Moving to Modernize:

Five Steps to Update Colorado's Fur-Bearer Management

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ABSTRACT: Beavers, martens, foxes and ringtails — Colorado's ecosystem engineers and iconic native species — can be trapped without limit or oversight with the purchase of a $35 permit. State biologists have warned for 30 years that Colorado's native wildlife would suffer under such a threadbare management system, including kit foxes, who have disappeared entirely from the state. This report urges Colorado to reclaim its conservation legacy and modernize furbearer management before more species are lost.

Red fox photo by Neal Herbert/NPS

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Executive Summary

Colorado's wildlife management treats its "furbearers" — animals like beavers, ringtails, swift foxes and pine martens — as commodities rather than integral parts of functioning ecosystems, and its native species have suffered because of this. Current harmful regulations include:

- Any Colorado resident can hunt or trap an unlimited number of furbearing animals after purchasing a $35 permit. Anyone can come to Colorado from anywhere in the world to hunt and trap an unlimited number of furbearers for $100.
- Wildlife labeled as "furbearers" can be killed and their pelts sold for profit in unlimited numbers.
- No population data is recorded for most furbearing species.
- There are no reporting requirements for 16 of the state's 17 furbearer species, making it impossible to determine how many animals are killed annually.
- Outdated management has already caused the disappearance of one species, the kit fox, from Colorado's landscape.

To address such issues, this report identifies five policy and management reforms that are both scientifically sound and politically achievable in Colorado today.

Colorado Parks and Wildlife has recently convened a new stakeholder process to review furbearer management. But genuine progress will require more than discussion; it demands implementation of longstanding, science-based recommendations.

The Center for Biological Diversity maintains that recreational trapping is unnecessary for managing furbearers. This conclusion is supported by decades of ecological research and ethical wildlife-management standards.

To protect Colorado's wildlife legacy, the Center recommends that the state modernize its furbearer policies to reflect 21st-century conservation principles: science, accountability and ecological integrity. Specifically, this report offers five key steps:

1. Stop the use of dangerous poisons and prevent accidental wildlife deaths.
2. Reduce cruelty and waste in wildlife killing.
3. Update hunting and trapping rules for ethical management.
4. Protect Colorado's ecosystems and species for future generations.
5. Align wildlife management with Coloradoans' values.

Background

In 1994 the Colorado Division of Wildlife (now Colorado Parks and Wildlife, or CPW) commissioned a comprehensive study on its management of furbearer species. The Fitzgerald analysis documented serious deficiencies in oversight and a decline in protections since the program's inception in the 1930s. It offered detailed, species-specific recommendations for science-based reform.

More than 30 years later, almost none of those recommendations have been implemented. Parks and Wildlife still allows an "unlimited" trapping season lasting four to six months each fall and winter, without bag limits, quotas, or required data collection, except for bobcats, whose pelts must be tagged for export under international trade rules (CITES).

The 1994 analysis warned that commercial markets are the strongest predictor of how many animals are killed. That remains true today: Colorado continues to permit the sale of wildlife parts from furbearers, effectively sanctioning the commodification of public wildlife for private gain. This practice directly contradicts the North American Model of Wildlife Conservation, which was built on ending the market hunting that once drove species like the beaver and bison to near-extinction.

Now the consequences are visible. Kit foxes have vanished from Colorado, due to additive pressure from unregulated hunting and trapping, disease, human disturbance, and other stressors. The question is no longer whether management should be modernized, but how many more of Colorado's furbearing species must be lost from Colorado's ecosystems?

Glossary

Language Choices

The language within the outline often switches between sanitized language used by state agencies and descriptive language that advocates should strive to use when discussing agency action. Advocates sometimes use agency terms when providing formal comments or engaging with agency staff. In written format, it is best to use "quotes" when using agency language. Please refer to the Definitions Table on the next page for clarity.

Definitions Table

Agency Term	Definitions and Alternatives
Harvest	Kill, killing, trapping, hunting, quantity of animals killed.
Take	Kill, killing, trapping, hunting
Management	Kill, killing, trapping, hunting, relocation, restoration. "Management" is an umbrella term for agency action and often refers to killing. However, in some instances it can refer to other actions. Use descriptive language for the action.
Furbearer	Any animals deemed as having fur of commercial value. Use the species name or "animal" or "wildlife."
Nuisance Species	Animals that humans can find to be an inconvenience when sharing the landscape. This is often labeled as "conflict." Most conflicts can be resolved with nonlethal solutions.
Bag Limit	Number of animals a person can kill when hunting or trapping in a day. In Colorado there is no "bag limit" for "furbearers." This means a person can kill as many as they want with a permit.
Possession Limit	The cap on how many "furbearers" a trapper can stockpile or hold at once to sell. There are no possession limits on "furbearer" species in Colorado, so a trapper can kill, skin, and sell as many wild furbearing animals as they want.
Colorado Parks and Wildlife	The agency, Parks and Wildlife, or CPW.
Trapper	A person who kills animals labeled as "furbearers" for their pelts as a hobby.
Resource or "The Resource"	Wildlife or specific species of wildlife.

Five Recommendations to Modernize Furbearer Management

Here are the Center's detailed recommendations for modernizing furbearer management in Colorado.

1. Stop Dangerous Poisons and Prevent Accidental Wildlife Deaths

a. Prohibit commercial sale of furbearers because wildlife should be valued for its ecological and recreational contributions, and its intrinsic value alive, rather than commodification.
b. CPW should prohibit bobcat hunting and trapping in designated lynx habitat because lynx and bobcats are difficult to distinguish in the field, and allowing hunting risks accidental take of a federally threatened species.
c. Prohibit M-44 cyanide devices because they are indiscriminate poisons that kill furbearers, pets, and nontarget wildlife and pose serious risks to human safety. Thirty-five coyotes and one individual of a species of concern, a gray fox, were killed by M-44's in Colorado in 2024. State regulations take precedence. For example, the Bureau of Land Management and the state of Oregon banned M-44's.
d. Prohibit swift fox trapping in black-footed ferret habitat to eliminate the possibility for incidental take and post-capture myopathy in black-footed ferrets.

2. Reduce Cruelty and Waste in Wildlife Killing

a. CPW should prohibit hunting and trapping of furbearers during reproductive seasons because killing animals when they are raising dependent young leads to unnecessary suffering, high juvenile mortality, and population instability.
b. CPW should account for mortality from damage claims and vehicular strikes when setting quotas because these sources of death add to overall human-caused mortality and ignoring them results in unsustainable take levels.
c. Require 24-hour trap checks because longer intervals cause prolonged suffering, injury, and death for captured animals, including nontarget species. "Daily" is not 24 hours; it can be closer to 48 hours.
d. CPW should support a permanent moratorium in the state legislature on 30-day landowner trap permits because these permits bypass safeguards, enable

unregulated killing, and result in poor accountability. These traps have already killed two state-endangered wolves.

e. CPW should establish a statewide volunteer-supported treatment program for mange in coordination with local rehabilitation facilities and research institutions to reduce disease and suffering in furbearing wildlife.

3. Update Hunting and Trapping Rules for Ethical Management

a. Ban the use of artificial light for hunting furbearers because it gives hunters an unfair advantage, increases wounding loss, and disrupts nocturnal wildlife. Include night and thermal vision prohibition across private land permits to limit incidental take.
b. Prohibit electronic calls because they artificially manipulate animal behavior and increase the likelihood of overharvest.
c. Restrict the use of dogs in furbearer hunting because this practice causes stress and injury to both target and nontarget animals and creates enforcement challenges.
d. CPW should ban the use of bait for furbearers because it habituates wildlife to human-provided food, increases disease transmission, and compromises fair chase ethics.
e. Prohibit aerial gunning of furbearers. Animals like coyotes are killed en masse by aerial gunning every year and left to waste, never having been involved in conflict. Preemptive killing does not deter conflict, nor does it reduce the number of coyotes. USDA killed 639 coyotes in Colorado in 2024, and state regulations would take precedence over the federal agency's actions.

4. Protect Colorado's Ecosystems and Species for Future Generations

a. Ban beaver-trapping in areas of wildfire risk because beavers naturally build wetland firebreaks that protect forests, communities, and water supplies.
b. CPW should prioritize wetland conservation because wetlands provide critical habitat for furbearers, birds, and fish, and serve as natural defenses against drought, wildfire, and flooding.
c. Adopt species-specific regulations because lumping all furbearers under general rules ignores biological differences and conservation needs.
    i. Establish clear bag and possession limits to prevent overharvest.
    ii. Set quotas for each species to ensure sustainable management.
    iii. Create management units for each species where take is allowed, aligning regulations with population data and habitat needs.

iv. Improve data collection and apply the precautionary principle when information is lacking, ensuring management errs on the side of conservation.
v. Implement moratoria on trapping of rare species, species of greatest conservation need or concern, and those identified by federal agencies as species of concern because exploitation without strong data endangers already vulnerable populations.

d. CPW should integrate climate adaptation strategies into wildlife management by protecting climate refugia, preserving and restoring wildlife corridors, and expanding monitoring of vulnerable species. Wildlife policy must account for projected climate impacts on furbearers and reduce compounding threats such as habitat fragmentation, trapping, and toxic exposure.
e. Prioritize the protection and restoration of wildlife corridors and climate refugia through science-based land-use planning.
    i. Coordinate with the Colorado Department of Transportation (CDOT) to expand road-crossing structures and highway fencing to reduce wildlife-vehicle collisions and ensure safe passage for furbearers.
    ii. Promote conservation easements and tax incentives for private landowners who protect habitat and practice carnivore coexistence, particularly in critical linkage zones.
    iii. Incentivize land-management practices (e.g., nonlethal predator deterrents, riparian restoration) that support both agricultural operations and furbearer conservation.

