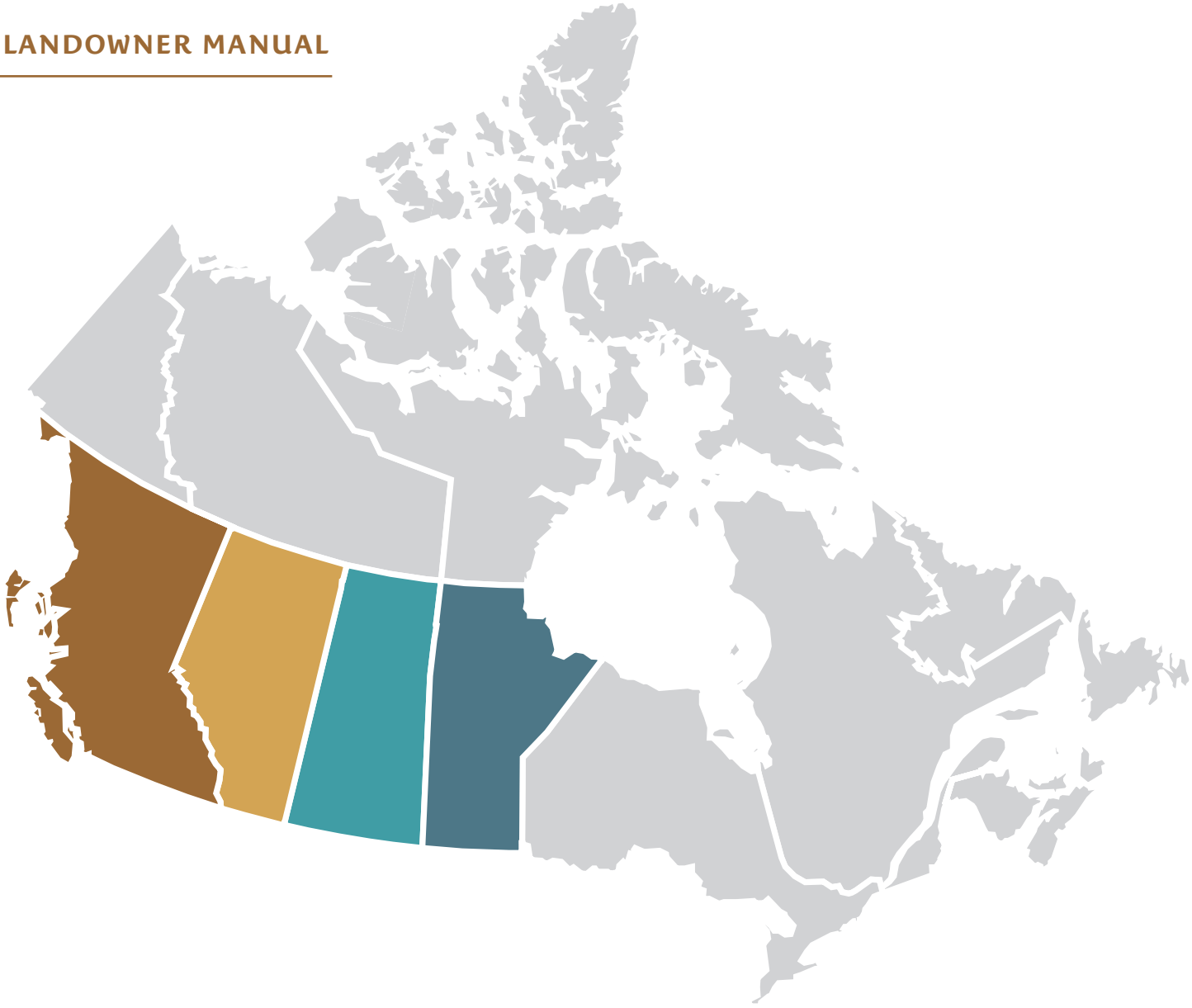
Burrowing Owl
ALLIANCE

Landowner Manual



Implementing a Burrowing Owl Habitat Management Plan tailored to specific Canadian regions involves collaborating with local conservation organizations and adhering to region-specific guidelines. Introductions and brief background on the programs operating across Western Canada are below:

British Columbia

Burrowing Owl Conservation Society of BC (BOCSBC)

burrowingowlbc.org ✉ ***bocsbc@gmail.com***

- **Habitat Creation and Maintenance:** BOCSBC focuses on building and maintaining nesting burrows in conservation areas, often on private lands. They collaborate with landowners to establish and monitor these sites.
- **Captive Breeding and Release:** The society raises owls in dedicated breeding facilities located in Kamloops, Port Kells, and Oliver. After a year, young owls are tagged, paired, and released into nesting burrows in the wild.
- **Landowner Participation:** BOCSBC's conservation efforts are largely conducted on private land, emphasizing the importance of landowner involvement. They encourage landowners to participate in their conservation programs.

