
Opportunities to Improve Sensitive Habitat and Movement Route Connectivity for Colorado's Big Game Species



COLORADO
Department of
Natural Resources

In cooperation with



COLORADO
Department of Transportation

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Introduction

The West's iconic big game species, such as bighorn sheep, pronghorn, elk, moose, and mule deer are important to natural systems, sporting enthusiasts, and local economies, but some species and local populations have suffered significant declines in recent decades. Between 2007 and 2013, Colorado's estimated statewide deer populations declined from roughly 600,000 deer to approximately 390,000 deer.¹ More specifically, the White River Herd, the nation's largest mule deer herd, was reduced by two-thirds, from over 100,000 to roughly 32,000, between 2005 through 2017. While disease, competition, and predation contribute to these dwindling numbers, habitat loss and fragmentation stemming from residential, recreational, and industrial development -- compounded by the long-term effects of climate change -- present risk to these species. Preserving contiguous swaths of the sagebrush, grassland, and forest landscapes that big game rely on for winter range, and facilitating safe passage along migration and movement routes -- within and between

seasonal ranges -- are priorities for wildlife and land managers in Colorado as well as other Western states.

A variety of solutions are being considered at all levels of government and by private sector stakeholders to better protect big game winter range, and migration and movement routes. On the whole, these policies aim to foster collaboration, expand data collection and research, incentivize participation in habitat connectivity programs, and implement targeted infrastructure solutions. The goal of this report is to identify, evaluate, and recommend priorities for a range of regulatory, policy, and legislative approaches to ensure the health of Colorado's big game herds and solidify Colorado's status as the national leader in big game management and conservation.

¹ C. Cooley et al., *Status Report: Big Game Winter Range and Migration Corridors, Colorado Parks and Wildlife*, Colorado Park and Wildlife (CPW), (2020).

Big Game Executive and Secretarial Orders

In 2017 and 2018, a pair of secretarial orders issued by the U.S. Department of Interior (DOI) directed federal land managers to work with states to protect big game species and their habitat within the region. Secretarial Order (SO) 3356, *Hunting, Fishing, Recreational Shooting, and Wildlife Conservation Opportunities and Coordination with States, Tribes, and Territories*, and SO 3362, *Improving Habitat Quality in Western Big-Game Winter Range and Migration Corridors*, respectively, provided direction to federal land managers for improving access to lands for recreational activities, particularly hunting and fishing.² SO 3362 also ordered DOI agencies to improve habitat quality to ensure the long-term viability of big game and other wildlife populations, in particular, migration corridors and sensitive winter range for elk, deer and pronghorn, and made funds available through a grant program housed at the National Fish and Wildlife Foundation (NFWF) to further our understanding of big game movements and provide support to transportation and related projects addressing threats to big game herds.

SO 3362 established a framework for federal coordination with state and Tribal wildlife agencies and transportation departments, and led to support for states in habitat management and migration corridor research activities. Colorado Parks and Wildlife (CPW), a division within the Department of Natural Resources (CDNR), and the Colorado Department of Transportation (CDOT) both benefited from these funding streams with grants in 2018

and 2019 to support wildlife fencing and additional migration research.

Following these federal directives, Governor Jared Polis issued Executive Order D 2019- 011, *Conserving Colorado's Big Game Winter Range and Migration Corridors*, a complementary state directive to the federal SOs. In November, 2019, the Colorado Parks and Wildlife Commission (PWC) also adopted a resolution reaffirming the Governor's EO and supporting the federal funding opportunity.³ The executive order ("Big Game EO") reiterated the state's own habitat conservation priorities and required state agencies to work cooperatively, and with federal land managers, local governments and private landowners, to reduce risks to wildlife from vehicle collisions, and preserve habitat and migration corridors used by the state's big game herds. In addition to other outcomes tied to public education, collaboration and process improvements, the EO called upon CDNR and CDOT to produce several "deliverables" to help guide future action and prioritization:

- An MOU signed by CPW and CDOT outlining expectations for collaboration in mitigating wildlife-vehicle collisions, identifying priority big game highway crossings in the state, and participation in and support of the multi-stakeholder Colorado Wildlife-Transportation Alliance (CWTA);
- A Status Report covering known threats to seasonal big game habitat and migration corridors; data and

² U.S. Department of Interior (DOI), SO 3356 *Hunting, Fishing, Recreational Shooting, and Wildlife Conservation Opportunities and Coordination with States, Tribes, and Territories* (2016), and SO 3362, *Improving Habitat Quality in Western Big-Game Winter Range and Migration Corridors* (2018).

³ Colorado Parks and Wildlife Commission (PWC), Resolution 19-01, *Regarding Support for Governor Polis' Executive Order D 2019-011: Conserving Colorado's Big Game Winter Ranges and Migration Corridors* (November 15, 2019).

information gaps; and an action plan timeframe for revisiting priority landscapes and corridors;⁴

- A Policy Report produced by CDNR identifying potential “policy, regulatory, and legislative opportunities to ensure ongoing conservation of seasonal big game habitat and migration corridors”;
- A set of recommendations by CDOT mirroring the considerations in CDNR’s policy report.

The agreement between CPW and CDOT was enacted on December 31, 2019, and CPW, on behalf of CDNR, submitted the status report, entitled *2020 Status Report: Big Game Winter Range and Migration Corridors* (i.e., “2020 Status Report”) on April 1, 2020.

The 2020 Status Report provides a compilation of information to help guide CPW, CDOT, and conservation partners to collectively improve and protect habitats associated with big game winter range and migration corridors. The report provides a baseline of scientific information related to Colorado big game populations, including population status and trends, monitoring and inventory techniques, and current research. Data gaps and threats related to big game movement and migration routes, as well as winter range and other sensitive habitat, are also identified, along with short-term and long-term management and data needs.

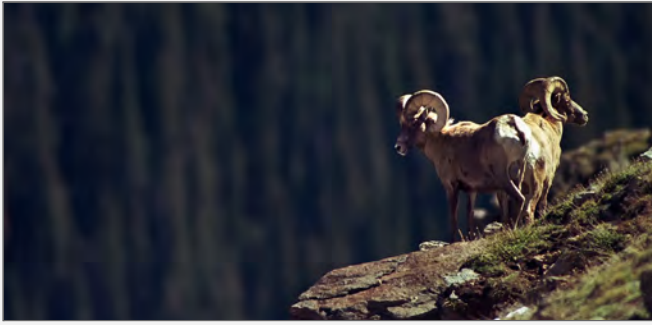
This report, produced in partnership by CDNR, CPW, and CDOT, serves as a combined response to the policy recommendation deliverables in the Big Game EO. The terminology utilized in this report diverges from Big Game EO in its use of “movement routes” as opposed to “migration corridors” and “sensitive habitat” as opposed to “winter range,” in order to reflect the best available

⁴ Cooley et al., CPW (2020).

science and a shift in CPW’s treatment of big game habitat priorities.

