work). General terms of the contract, methods of grazing, project contacts and other information, as applicable, should be noted. The following provides an outline and example contents of what might be captured in a project's terms of reference.

1. Purpose statement

Provide a brief description of the project, as per the project's scope of work. Any regulations or other requirements (e.g. procurement requirements) should be identified.

2. Scope and objectives

Detail the project's objectives, as per the project's scope of work. Alignment with BU/Council priorities should be noted. Any performance criteria to measure the project's success should also be noted.

3. Background

Based on the project's objectives, reference specific practices that are to be executed by the proponent including but not limited to,

- A. Project duration (based on area to manage/plant species biomass to target)
- B. Animal choice and rationale (based on land management/invasive plant species selection criteria)
- C. Stocking rate and rationale
- D. Grazing timing (season), frequency and duration
- E. Animal containment/handling: over-night area (livestock, working animals and project staff); fencing, watering, equipment needs; livestock guardian animals specifics; disaster, crisis, catastrophe and extreme weather preparedness plans;
- F. Any suggested City of Calgary staff requirements
- G. A general health and safety plan for the proponent

Capture general animal husbandry practices carried out by the proponent including but not limited to,

- A. Herd/flock health practices (e.g. controlling parasite transmission)
- B. Safety procedures (for staff and wildlife)
- C. Practices to minimize seed transport

Provide a site inventory including but not limited to,

- A. Land use (as per the Land Use Bylaw 1P2007)
- B. Vegetation cover type (e.g. forest, grassland, manicured grass, etc)
- C. Native or avoided plant species composition
- D. Vegetation targeted for management/removal
- E. Applicable site history such as activities, herbicide spraying, previous grazing, contamination, etc.
- F. Project map including site perimeter, topography, constraints (physical and ecological)
- G. Ecological features, Environmentally Significant Areas, water bodies, etc.
- H. Excluded areas

4. Responsibilities

Provide a summary of the roles and responsibilities of the project team and the proponent. Details should include a brief list of the key tasks performed. Example responsibilities may include but are not limited to,

- A. [The proponent] agrees to maintain all requirements stipulated by the City of Calgary (the City) Procurement Department to be registered as a contractor to the City, covered in the City's Professional Services Terms and Conditions.
- B. The City will detail site access and the location and extent of a laydown area where [the proponent] can pen the herd and base associated support facilities/resources.
- C. The City will facilitate access to the site and to drinking water for the herd.
- D. When herding livestock to and from target species patches, [the proponent] will do so in such a way as to minimize impacts to non-targeted plant species, particularly native species.

5. Specific procedures

This section is the main text of the terms of reference. It details the procedures for the project based on project objectives. For invasive plant species management, example procedures may include but are not limited to,

- A. The City will provide a project area map indicating vegetation land cover type, buildings, restricted areas, site access and laydown/over-night area.
- B. [The proponent] will map current weed infestations within the project boundary using the IPM Invasive Weed Mapping App or in a GIS compatible format using The City mapping standards (ERSI shapefile, 3TM NAD83); weeds that cannot be mapped via the App will be documented by other digital means and supplied to The City.
- C. [The proponent] will provide electronic and printed copies of maps illustrating target weed species polygons, priority areas, and other site elements, as per The City project area map.
- D. [The proponent] will establish a number of photo-monitoring points to obtain pre-treatment (baseline) and after-treatment records.

- E. The City will provide [the proponent] with weed bags for hand picking single plants encountered that were not identified at the pre-control mapping stage of the project; this may inform weed migration routes to be captured by The City for future project planning.
- F. Seventy percent of the above ground parts on the targeted species within the mapped areas are to be treated.
- G. One-hundred percent of the mapped areas (weed patches) are to be treated.
- H. Deviation from grazing the targeted areas should be captured in the summary report provided by [the proponent]; rationale may include, troublesome targeted species characteristics, targeted species misidentification, vegetation patch mapped inaccurately; extreme weather event; vegetation patch inaccessibility; etc.