5. Align Wildlife Management with Coloradoans' Values

a. Prohibit commercial sale of furbearers because fur prices are too low to justify ecological damage, and wildlife should be valued for its ecological and recreational contributions, and its intrinsic value alive, rather than commodification.
b. Increase the price of furbearer tags, should recreational harvest be scientifically and economically viable, because current fees do not reflect the true ecological cost of take or the value of wildlife as a public trust resource.
c. Re-evaluate take through a "non-consumptive economic lens, recognizing that cruel or indiscriminate methods harm Colorado's reputation for ethical wildlife management and undermine the state's outdoor economy
d. Include all the furbearer species on its official species information web pages because transparency is essential for public trust, education, and responsible decision-making. Hunted and trapped animals should have the regulations, or lack

of, also included on their species pages. For example, there are four species of skunk found in Colorado; only two are mentioned on the furbearer hunting page, and skunks are only generally mentioned again on the common wildlife conflict species page. No skunk species have their own species' webpage.

e. CPW should continue to transition its language away from terms like "nuisance" and "furbearer" and toward species-specific language. Framing shapes policy and public attitudes, and coexistence messaging reflects science-based, 21st-century wildlife-management values.
f. CPW should note coexistence measures at the top of all furbearer webpages and that hunting and trapping does not provide a permanent solution for landowners on hunting and trapping webpages.

Current CPW "Furbearer" Regulations

Bag and Possession Limits

1. Unlimited bag and possession limit for all furbearers.

Cost to Hunt and Trap

1. Annual Small Game Resident: $35.76
2. Annual Small Game Nonresident: $98.92
3. Annual Furbearer License Resident: $35.76
4. Annual Furbearer License Nonresident: $98.92
5. Hunter Harassment: There are harsh penalties for members of the public who interfere with furbearer hunting or trapping by scaring prey or disturbing traps. Fines range from $500-$1,000 and carry a misdemeanor charge.

Methods of "Take"

1. Any rifle, handgun, shotgun, handheld bow or crossbow, live traps (limited to cage or box traps), air gun (pre-charged pneumatic air gun .25 caliber or larger for coyote and bobcat).
2. Use of bait. It must be made solely of plants or animals. Bait cannot contain metal, glass, porcelain, plastic, cardboard, or paper. Wildlife used as bait can be carcasses or parts of legally taken furbearers, carp, shad, white and longnose suckers, and inedible parts of legally obtained game mammals, birds, or game fish.
3. On private land, artificial light is allowed at night to hunt beavers, raccoons, coyotes, bobcats, striped skunks and red, gray or swift foxes, with written permission of landowner or agent.
4. On public land, artificial light is allowed at night with permit from local district or area wildlife manager, to hunt raccoons, coyotes, bobcats, striped skunks, beavers and red, gray, or swift foxes. Permits are valid for time and place specified.
    a. Permits are not valid 24 hours before or during deer, elk or pronghorn rifle seasons, nor opening weekend of grouse, pheasant, quail, and waterfowl seasons.
    b. It is illegal to hunt with a light permanently attached to a vehicle or to project light from inside a vehicle.
    c. You must carry and show the permit while hunting if requested by a law-enforcement officer.
    d. CPW can deny a permit for management purposes.
5. It is illegal to "take" furbearers within 500 yards of a dwelling, building, campground, or other structure, or in areas that jeopardize human safety.
6. Dogs are allowed to hunt small game, waterfowl, and furbearers, but only to pursue, bring to bay, retrieve, flush or point. It is illegal to use dogs to hunt cottontail rabbits, snowshoe hares, and tree squirrels on land where any regular deer, elk, pronghorn, or moose season is in progress.

7. Artificial decoys are permitted.
8. European ferrets are permitted for hawking. Ferrets must be neutered, tattooed on left inguinal area and dyed along one-fourth of their body for easy field identification.
9. Mechanical devices designed to call wildlife are allowed. Recorded or electronically amplified calls can be used to hunt furbearers and crows only and light geese during the conservation order season.
10. It is illegal to use drones to look for, scout, or detect wildlife as an aid in hunting.
11. Night-vision and thermal technology are prohibited.

Trap Check Requirements

1. You must check traps in person, at least daily. In lynx recovery areas, or where lynx occur, you must check traps every 24 hours.

Incidental "Take"

1. Any accidentally captured live animals for whom trapping hours are open must be killed or released immediately upon checking the trap.
2. Animals captured in live traps cannot be moved from the capture site and must be killed or released on-site when trap is checked.
3. If wildlife is accidentally captured alive when trapping season is closed or is illegal for that species, you must release the animal immediately. You cannot kill it. If you find a dead animal in your trap, you must bring its carcass to a CPW officer or office within 5 days. Failing to do so is evidence of illegal possession of wildlife. Trappers who comply will not be charged with illegal possession.

Canada Lynx Preventative Measures and Incidental Take

1. If you accidentally capture a Canada lynx and it's not injured, you must release it immediately and report it to CPW within 24 hours.
2. If a lynx is accidentally injured, but not in your possession, you must report it to CPW within 24 hours.
3. If you capture a lynx accidentally and injure it, take the lynx to CPW or a licensed veterinarian and report it to CPW within 24 hours.
4. If you accidentally kill a lynx, you must report it to CPW within 24 hours and take the carcass to CPW within 3 days after the report.
5. Failing to follow these rules is considered unlawful take and possession. You will not be charged if you comply with these requirements or use the plan's best management practices

to avoid accidentally taking a lynx. Guidelines available on the CPW website, search for Avoid Lynx Take.

6. Night-hunting permits are not issued for bobcat on public land in Canada lynx recovery areas or where lynx occur. If a bobcat hunter kills a Canada lynx during bobcat hunting season, CPW will not issue any more night-hunting permits for bobcat for the rest of the calendar year in the recovery areas or where the lynx was killed. CPW also will revoke all night-hunting permits previously issued for bobcats.
7. Use of visual lures, fresh meat baits, fish oil, and anise oil lures to attract felids in lynx recovery areas or where lynx are found is not allowed.

Consumption of Furbearers

1. Colorado Parks and Wildlife Regulations, Ch. W-0, Article XI mandate that for any wildlife taken under the authority of §33-6-119, C.R.S., all edible portions of game wildlife taken under the authority of a license shall be properly prepared to provide for human consumption. This applies to all big game species, including mountain lions. While this regulation is not specifically applicable to furbearers, many hunters do also prepare and consume bobcat meat.

Nuisance Species

Summary of Nuisance Wildlife Laws

Applicable Regulations and Statutes: Statute 33-6-107(9) and Wildlife Commission Regulations (WCR) 304, WCR 312(C), WCR 324(B), WCR 1000(A)(5), WCR 17122(C), WCR 17123(A) & WCR 17141(A)

a. Colorado Revised Statutes Title 33. Parks and Wildlife § 33-6-203 | FindLaw
b. Colorado Revised Statutes Section 33-6-207 (2024) - Exemption - landowners' protection of crops and livestock - definitions - authority of division and of department of agriculture
c. Colorado Revised Statutes Title 33. Parks and Wildlife § 33-6-208. Thirty-day period--administration--conditions precedent to use of exemption

Included Furbearer Species: Coyotes, bobcats, red foxes, raccoons, badgers, muskrats, beavers, opossums, skunks

Summary: If wildlife is causing damage to crops, real or personal property, or livestock, a person (or any employee or agent of the landowner) may hunt, trap, or take the above furbearer species (*other species are included, see complete list here*) on lands owned or leased by the person without securing a license to do so.

Methods of Take:

1. Trapping and or shooting are the most common methods. If trapping, the ONLY types of traps that may be used are LIVE (cage or box traps).
2. Raccoons can be relocated alive without a permit, if CPW is notified.
3. Landowners, and others authorized by statute, may be eligible for a 30-day trapping permit where certain body grip devices, cable device traps, foothold traps, etc. can be used in order to protect commercial livestock and/or commercial crop production.
    a. Summary: Constitutional Amendment 14 requires CPW to authorize body-gripping devices for agriculture only after at least two nonlethal methods have been attempted, but ranchers are not required to present proof before trapping begins, leaving enforcement to CPW's discretion during the 30-day permit period (C.R.S. § 33-6-208).
    b. This is how the great lakes wolf found in Colorado was trapped on private property (2024).
    c. A reintroduced wolf was also killed in a foothold trap (2025).

Recommendation: A full ban on these permits may not be legally possible without passing legislation, but CPW has clear authority to strengthen regulations so that permits are issued only with verified evidence of damage, strict nonlethal requirements, humane trapping standards, and robust reporting and transparency measures.

By adopting reforms such as mandatory inspections, electronic reporting, trap-check intervals, and restrictions in sensitive wildlife areas, CPW can ensure that 30-day permits are used narrowly, humanely, and with full accountability to the public trust.

Additional Threats to Furbearers

Rodenticides

Summary: Anticoagulant rodenticides (both first- and second-generation "SGARs") pose a severe threat to furbearers and other carnivores. Bromethalin is a highly toxic neurotoxic rodenticide increasingly used as a substitute for anticoagulants. Unlike anticoagulants, there is no known antidote, making exposures almost always fatal.

1. Rodents poisoned by SGARs are easily consumed by predators and scavengers; "furbearers" such as foxes, bobcats, weasels, and coyotes can all suffer from secondary poisoning.
2. Furbearers that consume bromethalin poisoned rodents or bait directly can suffer tremors, seizures, paralysis, and death. Wildlife testing has already confirmed bromethalin residues in nontarget species, raising concern about its growing use and lack of regulation.
3. Studies show widespread contamination of wildlife, with rodenticides detected in the majority of tested carnivores across the United States.
4. Nontarget poisoning not only causes direct mortality but also sublethal effects like weakened immune systems and reproductive harm.

Recommendation: Restrict/prohibit SGAR and bromethalin use statewide. Restricting toxins is essential to protecting healthy populations of "furbearers," particularly around sensitive habitats. CPW should encourage robust, integrated nonlethal management. At the least CPW should discourage the use of poisons and support legislation restricting use.