We expand beyond inter range habitat to also include production (i.e., calving and fawning) areas, and in some cases, “high country” summer range. While winter range -- typically low-lying parks and valleys used for winter forage -- remains at-risk from residential and industrial development, these other sensitive habitat types face different pressures in parts of the state, such as high-volume recreation and conditions that can lead to catastrophic wildfire. Additionally, state wildlife managers increasingly refer to “movement routes” to describe transitional patterns both between seasonal range and within it, as it has become evident that summer and winter seasonal ranges for big game herds are often in close proximity, largely due to the mountain/basin geography of much of Colorado. Documented big game migrations in our state are better characterized as diffuse, landscape-scale, and often relatively shorter-distance, than some of the more narrow, discrete, and longer-distance migrations documented in some other Western states.⁵

⁵ See, e.g., Kauffman, M.J. et al., *Scientific Investigations Report 2020–5101: Ungulate migrations of the western United States, Volume 1*, U.S. Geological Survey (USGS), 2020.



What does success look like?

The 2020 Status Report captures the state of affairs in big game research and management, and identifies some of the specific issues that must be addressed to improve outcomes for big game habitat and connectivity. Unfortunately, there are few easy solutions to the complex challenges described in the report. As such, the outcomes for success listed below can be thought of as components of an aspirational “future state” for Colorado’s big game populations and their habitat, as opposed to strategic objectives. More concrete recommended actions that can help move the needle toward these goals are provided in the final section of this report.

- **Management** - Lands in Colorado are cooperatively managed among state, local, and federal agencies and other stakeholders to reduce fragmentation and preserve or improve the integrity of priority big game seasonal habitats and movement corridors.
 - **Conservation** - Programs aimed at the long-term protection of habitat are established, strengthened, and funded.
 - **Coordination** - Programmatic, scientific, and coordination capacity is built among state agencies, government, and private sector partners.
 - **Mitigation** - Impacts to priority habitat caused by residential and industrial development, recreation, and other human activities are first avoided, then minimized in a strategic way to maximize intact
- habitats. Residual or unavoidable impacts are compensated for in a manner that benefits the impacted species or habitats.
- **Political Prioritization** - Habitat connectivity is recognized by state and local leadership as a legislative and regulatory priority.
 - **Climate** - State and local governments work to address the impacts of climate change on wildlife and their habitats, including habitat conservation and restoration efforts to increase climate resilience, while wildlife managers lead planning and mitigation efforts to address the effects of extreme seasonal conditions, prolonged drought, and natural disasters.
 - **Infrastructure and roads** - Infrastructure projects are planned/retrofitted to both promote permeability for big game movements and to reduce the risk of wildlife-vehicle collisions.
 - **Knowledge** - Wildlife managers carry out robust applied research and monitoring programs to continually improve knowledge of big game populations, movement, disease, and habitat responses to inform future action and collaborate with partners in developing research priorities.
 - **Outreach** - Key partners collaborate to communicate issues and needs to maintain and enhance wildlife connectivity and garner support for state connectivity initiatives.
 - **Education** - A diverse group of people and communities are engaged in promoting the need for conserving wildlife habitat and connectivity.
 - **Private lands** - Private landowners are incentivized to limit habitat fragmentation and to participate in habitat restoration and conservation programs to maintain wildlife habitat connectivity.
 - **Capacity** - Wildlife management initiatives at all levels are sufficiently resourced to carry out effective programs to protect vital wildlife habitat and maintain habitat permeability.



The Current Policy Landscape

The Historic Context

Colorado’s contemporary wildlife policy is underpinned with a set of principles known as the North American Wildlife Conservation Model, rooted in the Progressive-era of the late 19th and early 20th Centuries. Foundational to this model is the “Public Trust” -- the reservation of authority to states to manage wildlife resources in trust for public benefit. The U.S. Supreme Court’s 1896 decision in *Greer v. Connecticut*, coupled with the 1900 Lacey Act, a bedrock federal wildlife law designed to curtail poaching on the vast swaths of newly-acquired federal lands in the West by restricting interstate commerce in wildlife products, together had the effect of codifying states’ wildlife jurisdiction, in accordance with historical precedent.⁶ The North American model is further characterized by an adherence to evidence-based wildlife management and habitat conservation approaches, and a distinction between wild game species regulated for sport hunting and angling, and

⁶ Lacey Act of 1900 (6 U.S.C. §§ 3371-3378); *Geer v. Connecticut*, 16 S.Ct. 600 (1896) (overruled by *Hughes v. Oklahoma*, 441 U.S. 322). See G.R. Batcheller et al., “Chapter 2: Public Trust Doctrine and the Legal Basis for State Wildlife Management,” in *State Wildlife Management and Conservation*, ed. T. Ryder, JHU Press, Baltimore (2018), pp. 22-38.

other non-game, non-domesticated native species whose populations are either not actively controlled or are specifically managed for conservation.⁷

The Colorado Game and Fish Department, the state’s prototypical wildlife agency established in 1897, was narrowly charged with controlling the unauthorized take of animals in order to preserve hunting, fishing, and trapping license revenues to finance its operations. As development pressures mounted, game and fish agencies in Colorado and across the U.S. became increasingly involved in conserving habitat and protecting at-risk non-game species. Despite the broader public benefit of these expanded functions, hunting and angling fees continued to almost exclusively underwrite Colorado’s and other state’s wildlife agencies until the Great Depression imposed urgent financial realities.⁸

⁷ More thorough examinations of the North American Model can be found in: J.F. Organ et al. *The North American Model of Wildlife Conservation: Technical Review 12-04*, The Wildlife Society and the Boone and Crockett Club, (2012); J.F. Organ and R. McCabe, “1: History of State Wildlife Management in the United States,” in Ryder (2018), pp. 1-23. Federal land ownership data per Congressional Research Service, “CRS Report R42346 Federal Land Ownership and Data,” 2020, pp. 1-3.

⁸ See R.J. Regan and S. Williams, “4: Evolution of Funding for State Fish and Wildlife Agencies,” in Ryder (2018).

A pioneering pair of New Deal Era laws, championed by Aldo Leopold and the American Game Policy Committee, expanded the federal government’s role in assisting states’ efforts. These included the 1934 Fish and Wildlife Coordination Act authorizing wildlife conservation on federal lands, the 1934 Migratory Bird Conservation Hunting and Conservation Stamp Act, or “Duck Stamp Act,” and 1937 Federal Aid in Wildlife Restoration Act, also known as the “Pittman-Robertson Act,” the latter two of which created mechanisms to direct federal resources to states.⁹ The New Deal Era also brought additional policies focused on public lands management. Among them, the Taylor Grazing Act closed certain lands to development and created a grazing permit system that still serves as a critical tool for preventing disease transfer between domestic livestock and wild big game populations.

While the federal government’s financing of wildlife management has increased over the last century, and new programs at the state and federal levels have further augmented fee-based agency revenues, hunting and angling continues to provide the bulk of support for wildlife and conservation activities in most states, including Colorado. However, this funding model has proven challenging in recent years as recreation and residential and industrial development increasingly jeopardize ecosystems that function as habitat for big game species and other wildlife.¹⁰ For its part, Colorado has taken steps to better distribute the burden of conservation financing through CPW’s sustainable funding initiative, such as the recent passage of the Keep Colorado Wild Pass in statute.¹¹

⁹ American Game Protective Association Conference (15:1928), Committee on Game Policy; T.W. Cart, “New Deal’ for Wildlife: A Perspective on Federal Conservation Policy, 1933-40,” *Pacific Northwest Quarterly* (63:3, 1972), pp. 113-120; Regan and Williams (2020).

¹⁰ As of 2017, hunting and fishing license sales and federal hunting and fishing equipment excise taxes together accounted for 59% of total state conservation funding in the U.S., per Chase et al., “The State Conservation Machine,” Association of Fish and Wildlife Agencies (2017), p. 8. See also N. Rott, “Decline In Hunters Threatens How U.S. Pays For Conservation,” NPR (Mar. 20, 2018).