Alberta

Operation Grassland Community (OGC)

grasslandcommunity.org ✉ *operationgrasslandcommunity@gmail.com*

- **Landowner Collaboration:** OGC is a stewardship program in Alberta that collaborates with landholders to conserve prairie wildlife habitats, including those of the Burrowing Owl. Established in 1989, OGC has formed voluntary agreements with numerous landholders, resulting in the protection of over 900,000 acres of native prairie habitat in Southern Alberta. These efforts are crucial for species at risk, such as the Burrowing Owl.
- **Research and Monitoring:** OGC members actively participate in annual wildlife surveys, including those for Burrowing Owls. The program also assists landholders in implementing sustainable land management practices to enhance grassland quality, benefiting both wildlife and agricultural operations.
- **Education and Outreach:** Through education, outreach, and habitat enhancement projects, Operation Grassland Community plays a significant role in the conservation of Burrowing Owls and the preservation of Alberta's grassland ecosystems.

Wilder Institute

wilderinstitute.org/conservation/burrowing-owl ✉ *info@WilderInstitute.org*

- **Reintroduction Efforts:** The Wilder Institute, in collaboration with partners such as Alberta Environment and Protected Areas, the University of Alberta, and Environment and Climate Change Canada, is boosting the Burrowing Owl population in Alberta through a conservation technique known as head starting. This method involves taking the youngest owlets, which are least likely to survive in the wild, into human care during their first winter and releasing them as adults the following spring.
- **Landowner Collaboration:** Wilder Institute Burrowing Owl work is only possible because of involvement from the local community. Each year, Burrowing Owl surveys, nest monitoring, and releases take place in the Canadian Forces Base Suffield National Wildlife Area and on privately managed ranches in the Suffield area.
- **Education and Outreach:** Engages in public education and community involvement to raise awareness about the plight of Burrowing Owls and the importance of grassland ecosystems.

Saskatchewan

Nature Saskatchewan - Operation Burrowing Owl (OBO)

naturesask.ca ✉ *obo@naturesask.ca*

- **Habitat Stewardship:** Launched in 1987, this program aims to conserve habitat for the Burrowing Owl through voluntary stewardship agreements and informed land stewardship. Even if owls are not currently present, maintaining suitable habitat is crucial for potential population increases. As of 2024, 339 landholders are conserving over 218,000 acres of habitat while using their land as they always have
- **Site Identification and Population Monitoring:** Operation Burrowing Owl monitors Burrowing Owl populations at OBO sites through an annual census. Participants report the number of owls seen and changes in land use.
- **Education and Awareness:** The program provides information and increases awareness to landholders and members of the public about Burrowing Owls, their natural history, habitat requirements and threats, and the importance of conserving prairie habitat and species diversity.

Manitoba

Manitoba Burrowing Owl Recovery Program (MBORP)

mborp.ca ✉ *mbburrowingowls@gmail.com*

- **Reintroduction Efforts:** Established in 2010, MBORP focuses on reintroducing Burrowing Owls to southwestern Manitoba. They release pairs that have successfully nested and fledged young to promote site fidelity.
- **Research and Monitoring:** The program collects data on productivity, foraging behavior, home range, diet, dispersal, and mortality to inform recovery strategies.
- **Landowner Collaboration:** MBORP works with landowners to maintain and enhance habitats, including installing artificial nest burrows and providing guidance on land management practices.

Best Management Practices

By engaging with the regional programs and implementing tailored habitat management practices, landowners can significantly contribute to the conservation and recovery of Burrowing Owl populations across Canada.

Western Burrowing Owls (Athene cunicularia hypugaea) rely on grassland ecosystems, which are often used for agriculture and ranching in Western Canada. To support their conservation while maintaining productive land use, landowners can implement Best Management Practises (BMPs) that enhance habitat quality, reduce threats, and promote sustainable land stewardship.

