Prairie Dog Barriers Overview
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The use of barriers for non-lethal control of prairie dogs has been the forefront of best management practices for at least two decades. Non-lethal control is a paradigm shift in thinking more towards alternatives that stress co-existence with wildlife rather than extermination. For over 100 years humans readily relied on the use of highly toxic chemicals to immediately solve wildlife conflicts. But, these older approaches come with risks to humans and the environment and their efficacy in many cases is not economically feasible. Today, many entities are now seeking alternatives to humanely manage wildlife rather than relying on antiquated approaches.

Within this document are ideas for barriers but it is not exhaustive. When selecting barriers it will be important to consider the specific site, costs and maintenance. Environmental elements such as winds, water tables, and soils are also important. Site occupancy history is also relevant because the longer prairie dogs have occupied an area, the more extensive their tunnel systems and a higher probability of non-target species involved. In general, barriers should not split coteries or clans (a family unit of prairie dogs) and in most but not all cases prairie dogs should be removed from the exclusion area prior to barrier installation. Understanding these fundamentals are important in the type of barriers needed, where barrier placement should occur and the timing of installation.

Aesthetics, multi-functionality and zoning regulations is also important. For example fencing around a yard to contain livestock or pets could be potentially modified to also exclude prairie dogs. And, barriers in urban areas are generally subject to higher zoning regulations for aesthetics where rural areas may use a less formal structure.

There are two types of barriers; physical and vegetative. Physical barriers are generally comprised of manmade fencing (wood, pvc, vinyl) or masonry walls. It is a generally accepted practice that physical barriers should stand at least 3-feet tall, are opaque and include a deterrent that discourages prairie dogs from climbing over or digging underneath the barrier. In most cases, prairie dogs as ground squirrels, are not inclined to climb but they are very good at digging and so it is important to be mindful that light does not penetrate underneath the barrier.

Vegetative barriers use shrubs or mid to tall height grasses to inhibit prairie dog movement into unwanted areas. Shrubs plantings should use a variety of species not only for aesthetics but as insurance against plant diseases that could potentially wipe-out one monoculture of plants. Shrubs to consider: dwarf and tall rabbitbrush, big western sage, four-wing salt brush, three-leaf sumac, spireas, and some juniper varieties. Shrub depth is dependent on the species selected but generally 10 to 20 foot wide dense swaths are adequate. Grassy barriers should include an assortment of cool and warm season species where growth patterns vary over spring, summer and fall seasons. Good grass swaths to maintain are 200 to 300 foot wide.
Physical Barriers:

1. **Skirting** - is used to fortify physical barriers. Skirting is proven to be beneficial by inhibiting prairie dogs from tunneling underneath or chewing directly through barriers. The application involves abutting 4- to 5-foot wide one-inch netting poultry (chicken) wire against the barrier horizontally with a one-foot lip that extends vertically against the barrier. Skirting should be adequately tacked down to the soil; usually 6-inch sod pins suffice. It is important to install pins in a zig-zag pattern, roughly 6- to 8-inches apart at the loose edge of the netting facing the colony and in a direct line abutting the barrier, use other pins at sporadic one foot increments to hold down loose wire that runs along the middle of the skirt. In some applications, laying 6- to 8-inch rock cobble or riprap on top of the skirting will help with aesthetics and inhibit prairie dog tunneling under the skirting. The one foot vertical lip should be attached to the barrier; typically using a wood staple gun.

   Application of skirting for one-inch netting poultry wire:

   ![Correct use of wire against wood fence.](image1)
   ![Incorrect use gap between wire and fence.](image2)
   ![If using metal or rock walls, abut wire directly against bottom of barrier.](image3)

2. **Metal Barriers** – are made from metal sheeting and are typically trenched 2- to 4-feet underground.