¹¹ SB21-249, Keep Colorado Wild Annual Pass Act,” Colorado General Assembly, 2021 Reg. Sess.



The State Policy Landscape

Wildlife Management

Title 33 of the Colorado Revised Statutes (C.R.S.) provides the overarching governing framework for wildlife and habitat management within Colorado and creates a 13-member Parks and Wildlife Commission (PWC) responsible for carrying out the state’s policies. It also names CPW, under the PWC’s direction and the auspices of CDNR, as the agency primarily responsible for making decisions about wildlife management, and for implementing programs and activities in support of its mandate, in cooperation with land management agencies and private landowners.¹²

Title 33 declares the state’s policy to “protect, preserve, enhance, and manage all native and game wildlife species and their environment, and to ensure the provision of a diversity of wildlife-related recreational opportunities, for “the use, benefit, and enjoyment of the people of this state and its visitors.”¹³ Several additional statutes obligate other agencies to consult with CPW on avoiding, minimizing, or mitigating impacts to wildlife and wildlife habitat, including habitat for big game, in land and natural resource use planning and permitting decisions.¹⁴

¹² C.R.S. § 33-9-101

¹³ C.R.S. § 33-1-101

¹⁴ E.g., C.R.S. § 34-32-116.5(6) concerning environmental protection plans for designated mining operations

Finally, consistent with the North American Model described above, Title 33 distinguishes “game” as those species that may be lawfully hunted or taken for food, sport, or profit and which are classified as such by the PWC, whereas “nongame” species are generally prohibited from being harmed, harassed or killed. The PWC sets limitations on hunting based on an annual review of game population status relative to management objectives in long-term herd management plans based on geographic data analysis units, or DAUs. While the PWC also regulates predators and non-native ungulates, we refer here to “big game” as large, native ungulate species, most of which typically migrate in herds between and within seasonal ranges.

Habitat Management

CPW’s programs and operations are guided by a Strategic Plan, adopted by the PWC in 2015, which provides an overarching vision for the agency, and establishes high-level objectives, tangible actions and benchmarks associated with six strategic goals, which collectively serve as the basis for annual progress reporting.¹⁵ Programs and activities relevant to protecting habitat, though not specifically for big game species, fall generally under Goal I: Conserve wildlife and habitat to ensure healthy sustainable populations and ecosystems. Goal V: Connect people to Colorado’s outdoors deals with hunting and public access and also has applicability to big game habitat.

While activities tied to big game population and habitat conservation have long been important to CPW’s wildlife conservation efforts, the division did not begin explicitly tracking progress against these outcomes until the General Assembly’s passage of the Future Generations Act in 2018.¹⁶ CPW also included a Big Game EO tracking

sub-objective in its annual operational plan, which specifies the following actions: that the agency compile a report on the status of Colorado’s big game migration corridors and winter range; identify policy opportunities to promote ongoing conservation of seasonal big game habitat and movement routes by July 1 2021; executive order.”¹⁷

High Priority Habitat

In 2019, the Colorado General Assembly enacted a pair of laws that, together, represent a monumental shift toward a vision of sustainability for the state. Senate Bill 19-181 and House Bill 19-1261 have significant implications for Colorado’s climate, communities, and land, water, wildlife, and other natural resources.¹⁸ CPW revised its energy and land use guidance for high priority habitat (HPH) -- including big game migration routes, production areas and winter range -- as part of the rulemakings undertaken in 2019-20 to overhaul the mission, organizational structure and permitting requirements of the Colorado Oil and Gas Conservation Commission (COGCC).¹⁹ CPW has since adopted the revised HPH recommendations as agency land use policy, imposing surface disturbance density limitations for industrial facilities and infrastructure of one unit per square mile, and one linear mile per square mile for pipelines, roads and recreational trails within mapped HPH; compensatory mitigation measures to off-set

¹⁷ CPW, *Strategic Plan Progress Report, as updated FY 2019-20*. The July, 2021 report referenced was delayed but anticipated in the fall of 2021, as of this report’s publication.

¹⁸ SB19-181, “Protect Public Welfare Oil and Gas Development,” and HB19-1261, “Climate Action Plan to Reduce Pollution,” Colorado General Assembly, 2019 Reg. Sess.

¹⁹ Colorado Oil and Gas Commission Rules: 1200 Series - Protection of Wildlife Resources, January 15, 2021; also, CPW, *Recommendations to Avoid and Minimize Impacts to Wildlife from Land Use Development in Colorado*: https://cpw.state.co.us/Documents/Conservation-Resources/Energy-Mining/CPW_HPH-Map-Layers.pdf; CPW Administrative Directive OG-1, 2021

¹⁵ CPW, *Colorado Parks and Wildlife 2015 Strategic Plan*

¹⁶ SB18-143, Future Generations Act, Colorado General Assembly, 2018 Reg Sess. CPW, *Future Generations Act Report(s)*, FY2019 and FY2020.

density limitation exceedances; sound and lighting level restrictions; seasonal activity timing restrictions, and other measures. This guidance will be applied in future decisions on lands within the state’s jurisdiction, including parks, wildlife areas and State Trust Lands, and will form the basis for recommendations on permitting, project design, trail development, and planning decisions on lands overseen by external agencies.

Transportation

CDOT builds and maintains interstates, U.S. and state highways, to ensure that Colorado’s transportation system is safe and efficient. Senate Bill 40 (SB40), passed in 1973, requires transportation construction projects and maintenance activities with the potential to affect streams and wetlands, gold medal fisheries, threatened and endangered species, or species of concern to obtain wildlife mitigation certification from CPW.²⁰ While these criteria exclude projects within priority big game habitat, SB40 certification nevertheless establishes a meaningful role for CPW and creates a framework for inter-agency coordination with respect to project design.

Additionally, the Governor’s Big Game EO elevated CDOT’s role in facilitating big game habitat connectivity through increased cooperation with CPW and participation in the Colorado Wildlife Transportation Alliance (CWTA), which is working to address the issue of wildlife-vehicle collisions (WVCs). Almost 4,000 WVCs, which result in nearly 400 human injuries and often multiple deaths, are reported each year in Colorado. Research suggests that wildlife crossing structures can reduce ungulate-related WVCs by up to 80-90 percent.²¹ The CWTA, made up of representatives from federal,

state, local, and Tribal governments, subject matter experts, and conservation partners, is playing a key role in identifying opportunities to implement priorities identified through CDOT’s Western Slope Prioritization Study Final Report, produced in collaboration with CPW, and to inform state and federal agency wildlife policy.

Recreation: Outdoor Partnerships Executive Order

In 2020, Governor Polis issued an executive order to launch a new initiative to further the state’s objectives to connect people to nature, sustain wildlife, and protect Colorado’s natural heritage. Executive Order 2020 008, Creating the Outdoor Regional Partnerships Initiative, or “Outdoor Partnerships EO,” creates a framework for regional and state coordination for accommodating sustainable recreation while advancing wildlife, habitat, and other natural resource objectives.²² The directive tasks CPW, with support from CDNR, with driving multi-stakeholder processes culminating in regional recreation and conservation plans that will roll up into an overarching, statewide conservation and recreation plan. This initiative presents an opportunity to work with local, federal, and private partners to identify approaches for reducing habitat degradation and fragmentation from recreational uses.