5.2. Specific procedures for floodplains and riparian areas

Targeted grazing activities will be permitted, and may occur, in the floodway and riparian areas. Specific procedures are required when carrying out operations in these areas. The proponent is required to at minimum address the following procedures:

5.2.1. Safety procedures for flood hazard areas

- A. For any activities in the floodway or flood fringe, an emergency contact shall be established and provided to River Engineering to be integrated within the annual Flood Emergency Reference Manual and flood response plan; evacuation procedures shall be in place; a plan must be in place to demobilize all equipment and livestock within 9 hours or less on the Elbow River, within 24 hours or less on the Bow River and ASAP in a flash flood event during severe thunderstorms for all other creeks and streams.
- B. Temporary portable accommodation for the shepherd and livestock should be placed outside the floodway, and preferably outside the flood fringe; this is for safety and to avoid such structures being inundated, becoming flood debris and washing downstream, and/or discharging any hazardous or contaminating material into the rivers during a flood.
- C. For areas along smaller streams and coulees etc. that are not “mapped” as flood fringe or floodway but still are at risk of flooding, please consult the ephemeral and intermittent streams data recently completed by Water Resources and avoid placement of fencing or temporary portable accommodation in areas mapped as intermittent or ephemeral streams.

5.2.2. Environmental procedures for riparian areas

- A. There is a risk that horses, goats, and dogs will trample riverbanks causing damage and erosion; range management tools such as rotational grazing, sustainable stocking rates, and off-site watering systems (e.g., nose pumps, etc.) should be used to help limit erosion.
- B. There is a risk that horses, goats and dogs could introduce additional microbial contamination to waterways; this is of greater concern in (a) source watershed areas draining into the two drinking water reservoirs, especially in close proximity to the reservoir systems (e.g., North Glenmore Park, South Glenmore Park, Weaselhead,

Haskayne Park, etc.), as well as (b) areas that are already experiencing significant microbial contamination events (e.g., Lower Elbow River area which regularly exceeds recreational guidelines for safety); the proponent should describe considerations to manage potential impacts from animal waste.

6. Communications

Communication information between the land steward and the proponent should be noted. Contact information for a City staff member should be provided for immediate operational assistance. Citizen enquiries about the program should be directed to The City's 311 system.

7. Deliverables

Document the major deliverables that are required to deliver project success. Example deliverables may include but are not limited to,

- A. Day-summary email from the proponent to update the project team to raise any issues, comments, etc.
- B. A map indicating the herd GPS tracks and treated polygons.
- C. [The proponent] is to provide a summary report of the project thirty days after the program has been completed describing the project, outcomes and recommendations.

8. Budget

As per the procurement contract, note the total approved budget.

9. Contract details

Provide,

- A. The name, title and contact information of The City project manager
- B. The name, title and contact information of the proponent
- C. A signature block
- D. The date of signing
- E. The work commencement date

Appendices

References

City of Calgary (2014). Corporate Land Management Framework, Stewardship Standard.

City of Calgary (2014). Corporate Project Management Framework (CPMF).

City of Calgary (2014). Habitat Restoration Project Framework.

City of Calgary (1998). Integrated Pest Management Plan.

Society for Range Management (2006). Targeted Grazing: A Natural Approach to Vegetation Management and Landscape Enhancement.

Glossary

Biological control: The use of living organisms (parasites, predators, pathogens) to reduce or maintain pest populations to acceptable levels.ⁱⁱ

Habitat restoration: The active process of assisting, through land management activities, the recovery of a degraded habitat to initiate or accelerate its succession towards a reference habitat (see The City's Habitat Restoration Project Framework for more details).

Proponent: For the purposes of this document, a vendor or contractor acting on behalf of The City of Calgary, typically a shepherd.

Owner: For City of Calgary-owned land, the Owner of a parcel is the entity listed on Title – in all cases The City of Calgary.ⁱⁱⁱ

Steward: The Business Unit (BU) defined by the Primary Intent of the land; Primary Intent is the first or original intended purpose behind the purchase or acquisition of the land and/or highest level of importance based on liability or legislation. For all City parcels there must be one steward per titled parcel and/or registered road plan.^{iv}

ⁱ Society for Range Management (2006). Targeted Grazing: A Natural Approach to Vegetation Management and Landscape Enhancement.

ⁱⁱ City of Calgary (1998). Integrated Pest Management Plan.

ⁱⁱⁱ City of Calgary (2014). Corporate Land Management Framework, Stewardship Standard.

^{iv} City of Calgary (2014). Corporate Land Management Framework, Stewardship Standard.