Research and Resources:

1. Mourad W. Gabriel et al., Anticoagulant Rodenticides on Our Public and Community Lands: Spatial Distribution of Exposure and Poisoning of a Rare Forest Carnivore, PLoS ONE 7(7): e40163 (2012).
2. Marion Jacquot et al., Using Long-Term Monitoring of Red Fox Populations to Assess Changes in Rodent Control Practices, 61 J. Applied Ecology 603 (2024).
3. Jacqueline Y. Buckley, Maureen H. Murray, Noé U. de la Sancha, Mason Fidino, Kaylee A. Byers, Rebecca Fyffe & Seth Magle, *Widespread Exposure to Anticoagulant Rodenticides Among Common Urban Mesopredators in Chicago*, 937 Sci. Total Env't 175883 (2024).
4. David Fernández-Casado, Javier García-Muñoz, Ángel Portillo-Moreno, Salomé Martínez-Morcillo, María Prado Míguez-Santiyán, Marcos Pérez-López & Francisco Soler-Rodríguez, *Anticoagulant Rodenticides in Mesocarnivores Around the World: A Review*, 45 Envtl. & Conservation Biology 100327 (2025).

5. Center for Biological Diversity, Safe Rodent Control.
6. Project Coyote, Rodenticides: Deadly Wildlife Poisons.

Climate Change

Summary: Climate change is one of the most pervasive threats to furbearers, altering habitat, prey availability, and seasonal cycles. Snow-dependent species such as snowshoe hares, lynx, and marten are especially vulnerable because their camouflage and survival strategies are tied to snow cover. Reduced snowpack shortens the duration of suitable habitat, increases predation risk, and fragments populations.

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Shifts in temperature and precipitation are altering forest composition, drying wetlands, and increasing the frequency and intensity of wildfires, further reducing essential denning and foraging habitat for carnivores. Climate change can also exacerbate the spread of disease and parasites, such as mange, and increase the likelihood of human-wildlife interactions as animals shift ranges in search of food and suitable habitat.

Studies demonstrate that furbearers already face range contractions and reduced reproductive success linked to warming temperatures and snow loss. Without intervention these pressures will intensify, placing already stressed populations at greater risk of extirpation.

Recommendation: CPW should integrate climate adaptation strategies into wildlife management by protecting climate refugia, preserving and restoring wildlife corridors, and expanding monitoring of vulnerable species. Wildlife policy must account for projected climate impacts on furbearers and reduce compounding threats such as habitat fragmentation, trapping, and toxic exposure.

Research and Resources:

- D.R. Reidmiller et al., Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II (U.S. Global Change Research Program 2018).
- NatureServe, *Biodiversity in Focus: United States Edition* (2023).
- L. Scott Mills, Marketa Zimova, Jared Oyler, Steven Running & Paul M. Lukacs, Camouflage Mismatch in Seasonal Coat Color Due to Decreased Snow Duration, 110 *Proc. Nat'l Acad. Sci. U.S.* 7360 (2013).
- Lindsay Rosa, Laura Nunes & Talia Niederman, *Biodiversity in Crisis: Exploring Threats to America's Most Imperiled Species* (Defenders of Wildlife Nov. 2023).

Mange

Summary: Sarcoptic mange is a debilitating skin disease caused by the parasitic mite *Sarcoptes scabiei*. The mite burrows into the skin, leading to intense itching, inflammation, fur loss, and often severe secondary infections. In cold climates like Colorado, mange often results in hypothermia and starvation, especially for species reliant on their winter coats. Symptoms typically include red, scaly skin, excessive scratching, and open wounds.

Mange is highly contagious and spreads through direct contact with infected animals or contaminated environments. Species most affected include black bears, foxes, coyotes, wolves, mountain lions, bobcats, and domestic dogs. In Colorado red foxes and coyotes are especially vulnerable, with cases increasingly documented across the Front Range and mountain communities.

Historically, mange was deliberately unleashed by government programs in the early 1900s as a form of "biological warfare" against coyotes and wolves. Both Montana state veterinarians and the U.S. Bureau of Biological Survey intentionally infected hundreds of predators with mange and released them into the wild, causing widespread and lasting harm. Because this devastating disease was weaponized against carnivores, we have a responsibility to alleviate its impacts today.

Treatment Methods:

1. Oral Ivermectin (meatball method):
    a. Inexpensive, widely studied, and highly effective in foxes and coyotes.
    b. Medication is hidden in a meatball, preceded by nonmedicated bait for two to four days.
    c. Correct dosing by weight is critical.
    d. Typically, 85% of foxes and coyotes respond to a single dose; a second dose may be administered two weeks later.
    e. Risks: nontarget consumption, dosage complexity, and temporary environmental impacts (drug residues in feces can harm invertebrates).
2. Oral Bravecto (fluralaner):
    a. Prescription-only medication with forgiving dosage and high success rates.
    b. Kills multiple mite generations in one treatment.
    c. Pros: wider safety margin, one-time dosing.
    d. Cons: expensive, few wildlife studies, and environmental residues.

3. Rub Stations (under study):
    a. Pioneered by Dr. David Ausband, with 97% success in attracting carnivores to treatment stations.
    b. A follow-up study by Dr. Jaime Rudd in San Joaquin kit foxes showed lower efficacy, but field trials remain promising for coyotes and other Colorado furbearers.
    c. Rub stations could offer a hands-off treatment option for wild carnivores.

Recommendation:

CPW should establish a statewide volunteer-supported treatment program for mange in coordination with local rehabilitation facilities and research institutions. Action items should include:

- CPW staff: Deploy rub stations when animals with mange are reported, administer oral treatment where feasible, and transport treatable individuals to rehab facilities.
- CPW volunteers: Assist with deploying rub stations, administering medicated baits, and monitoring target animals.
- Rehabilitation centers: Provide veterinary oversight, receive animals brought in by CPW, and ensure proper treatment protocols.
- Research partnerships: Collaborate with universities and wildlife health experts to refine rub station treatments and monitor long-term effectiveness.

Such a program would provide a humane, science-based, and cost-effective method to reduce suffering, improve survival, and protect furbearer populations across Colorado.

Research and Resources:

- Patrick Foley et al., Spatio-Temporal and Transmission Dynamics of Sarcoptic Mange in an Endangered New World Kit Fox, 18 *PLOS ONE* e0280283 (2023).
- Christy N. Wails et al., Epidemiology of Sarcoptic Mange in a Geographically Constrained Insular Red Fox Population, 17 *Parasites & Vectors* 248 (2024).
- David E. Ausband et al., Treat Yourself: Pilot Testing a New Method to Treat Mange in Wild Carnivores, 60 *J. Wildlife Diseases* 507 (2024).
- Francisco J. Santiago-Ávila, *Coyote Coexistence Plan* (Project Coyote 2023).

Habitat Loss

Summary: Habitat loss and fragmentation are among the most significant threats to furbearers in Colorado. Expanding urban development, road construction, logging, mining, grazing and energy infrastructure reduce the amount of intact habitat available for denning, hunting, and dispersal. Roads create "mortality sinks" for wide-ranging mesocarnivores like bobcats and coyotes, while simultaneously acting as barriers to safe movement.

Furbearers depend on connected landscapes for genetic exchange and to follow shifting prey populations. As climate change alters ecosystems, connectivity becomes even more critical, allowing species such as lynx, martens, and weasels to access new habitat. Loss of riparian corridors and wetlands also disproportionately impacts semi-aquatic furbearers such as beaver, which provide key ecological functions like water storage and wetland creation.

Fragmented habitats not only shrink carrying capacity but also increase human–wildlife conflict, exposing furbearers to vehicle strikes, trapping, poisons, and domestic dog attacks.

Recommendations: CPW should:

1. Prioritize the protection and restoration of wildlife corridors and climate refugia through science-based land-use planning.
2. Coordinate with the Colorado Department of Transportation (CDOT) to expand road-crossing structures and highway fencing to reduce wildlife-vehicle collisions and ensure safe passage for furbearers.
3. Promote conservation easements and tax incentives for private landowners who protect habitat and practice carnivore coexistence, particularly in critical linkage zones.
4. Incentivize land-management practices (e.g., nonlethal predator deterrents, riparian restoration) that support both agricultural operations and furbearer conservation.

Research and Resources:

5. Daniel J. Smith, Rodney van der Ree & Carme Rosell, Wildlife Crossing Structures: An Effective Strategy to Restore or Maintain Wildlife Connectivity Across Roads, in *Handbook of Road Ecology* 172 (Rodney van der Ree, Daniel J. Smith & Clara Grilo eds., 2015).
6. Caitlin E. Littlefield et al., Evaluating and Elevating the Role of Wildlife Road Crossings in Climate Adaptation, 23 *Frontiers Ecol. & Env't* 649 (2024).
7. A.R. Butler et al., Life on the Edge: Habitat Fragmentation Limits Expansion of a Restored Carnivore, 23 *Animal Conservation* 430 (2020).

8. *Habitat Connectivity*, Wildlands Network. United States of America. Retrieved from https://coilink.org/20.500.12592/5j7z3c on 26 Aug 2025. COI: 20.500.12592/5j7z3c.

Toxic Lead Ammunition

Summary:
Lead ammunition remains one of the most preventable yet persistent threats to furbearers and other wildlife in Colorado. When hunters leave behind gut piles, unretrieved carcasses, or wounded game, scavenging carnivores such as foxes, coyotes, bobcats, and mountain lions ingest lead fragments. Even tiny amounts of lead can cause neurological damage, organ failure, reproductive harm, and death.

Studies have documented widespread lead exposure in predators and scavengers across North America. Lead fragments can spread widely within an animal carcass, meaning nontarget species often consume dangerous doses even from a single gut pile. Beyond direct poisoning, lead contamination can impair reproduction and weaken immune systems, creating cascading population-level impacts.

Human health is also at risk: Lead bullet fragments have been detected in processed game meat, exposing families and communities who rely on wild harvests. Given the availability of effective, affordable alternatives like copper and steel ammunition, continued use of lead is unnecessary and irresponsible.

Recommendation: CPW should:

1. Transition away from toxic lead ammunition by restricting its use statewide and set a date to sunset toxic shot entirely.
2. Encourage and incentivize the use of nontoxic alternatives (e.g., copper bullets, steel shot) through rebate programs, outreach campaigns, and hunter education.
3. Coordinate with veterinarians, wildlife rehabilitators, and hunters to expand monitoring and documentation of lead exposure in Colorado's furbearers.
4. Support legislation to phase out toxic lead ammunition in order to protect both wildlife and human communities.