Additionally, the Outdoor Partnerships EO expanded the make-up and mission of the Inter-Agency Conservation and Recreation Council and formalized the Colorado Outdoor Partnership (CO-OP) to advise on both regional and statewide conservation and recreation plan development and implementation.

²⁰ (C.R.S. § 29-20-101, et. seq.) See CPW and CDOT: *Guidelines for Senate Bill 40 Wildlife Certification* (Jan 2003).

²¹ Average 87% effectiveness, depending on design specifics. M.P. Huijser et al., “Wildlife-Vehicle Reduction Study: Report to Congress,” FHWA-HRT-08-034, U.S. Department of Transportation, Federal Highway Administration (2008), p. 29.

²² Colorado Exec. Order No. B 2020 008, *Creating the Colorado Outdoor Regional Partnerships Initiative and Establishing the Interagency Conservation and Recreation Council* (October 30, 2020).

State Conservation Funding

While CPW receives funding from a variety of sources, wildlife management and habitat conservation have historically been financed by hunting and fishing license fees. Senate Bill 11-208 provided for the merger of the former Division of Parks and Outdoor Recreation and Division of Wildlife, and authorized enterprise revenues from wildlife-related activities to be deposited in the Wildlife Cash Fund, and appropriated annually in support of CPW's wildlife operations, some of which are earmarked for specific programs that may benefit big game management or habitat conservation. While concerns over CPW's financial stability remain, recent legislation has provided new, more reliable revenue streams for the agency, particularly the 2018 Future Generations Act, which allowed for increases in resident hunting and fishing license fees, and recent SB21-249, which created the Keep Colorado Wild Pass an annual access pass attached to vehicle registrations.²³ Other long-standing state funding programs for wildlife and habitat conservation are described below.

- ***Species Conservation Trust Fund*** - The native Species Conservation Trust Fund (SCTF) was created by the legislature in 1998.²⁴ Later, its initial scope was expanded to cover studies and programs dedicated to recovering species listed or at-risk of becoming listed as threatened or endangered. The CDNR Executive Director, in consultation with the Colorado Water Conservation Board (CWCB), PWC, and CPW Director, provides the General Assembly with recommendations for programs within these divisions that satisfy the goals of STCF and could

be candidates for annual funding. Previous SCTF bills have supported research and conservation programs that provide secondary benefits to big game species or habitat.

- ***Habitat Stamp Program and Colorado Wildlife Habitat Program*** - The Wildlife Habitat Stamp was created by the General Assembly in 2006. The stamp is an annual fee (currently \$10.40 for an individual stamp; \$312.30 for a lifetime stamp) assessed on the first state hunting or fishing licenses purchased each year, and used for the purposes of restoring and expanding terrestrial and aquatic wildlife habitat.²⁵ Revenues generated help fund the Colorado Wildlife Habitat Program (CWHP), which supports habitat protection and expanded public recreational access on private lands through real estate acquisitions, such as conservation or public access easements, or fee-title land purchases. The 11-member, multi-interest Habitat Stamp Advisory Committee recommends project proposals submitted by willing private land owners that align with PWC's annual funding priorities. Big game habitat has been an ongoing priority since the program's inception, with a previous requirement to direct 60 percent of funds collected to winter range and movement routes. This requirement was modified when the program was reauthorized in 2013 to become more inclusive of other public access and wildlife habitat priorities, but retains an emphasis on conserving critical habitat and landscape connectivity for big game species.²⁶

²³ SB 18-143, Hunting, Fishing, and Parks for Future Generations Act, Colorado General Assembly, 2018 Reg. Sess.; SB21-249, Keep Colorado Wild Annual Pass Act.

²⁴ HB 98-1006, Conservation of Native Species Fund Act, Colorado General Assembly, 1998 Reg. Sess. (C.R.S. 24-33-111).

²⁵ HB 05-1266, Colorado Wildlife Habitat Stamp Act, Colorado General Assembly, 2005 Reg. Sess. (C.R.S. 33-4-102.7 et seq.)

²⁶ SB 13-175. "Wildlife Habitat Stamp Programs Continuation, Colorado General Assembly, 2013 Reg. Sess.

- **Great Outdoors Colorado** - Article XXVII (27) of the Colorado constitution, adopted by ballot measure in 1992, established Great Outdoors Colorado (GOCO) to administer proceeds from state-sponsored lotteries for the benefit of Colorado's outdoor heritage, including wildlife, parks, rivers, trails, and open space.²⁷ Forty percent (40%) of lottery proceeds are mandated to be invested in local open space and recreation through the Conservation Trust Fund, administered by the Department of Local Affairs (DOLA), and 10 percent is allocated directly to CPW to support state parks. GOCO administers the remaining 50 percent of lottery funds (up to a cap), with 25 percent of these funds allocated to CPW for state parks (Parks Quadrant) and 25 percent allocated to CPW for wildlife (Wildlife Quadrant). Funding from GOCO totals about 16 percent (~\$49 million in 2020) of the division's annual revenue, including 11 percent of the agency's wildlife expenditures.²⁸ Each year, the two organizations align their strategic plan objectives to facilitate programmatic evaluation and budgetary review.²⁹ ³⁰

In addition, GOCO participates in the Restoration and Stewardship of Outdoor Resources and Environment (RESTORE) Program. RESTORE is a collaborative funding partnership between GOCO, the National Fish & Wildlife Federation (NWF), the Gates Family Foundation, CDNR, CPW, and corporate partners. The program provides grants in support of five landscape conservation objectives, one of which is to advance the protection of game winter range and migration routes. The others - riparian areas and river corridors, grasslands,

sagebrush, and forest lands - often offer secondary benefits to big game habitat. Ten of the 20 projects funded in the program's inaugural 2020 and 2021 grant rounds targeted big game habitat restoration or connectivity.³¹

- **Habitat Partnership Program** - The Habitat Partnership Program (HPP) and Habitat Partnership Council were created by the Colorado General Assembly in 1990.³² Unlike other state programs, HPP is specifically geared toward engaging landowners in assisting in CPW's big game management and habitat connectivity objectives by directing funds to projects on private lands that reduce, remedy or mitigate the potential for wildlife-agriculture or livestock conflicts. The program receives 5 percent of the annual revenues generated from big game hunting licenses (roughly \$2.7 million per year), which are allocated to projects among 19 regional HPP committees across the state by the nine-member Habitat Partnership Council. Regional HPP committees provide project recommendations and advise on a range of strategies to address local big game habitat and population management concerns.

²⁷ Colorado Constitution, Art. 27, Great Outdoors Colorado Program.

²⁸ Per CPW FY 2019-20 Funding Sources summary, online: <https://cpw.state.co.us/aboutus/Pages/Funding.aspx>

²⁹ CPW Great Outdoors Colorado FY2021-22 Investment Proposal, online: <https://goco.org/about/our-finances>

³⁰ CPW Great Outdoors Colorado FY2021-22 Investment Proposal, online: <https://goco.org/about/our-finances>

³¹ National Fish and Wildlife Foundation, RESTORE Program fact sheet, online:

<https://www.nfwf.org/sites/default/files/2021-05/NFWF-restore-CO-fact-sheet.pdf>

³² HPP's initial, specific purpose of resolving fence and forage damage conflicts caused by big game was expanded to include other management activities in 2002. (C.R.S. 33-1-110 (8)(a) and (b), et. seq.)



