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Redtail Ridge Management Recommendations DRAFT

Prepared by High Plains Environmental Center for Brue Baukol Capital Partners

The High Plains Environmental Center (HPEC) is an environmental 501(c)(3) nonprofit in Loveland, CO founded in 2001. Our mission is "...to work to educate communities to become replicable 'living laboratories' which demonstrate restorative examples of land-stewardship, native plants, and wildlife habitat". We have developed a set of management recommendations for the open spaces at Redtail Ridge in Louisville, CO at the request of Brue Baukol. Our goal is that these open spaces would support a diverse native plant community, provide habitat for wildlife, benefit trail users and businesses, and have lower management costs and resource consumption than traditional ornamental landscaping.

We have toured the development site and been provided with information on the history of the site, the current management concerns, and the uses planned for these open spaces. There is tremendous potential for high-quality wildlife habitat at this site and our management recommendations are designed to enhance the resources that currently exist at the site. These resources include mature native cottonwood (*Populus deltoides*) and peachleaf willow (*Salix amygdaloides*), a native grass and forb plant community, variable topography, and existing wildlife activity (red-tail hawks, northern flickers, prairie dogs, etc.).

Red-tailed hawk

Open space and native area management requires the ability to assess the area and adapt management strategies to real conditions on the ground. These recommendations are a starting point for managing open spaces at Redtail Ridge, but our recommendations will likely be modified as work is completed and its effectiveness is assessed. We follow an adaptive process as diagrammed in Figure 1. We have completed steps 1-3 (Inventory, Identification, Zoning) by touring the site and dividing it into management zones. This document provides recommendations for the Design of the management strategy (step 4). Over the next six months, the management strategy will be implemented (steps 5 and 6), we will assess the effectiveness of the strategy (step 7), and begin the cycle again to adapt our actions to real conditions.

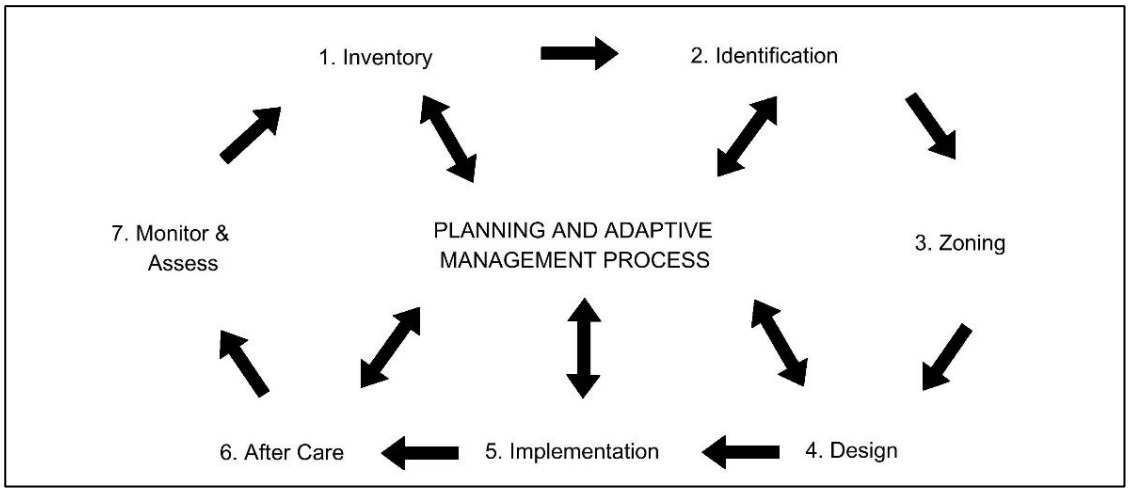

Figure 1. The adaptive management process. Adaptive management follows a cycle of site assessment and inventory, designing a management strategy, and evaluating the results after the strategy is implemented. The next management steps are then based on a new site assessment and tailored to the actual site conditions as they change.