Research and Resources:

1. Rhys Green et al., Implications for Food Safety of the Size and Location of Fragments of Lead Shotgun Pellets Embedded in Hunted Carcasses of Small Game Animals Intended for Human Consumption, 17 PLOS ONE e0268089 (2022).
2. Jon M. Arnemo, Boris Fuchs, Christian Sonne & Sigbjørn Stokke, Hunting with Lead Ammunition: A One Health Perspective, in *Arctic One Health* 439 (Morten Tryland & Arne O. Eide eds., 2022).
3. Am. Bird Conservancy, *Growing Endorsements of Non-Toxic Ammunition Makes Congressional Support for Lead Bullets and Shot Untenable* (May 20, 2011).
4. Christian Sonne, Su Shiung Lam & Niels Kanstrup, The Environmental Threats from Lead Ammunition, 1 *Envtl. Epidemiology & Health* e02 (2023).

Additional Species-Specific Information and Recommendations

Canidae

Coyote

Season: Year-round

Range/ Habitat: Statewide

Reproduction:

1. Females breed just once annually, in January to March, and produce a litter of about six pups after a gestation period of nine weeks.
2. The expectant female burrows up to 20 feet into a hillside or bank to prepare a nursery den for the young and frequently digs a second burrow in case the litter is disturbed in the first.
3. The male brings food to the nursing mother.
4. The young weigh only about nine ounces at birth but develop rapidly and are weaned at seven weeks. As they mature, pups spend much time and energy wrestling, playing, and otherwise establishing their social order and skills.

5. Coyotes can live up to 20 years, but a rough average is a 10-year lifespan.

CPW Conservation: None. CPW policies liberalize coyote killing. While coyotes are considered furbearers, you do not need a furbearer harvest permit to hunt this species. You may hunt coyotes with a furbearer license, a small game license, a small game license with the new furbearer harvest permit, or an unfilled big game license.

CPW notes that "in an extermination effort from 1915 to 1947, bounties were paid on 1,884,897 coyotes in the United States."

Threats to Species: CPW does not list threats to coyotes. Points of concern for species health, based on external research, include mange, rodenticide poisoning, vehicle strikes, year-round unlimited killing, additional killing by USDA Wildlife Services, illegal killing.

Research: The Denver Metro Area Coyote Behavior Study is home to a wealth of research.

1. The intrepid urban coyote: a comparison of bold and exploratory behavior in coyotes from urban and rural environments. (2019). Breck et al. Scientific Reports (9:2104). 1-11.
2. Using resident-based hazing programs to reduce human-coyote conflicts in urban environments. (2017). Bonnell et al. Human-Wildlife Interactions (11). 146-155.
3. Evaluating lethal and nonlethal management options for urban coyotes. (2017). Breck et al. Human-Wildlife Interactions (11). 133-145.
4. Coyote diet in an urban environment: variation relative to pet conflicts, housing density, and season. (2017). Poessel et al. Canadian Journal of Zoology (95) 287-297.
5. Environmental factors influencing the occurrence of coyotes and conflicts in urban areas. (2017). Poessel et al. Landscape and Urban Planning (157) 259-269.
6. Spatial ecology of coyotes in the Denver Metropolitan area: influence of the urban matrix. (2016). Poessel et al. Journal of Mammalogy (97) 1414-1427.
7. Anticoagulant Rodenticide Exposure and Toxicosis in Coyotes in the Denver Metropolitan Area. (2015). Poessel et al. Journal of Wildlife Diseases (51) 265-268.
8. More dogs less bite: The relationship between human-coyote conflict and prairie dog colonies in an urban landscape. (2014). Magle et al. Landscape and Urban Planning (127) 146-153.
9. Serologic Survey for Cross-Species Pathogens in Urban Coyotes, Colorado, USA. (2014). Malmlov et al. Journal of Wildlife Diseases (50). 946-950.
10. Patterns of human-coyote conflicts in the Denver Metropolitan Area. (2012) Poessel et al. Journal of Wildlife Management (77), 297-305.

Recommendations:

1. Establish a coyote-hunting and trapping season that excludes pup-rearing and dispersal. No hunting April 1 - Sept. 1. (coyotes)
2. CPW provides contact information for nonlethal service operators on their website.
3. Prohibit aerial gunning as a form of "damage control." (coyotes, wolves, prey species disrupted by gunning)
4. Prohibit M-44's as a form of "damage control." APHIS is still using them in Colorado, and they accidentally killed a gray fox last year. (coyotes, human health and safety, nontarget species)
5. CPW supports legislation to ban first and second-generation anti-coagulant rodenticides and bromethalin. (coyotes, swift foxes, raptors, bobcats, mountain lions)
6. CPW implement mange treatment including rub stations, volunteer mange task force, or use of CPW staff to implement oral ivermectin. (coyotes)

Fox, Gray

Season: Nov. 1 - March 1

Range/ Habitat: Common throughout Colorado, but are rarely seen due to their shy, nocturnal nature. One of two species of canids who will climb trees. Prefer rocky canyons and ridges, but can also be found in wooded areas, open desert and grasslands. They do not do well in urban areas and prefer more rural, remote habitats.

Reproduction: Gray fox mate in February or March with gestation lasting about 52 days and three to seven kits born in April or May. The young open their eyes at 10 days and will venture out of the den after about four weeks. At 10 weeks they are weaned, with the father providing solid food for the entire family. They will all remain together until late fall but will generally be solitary during the winter.

CPW Conservation and States With Regulations: None. Due to declining abundance and distributions, states like Indiana and North Dakota have taken steps to protect gray fox populations.

1. Indiana has implemented a regulated season, which does not allow hunting/ trapping during breeding and pupping season.
2. North Dakota has listed gray foxes as a species of concern.
3. Canada has implemented limitations on gray fox hunting and trapping, specifically citing trapping as a leading cause of decreasing abundance in specific regions.

Threats to Species: CPW indicates that predators include cougars, eagles, owls, bobcats, hawks, coyotes, and fur trappers. However, current research suggests that gray fox populations are in decline across the United States due to habitat loss and fragmentation, disease and rodenticides.

Research:

1. Eric Lesmeister et al., *The Precipitous Decline of a Gray Fox Population*, J. Mammalogy (forthcoming 2025) (reporting a four-fold decline in occupancy in southern Illinois from 2008–2010 to 2022–2023, based on camera trap surveys).
2. Veronica Farias, Todd K. Fuller, Robert K. Wayne & Raymond M. Sauvajot, *Survival and Cause-Specific Mortality of Gray Foxes (Urocyon cinereoargenteus) in Southern California*, 31 J. Zoology 199, 199–205 (2005).
3. Michael E. Egan, Casey C. Day, Todd E. Katzner & Patrick A. Zollner, *Relative Abundance of Coyotes (Canis latrans) Influences Gray Fox (Urocyon cinereoargenteus) Occupancy Across the Eastern United States*, 98 Can. J. Zoology 853 (2020).
4. Maximilian L. Allen, Alexandra C. Avrin, Morgan J. Farmer, Laura S. Whipple, Emmarie P. Alexander, Alyson M. Cervantes, Javan M. Bauder, Limitations of current knowledge about the ecology of Grey Foxes hamper conservation efforts, Journal of Threatened Taxa, 10.11609/jott.7102.13.8.19079-19092, 13, 8, (19079-19092), (2021).
5. COSEWIC, *COSEWIC Assessment and Status Report on the Gray Fox (Urocyon cinereoargenteus) in Canada*, Comm. on Status of Endangered Wildlife in Can. (2003) (finding trapping and incidental harvest are primary threats to gray foxes in Ontario and southern Canada).
6. Ontario Ministry of Natural Resources & Forestry, *Recovery Strategy for the Gray Fox (Urocyon cinereoargenteus) in Ontario* (2015). (describing trapping as the most significant human-caused threat to population persistence).

Recommendations:

1. Consideration of additional species conservation action and research.
2. Moratorium on gray fox hunting and trapping, pending information gathering.

Fox, Kit

Season: None

Range: Kit foxes are native to the semi-desert shrub lands extending from Montrose to Grand Junction. They are currently considered extirpated in the state.

Reproduction:

1. Kit foxes are nocturnal and remain in or near their dens during the day. Kit foxes use dens year-round.
2. They dig their own or sometimes adapt badger diggings or prairie dog burrows into dens. Pairs or individuals may use up to 10 dens clustered in a 2–3-acre area.
3. Mating pairs form in the fall or early winter, when each female chooses a whelping den, usually visiting and cleaning out each den within her home range before settling in one.
4. Breeding season is between December and February, and gestation lasts 49 to 55 days.
5. Litter sizes range from two to six but are typically four or five. Litters are thought to have been smaller in Colorado.
6. Pups emerge within four to five weeks and forage with the adults beginning at three to four months of age. In Colorado pups historically emerged from dens in May. Family groups remain together until fall, when pups typically disperse beyond their parents' home range, and adults move to smaller shelter dens.
7. Dispersal distances are not well-studied, although individuals tagged as pups have been recaptured up to 20 miles away.
8. Kit foxes are monoestrous. Young of the year do not breed, and females may take an extra year to reach breeding age compared to males.
9. Some pairs appear monogamous, others seem polygamous, and yet others remain solitary.
10. Based on the occasional overlapping of home ranges, the species does not appear territorial.

CPW Conservation: State Endangered in 1994.

Threats to Species: Kit foxes are listed as endangered in Colorado and considered one of the state's most vulnerable mammal species, possibly extirpated in the state. Conversion of the kit foxes' native grounds to agriculture and development usage has resulted in a loss of habitat. Predation by coyotes, roadkill, trapping, shooting and predator poisoning are the main causes of mortality for the foxes. Once a hunted and trapped furbearer in Colorado, the kit fox has been protected since 1994.

Research:

1. Peer edited compilation of Kit Fox and Swift Fox Literature, Western Wildlife 2014, p.12
2. A.J. Kozlowski, E.M. Gese & W.M. Arjo, *Niche Overlap and Resource Partitioning Between Sympatric Kit Foxes and Coyotes in the Great Basin Desert of Western Utah,* 160 Am. Midl. Nat. 191 (2008).