The Local Policy Landscape

Title 29 of the Colorado Constitution, the Land Use Control Enabling Act, grants cities, towns, and counties broad authority to regulate most land use decisions within their jurisdictions, along with other matters.³³ Depending on their jurisdiction’s population, local planning boards and commissions are either incentivized or required to adopt comprehensive or master plans with the goals of providing overarching policy and regulatory frameworks that contribute to long-term community development objectives. Comprehensive plans are considered advisory unless codified through zoning regulations and codes.³⁴

Colorado Constitution, Title 29, Local Land Use Enabling Control Act, also grants local governments powers to affect controls, such as project permitting standards and mitigation requirements, over matters identified as “areas of state activity and interest.”³⁵ While these can include areas with particular natural or ecological significance, 1041 regulations have not been

comprehensively or consistently applied to affect wildlife habitat or landscape connectivity protections.³⁶ One constraint on local land use authority with implications for habitat fragmentation is the state’s so-called “35 acre rule,” adopted by statute in 1972 through SB72-035. Unique to Colorado, the law prohibits local governments from requiring landowners to subdivide private properties into parcels greater than 35 acres. Some jurisdictions have adopted work-arounds to the rule, for example, placing annual limitations on development rights, as opposed to parcel size, or by incentivizing larger acreage subdivisions.

Other counties and municipalities, such as Boulder and Larimer Counties, have also updated their comprehensive plans to include land use codes and associated zoning regulations for areas designated as wildlife habitat and migration corridors. Some of these plans have gone further to adopt incentive programs to encourage landscape connectivity and other wildlife-compatible practices within agricultural zones, as well as performance metrics tied to wildlife conservation strategic objectives. Other communities, including Grand and Chaffee Counties, have passed bond measures to establish community investment funds to allow local governments to implement a suite of tools, including conservation easements, transfers of development rights (TDRs), and habitat restoration projects, to shift development to desired areas or offset development impacts.³⁷ CPW and the Department of Local Affairs (DOLA) both provide assistance to local communities in implementing best practices with respect to zoning and land use.

³³ For an overview of authorities granted under Title 29, see C. Hance et al., Ch. 4: Planning, *Colorado Land Planning and Development Law* (9), ed. D. Elliott, American Planning Association, Bradford, Denver. (as excerpted by Land Use Training Alliance: <https://www.law.du.edu/documents/rmlui/workshops/LinkingLandUse-Water-GuidanceManual.pdf>)

³⁴ Master and comprehensive planning authorities are defined in (C.R.S. § 30-28-111 and § 31-23-301)

³⁵ HB74-1041, “Areas of State Interest Act,” Colorado General Assembly, 1974 Reg. Sess. (C.R.S § 24-65. 1-101)

³⁶ See B. Green and B. Seibert, “Local Governments and House Bill 1041: A Voice in the Wilderness,” *Colorado Lawyer* 2245 (Nov. 1990), 1-2; see also, A. Daken, “Capstone Project: Colorado Local Governments Use of 1041 Regulations,” Colorado Department of Local Affairs (2017) (especially Town of Silt case study, 34).

³⁷ Chaffee Common Ground Fund, online: <https://chaffeecommonground.org/>; Grand County Open Space, Rivers and Trails Fund, online: <https://www.co.grand.co.us/851/Open-Lands-Rivers-and-Trails-Advisory-Co>



The Federal Policy Landscape

The framework that governs federal wildlife management responsibilities is complex and ever-shifting. In general, though, the laws and policies that directly or indirectly shape federal wildlife efforts can be assigned to one or more of four categories:

1. **Federal land management** - Provide direction or guidance as to wildlife habitat management on federal lands, and set parameters for analysis and public participation in decision-making;
2. **Federal wildlife jurisdiction** - Establish federal jurisdiction over management of particular wildlife species or categories;
3. **Federal conservation funding** - Direct federal funding to states, Tribes and private landowners in support of wildlife management and habitat conservation priorities;³⁸ or
4. **Federal-State Cooperation** - Establish federal agencies' cooperative role in supporting state and Tribal wildlife management objectives.

³⁸ See, e.g., National Research Council, Committee on Agricultural Land Use and Wildlife Resources, *Land Use and Wildlife Resources*, Ch. 8: Legislation and Administration, Sec: Funding of Wildlife Administration, Washington, DC: National Academies Press (1970).

Rather than providing a comprehensive examination of the myriad intersections of state and federal wildlife governance, this section offers an overview organized by each of these categories to illustrate the ways in which Colorado and other states engage with federal partners in wildlife and habitat conservation.

1. *Federal Land Management*

Broadly, this category includes Congressionally-adopted statutes as well as administratively adopted rules that govern allowable activities within geographic areas under federal land designations, including those set aside for wildlife conservation purposes. These include those laws that define federal agencies' overarching land and resource management authorities and responsibilities, including the National Park Service's 1916 Organic Act, the Bureau of Land Management's (BLM) 1976 Federal Land Management Policy Act (FLPMA), and USFS National Forest Management Act (NFMA).³⁹ Supplementing these statutes are administrative rules and regulations that provide more specific instruction on how each agency should implement ground-level planning, permitting, and other decisions.⁴⁰

Federal agencies administer 36.2 percent (66.5 million acres) of Colorado's total land area,⁴¹ and federal forest, land use, and resource planning has significant, long-term implications for big game habitat functionality and connectivity. Federal agencies must comply with the National Environmental Policy Act (NEPA) and other laws which require a comprehensive analysis of the environmental effects of a range of alternative proposals,

³⁹ 1976 Federal Land Management Policy Act (FLPMA) (43 U.S.C. §§ 1701-1775) and National Forest Management Act (16 U.S.C. 1600 et seq.)

⁴⁰ Governing agency responsibilities regarding federal land management are more thoroughly described in: Congressional Research Service, *CRS Report R45340, Federal Land Designations: A Brief Guide*, 2018.

⁴¹ Congressional Research Service R45340, 2020, 7.

and provide opportunities for public input.⁴² In some cases, federal laws afford state, Tribal, and local governments additional opportunities, apart from the general public, to provide input on proposals. FLPMA, for instance, requires the BLM to allow for a Governor's Consistency review to the state BLM director prior to decision finalization.⁴³ CDNR, CPW, and other state agencies also regularly contribute technical expertise on project and plan proposals under cooperating agency agreements.⁴⁴

The state regularly requests to secure a formal, consultative role for CPW in project design and implementation to provide additional assurances for avoiding, minimizing, or mitigating future impacts to wildlife habitat, consistent with high priority habitat guidance and the State Wildlife Action Plan.⁴⁵ Additionally, CDNR and CPW actively encourage the uptake of measures to protect wildlife populations designated as threatened, endangered, or species of state concern. This includes the state's recently-adopted HPH land use guidance, such as recommendations to limit

development activities and infrastructure and road density within sensitive big game habitat and movement routes.

Finally, state wildlife management decisions are impacted by a variety of federal protective land designations. For example, the 2012 Colorado Roadless Rule (CRR) is one of two state-specific administrative rules that grew out of challenges to the USFS 2001 national Roadless Rule.⁴⁶ With some exceptions, the CRR prohibits new road construction and protects large landscape connectivity, habitat functionality, and other protected values within undeveloped lands inventoried as Colorado Roadless Areas (CRAs). Under the CRR, the USFS must consult with CDNR and CPW on decisions affecting CRAs. In addition, wilderness designations can impact wildlife management decisions by limiting mechanized travel and other activities that can occur on federal lands.