City of Louisville Public Land Dedication

Tree management

This area has many mature trees scattered throughout the site. Live, standing dead, and fallen trees are all utilized by wildlife. Standing trees (alive or dead) provide nesting and roosting sites for birds. These are where you will likely see a red-tail hawk or American kestrel hunting for rodents in the grass. Fallen trees are utilized by small mammals, small reptiles, and insects. However, once trails and other facilities for public access are added to this site, we expect there will be a need to balance the wildlife value of these trees with their potential safety risks. Many of these mature trees grew around ditches and other constructed waterways that are no longer providing water to the trees. If any of these trees are struggling, it will be more likely for large branches to break off, especially under heavy snow or strong winds. If those trees die, they can be knocked over by wind as well. For any tree that is not a risk to visitors, we recommend leaving that tree in place, whether it is alive, struggling, or dead because of its tremendous value to wildlife.

Other vegetation

The existing grasses here are largely seeded pasture grasses like smooth brome (*Bromus inermis*) and intermediate wheatgrass (*Thinopyrum intermedium*). They are well-established and leave very little bare ground exposed. There are also native wildflowers scattered among the grass, including curlycup gumweed (*Grindelia squarrosa*), soapweed yucca (*Yucca glauca*), and rabbitbrush (*Ericameria nauseosa*).

Additional seeding in this area would improve the diversity of the plant community and help fill in any sparsely vegetated patches. Because there are a few noxious broadleaf weed species present here, we recommend seeding a mix of cool- and warm-season native grasses initially so that weed control efforts do not harm any native wildflowers. Once the weeds are reduced, wildflower seeds can be broadcast by hand around the site.

There are a large number of native grasses and forbs that would work well for this purpose and we have listed a few of them here:

Grasses

- Buffalograss (*Buchloe dactyloides*)
- Blue grama (*Bouteloua gracilis*)
- Western wheatgrass (*Pascopyrum smithii*)
- Green needlegrass (*Nassella viridula*)

Wildflowers (also called "forbs")

- Scarlet globemallow (*Sphaeralcea coccinea*)
- Dotted blazingstar (*Liatris punctata*)
- Purple prairie clover (*Dalea purpurea*)
- Hairy false goldenaster (*Heterotheca villosa*)

Scarlet globemallow (*Sphaeralcea coccinea*)

Dotted blazingstar (*Liatris punctata*)

The noxious weeds present in this area include common teasel (*Dipsacus fullonum*), diffuse knapweed (*Centaurea diffusa*), Scotch thistle (*Onopordum acanthium*), and musk thistle (*Carduus nutans*). These are extremely common weeds in this region. Herbicides are often the most effective tool for controlling these species and is best applied as a targeted spot-spray (not a broadcast application) in the spring and fall. They should be mowed as needed in the summer to prevent seed production. When herbicide is used, all of these weeds can be significantly reduced after 2-3 seasons of treatment. Because the City of Louisville no longer uses the herbicides glyphosate and 2,4-d on all city-owned properties, these two chemicals should not be utilized for weed control in this area. The herbicide aminopyralid is particularly effective on thistles, knapweeds, and teasel. Any herbicide applications should be made in strict adherence to instructions on the label and any supplemental label materials for that product.

Scotch thistle (*Onopordum acanthium*)

Stormwater Detention Facilities

Existing ponds have several mature cottonwood and peachleaf willow trees that support wildlife and help to stabilize the edges of the ponds. The addition of a multi-layered understory beneath these mature trees would further diversify the plant community and create habitat for additional species of wildlife. We recommend the installation of several clusters of native shrubs of various sizes beneath the mature trees.

In any new stormwater detention facilities that will be constructed, we recommend planting a combination of native overstory trees with understory shrubs placed in clusters around the pond (see Figure 2). These clusters do not need to be spaced evenly, or even contain the exact same assortment of trees and shrubs. Creating variability in both the species of a plant community and their placement in the landscape will help to attract and support even more wildlife species to this area. Variability makes different types of food available throughout the year (e.g. berries in the summer and seeds in the fall), provides shelter for different life stages of animals during all seasons, and allows for many types of wildlife to coexist simultaneously. For example, a golden currant (*Ribes aureum*) has flowers that support bees and other insects in the spring, then berries that feed birds and mammals like raccoons, and can provide protection from predators for small rodents and rabbits.