1. Habitat Conservation & Enhancement

Preserve Native Grasslands

- Maintain and protect existing grasslands, avoiding conversion to cropland or industrial development. Grasslands provide essential cover and prey for burrowing owls.
- Prevent shrub encroachment through light grazing or mowing to maintain an open landscape.

Enhance Burrow Availability

- Protect ground squirrel, badger, and other burrowing mammal populations, as their burrows are essential for owl nesting.
- Install artificial burrows where natural burrows are scarce. These should mimic natural burrow structures, with underground nesting chambers and entrance tunnels.

Retain and Manage Marginal Land

- Keep uncultivated field edges, ditches, and set-aside lands as wildlife-friendly buffer zones.
- Avoid disturbing idle grasslands, as they provide nesting and foraging habitat.

2. Sustainable Grazing & Farming Practices

Burrowing Owls rely on open grasslands with short vegetation for nesting, foraging, and predator detection. Native grass species play a crucial role in maintaining these habitats by providing the right structure and ecological benefits.

Rotational Grazing

- Use moderate grazing intensity to keep vegetation short (15–30 cm), which burrowing owls prefer for visibility and hunting.
- Avoid overgrazing, which can degrade habitat, reduce prey availability and expose burrows to erosion.

Hay and Silage Cutting Timing

- Delay mowing or haying within 100m of known nesting areas until after mid-July to allow fledglings to leave the nest safely.

No-Till or Low-Tillage Practices

- Reduce tillage on existing grasslands to maintain stable ecosystems and limit soil disruption.

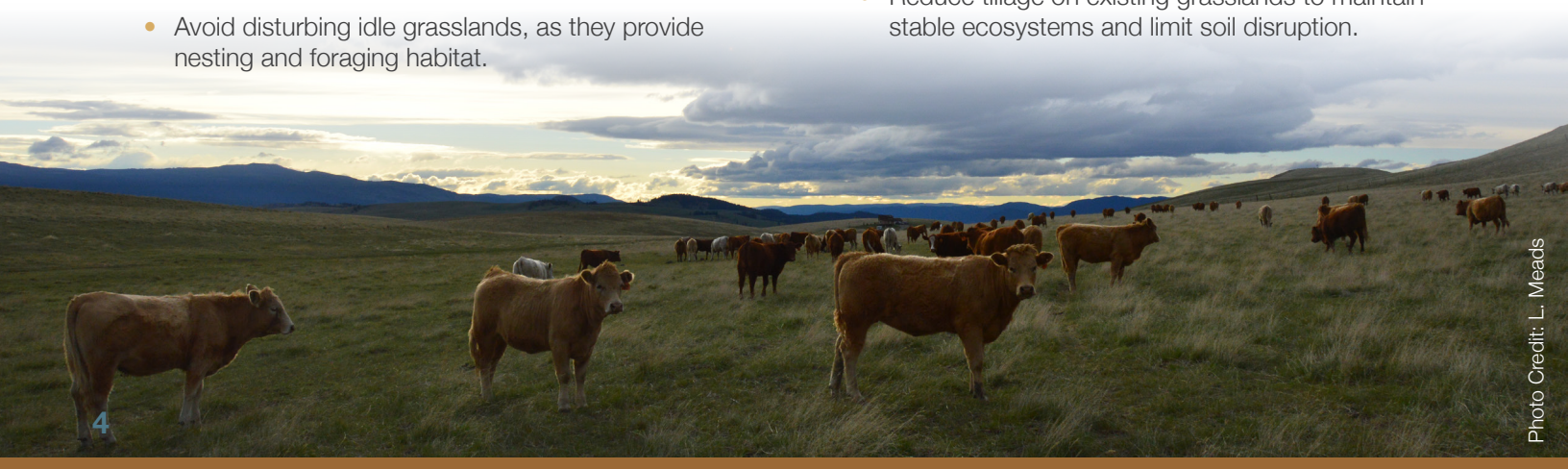


Photo Credit: L. Meads

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3. Pesticide & Rodenticide Management

Limit or Eliminate Pesticide Use

- Reduce insecticide use, as insects are a primary food source for Burrowing Owls.
- Use integrated pest management (IPM) strategies that favor natural predator-prey relationships.

Avoid Rodenticides

- Rodenticides harm burrowing mammals (e.g., ground squirrels, badgers) and indirectly poison burrowing owls.
- Encourage natural rodent control by supporting Burrowing Owl habitat.