2. *Federal Wildlife Jurisdiction*

Beginning with the Lacey Act of 1900, which restricted inter-state transport of illegally acquired wildlife products under the U.S. Constitution's Commerce Clause, federal laws have sometimes had the contested effects of reserving state wildlife management authorities while shoring up federal interests in -- and powers to regulate -- non-game wildlife in certain circumstances. In addition to commerce, these include powers to: fulfill international treaty obligations with respect to "non-game" wildlife species, as first articulated by the 1918 Migratory Bird Treaty Act; impose actions required to recover wildlife species federally listed as threatened or endangered; and govern wildlife on federal lands.⁴⁷ With respect to the latter, federal agencies traditionally defer to states' authorities.

⁴² In addition to the National Environmental Policy Act (NEPA) of 1969, as amended (P.L. 91-190; 83 Stat 852, 42 U.S.C. §§ 4321 et seq) federal agency actions must comply with the Administrative Procedure Act of 1946 (5 U.S.C §§ 551 et seq.), the Environmental Quality Improvement Act of 1970, as amended (42 U.S.C. §§ 4371-4374) agency-specific statutes, such as FLPMA and NMFA, environmental laws, and others. See Cole, *CRS Report R44699: An Introduction to Judicial Review of Federal Agency Action*, Congressional Research Service, 9; also Environmental Law Institute, "National Environmental Policy Act: Back to the Future," 1995, 12, 33; and Congressional Research Service, *Public Participation in the Management of Forest Service and Bureau of Land Management lands: Overview and Recent Changes*, 2004, generally.

⁴³ 43 CFR § 1610.3-2.

⁴⁴ Cooperating agency roles and responsibilities are defined under NEPA (40 C.F.R. 1508.5)

⁴⁵ Colorado's 2015 State Wildlife Action Plan, addresses recovery strategies for species listed as threatened or endangered, or as state species of concern, in compliance with the state and federal funding requirements.

⁴⁶ USFS, 2012 Colorado Roadless Final Rule (36 CFR 294)

⁴⁷ D. Favre, "American Wildlife Law: An introduction," Animal Law Web Center, 2003; Migratory Bird Treaty Act of 1918 (16 U.S.C. §§703 - 712)

The 1973 Endangered Species Act (ESA) also affords the FWS considerable latitude to oversee federally-listed species recovery, including on state-managed land.⁴⁸ CPW and other CDNR divisions regularly weigh in on critical habitat designation, participate in recovery plan development, and undertake significant responsibility for enforcement and implementation under agreements authorized under Section 6 of the ESA, which authorizes financial assistance to states and Tribes. These activities can affect agency budgets and resources, as well as for the management of big game or other wildlife under the state's jurisdiction. Federally-listed terrestrial species in Colorado include lynx, black-footed ferret, Gunnison sage-grouse, Mexican spotted owl, among others.

3. Sources of Federal Conservation Funding

- **Wildlife and Sport Fish Restoration Program** - The 1937 Pittman-Robertson Act authorized the Wildlife and Sport Fish Restoration Program (WSFR), the first federal program to provide direct support for state wildlife conservation efforts through funds raised by an excise tax on the sale of firearms, and other hunting and angling equipment. So-called "PR funds" are deposited into the USFWS-administered Wildlife Restoration Account and apportioned among Tribes, and states, territories and other U.S. jurisdictions for wildlife agency operations.⁴⁹ The WSFR also manages a suite of related grant and incentive opportunities, including the annually- appropriated State Wildlife Grants Program (SWG), which assists in the implementation of State Wildlife Action Plans (SWAPs) through both dedicated and competitive grant mechanisms. primary source of federal

support for state wildlife operations.⁵⁰ The WSFR program has served as a model for other programs by setting wildlife planning standards and requiring a state co-investment of up to 25 percent. Colorado has received \$17 million in PR funds for fiscal year 2021 and \$15 million in 2020 toward research, habitat management, restoration and acquisition.⁵¹

- **2018 USDA Farm Bill Programs** - Several other important federal funding sources, such as USDA Farm Bill programs, underwrite voluntary conservation easements and other private landowner incentives. For instance, the Conservation Reserve Program administered by the Farm Services Agency (FSA) contracts with agricultural producers to retire environmentally-sensitive crop and pasture lands for periods of 10 - 15 years, while the Agricultural Conservation Easement Program (ACEP) under the Natural Resource Conservation Service helps to preserve agriculturally productive lands that contribute conservation benefits.⁵² While these and similar private land conservation programs don't direct funds to the state, they are nevertheless important wildlife habitat conservation efforts in Colorado, where nearly 56 percent of the land is privately owned.⁵³ (See Appendix A: Land Ownership in Colorado)
- **Land and Water Conservation Fund** - The Land and Water Conservation Fund (LWCF), created by Congress in 1965, also includes a suite of funding mechanisms for federal, state and private

⁴⁸ Endangered Species Act of 1973 (16 U.S.C. §§ 1531-1544 et seq.)

⁴⁹ (16 U.S.C. §§669 et seq.) Funding overview in U.S. Fish and Wildlife Service (USFWS), WSFR Program brochure, 2018, online: <https://www.fws.gov/wsfrprograms/subpages/AboutUs/WSFRProgramBrochure2018.pdf>

⁵⁰ USFWS State Wildlife Grant Program apportionments, online:

<https://www.fws.gov/wsfrprograms/Subpages/GrantPrograms/SWG/SWG.htm>

⁵¹ USFWS Wildlife Restoration apportionments, online:

https://www.fws.gov/wsfrprograms/subpages/grantprograms/wr/wr_funding.htm

⁵² Conservation Reserve Program (CRP) (7 CFR 1410); Agricultural Conservation Easement Program (ACEP) (7 CFR 1468.)

⁵³ CNHP and Geospatial Centroid, Colorado State University, COMaP (202), online: <https://comap.cnhp.colostate.edu/>

land conservation.⁵⁴ In addition to targeted federal land acquisitions, LWCF provides grants to states for recreational and cooperative endangered species conservation acquisitions, and to private landowners through the states-administered Forest Legacy Program. Initially created by the 1964 Land and Water Conservation Act, LWCF was historically financed through a mix of revenue sources and annually appropriated. In 2020, Congress enacted the Great American Outdoors Act, creating permanent funding for LWCF (\$900 million annually) and a companion program, the National Parks and Public Land Legacy Restoration Fund, or “Legacy Fund,” (\$1.9 billion through 2025) to address deferred infrastructure and maintenance priorities.⁵⁵

- **Administrative Initiatives** - Initiatives that are designed to address the near-term priorities of particular federal administrations often make resources for state habitat conservation efforts available through discretionary departmental spending, such as the program created under SO 3362. The “Conserving and Restoring America the Beautiful” (“America the Beautiful”) campaign recently launched by USDO, USDA and other agencies under the direction of President Biden is similarly expected to be implemented in cooperation with states, Tribes and other partners.⁵⁶ The campaign is based on the 30x30 initiative, which refers to a global goal to protect 30 percent of the earth’s lands and waters by the year 2030, on a path toward achieving 50 percent protection by 2050.⁵⁷ The proposal, also known as the “Global Plan to Conserve Nature,” was initially focused on

stemming biodiversity loss, but has since grown to encompass other conservation objectives, such as reversing climate change, and promoting landscape connectivity and habitat functionality. The U.S. recently joined a coalition of fifty nations and more than four hundred Tribal, local, provincial and state governments -- including several cities and counties in Colorado -- that have adopted 30x30 resolutions.⁵⁸

- **Congressional Earmarks** - Congress also occasionally specifies expenditures for one-off habitat restoration or wildlife infrastructure projects or related programs as line items in omnibus spending bills. Support for a national wildlife safe passage pilot program was included in the 2022 bipartisan infrastructure bill passed by the U.S. Senate and under consideration in the House as of the publication of this report.