3. G.T. O'Neal, J.T. Flinders & W.P. Clary, *Behavioral Ecology of the Nevada Kit Fox (Vulpes macrotis nevadensis) on a Managed Desert Rangeland,* in Current Mammalogy 443 (H.H. Genoways ed., Plenum Press 1987).
4. R.L. Packard & J.H. Bowers, *Distributional Notes on Some Foxes from Western Texas and Eastern New Mexico,* 14 Sw. Nat. 450 (1970).
5. P.J. White & Robert A. Garrott, *Factors Regulating Kit Fox Populations,* 75 Can. J. Zoology 1982 (1997).

Recommendations:

1. No fox hunting in areas of kit fox habitat.
2. No trapping in areas of kit fox habitat.
3. Caution: This could open a discussion of incentivizing increased coyote hunting in kit fox habitat.

Fox, Red

Season: Nov. 1 - March 1

Range/ Habitat: Statewide. Common in open woodlands, pasturelands, riparian areas, and agricultural lands. Red fox can also be successful urban dwellers and often do well on the margins of urbanized areas.

Reproduction:

1. In Colorado most mating occurs in mid to late winter. Pups are born in early spring after a gestation period of 53 days.
2. Red fox will often use multiple dens throughout the breeding and rearing seasons. A primary den, or natal den, is typically established in late winter. Natal den sites may be used year after year.
3. Throughout most of the year, red fox are observed in pairs or in family groups. While it is believed red fox mate for life, pairs may separate for a few months, rejoining during the breeding season.
4. Pups will stay within the den for the first month of their lives. Once the pups reach four to five weeks of age, they will start emerging from the den, often playing near the den entrance.
5. When the pups are approximately 8 to 12 weeks old, they begin to accompany the adults on hunting forays. When pups are 16-20 weeks old, they start fending for themselves.

6. Pups will remain relatively close to the den for the first several weeks of independence, with most juveniles dispersing in the fall.
7. **CPW Conservation:** CPW notes coexistence measures with red foxes at the top of the species information page.

Threats to Species: CPW states that predators include coyotes, eagles, great-horned owls, bobcats, and mountain lions. Hunting, motor vehicle fatalities, and diseases such as rabies, mange, and canine distemper also contribute to their mortality.

Research:

1. Gentle, M. N., Saunders, G. R., & Dickman, C. R., *The impacts of lethal fox control on the occurrence of non-target wildlife*, 41(1) **Wildlife Res.** 68 (2014).
2. Sacks, B. N., Statham, M. J., Epps, C. W., & Ernest, H. B., *Genomic signatures of inbreeding depression and purging in red foxes translocated for conservation*, 41(9) **Mol. Biol. & Evol.** ms ae193 (2024).
3. Stone, W. B., Okoniewski, J. C., & Stedelin, J. R., *Anticoagulant rodenticide exposure and toxicosis in four species of birds of prey and red foxes in New York, USA (1998–2015)*, 676 **Sci. Total Env't** 73 (2019).
4. Sacks, B. N., Statham, M. J., Epps, C. W., & Ernest, H. B., *Whole genomes inform genetic rescue strategy for montane red foxes in North America*, 41(9) **Mol. Biol. & Evol.** ms ae193 (2024).
5. Gosselink, T. E., Van Deelen, T. R., Warner, R. E., & Mankin, P. C., Survival and cause-specific mortality of red foxes in agricultural and urban areas of Illinois, 70(4) J. Wildlife Mgmt. 1745 (2010).

Recommendations:

1. Note coexistence measures at the top of all furbearer pages.
2. Note that hunting and trapping does not provide a permanent solution for landowners on hunting and trapping pages.
3. No hunting or trapping during pup rearing, March-September, through pup-rearing and dispersal.
4. Mange treatment options (see Coyote).
5. Limitation of rodenticides.

Fox, Swift

Season: Nov. 1 - March 1

Range/ Habitat:

1. Dens are typically located in shortgrass and midgrass prairie habitats. However, the swift fox will also occupy cropland habitats and pinyon-juniper habitats in Colorado.
2. Den sites are generally found on relatively flat areas; however, they may not necessarily be selecting for any particular slope as habitat is already characterized as level to gently rolling topography.
3. Dens not only provide for swift fox needs but can also provide cover for a number of other species of wildlife.
4. Numerous invertebrates as well as the Great Plains toad (Bufo cognatus), prairie rattlesnake (Crotalus viridis) and deer mice living in abandoned dens. The burrowing owl (Speotyto cunicularia) and striped skunk (Mephitis mephitis) are also commonly found in abandoned dens.
5. Because of the extent of short-grass prairie (SGP) on the eastern plains, Colorado is believed to have the largest distribution of swift fox within the species' geographic range

Reproduction:

1. Kit fox hybridize with swift foxes, and some have suggested that kit and swift foxes are conspecific. In Colorado the southern Rocky Mountains serve as a geographic barrier between swift fox populations to the east and kit foxes to the west. Comparative measurements in Colorado support the distinction between kit fox and swift fox.
2. Swift foxes typically live in family groups of one male and two females. They are monestrous (one heat per breeding season) and monogamous and apparently forms long-term pair bonds, breeding only once a year.
3. In Colorado breeding generally occurs during late December to early January with a gestation period of approximately 50 days resulting in pups being born in March to early April.
4. A litter is typically three to six pups. Pups are altricial at birth with eyes and ears remaining closed for 10-15 days. Pups remain below ground for approximately one month and are weaned at about six to seven weeks of age.
5. The young occupy a separate den but remain with the parents until August or September of their first year.

CPW Conservation: CPW lists the swift fox as a species of "State Special Concern," but still allows for unlimited trapping during swift fox season. CPW lists three plans pertaining to swift fox:

1. Swift Fox Conservation Plan (1997)
2. Southern Rocky Mountains: An ecoregional assessment and conservation blueprint (2001)
3. Conservation Plan for Grasslands Species in Colorado (2003)
4. Status of Swift Fox in Eastern Colorado (2017)

Threats to Species: Habitat fragmentation, trapping, coyote predation (study below demonstrates increased coyote killing does not help), vehicle strikes, disease, rodenticides, altered fire regimes.

Research:

1. Peer edited compilation of Kit Fox and Swift Fox Literature, Western Wildlife 2014, p.12
2. Michael E. Schauster, Eric M. Gese & Allen J. Kitchen, An Evaluation of Survey Methods for Monitoring Swift Fox Abundance, 67 J. Wildlife Mgmt. 755 (2003)
3. Sovada, Marsha A., Robert O. Woodward, and Lawrence D. Igl. 2009. Historical range, current distribution, and conservation status of the Swift Fox, Vulpes velox, in North America. Canadian Field-Naturalist 123(4): 346– 367
4. Seija M. Karki, Eric M. Gese & Mead L. Klavetter, *Effects of Coyote Population Reduction on Swift Fox Demographics in Southeastern Colorado*, 71 J. Wildlife Mgmt. 2707 (2007).
5. A.R. Butler et al., Life on the Edge: Habitat Fragmentation Limits Expansion of a Restored Carnivore, 23 Animal Conservation 401 (2020).
6. U.S. Geological Survey, *Southern Great Plains Rapid Ecoregional Assessment—Pre-Assessment Report* (Timothy J. Assal, Cynthia P. Melcher & Natasha B. Carr eds., Open-File Rep. 2015–1003, 2015).

Recommendations:

1. Consider a moratorium on swift fox hunting and trapping given the species' conservation status and the risk for post capture myopathy and incidental take of black-footed ferrets.

Mephitidae

Skunk, Striped

Season: Nov. 1 - March 1

Range/ Habitat: Striped skunks are the largest and most widespread of the four species of skunk in Colorado; they can live at elevations of up to 10,000 feet.

Reproduction: Breeding takes place in late winter (February–March). After a gestation of about 60–75 days, litters of four to seven kits are born in May. Kits are blind and helpless at birth but develop rapidly. They are weaned at about two months and disperse by fall. Striped skunks are typically solitary except during breeding and while raising young.

CPW Conservation: No conservation measures noted by CPW. Treated primarily as a "nuisance" or furbearer species with a legal harvest season.

Threats to Species: Mortality sources include vehicle collisions (a leading cause of death), disease (notably rabies and distemper), fur trapping, and rodenticides. Natural predators are limited but can include great horned owls, coyotes, bobcats, and cougars.

Research:

1. Prugh, L.R., Stoner, C.J., Epps, C.W., Bean, W.T., Ripple, W.J., Laliberte, A.S., & Brashares, J.S. (2009). The rise of the mesopredator. *BioScience*, 59(9), 779–791.
2. H.J. Egoscue, The Kit Fox in Southwestern Colorado, 9 Great Basin Nat. 40 (1964), https://scholarsarchive.byu.edu/wnan/vol9/iss2/2.

Recommendations:

1. CPW must add skunks to their species webpages.
2. Implement road mortality monitoring in high-collision corridors.
3. Include striped skunks in mesocarnivore monitoring programs.
4. No hunting or trapping during breeding through dispersal April 1- September 1.

Skunk, Western Spotted

Season: Nov. 1 - March 1

Range/ Habitat: Western spotted skunks are uncommon to see in Colorado. They mostly live in rocky canyons, foothills, and montane riparian habitats below 8,000 feet in elevation.

Reproduction:

1. They mate in the fall, when females come into estrus. They have delayed implantation, such that the fertilized egg does not implant in the uterus until April.
2. Four young are born in May or early June, blind and almost hairless. While the young are with their mother, they typically follow her in a single file.
3. They do not hibernate but may den up in groups during cold periods.

CPW Conservation: None

Threats to Species: Predators include humans, dogs, cats, bobcats, foxes, coyotes, owls, and other raptors. Also, vehicle strikes, rodenticide exposure, and incidental trapping.

Research:

- Mead, R. A. (1968). Reproduction in western forms of the spotted skunk (*Spilogale putorius*). *Journal of Mammalogy*, 49(2), 373–390.
- Dragoo, J. W., Sheffield, S. R., & Reid, F. (2003). Family Mephitidae (skunks). In *Wild Mammals of North America: Biology, Management, and Conservation* (pp. 672–682). Johns Hopkins University Press.