   - **Pros:** Slick surface is difficult for prairie dogs to climb. A strong material significantly decreasing maintenance costs over long periods of time. Opaque visual deterrent both from the horizon and beneath barrier (no light penetration). Can withstand high winds, hail, flooding, heavy snow loads. Paint indicates little color fade or chipping.
   - **Cons:** requires some experience for installation and experienced contractors lacking. Materials may need to be difficult to find. Repair is expensive (for example if damaged with landscape or snow removal equipment). Water drainage lacking. Requires trenching. Soil erosion next to barrier can create gaps allowing prairie dogs to circumvent the barrier using old trench lines. Gaps can be filled in with sand and install skirting where feasible.

   ![Non-prairie dog side of metal barrier.](image4)
   ![Prairie dog side of barrier. Note safety caps on metal posts and elongated cap along top of metal fencing.](image5)
3. **PVC fencing** – with modifications, such as skirting, this type of fencing can be effective in prairie dog exclusion.

4. **Wood Fence** – is commonly used for many yards and with modifications will work quite well in prairie dog exclusion. In the below application, a wood fence was installed to exclude prairie dogs from a large townhouse project that was built directly adjacent to a prairie dog colony. When the property added turf grass, prairie dogs were readily interested in taking up residency. After removing the prairie dogs using non-lethal passive relocation techniques, a privacy fence, with modifications, was installed.

Pros: contractors and materials easy to find. More likely to be accepted by city or county code and more aesthetically pleasing. Does not require trenching; wood fence should not be buried. Single slats can be removed to passively move prairie dogs to correct side of barrier if there are breaches and then replaced. By incorporating cobble at the bottom of the barrier, it will increase water drainage runoff and fortifies a light free bottom seam.
Cons: wood can rot over time, prairie dogs can chew through the bottom of fence; this can be avoided by attaching skirting. Too much light emitting from bottom of fence, especially where fence does not align with contour of land; backfill with soil or add rock or landscape edging to inhibit light penetration.

Wood fences with gates: to inhibit light emitting when the gate is closed, add 6-inch metal culvert pipe at the threshold and a vertical lip wood piece on gate.
Large wood gates for heavy equipment access: The choice of large gates for heavy vehicle access can make a big difference for prairie dog exclusion. Swing gates are easier to modify than those that slide into a pocket mechanism.

Wide spaced vertical wood slat – with modifications: Prairie dogs circumvented wide slat openings into an incompatible area. After prairie dogs were passively removed, the fence was modified by tacking black silt fence directly to the wood fence and then adding chicken wire skirting against silt fence. Note: this is not a permanent solution but was used given limited funds and unknown future land use.

5. **Vinyl Barriers** – truly the first pioneering technique for prairie dog exclusion in the mid 1990’s and with modifications are still effective barriers. The material is a tough woven opaque vinyl that withstands weather for long periods of time if properly installed. It is sold by Reef Industries in Texas. There are two widths, 36” or 42” (for trenching) with grommets positioned at 3 foot intervals along the top and bottom of the barrier. Each barrier is sold in 300’ lengths.
**Example #1 Long-term construction project:** used vinyl instead of silt fence due to better durability; the vinyl was trenched into the ground and held up by t-posts and smooth wire running through the top grommets. This project involved using non-lethal passive relocation methods to move prairie dogs out of the way of a large concrete path and trail installation; once completed, the barrier was removed.

**Example #2 Chain-link application:** On the prairie dog side of fence, use 5-foot wide one-inch netting poultry wire, attach one-foot of wire vertically to the chain-link and anchor remaining 4-feet to the ground using 6-inch sod pins. Using 36” wide vinyl barrier, attach top grommets to fence with heavy wire or use line wire to weave grommets into fence links. Anchor bottom grommets by inserting in two 11-inch edging pins per grommet into the ground.

**Example #3 Vinyl barrier attached to t-posts:** T-post and single strand wire (inserted through grommets to hold up the vinyl barrier) can sag without proper supports. Wooden “H” brackets are recommended every 100 feet to help with retightening (use as pull posts with wire tightener).