4. **Federal-State Cooperation**

Federal cooperation in state and Tribal wildlife management is governed by a collection of laws and policies. The 1956 Fish and Wildlife Act, building upon its predecessor, the 1934 Fish and Wildlife Coordination Act, created the FWS and formalized a federal wildlife program, opening the door to more meaningful wildlife management collaboration on federal lands.⁵⁹ NEPA, FLPMA, NFMA, and related implementation rules provide the principle framework for state consultation on environmentally significant decisions, whereas intergovernmental cooperative agreements often define shared priorities, and establish procedures to guide day-to-day federal-state wildlife and land management coordination.

⁵⁴ Land and Wildlife Conservation Fund Act of 1965 (54 U.S.C. §§200301 et seq.); Congressional Research Service (CRS), *Land and Water Conservation Fund: Process for Allocating Funds* (Oct., 2020).

⁵⁵ Great American Outdoors Act (P.L. 116-152), 2020.

⁵⁶ U.S. Presidential Executive Order 14008, “Tackling the Climate Crisis at Home and Abroad,” Jan 27, 2021; U.S. DOI et al., “Report: Conserving and Restoring America the Beautiful,” 2021.

⁵⁷ Campaign for Nature, online: <https://www.campaignfornature.org/>

⁵⁸ *The Guardian*, “More than 50 countries commit to protecting 30% of Earth’s lands and oceans by 2030,” Jan 11, 2021.

⁵⁹ Federal Aid in Wildlife Restoration Act of 1937 (16 U.S.C. 669-669i; 50 Stat. 917)



Opportunities for Policy Solutions

Big game habitat and movement route connectivity protection are not new priorities in Colorado, but the Big Game EO highlighted their importance and laid the groundwork for action by state agencies and lawmakers. The recommendations in this section predominantly reflect opportunities for policy change with the potential to be carried out directly by the State of Colorado, and to a lesser extent, opportunities for action by other stakeholders and land managers that could benefit from State leadership. They include adjustments to administrative policies implementable by agency directors; regulatory shifts implementable by boards, commissions, or other governing bodies; administrative actions implementable by the Governor; and legislative solutions for consideration by the Colorado General Assembly. A variety of proposals are provided, some of

which can be readily achieved, and others that either warrant further exploration, are not immediately actionable by the State, or may have a higher barrier to implementation.

A fixed scoring rubric was inappropriate for the purpose of this policy analysis, so a range of considerations were examined in selecting the final recommendations for this report. These include: consistency with current legal and policy framework; benefits to wildlife, wildlife habitat or habitat connectivity; existing capacity to implement; complexity of implementation; cost and budget implications; balancing competing legislative and policy priorities; and the likelihood of stakeholder buy-in.

With some modifications, recommendations are organized to align with the categories identified in CPW's 2020 Big Game Winter Range and Migration Corridors Report:

- 1. Habitat Alterations and Loss**
- 2. Land Use, Residential Growth and Development**
(Modified from "Residential Growth and Development" in 2020 Status Report)
- 3. Outdoor Recreation**
- 4. Transportation and Infrastructure**

5. **Energy Development (Modified from “Mining and Energy Development” in 2020 Status Report)**
6. **Private Land Conservation (Modified from “Agriculture” in 2020 Status Report)**
7. **Research Needs and Data Gaps**
8. **External Coordination and Public Outreach (New category, not included in 2020 Status Report)**

Finally, it is important to note that many of the recommendations below would have implications for state agency staff and capacity. For example, improved inter-agency and external coordination; increased participation in local, statewide and federal planning processes; research and data gathering; and large-scale conservation and restoration project implementation would all place additional demands on staff and, in some cases, require investments in technology and infrastructure. To the extent that Colorado wishes to create an even more visionary program to achieve long-term gains for big game species and habitat, it will be important to identify resources to support the proposals in this report.⁶⁰

⁶⁰ State departments and agencies should implement any directives, or changes in policy or programmatic priority resulting from this report within existing budgets and authorities to the extent feasible. If necessary, agencies and departments will engage with the Governor's Office of State Planning and Budgeting in the annual budget development process to identify resource requirements for any actions targeted for implementation in future fiscal years.



1. Habitat Alterations and Loss

A. Develop a statewide habitat conservation and connectivity plan

CPW should formalize a statewide habitat conservation and connectivity plan to identify priority landscapes that support big game and other key wildlife species. This undertaking would bring together CPW's existing wildlife plans, such as the 2020-2021 Colorado “Big Game Action Plan” responding to Interior Secretarial Order 3362,⁶¹ Statewide Wildlife Action Plan (SWAP), and West Slope Mule Deer Strategy,⁶² to derive streamlined recommendations to inform future planning, research, programs, acquisitions, easements, and resource allocation. Such an undertaking would require careful consideration of outstanding questions that have presented barriers in the past, including some resolution to the matter of ensuring that unique movement patterns of Colorado's big game and other wildlife, changing climate and habitat conditions, and new data and analysis can be accommodated in efforts to map migration routes and seasonal habitat.⁶³

⁶¹ CPW, “Colorado Action Plan for the Implementation of SO 3362, Improving Habitat Quality in Western Big-Game Winter Range and Migration Corridors,” revised September, 2020.

⁶² CPW, Colorado West Slope Mule Deer Strategy, 2014.

⁶³ See, e.g., Center for Large Landscape Conservation, *Wildlife Connectivity: Opportunities for State Legislation*, 2019.

B. Direct new funding toward strategic land conservation priorities

Additional sources of conservation funding are needed to expand protections within big game movement corridors, winter range, and other sensitive habitat in Colorado to address impairments caused by accelerating residential development, industrial activities and recreation. With support from CDNR, CPW should continue to advance its future funding initiative by working with the legislature to secure new resources for conserving key landscapes and protecting wildlife corridors as pressures escalate.

At the state level, the 2021 Colorado legislative session has illustrated both the potential for conservation and wildlife funding initiatives to succeed, and opportunities for directing newly-generated funding toward projects that benefit big game habitat. For example, HB21-249 created the Keep Colorado Wild Pass, a new vehicle-displayed public access and conservation pass that will be made available when Colorado residents register light trucks, motorcycles and passenger and recreational vehicles starting in 2023.⁶⁴ This new pass will provide access to Colorado's 42 state parks and recreation areas, and potentially certain federal lands, with existing and future access fees. In addition to funding recreational lands, a portion of revenues generated through the pass in excess of funding needs for existing state parks will be used to open and conserve new state parks, and support projects that advance the State Wildlife Action Plan (SWAP). CPW and conservation stakeholders must work together as the Keep Colorado Wild Pass is implemented to generate participation and ensure that significant funding flows toward SWAP implementation.