Taller trees and shrubs will also provide some separation from human activity on nearby trails or roads by giving wildlife a place to hide, reducing some noise and light (especially from roads), and discouraging people from going too close to the pond.

View of an existing pond at the Redtail Ridge site showing the noxious weed Scotch thistle (*Onopordum acanthium*) in the foreground and mature trees with a bird nest in the background.

The following are some tree and shrub species that would work well here:

Trees

- Plains cottonwood (*Populus deltoides*)
- Narrowleaf cottonwood (*Populus angustifolia*)

Shrubs

- Golden currant (*Ribes aureum*)
- Chokecherry (*Prunus virginiana*)
- Snowberry (*Symphoricarpus albus*)
- American plum (*Prunus Americana*)
- Red-twig dogwood (*Cornus sericea*)
- Native willows like coyote willow (*Salix exigua*) – can be collected from existing wild populations in riparian areas within the site and transplanted

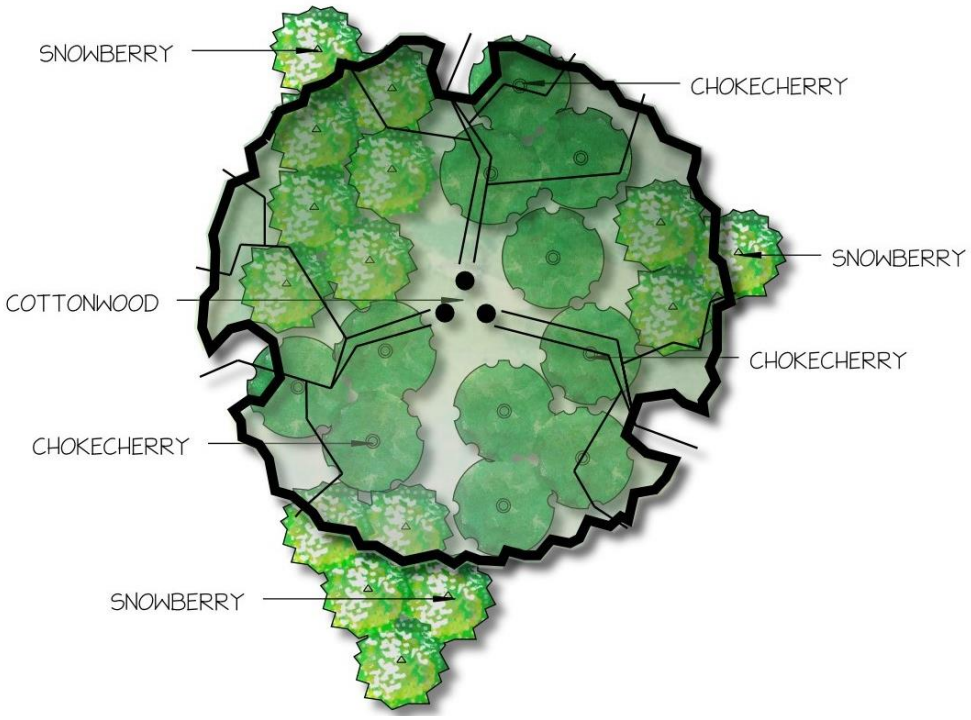

Figure 2. Example of the arrangement of a cluster of understory shrubs with an overstory cottonwood tree. Similar clusters would be installed around stormwater detention facilities to enhance habitat value. Image designed by J. Oldham.

There are some non-native and invasive Russian olive trees around these ponds that should be removed. To keep the Russian olive trees from resprouting, they should be cut in the fall and the fresh cut treated with to kill the roots. Again, in alignment with the City of Louisville practices, the herbicides glyphosate and 2,4-d should not be used for this treatment. There are other herbicide options to control Russian olive such as Garlon 3A, an aquatic-safe formulation of triclopyr.

Broomfield Conservation Easement

This area is dominated by a prairie dog town that likely has very few controls on their population size. Surrounding development has reduced habitat to support predators like coyotes, so the main limiting factor for this prairie dog population is food availability. Because of this heavy grazing pressure, any efforts revegetate this area or to improve the plant community will not be successful unless the prairie dog population is reduced. ERO has provided Brue Baukol with a report on the site's prairie dog population that includes their recommended management strategies. These recommendations include wildlife surveys prior to implementing any lethal control options to avoid harming any non-target wildlife. We additionally recommend that first-generation anticoagulant rodenticides are avoided entirely if lethal control becomes necessary because of the high risk these pesticides pose to other wildlife.