4. Reducing Disturbance & Predation

Minimize Human Activity Near Nest Sites

- Reduce traffic, machinery operation, and livestock movement near active nesting areas (April–August).
- Use buffer zones (100-300m) around burrowing owl nests to limit disturbances.

Control Invasive Predators

- Manage populations of free roaming cats and dogs which prey on eggs and young owls.

Control Invasive Plants

Invasive plant species threaten Burrowing Owl habitats by altering native prairie ecosystems, outcompeting native grasses, and reducing food availability. Effective control methods help maintain the open, shortgrass conditions that Burrowing Owls prefer for nesting and foraging.

- **Early Detection & Rapid Response (EDRR):** Monitor for invasives before they spread widely.
- **Native Grassland Restoration:** After invasive removal, reseed with native grasses
- **Sustainable Grazing Practices:** Avoid overgrazing, which can lead to invasive species dominance.
- **Pesticide-Free Buffer Zones:** Protect Burrowing Owl food sources (insects) by using spot treatments instead of broadcast spraying

Please contact your regional Burrowing Owl Alliance Member for more specific information.

Photo Credit: W Potrebka

5. Monitoring & Landowner Participation

Support Conservation Programs

Participate in stewardship programs such as:

- Operation Burrowing Owl (Saskatchewan)
- Manitoba Burrowing Owl Recovery Program
- Alberta Operation Grassland Community
- Burrowing Owl Conservation Society of BC

Report Sightings and Nest Locations

- Record and report Burrowing Owl sightings to the Burrowing Owl Alliance
- Engage in citizen science programs that track owl populations.

Encourage Community Involvement

- Educate neighbors and land users about the importance of Burrowing Owl conservation.
- Work with conservation organizations to improve landowner incentives for wildlife-friendly practices.

Conclusion

By following these Beneficial Management Practices, landowners in Alberta, Saskatchewan, Manitoba, and British Columbia can contribute to the survival of Burrowing Owls while maintaining productive ranching and farming operations. Sustainable land stewardship benefits both wildlife and agricultural resilience in Canada's grasslands.

APPENDIX A

Wildlife Fencing

Wildlife fencing is essential for protecting Burrowing Owls and other native species while allowing natural movement across landscapes. The best fencing types can balance conservation needs, livestock management, and landowner practicality.

1. Wildlife-Friendly Perimeter Fencing

Best for: Ranch lands, pastures, and conservation areas

Purpose: Allows free movement of small mammals and birds while preventing livestock from disturbing burrowing sites

Features:

- Smooth bottom wire at least 45 cm (18 inches) above the ground to allow badgers, foxes, and small mammals (which create burrows) to pass freely
- Top wire no higher than 107 cm (42 inches) to prevent entanglement for deer and pronghorn
- Spacing between wires wide enough to avoid bird collisions

Example:
Modified barbed wire fencing with smooth bottom strands is commonly used in Operation Grassland Community (Alberta) and Nature Saskatchewan projects.

2. Soft Release Cages for Released Burrowing Owls: Burrow Protection Fencing

Best for: Temporary nesting site protection from livestock and machinery

Purpose: Prevents trampling of soft release cages and burrows in active pastures

Features:

- Portable electric or mesh fencing around burrow entrances during the breeding season (April–August)
- Low-profile barriers (60 cm / 24 inches max) to avoid blocking owl movement
- Eco-friendly, degradable materials preferred for temporary enclosures

Example:
Used in Burrowing Owl Conservation Society of BC projects to protect artificial burrows and soft release cages.

Photo Credit: C. Froese

Photo Credit: C. Froese

3. Predator-Exclusion Fencing

Best for: Nesting sites vulnerable to predators (e.g., skunks, raccoons, feral cats)

Purpose: Provides extra protection for owl chicks without disrupting natural wildlife movement

Features:

- Fine mesh or chicken wire fencing around specific nesting areas
- Partially buried fencing (20–30 cm deep) to prevent digging predators
- Small gaps (5 cm/2 inches max) to deter larger predators while still allowing Burrowing Owls to pass
- A small stake about (15cm/6inches) from entrance to artificial burrow can prevent larger predators while still allowing Burrowing Owls to pass

Example:
Used in Manitoba Burrowing Owl Recovery Program for artificial nesting sites.