Recommendations:

1. CPW must add all four species of skunks to their species webpages.
2. No hunting or trapping during breeding through dispersal April 1- September 1.

Mustelidae

Badger

Season: Nov. 1 - March 1

Range/ Habitat: Widespread across Colorado in grasslands, shrublands, agricultural fields, and open areas with friable soils for digging. Prefer areas with abundant prey like prairie dogs, ground squirrels, and pocket gophers.

Reproduction:

1. Mating occurs in late summer and early fall.
2. Fertilized eggs undergo delayed implantation until February, with 1–5 kits born in March or April.
3. Kits remain with their mothers until late summer.

Threats to Species:
Primary threats include vehicle collisions, incidental trapping, shooting, and persecution as a "nuisance" predator. Habitat loss from development and declines in prairie dog colonies also impact prey availability. According to the Washington Department of Fish & Wildlife, the American badger's climate vulnerability is assessed at low to moderate, but habitat and prey specialization remain key

factors to watch, particularly as warmer, drier conditions may disrupt rodent populations and soil quality needed for burrow construction.

Climate stressors such as increased temperatures, altered precipitation patterns, fire regimes, and invasive grasses (e.g., cheatgrass), could degrade or shift prime badger habitat and reduce prey abundance. However, some warming could potentially create new habitat zones at higher elevations.

Research:

1. Messick, J. P., & Hornocker, M. G. (1981). Ecology of the badger in southwestern Idaho. *Wildlife Monographs*, 76, 3–53.
2. Goodrich, J. M., & Buskirk, S. W. (1998). Spacing and ecology of North American badgers (*Taxidea taxus*) in a prairie-dog (Cynomys leucurus) complex. *Journal of Mammalogy*, 79(1), 171–179.

Recommendations:

1. Add badger to CPW species webpages.
2. Monitor incidental take and road mortality.
3. Protect prairie dog colonies as prey base.
4. Incorporate climate resilience into habitat planning—maintaining habitat continuity across elevations and enhancing the habitat's ability to adapt to rising temperatures and fire regimes.
5. Consider no hunting or trapping until population data is available given delayed implantation of embryos cause an extended gestation cycle.

Pine Marten (Pacific Marten)

Season: Nov. 1 - March 1

Range: In Colorado pine martens occur primarily in mature and old-growth subalpine forests dominated by spruce, fir, and lodgepole pine, generally between 8,000 and 11,000 feet. They rely on structurally complex forests with dense canopy cover, snags, and downed logs for hunting, resting, and denning. Fragmented or clear-cut habitats support far fewer martens.

Reproduction: Mating occurs in the summer, but embryos don't implant until early spring. One to five young are born in April after about a month of gestation, weaned at about two months of age.

CPW Conservation: Despite being dependent on sensitive high-elevation forest habitat, pine martens remain a legally trapped furbearer in Colorado with no population estimate and no conservation measures in place. CPW has allowed for the over-trapping of martens in the past, and after too high harvest numbers and habitat loss, martens were listed as state endangered between 1995 and 2006. Even though CPW reestablished unlimited trapping for Colorado's martens, they do not track or report annual marten harvest separately, making it impossible to assess population impacts from trapping.

Threats to Species:

1. Trapping and habitat destruction from clear-cutting trees probably are the most significant sources of mortality.
2. Loss and fragmentation of old-growth and mature subalpine forest from logging, ski area expansion, roads, and development.
3. Trapping pressure, despite the absence of population monitoring or a statewide estimate.
4. Secondary exposure to toxicants such as rodenticides.
5. Increased risk from changing fire regimes and forest die-off tied to climate stressors (e.g., beetle kill, drought).
6. Consider no hunting or trapping until population data is available given delayed implantation of embryos cause an extended gestation cycle.

Research:

1. Buskirk, S. W., & Ruggiero, L. F., Martes, in The Scientific Basis for Conserving Forest Carnivores: American Marten, Fisher, Lynx, and Wolverine in the Western United States (USDA Forest Service, 1994).
2. Christina D. Hargis, John A. Bissonette & David L. Turner, The Influence of Forest Fragmentation and Landscape Pattern on American Martens, 38 J. Applied Ecology 131 (1999).
3. Tzeidle N. Wasserman, Samuel A. Cushman, David O. Wallin & Jim Hayden, Multi-Scale Habitat Relationships of Martes americana in Northern Idaho, U.S.A., U.S. Forest Serv., Rocky Mountain Research Station, Res. Pap. RMRS-RP-94 (2012).
4. Boulder County Parks & Open Space, *American Marten* (2024), https://assets.bouldercounty.gov/wp-content/uploads/2024/05/american-marten.pdf.
5. U.S. Forest Serv., *Final Environmental Assessment: American Marten* (Rio Grande Nat'l Forest 2009), https://www.fs.usda.gov/sites/nfs/files/legacy-media/riogrande/fp%20asses5%20am%20martin.pdf.

Recommendations:

1. Establish a moratorium on marten trapping until CPW conducts a statewide population assessment.
2. Require CPW to track and publicly report annual harvest numbers for pine martens.
3. Add pine marten to CPW species webpages with information on threats and conservation needs.
4. Prioritize protection of old-growth and mature forest stands in marten habitat.
5. Ensure martens are monitored consistently as a forest-dependent species vulnerable to habitat loss and climate disturbance.

Mink

Season: Nov. 1 - March 1

Range / Habitat:
Distributed statewide in aquatic habitats including rivers, lakes, streams, ponds, and wetlands, typically below 10,000 feet. Dens are located in stream banks, burrows, or log piles near water.

Reproduction:
Breeding occurs in late winter. After delayed implantation, litters of four to six kits are born in April or May. Kits disperse by late summer or early fall.

CPW Conservation:
No conservation measures. Treated as a furbearer with no population estimate and no monitoring of statewide harvest impacts. CPW has not assessed mink as indicators of aquatic health despite their reliance on riparian systems.

Threats to Species:

1. Habitat degradation and loss of riparian areas.
2. Water pollution and bioaccumulation of contaminants.
3. Rodenticide poisoning through prey species.
4. Mortality from trapping and incidental capture.

Research:

1. Niladri Basu, Anton M. Scheuhammer, Steven J. Bursian, John Elliott, Kirsti Rouvinen-Watt & Hing Man Chan, Mink as a Sentinel Species in Environmental Health, 103 Envtl. Res. 130 (2007).

2. Chris Sutherland, Angela K. Fuller, J. Andrew Royle, Matthew P. Hare & Sean Madden, Large-Scale Variation in Density of an Aquatic Ecosystem Indicator Species, 8 Sci. Rep., art. no. 8958 (2018).
3. Nigel C. Bennett & David W. Macdonald, Freshwater Mammals as Indicators of Habitat Condition, in Conservation Monitoring in Freshwater Habitats 33 (Clive Hurford, Michael Schneider & Ian Cowx eds., Springer 2009).
4. Kirk Lohman, Wildlife Use of Riverine Wetland Habitats, in Wetland and Riparian Areas of the Intermountain West 89 (Mark C. McKinstry, Wayne A. Hubert & Stanley H. Anderson eds., Univ. of Tex. Press 2004).

Recommendations:

1. Incorporate mink into riparian conservation and monitoring efforts.
2. Add mink to CPW species webpages with information on ecological role and threats.
3. Restrict trapping in sensitive riparian corridors.
4. Consider no hunting or trapping until population data is available given delayed implantation of embryos cause an extended gestation cycle.

Weasel, Long-tailed and Short-tailed

Season: Nov. 1 – March 1

Range / Habitat:
Long-tailed weasels occur statewide in a variety of habitats, including forests, grasslands, and wetlands. Short-tailed weasels (ermine) are more restricted to high elevations and cooler northern habitats.

Reproduction: Both species breed in summer but experience delayed implantation. Litters of four to nine are born in April or May. Kits are weaned at 5–6 weeks and independent by late summer.

CPW Conservation:
No conservation measures or monitoring programs. Both species remain legally trapped without population estimates or harvest reporting. CPW does not acknowledge sensitivity of ermines to high-elevation climate changes.

Threats to Species:

1. Rodenticide exposure from feeding on poisoned prey.
2. Habitat fragmentation and development.

3. Trapping pressure without monitoring.
4. Vehicle mortality.
5. For ermine: vulnerability to shrinking snowpack and loss of high-elevation habitat.

Research:

1. Jennifer K. Frey & Michael T. Calkins, Snow Cover and Riparian Habitat Determine the Distribution of the Short-Tailed Weasel (*Mustela erminea*) at Its Southern Range Limits in Arid Western North America, 78 *Mammalia* 1 (2013).
2. Tristan Nuñez & Peter Singleton, Climate Change Effects on Wildlife and Wildlife Habitats, in *Climate Change Vulnerability and Adaptation in the Columbia River Gorge National Scenic Area, Mount Hood National Forest, and Willamette National Forest* ch. 6, at 181 (David L. Peterson, James M. Vose & Toral Patel-Weynand eds., U.S. Forest Serv., Gen. Tech. Rep. PNW-GTR-977, 2019).
3. David S. Jachowski, Roland Kays, Andrew Butler, Anne M. Hoylman & Matthew E. Gompper, Tracking the Decline of Weasels in North America, 16 PLoS ONE e0254387 (2021).

Recommendations:

1. Add weasels to CPW species webpages.
2. Monitor harvest and evaluate population trends.
3. Restrict trapping in high-elevation habitats to protect ermines.
4. Incorporate climate vulnerability into CPW planning.

Castoridae

American Beaver

1. Season: Oct. 1 - May 1
2. Range: Beavers live throughout Colorado in suitable habitat, although they are currently most abundant in the subalpine zone.
3. CPW Conservation: Keystone species that CPW states "without them the ecosystem would change dramatically" and "no mammal other than humans has as great an influence on its surroundings."
4. Reproduction: The den houses a nuclear family: parents, yearlings, and four or five kits. A single litter of young is produced each year, born in the spring after about a four-month gestation period.