Broadleaf noxious weeds (diffuse knapweed, Scotch and musk thistles) should be controlled with the same strategy as above. There is some cheatgrass (*Bromus tectorum*), which is a winter annual grass that is a noxious weed in Colorado. It can be controlled with a late winter application of an herbicide like imazapic when the seedlings are just emerging. Cheatgrass patches can also be mowed once they begin to flower to prevent seed production.

A riparian area and creek run through the south end of the easement area that has established native willows and cottonwood trees. This is very valuable habitat for birds, insects, small mammals, reptiles, and amphibians. Prairie dog management activities should not impact this sensitive area, but care should be taken to follow all label instructions when applying herbicide nearby. All of the woody vegetation here (willows and cottonwood trees) should be left in place.

Wildlife Considerations

Based on the initial wildlife surveys conducted by ERO, there appear to be ground-nesting birds active in the site. These birds make their nests on the ground, sometimes next to clumps of grass or even hidden in plain sight directly on top of rocky ground. To protect the nests and young of these bird species, we recommend ceasing any mowing or other equipment access to open spaces between July 1 and Aug 31. If equipment access is essential for a particular area, we recommend conducting another survey to check for active nests prior to starting the work.

Landscaping around buildings can help provide a protective buffer between human activity and wildlife habitat. Using the building itself to block noise from busy streets and parking lots and planting tall and dense vegetation between the building and wildlife habitat still allows building occupants to enjoy a beautiful view while providing some peace to any wildlife in the area (Fig. 3).

We recommend utilizing setbacks and landscaping design to help ensure people and wildlife will successfully coexist at this site.

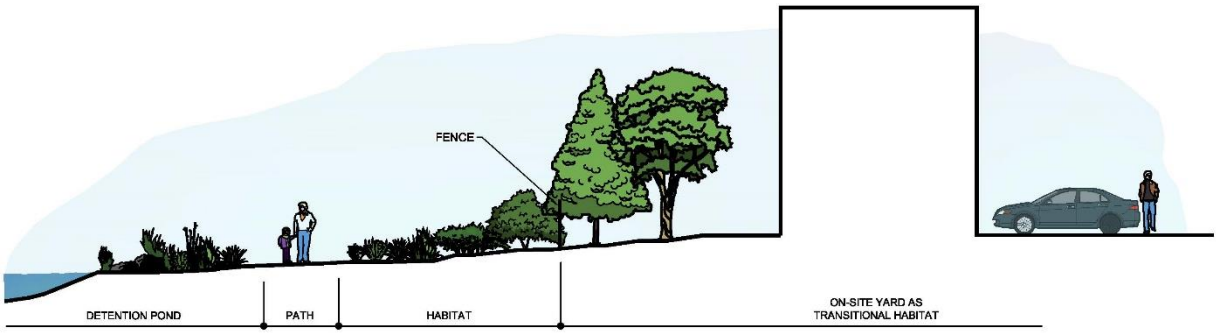

Figure 3. Example of the arrangement of buildings, trees, paths, and other vegetation so that wildlife habitat like detention ponds can be protected from human disturbance like streetlights and vehicle noise.

Vertical Development – Ongoing Consultation

In addition to continuing to assess and adapt the open space management strategy, HPEC can also provide suggestions for making other development plans more habitat-friendly. This could include review of development plans (drainage pond design, landscape plans, etc. in and adjacent to open spaces), meeting with planners, landscape architects, developers, and other relevant parties to discuss open spaces (management plans, specific habitat characteristics and benefits, etc.). This consultation will support the long-term health and viability of the diverse wildlife habitats and plant communities on the site.

Conclusions

The development plan for Redtail Ridge allows for the preservation and enhancement of the most valuable wildlife habitat and plant communities found on the site. Additional plantings, weed control, and thoughtful building landscaping design can all help this site continue to attract and support many types of wildlife after it is developed.