4. Visibility-Enhanced Fencing (For Owl & Bird Safety)

Best for: Areas with high bird traffic (near grasslands, wetlands, or roads)

Purpose: Reduces collisions and injuries

Features:

- White PVC clips, tape, or reflective markers every 3 meters to increase fence visibility
- Flagging on top wire to prevent entanglement
- Avoid using barbed wire in high-bird-traffic areas

Example:
Bird-friendly fencing is promoted by Ducks Unlimited Canada and Nature Conservancy of Canada for grassland bird conservation.

Choosing the Right Fence for Your Land

For cattle pastures: *Use wildlife-friendly perimeter fencing with smooth bottom wires.*

For crop fields near owl habitats: *Consider visibility-enhanced fencing to reduce bird collisions.*

For protected nesting sites: *Use temporary burrow protection fencing during breeding seasons.*

Virtual Fencing for Ranching: A Modern Solution

Virtual fencing is an innovative technology that uses GPS collars and wireless signals to manage livestock movement without physical barriers. This system benefits ranchers, grassland conservation, and wildlife like Burrowing Owls by reducing land disturbances while maintaining controlled grazing.

How Virtual Fencing Works

1. GPS-Enabled Collars are placed on cattle or other livestock.
2. Geofencing Technology defines invisible boundaries using satellite signals.
3. Audible & Mild Electric Cues (not harmful) train livestock to stay within designated areas.
4. Remote Monitoring & Control allows ranchers to adjust boundaries via smartphone or computer.

Benefits of Virtual Fencing for Ranchers & Wildlife

Grassland & Habitat Conservation

- Allows for adaptive grazing without damaging native prairie ecosystems.
- Helps protect Burrowing Owl nesting areas by setting exclusion zones during breeding seasons.

Cost-Effective Ranching

- Eliminates the need for expensive fence installation and maintenance.
- Reduces labor costs by automating livestock management.

Wildlife Movement & Safety

- No physical barriers mean deer, pronghorn, and badgers can move freely.
- Prevents entanglement hazards for birds and other wildlife.

Improved Grazing Efficiency

- Enables precision rotational grazing, improving pasture health.
- Helps prevent overgrazing or soil degradation.

Photo Credit: A. Froese


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Virtual Fencing Systems Available in Canada

Several companies offer proven virtual fencing solutions for Canadian ranchers:

Vence (Acquired by Merck Animal Health)

- Uses solar-powered GPS collars and a cloud-based control system.
- Allows real-time livestock tracking and boundary adjustments.

Nofence

- Based in Norway, expanding to North America.
- Uses audio cues instead of electric pulses for training cattle.

Gallagher eShepherd

- Developed in Australia, gaining traction in North America.
- Uses machine learning to predict cattle behavior and improve efficiency.

Challenges & Considerations

Initial Investment Cost: GPS collars and subscriptions can be expensive.

Still need an outer physical perimeter fencing

Power Supply: Some devices require solar charging or frequent battery changes.

Connectivity Issues: Requires reliable satellite or cellular coverage for best performance.

Is Virtual Fencing Right for Your Ranch?

- Do you manage large, remote pastures where traditional fencing is impractical?
- Do you want to reduce fencing costs while maintaining effective herd control?
- Are you looking for wildlife-friendly grazing solutions to conserve native habitats?

Virtual fencing is an innovative technology that offers ranchers a flexible and wildlife-friendly approach to livestock management. In Canada, several pilot programs and funding opportunities are available to support the adoption of virtual fencing systems.

Pilot Programs in Canada

British Columbia

The British Columbia Cattlemen's Association (BCCA) initiated a pilot program to explore the economic viability of virtual fencing. This initiative aims to develop virtual fencing solutions tailored to the needs of B.C. ranchers.

canadiancattlemen.ca

Saskatchewan

A virtual fencing pilot project was launched in Saskatchewan, utilizing technology from Vence. This project focuses on managing grazing distribution across various pasture types, assessing the effectiveness of virtual fencing in local conditions.

canadiancattlemen.ca

Alberta

The Technology Access Centre for Livestock Production (TACLP) at Olds College in Alberta is evaluating the effectiveness of virtual fence collars for cattle. This research compares virtual fencing to conventional electric fencing as part of a broader project on rotational grazing and pasture management.

oldscollege.ca

Photo Credit: L. Meads

Virtual Fence

By participating in these pilot programs and exploring available funding opportunities, Canadian ranchers can adopt virtual fencing technologies that enhance livestock management while promoting environmental stewardship.

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