5. Threats:
    a. At one point on the verge of extinction, beavers were trapped for their under fur, which was used to make felt for beaver hats. In the mid-19th century, silk hats replaced beaver felt as a fashion, bringing beavers back from the brink, but not before the fur trade opened the Colorado mountains to European settlers.
    b. Beavers are fairly well protected from predators by their large size and aquatic habits; however, mink eat some kits, and coyotes can capture a beaver waddling on dry land. Aside from that, floods may be the largest cause of death.

Research:

1. Julie Cleveland, Firefighting Beavers: Fighting Fires, One Beaver Dam at a Time, U.S. Forest Serv., Nat'l Forest Sys., Biological & Physical Resources (Oct. 2, 2023).
2. Emily Fairfax & Andrew Whittle, Smokey the Beaver: Beaver-Dammed Riparian Corridors Stay Green During Wildfire Throughout the Western United States, 30 *Ecol. Applications* e02225 (2020).
3. Beavers and Wildfire – Emily Fairfax, Ph.D.
4. Alexa Whipple, *Riparian Resilience in the Face of Interacting Disturbances: Understanding Complex Interactions Between Wildfire, Erosion, and Beaver (Castor canadensis) in Grazed Dryland Riparian Systems of Low Order Streams in North Central Washington State, USA* (2019) (M.S. thesis, E. Wash. Univ.).
5. Emily Fairfax et al., Impacts of Beaver Dams on Riverscape Burn Severity During Megafires in the Rocky Mountain Region, Western United States, in *Biogeomorphic Responses to Wildfire in Fluvial Ecosystems* 131–151 (Joan L. Florsheim, Alison P. O'Dowd & Anne Chin eds., Geol. Soc'y of Am., Special Paper 562, 2024).
6. Sarah B. Dunn, Sara L. Rathburn & Ellen Wohl, Post-Fire Sediment Attenuation in Beaver Ponds, Rocky Mountains, CO and WY, USA, 49 *Earth Surf. Process. Landforms* 4340 (2024).
7. Christopher E. Jordan & Emily Fairfax, Beaver: The North American Freshwater Climate Action Plan, 9 *WIREs Water* e1592 (2022).
8. W. C. Pollock, G. Lewallen, K. Woodruff, N. Jordan & C. Castro, The Beaver Restoration Guidebook: Working with Beaver to Restore Streams, Wetlands, and Floodplains. V. 2.02 (2023).
9. Emily Fairfax & Cherie Westbrook, The Ecology and Evolution of Beavers: Ecosystem Engineers That Ameliorate Climate Change, 55 *Ann. Rev. Ecol., Evolution, & Syst.* 323 (2024).

10. Joseph M. Smith & Martha E. Mather, Beaver Dams Maintain Fish Biodiversity by Increasing Habitat Heterogeneity Throughout a Low-Gradient Stream Network, 58 *Freshwater Biology* 1523 (2013).
11. Stephanie L. Boyles & Barbara A. Savitzky, *An Analysis of the Efficacy and Comparative Costs of Using Flow Devices to Resolve Conflicts with North American Beavers Along Roadways in the Coastal Plain of Virginia* (Road Ecology Ctr., Inst. of the Env't, Univ. of Cal., Davis 2009).
12. Mark C. McKinstry & Stanley H. Anderson, Survival, Fates, and Success of Transplanted Beavers, *Castor canadensis*, in Wyoming, 116 *Can. Field-Nat.* 60 (2002).

    LANCE B. McNEW, Jr. and ALAN WOOLF "Dispersal and Survival of Juvenile Beavers (Castor canadensis) in Southern Illinois," The American Midland Naturalist 154(1), 217-228, (1 July 2005).

Recommendations:

1. Prohibit recreational beaver-trapping in areas of moderate-high wildfire intensity and consider a prohibition on recreational trapping of beavers across Colorado. According to the

U.S. Forest Service, a lack of beavers has resulted in an increased intensity of drought and wildfires in the west as fires spread rapidly across parched landscapes. Wetlands act as natural fuel breaks, giving firefighters a chance for containment. Scientific support:

   a. Analyzed five large western U.S. wildfires with satellite data and found riparian corridors with beaver dams stayed significantly greener during fires than comparable riparian areas without beavers i.e., lower burn impact during fire (Fairfax & Whittle, 2020).
   b. In three 2020 megafires (Cameron Peak, East Troublesome, Mullen), beaver-dammed riverscapes showed significantly reduced burn severity versus riverscapes without dams; beaver-modified reaches functioned as reliable fire refugia across 13,933 valley-bottom segments (Fairfax et al., 2024).
   c. Post-fire, beaver ponds (and BDA ponds) act as sediment sinks, capturing pulses of ash/soil mobilized by wildfire (median post-fire sedimentation ≫ pre-fire), which helps protect downstream water quality and habitat (Dunn, Rathburn & Wohl, 2024).
   d. Synthesizes evidence that beaver ecosystem engineering increases water storage, maintains wet riparian fuels, and contributes to landscape-scale climate resilience relevant to drought and fire behavior (Jordan & Fairfax, 2022).

2. Implement a robust, streamlined beaver restoration program to restore incised streams, improve habitat and enhance biodiversity. Restoration success should be measured by increased wetted area, improved stream complexity, rising groundwater tables, and documented benefits for target species like boreal toads and cutthroat trout.
   a. Beavers naturally restore wetland and riparian ecosystems, which are among Colorado's most imperiled habitats, with over 50% lost since the 1800s (Colorado Natural Heritage Program, 2021).
   b. Beaver-created wetlands store water, recharge groundwater, improve late-season flows, trap sediment, and filter pollutants, critical functions under climate change-driven drought (Pollock et al., 2014; Bouwes et al., 2016).
   c. Beaver dams increase habitat heterogeneity (width, depth, velocity, substratum), which directly support higher native fish diversity and abundance (Smith, Mather, 2013).

3. CPW should launch a statewide coexistence incentive program, offering cost-share and technical assistance to landowners who adopt nonlethal management. CPW should attempt to relocate beaver families before lethal management consideration.
   a. Education should focus on the climate adaptation value of beavers, reframing them from "nuisance" to "natural water engineers" that protect property by slowing floods, buffering droughts, and reducing fire risk.

b. Where conflicts do occur, the decision tree should mandate that nonlethal measures are attempted before removal is authorized.
c. Modern coexistence tools, flow devices, culvert fencing, tree protection, are highly effective and cost-efficient compared to lethal removal or infrastructure repair. Translocation should be prioritized over lethal control, using family-unit relocations to increase success (McKinstry & Anderson, 2002; McNew & Woolf, 2005).
d. CPW should partner with NGOs and watershed groups to scale translocation efforts, targeting degraded headwaters, post-fire landscapes, and areas with high drought vulnerability.

Cricetidae

Muskrat

Season: Nov. 1 – March 1

Range / Habitat:
Muskrats are found throughout Colorado in marshes, ponds, lakes, rivers, and wetlands with abundant emergent vegetation such as cattails and bulrushes. They build lodges from vegetation and mud or burrow into banks. Their distribution is tied directly to the presence and health of aquatic and wetland ecosystems.

Reproduction:
Muskrats are highly prolific. In Colorado females typically produce 2–3 litters per year from spring through late summer. Gestation lasts ~30 days, with litters averaging 6–8 kits. Young mature rapidly, disperse within weeks, and may breed the following year.

CPW Conservation:
Despite being a keystone wetland species, muskrats remain a legally trapped furbearer in Colorado. CPW provides no population estimates, does not track harvest separately, and does not assess muskrats as indicators of wetland health, even though their presence reflects the condition of aquatic ecosystems.

Threats to Species:
CPW does not list threats. Documented risks include:

1. Loss and degradation of wetlands due to water diversion, development, livestock grazing, and drought.
2. Pollution and bioaccumulation of contaminants in aquatic habitats.

3. Trapping pressure despite the absence of monitoring or population data.
4. Predation by mink, coyotes, foxes, raptors, and snapping turtles.

Research:

1. Carrie Sadowski & Jeff Bowman, Historical Surveys Reveal a Long-Term Decline in Muskrat Populations, 11 Ecology & Evolution 6351 (2021).
2. James E. Miller, Muskrats, U.S. Dep't of Agric., Animal & Plant Health Inspection Serv., Wildlife Damage Mgmt. Tech. Series, Jan. 2018.
3. Adam A. Ahlers & Edward J. Heske, Empirical Evidence for Declines in Muskrat Populations Across the United States, 81 J. Wildlife Mgmt. 1408 (2017).

Recommendations:

1. Update muskrats on CPW species webpages with information on their ecological role as wetland indicators.
2. Establish population monitoring and integrate muskrats into wetland health assessments.
3. Restrict trapping in degraded or drought-stressed wetland systems.
4. Protect and restore wetland habitats critical to muskrat populations.
5. Prohibit trapping and hunting during breeding and kit rearing March- September.

Felidae

Bobcat

Season: December 1- March 1

Reporting: Bobcat harvest is reported to CPW and furs need to be sealed prior to sale, unlike other furbearers.

1. Mortality from Hunting and Trapping:
    a. 2024-2025: 1,273
    b. 2023-2024: 918
2. Inspection:
    a. Hunters are required to bring their harvest in for inspection, within 30 days after take, or within five days after the season closes; whichever is sooner. Hunters must be present at the inspection and bring a bobcat pelt or whole animal. During the inspection the hunter will provide days hunted/trapping, harvest location (GMU and drainage), harvest date and manner of take. CPW will collect hunt and harvest

information and complete a Mandatory Report Form. CPW personnel will place a seal through the bobcat's hide as proof of inspection.

3. Seal Requirement for Fur Sales:
    a. Seals will be placed only on bobcats taken legally in Colorado. Inspection and sealing is free, and seals must stay attached to hide until processed. Bobcat hides and pelts cannot be transported, shipped or otherwise taken from Colorado until inspected and sealed. It is illegal to buy, sell, trade or barter an untanned bobcat hide/pelt without a seal. One seal per hide/pelt.