The illustration below has at least two flaws: 1. A slack line may cause too much wind pressure causing metal grommets to rip, and; 2. There is no protection along the bottom of the barrier to inhibit prairie dogs from chewing directly through the barrier.
**Example #4 – Post and rail with vinyl:** This multifunction fence is used in many situations (parks, open space trails, and fences along residential homes, and for containment of domestic pets) and can be modified to exclude prairie dogs. Using wood rails as both structure and to attach grommets (with a screw and washer) creates a good long-term barrier for prairie dogs. However, there are a few problems with this particular application.

**What's wrong with this barrier?**

1. The vinyl barrier is not tall enough as a visual deterrent (see black arrow indicating gap). Barrier height minimums should be at least 2.5 to 3 feet.

2. The prairie dog side of the fence should include skirting to inhibit prairie dogs from chewing on the vinyl or digging under the fence.

**Example #5: Modified livestock fence** – example using 5-foot high wood rail fence. To secure vinyl to ground there are two options: 1. Trench vinyl barrier 6-inches below grade (use 42-inch width vinyl so 36-inches will stand above grade); or 2. Use 36-inch width vinyl and attach vinyl bottom into the ground using two 11-inch landscape edging pins per grommet.
Example #6 – Vinyl barrier backed with 4-foot tall 2-inch by 1-inch welded wire:
42-inch wide vinyl barrier was trenched 6” into ground and attached to 2-inch by 1-inch by 4-foot tall welded wire (attached to 5-foot t-posts running every 10 to 15 feet). And then added 4 – 5 foot wide one-inch netting poultry skirting on prairie dog side. Poultry wire was held up vertically by thin gauge wire that was inserted through the vinyl and attached to the t-post.

6. Silt Fence - construction fence is commonly used to control erosion but is also beneficial for short-term exclusion of prairie dogs. The product is available in 100’ foot lengths with a width of 3-feet and the fabric is pre-attached to 3.5 foot wood stakes that run every 10-feet. Be sure to buy DOT grade silt fence as the stakes are stronger than cheaper grades.

Pros: inexpensive, easy to find, relatively easy to install.

Cons: very temporary, willing prairie dogs can climb over or chew through the rough fabric. If improperly installed, the fabric can rip away from the staples attached to stakes: to avoid tear away, twist each stake one full turn around the fabric so staples are not exposed prior to installing stakes.
7. **Wood Slat Snow Fence** - This fencing is commonly used for wind and snow breaks along highways and in conjunction with vegetation rows to aid in their establishment. As the name implies, it catches snow causing drifts capturing moisture and can significantly break up harsh winds. Fence specs are 4-foot high by 50-feet long with wood slats that are spaced about 1.5 inches apart that are woven together by very strong wire.

Pros: easy installation with 5-foot t-post (attach to post by intertwined wire on wire not wood slat); relatively easy to find. Because of the slats, there is a breezeway. Slats create a visual barrier and protects plants. Useful as a semi-visual deterrent and could be used in conjunction with establishing vegetation barriers. This barrier should not be trenched.

Cons: slat spacing may not be adequate for full visual deterrence, prairie dogs could chew through bottom slats or between slats.

Below application needed a temporary fence that could withstand winds. To compensate for prairie dogs breaching through the fence poultry wire skirting was added with a one-foot “flop” to discourage prairie dogs from climbing over.

8. **Straw Bale Barrier Application** - Straw bales may be effective in limited situations. Pictured below are large bales that are 7’ long by 4’ tall.

Pros: immediate visual obstruction.

Cons: bales held together with nylon twine may quickly degrade in weather, prairie dogs can climb over and dig through bales. Potentially create a mouse haven and should not be used close to residential areas.
9. Other barriers and ideas -

**Example #1 - Recycled mining conveyor** belts – used against a horse arena provides a good visual and physical deterrent. Arena kick boards could also be effective.

**Example #2 - Electric weave fence** – lacks visual deterrent but will deter prairie dogs should they come against the fence. It is easy to install and is charged by solar power.

**Example #3 – Vegetative barrier using grasses** – the electric fence is used to prevent cattle grazing on area used as a vegetation barrier.
Example #4 - Electric fence with poultry wire – This was installed with rebar, one-inch netting poultry wire and has a skirt on the bottom and overhanging lip at the top.

10. **Landscaping techniques to exclude prairie dogs:**

Example #1 - hardscape materials such as concrete, pavement, pavers and rock is effective to impede prairie dogs from digging. Use in medians, next to pedestrian paths, next to building foundations or to protect developed parks.

Example #2 – vegetative plant choices provide multiple purposes.

- Juniper shrubs create an uncomfortable dense mat for prairie dogs and can be used as low maintenance plantings next to buildings and inside medians with other plantings.
• Grassy vegetation comprised of different cool and warm season grasses can be effective in excluding prairie dogs.

![Vegetation Buffer](image1)

• Mixing forb species such as sunflowers with Rocky Mountain Bee Plant (prairie dogs have a tendency to avoid both forb species) with grasses increases plant diversity and lengthens seasonal effectiveness of the vegetation barrier.

![Forb Species](image2)

• Windbreak rows and bushy living barriers provide a good option to inhibit prairie dog movement especially for large landscapes:

![Windbreak Rows](image3)

Rocky Mountain Juniper with three-leaf sumac.

![Living Barriers](image4)

Tall green rabbitbrush, three-leaf sumac and mountain mahogany (Cercocarpus ledifolius).
Rabbitbrush (winter)

Combination of evergreen trees (Rocky Mountain Juniper, Colorado Spruce, fir) in windbreak rows on larger rural properties can be effective prairie dog barriers.

- In areas where prairie dog expansion is desired, controlled burns, increased livestock grazing and mowing are effective.

Example #3 - manipulation of vegetation can direct prairie dog expansion and contraction. During high precipitation years where grasses and plants obtain good growth, prairie dog colonies contract; droughty conditions creates the opposite situation causing prairie dog colonies to expand. This is an important concept to understand. For example, if prairie dogs are not desired in an area, avoid mowing, at least through late spring and/or early summer (when highest prairie dog dispersal is likely to occur depending on prairie dog species).

City and county vegetation/weed ordinances should consider leniency on private lots next to occupied prairie dog sites. Inappropriate vegetation control could encourage prairie dog occupancy into conflict areas.

On landscapes where prairie dogs are allowed to exist in more natural areas, some managers deliberately reduce vegetative heights to encourage expansion of prairie dog populations when needed. And, depending upon the type of vegetation involved, mowing in new areas where occupancy is desired and
avoidance of mowing where prairie dogs are less desired can shift populations on the landscape over time.

Example #4 - Vegetative Plantings – a variety of plants can be effective deterrents. Use softscapes in large groupings or to soften a physical barrier. As with any vegetation component, incorporate varieties for interest and as protection against single species disease. A small list of ideas are presented below:

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Latin Name</th>
<th>Height</th>
<th>Width</th>
<th>H20 X-XXX*</th>
<th>Native/Intro</th>
<th>Plant Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giant Sacatoon</td>
<td>Sporobolus wrightii</td>
<td>3-6'</td>
<td>3-6'</td>
<td>XXX</td>
<td>Native</td>
<td>Warm grass</td>
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<tr>
<td>Switch Grass</td>
<td>Panicum virgatum</td>
<td>3.5'</td>
<td>18-24&quot;</td>
<td>X</td>
<td>Native</td>
<td>Warm grass</td>
</tr>
<tr>
<td>Wheatgrasses</td>
<td>varieties</td>
<td>2'-4'</td>
<td>X-XX</td>
<td></td>
<td>Mixed</td>
<td>Cool grass</td>
</tr>
<tr>
<td>Juniper</td>
<td>varieties</td>
<td></td>
<td>XX-XXX</td>
<td></td>
<td>Mixed</td>
<td>shrub-tree</td>
</tr>
<tr>
<td>Three-Leaf Sumac</td>
<td>Rhus trilobata</td>
<td>3-6'</td>
<td>3-6'</td>
<td>XXX</td>
<td>Native</td>
<td>shrub</td>
</tr>
<tr>
<td>Creo-low sumac</td>
<td>Rhus aromatica</td>
<td>2.3'</td>
<td>6-8'</td>
<td>XXX</td>
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<td>shrub</td>
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<tr>
<td>Big Western Sage</td>
<td>Artemisia tridentata</td>
<td>3'</td>
<td>3'</td>
<td>XXX</td>
<td>Native</td>
<td>shrub</td>
</tr>
<tr>
<td>Four-winged Salt Brush</td>
<td>Atriplex canescens</td>
<td>3'</td>
<td>3'</td>
<td>XXX</td>
<td>Native</td>
<td>shrub</td>
</tr>
<tr>
<td>Curl-leaf Mountain Mohagany</td>
<td>Cercocarpus ledifolius</td>
<td>3'</td>
<td>6'</td>
<td>XX</td>
<td>Native</td>
<td>shrub</td>
</tr>
<tr>
<td>Spina</td>
<td>varieties</td>
<td>3'</td>
<td>3-5'</td>
<td>XX</td>
<td>Mixed</td>
<td>shrub</td>
</tr>
<tr>
<td>New Mexico Privet</td>
<td>Forestiera pubescens</td>
<td>8-12'</td>
<td>6-8'</td>
<td>XXX</td>
<td>Native</td>
<td>shrub</td>
</tr>
<tr>
<td>Golden Currant</td>
<td>Ribes aureum</td>
<td>4-6'</td>
<td>4-6'</td>
<td>XX</td>
<td>Native</td>
<td>shrub</td>
</tr>
<tr>
<td>Alpine Currant</td>
<td>Ribes alpinum</td>
<td>3-4'</td>
<td>3-4'</td>
<td>XX</td>
<td>Introduced</td>
<td>shrub</td>
</tr>
<tr>
<td>Was Currant</td>
<td>Ribes cereum</td>
<td>3-4'</td>
<td>3-4'</td>
<td>XX</td>
<td>Native</td>
<td>shrub</td>
</tr>
<tr>
<td>Potentilla</td>
<td>Potentilla, spp.</td>
<td>3'</td>
<td>3'</td>
<td>XX</td>
<td>Mixed</td>
<td>shrub</td>
</tr>
<tr>
<td>Shrub roses</td>
<td>Varieties</td>
<td>5'</td>
<td>5'</td>
<td>XX</td>
<td>Mixed</td>
<td>shrub</td>
</tr>
<tr>
<td>Coyote Willow (or other varieties)</td>
<td>Salix exigua</td>
<td>6-12'</td>
<td>4-8'</td>
<td>X</td>
<td>Native</td>
<td>shrub</td>
</tr>
<tr>
<td>Tall Rubber Rabbitbrush</td>
<td>Chrysothamnus nauseosus (blue or green)</td>
<td>2.6'</td>
<td>2.6'</td>
<td>XXX</td>
<td>Native</td>
<td>open shrub</td>
</tr>
<tr>
<td>Dwarf Rubber Rabbitbrush</td>
<td>Chrysothamnus nauseosus</td>
<td>2'</td>
<td>2'</td>
<td>XXX</td>
<td>Native</td>
<td>open shrub</td>
</tr>
<tr>
<td>Maximilian Sunflower</td>
<td>Helianthus maculatus</td>
<td>2.5-9'</td>
<td>X-XX</td>
<td>Native</td>
<td>Forb</td>
<td></td>
</tr>
<tr>
<td>Rocky Mountain Bee Plant</td>
<td>Cleome serrulata</td>
<td>3'-4'</td>
<td>X-XX</td>
<td>Native</td>
<td>Forb</td>
<td></td>
</tr>
</tbody>
</table>

*X moist - very dry XXX