Range / Habitat:

Statewide, but most abundant in foothills, canyons, mesas, and plateaus where brush and woodlands provide cover. Less common in open prairies, tundra, high-elevation subalpine forests, and wetlands.

Reproduction:

Mating occurs in late winter. After a gestation of ~60–70 days, litters of two to four kittens are born in April or May. Young are weaned at two months and typically disperse in fall. Females often select dens in caves, rock piles, or hollow logs.

CPW Conservation:

Bobcats remain a legally hunted and trapped furbearer in Colorado. CPW explicitly states they are "not biologically threatened," framing their management almost exclusively around recreational and commercial harvest opportunities. CPW does not provide statewide population estimates, does not assess harvest sustainability, and does not incorporate bobcats into broader carnivore conservation planning. The CPW bobcat webpage was revised following public pressure and ballot initiatives to emphasize hunting/trapping access and dismiss conservation concerns.

Threats to Species:

CPW lists no conservation threats. Research identifies the following:

1. Overharvest: Rising international demand for bobcat pelts has increased trapping pressure, with harvest exceeding 1,200 annually in Colorado.
2. Mistaken Identity with Canada Lynx: Bobcats and lynx can be difficult to distinguish, particularly in the Southern Rockies where bobcats are large and pale. CPW acknowledges misidentification risk but has not prohibited bobcat trapping in lynx recovery zones.
3. Rodenticides and Poisons: Exposure through prey species leads to secondary poisoning.
4. Habitat Fragmentation: Roadbuilding, urban expansion, and energy development reduce suitable habitat and increase vehicle collisions.

5. Climate Change: Shifting snowpack and prey dynamics may intensify overlap with lynx, exacerbating risks of mistaken harvest.

Research:

1. Lourraine A. Tigas, Dirk H. Van Vuren & Raymond M. Sauvajot, Behavioral Responses of Bobcats and Coyotes to Habitat Fragmentation and Corridors in an Urban Environment, 108 Biological Conservation 299 (2002).
2. L. Mark Elbroch, Lisa Robertson, Kristin Combs & Jenny Fitzgerald, Contrasting Bobcat Values, 26 Biodiversity & Conservation 2987 (2017).
3. Sharon A. Poessel, Christopher L. Burdett, Erin E. Boydston, Lisa M. Lyren, Robert S. Alonso, Robert N. Fisher & Kevin R. Crooks, Roads Influence Movement and Home Ranges of a Fragmentation-Sensitive Carnivore, the Bobcat, in an Urban Landscape, 180 Biological Conservation 224 (2014).
4. Theodore N. Bailey, Social Organization in a Bobcat Population, 38 J. Wildlife Mgmt. 435 (1974).
5. L. Mark Elbroch, Connor O'Malley, Michelle Peziol & Howard B. Quigley, Vertebrate Diversity Benefiting from Carrion Provided by Pumas and Other Subordinate, Apex Felids, 215 Biological Conservation 123 (2017).

Recommendations:

Prohibit recreational bobcat trapping and hunting given:

- Scientific research indicates that hunting and trapping mortality is largely additive, or in addition to natural causes.
- Climate and habitat population stressors compound risks posed by recreational hunting and trapping. These stressors include habitat fragmentation, reduced snow cover altering prey dynamics, road mortality, and disease.
- Bobcats have overlapping territory with endangered Canada lynx, and bobcat hunting and trapping can result mistaken kills of an endangered species
- Bobcat kittens stay with their mother for 8-12 months, with breeding season generally running from February to March. Determining gender or presence of kittens is nearly impossible in the field and low reproductive capacity leaves bobcat populations vulnerable to decline.
- Bobcat populations are self-regulating through territory, prey availability, kitten survival and natural mortality.

Didelphidae

Virginia Opossum

Season: Nov. 1 – March 1

Range / Habitat:
The Virginia opossum is North America's only marsupial. In Colorado opossums occur mainly along riparian corridors, agricultural lands, and urban/suburban areas, particularly on the eastern plains and Front Range. They rely on den sites in hollow trees, brush piles, and human structures. Their distribution is expanding westward with milder winters and urban development.

Reproduction:
Opossums breed from January to July, often producing two litters per year. After a short gestation of ~13 days, tiny, underdeveloped young crawl into the female's pouch where they continue developing for 2–3 months. Litters range from six to 13, but few survive to independence. Juveniles disperse in late summer.

CPW Conservation:
Opossums remain a legally trapped and hunted furbearer in Colorado, despite the absence of population estimates or monitoring. CPW provides no conservation information on opossums and does not evaluate their ecological role as scavengers that help control insects, ticks, and carrion.

Threats to Species:
CPW does not list threats. Documented risks include:

1. Vehicle collisions, a leading cause of mortality.
2. Incidental trapping and hunting.
3. Harsh winters, though milder conditions under climate change may favor range expansion.
4. Predation by coyotes, foxes, bobcats, owls, and domestic dogs.

Research:

1. William S. Beatty, James C. Beasley, Zachary H. Olson & Olin E. Rhodes, Jr., Influence of Habitat Attributes on Density of Virginia Opossums (*Didelphis virginiana*) in Agricultural Ecosystems, 94 Can. J. Zoology 317 (2016).
2. Kyle R. Wait & Adam A. Ahlers, Virginia Opossum Distributions Are Influenced by Human-Modified Landscapes and Water Availability in Tallgrass Prairies, 101 J. Mammalogy 216 (2020).

Recommendations:

1. Update CPW species webpages with information on ecological benefits, including tick reduction/ dilution and carrion removal.
2. Monitor harvest levels and population trends statewide.
3. Consider seasonal protections during breeding February- June.

Procyonidae

Raccoon

Season: Nov. 1- March 1

Range / Habitat:
Raccoons are widely distributed across Colorado and thrive in riparian zones, agricultural fields, urban centers, and suburban neighborhoods. They are highly adaptable omnivores that den in hollow trees, rock crevices, abandoned burrows, or human structures. While most abundant below 9,000 feet, raccoons have been documented at higher elevations during warmer months.

Reproduction:
Breeding occurs from January through March. After a gestation of about 63 days, three to five kits are born in April or May. Kits are weaned by two months and remain with their mother until late fall, when they disperse to establish their own territories.

CPW Conservation:
Raccoons remain legally trapped and hunted furbearers in Colorado with no statewide population estimate and no conservation measures in place. CPW provides no public reporting of annual raccoon harvest and does not assess the ecological role raccoons play as mesocarnivores, scavengers, and seed dispersers. Despite their ubiquity, raccoons are highly susceptible to disease outbreaks, vehicle mortality, and rodenticides, yet CPW does not incorporate raccoons into mesocarnivore monitoring or State Wildlife Action Plan priorities.

Threats to Species: CPW does not list threats. Documented risks include:

1. Vehicle collisions, a leading mortality source for raccoons in urban and rural areas.
2. Distemper and rabies outbreaks, which can cause rapid population declines.
3. Secondary poisoning from rodenticides and pesticides.

4. Trapping and hunting pressure despite lack of monitoring.
5. Habitat fragmentation and loss of riparian corridors.

Research:

1. Suzanne Prange, Stanley D. Gehrt & Ernie P. Wiggers, Demographic Factors Contributing to High Raccoon Densities in Urban Landscapes, 67 J. Wildlife Mgmt. 324 (2003).
2. W.J. Bigler, J.H. Jenkins, P.M. Cumbie, G.L. Hoff & E.C. Prather, Wildlife and Environmental Health: Raccoons as Indicators of Zoonoses and Pollutants in Southeastern United States, 181 J. Am. Veterinary Med. Ass'n 443 (1982).
3. Samuel I. Zeveloff, *Raccoons: A Natural History* (Smithsonian Inst. Press 2002).

Recommendations:

1. Update CPW species webpages with information on ecological role, threats, and coexistence strategies.
2. Require CPW to track and publish raccoon harvest data separately.
3. Restrict trapping and hunting during kit-rearing through dispersal season (March–September).
4. Monitor rodenticide exposure in raccoon populations as an indicator of toxicant spread in urban and rural ecosystems.

Ringtail

Season: Nov. 1 - March 1

Range / Habitat:

Ringtails occur across western and southern Colorado, favoring rocky canyons, cliffs, pinyon-juniper woodlands, and riparian corridors. They are nocturnal, secretive, and rarely observed, which makes them difficult to monitor. Despite their elusive behavior, ringtails are ecologically important as omnivorous mesocarnivores that consume rodents, insects, fruit, and carrion.

Reproduction:

Breeding season occurs in spring to early summer. After a gestation of 50–60 days, litters of one to five kits (most often two to four) are born. Young are weaned by 10 weeks and typically remain with their mother until fall. Ringtails can live up to six to nine years in the wild.

CPW Conservation:

Ringtails remain a legally trapped furbearer in Colorado, with no population estimate and no baseline monitoring. CPW provides no meaningful conservation guidance for the species, despite acknowledging they are "rarely seen" and that little is known about their statewide abundance.

Threats to Species:

CPW does not list threats. Documented risks include:

1. Unlimited trapping without population monitoring. CPW states "Typical habitat is canyon and mesa country, with most sightings are near water. In fact, the first reports of ringtails in an area often are of animals caught in traps set for mink."
2. Habitat loss and fragmentation from development and recreation in canyon and riparian ecosystems.
3. Road mortality.
4. Secondary poisoning from rodenticides.
5. Predation from owls, coyotes, bobcats, and mountain lions.

Research:

1. Kathleen P. Gundermann, David S. Green, Frances E. Buderman, Cale H. Myers, J. Mark Higley, Richard N. Brown & Sean M. Matthews, Ecological Characteristics of Diurnal Rest Sites Used by Ringtails (Bassariscus astutus), 96 Northwest Sci. 220 (2023).
2. Robert L. Harrison, Ringtail (*Bassariscus astutus*) Ecology and Behavior in Central New Mexico, USA, 72 W. N. Am. Naturalist 495 (2012).

Recommendations:

1. Establish a moratorium on ringtail trapping until population surveys are conducted.
2. Add ringtail to CPW species webpages with conservation information, ecological role, and a management need is determined.
3. Develop monitoring protocols for statewide distribution and abundance.

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