The General Assembly also passed a trio of other bills in 2021 that could benefit efforts to conserve big game habitat. In addition to creating the Outdoor Equity Grant Program, HB21-1318 directs a portion of future spillover lottery revenue to be split between the wildlife cash fund

⁶⁴ SB21-249, Keep Colorado Wild Pass Act

and parks and recreation cash fund. HB21-1326 also provides \$3.5 million in one-time General Fund support to implement the SWAP and conserve native species. Finally, HB21-1233 allows landowners to receive up to 90% of the donated value of their conservation easement, providing a greater incentive for private land conservation.⁶⁵

In terms of new federal funding opportunities, CDNR and CPW should also lay groundwork through interagency and external coordination to ensure that Colorado's conservation goal-setting and planning efforts meet requirements -- and position the state to take advantage of -- federal programs, including resources that may become available through the Biden Administration's "America the Beautiful" initiative, which sets targets for conserving nation's lands and waters.⁶⁶ (*See Appendix C*)

C. Coordinate existing conservation funding

In addition to developing new funding sources and implementing bills passed during the 2021 legislative session, CDNR, in coordination with CPW, should annually convene partners and cooperators, such as government agencies, land trusts, and private landowners to identify and review priority movement routes and key landscapes to target for protection. While competition between individual organizations, regions, and projects for these resources will continue, CPW's ability to lead Colorado's land conservation efforts could be expanded to provide improved guidance and assistance regarding programs available across CDNR divisions, Colorado Department of Agriculture (CDA), Colorado State Forest Service (CSFS), Great Outdoors Colorado (GOCO), and/or other agencies. With improved coordination,

⁶⁵ HB21-1318 Outdoor Equity Fund; HB21-1326 General Fund Transfer Support Department of Natural Resources Programs; HB21-1233 Conservation Easement Tax Credit Modifications, Colorado General Assembly, 2019 Reg. Sess.

⁶⁶ Presidential Executive Order 14008, "Tackling the Climate Crisis at Home and Abroad," Jan 27, 2021; U.S. DOI et al., "Report: Conserving and Restoring America the Beautiful," 2021.

collective investments and acquisitions could be better steered toward the targeted completion of large, landscape-scale conservation projects, along with smaller-scale opportunities that protect key properties.

Improved and ongoing coordination would ensure that the significant funds available through various state, federal, and private sources are allocated each year in more strategic alignment with big game habitat and connectivity priorities. In addition to new, sustainable funding available through the Keep Colorado Wild Pass and HB21-1318 lottery spillover, this includes funding available through the Conservation Easement Tax credit; Habitat Stamp funds; local government support through the Conservation Trust Fund; GOCO conservation programs (including the new Centennial Program); federally administered programs, such as LWCF and 2018 Farm Bill programs; private contributions and foundation grants; and corporate partnerships. The USFS Forest Legacy program alone, for example, presents an opportunity to direct nearly \$20 million annually toward high-value private forest conservation initiatives with co-benefits for public access, wildlife connectivity, and habitat priorities. Additionally, state and federal post-pandemic economic stimulus funds, such as the funds made available to implement the SWAP and invest in native species through HB21-1326, could be leveraged to support near-term restoration and conservation investments. (*See Appendix C: Examples of Federal, State and Collaborative Conservation Funding Programs.*)

With a more comprehensive grasp of the funding landscape, CDNR and CPW could provide more targeted planning and technical assistance to prospective applicants, and help match priority projects with relevant state, federal, and private funding programs. Currently, CPW's Habitat Coordinators, partner private lands biologists, and the Private Lands Program Manager work with the National Resources Conservation Service (NRCS), Farm Services Administration (FSA), agricultural producer groups, and the Western Association

of Fish and Wildlife Agencies and American Association of Fish and Wildlife Agencies (WAFWA, AFWA, respectively), to establish priorities for 2018 Farm Bill programs. To the extent possible, CDNR and CPW should build upon this model to accelerate and scale conservation priorities across other funding mechanisms.

D. Invest in large-scale habitat conservation and restoration projects

In addition to underwriting new land and easement acquisitions and protections, state agencies and partners must continue to invest in stewardship on already-conserved lands that benefit big game movement routes and sensitive habitat. While new funding sources and staffing should be developed to support this function in CPW and other state agencies, government entities and private conservation partners can also leverage existing resources by pooling investments in large-scale stewardship projects that benefit high-priority landscapes. These efforts should be guided by CPW's Statewide Habitat Conservation and Connectivity Plan, described above.

Existing examples illustrate the promise of pooled funding models in achieving efficiencies and maximizing conservation outcomes. For instance, the RESTORE Colorado program is a collaboration among state agencies and external conservation partners to promote wildlife habitat restoration, expansion, and improvement at-scale, and provide opportunities to proactively manage Colorado's public and private conservation lands for the greatest benefit to wildlife and local communities.⁶⁷ The program streamlines grant proposal and application processes, and provides a mechanism for funders to work together to invest in more impactful projects than would be achievable by individual funding programs. RESTORE's 2020 pilot funding round priorities included a focus on big game winter range and migration routes,

⁶⁷ See RESTORE Colorado, National Fish and Wildlife Foundation, <https://www.nfwf.org/programs/rocky-mountain-rangelands/restore-colorado-program>

along with co-beneficial habitat. In another example, the Rocky Mountain Restoration Initiative (RMRI) brings federal, private, and state funding to bear on landscape-scale forest health restoration projects, which provide co-benefits for big game habitat.⁶⁸

DNR and CPW should also work to ensure that wildlife habitat considerations are taken into account in new forest health and watershed restoration initiatives. New state and federal resources for forest health and watershed restoration have been made available in response to the recent catastrophic wildfires in Colorado, and additional resources are likely to be allocated for these purposes in the months and years ahead. These types of projects -- especially when funded by government resources -- should be planned in consultation with CPW, and guided by the Statewide Habitat Conservation and Connectivity Plan, to maximize benefits for big game habitat connectivity and functionality, or at a minimum, to minimize harm. Participation in these types of large-scale initiatives demands significant investments in land use and biology staff time, as well as research and expertise, and capacity constraints have often precluded CPW's consistent involvement in such efforts. As a result, CPW should prioritize this function going forward by expanding capacity to contribute to landscape-level project planning.

E. Promote state cooperation and interests in federal land use decisions, policies and programs

Colorado's experience in developing wildlife-compatible land use recommendations can be leveraged to help operationalize conservation policies on public lands. While several recently-enacted regulations have curtailed opportunities for state agencies to weigh in on federal decisions affecting wildlife populations and habitat, CDNR and CPW should continue to work proactively to secure meaningful cooperative and/or consultative roles for the state in land use decisions, such as entering into

cooperative agreements for federal rulemaking and planning processes.

In addition, the state should continue to work with Colorado's Congressional delegation, AFWA, and other entities to advance Colorado's wildlife management and conservation priorities in federal legislation. For instance, one legislative proposal currently under consideration in Congress, the Recovering America's Wildlife Act of 2021 (H.R. 2773) would direct more than \$1 billion to states, tribes, and U.S. territories to catalyze collaborative efforts to implement strategies in State Wildlife Action Plans. In general, the State should help champion legislation that serves to:

- Produce permanent protections for lands that contribute to wildlife habitat conservation or landscape connectivity priorities;
- Affirm a meaningful role for the state in steering funds toward priority conservation projects, easements, or federal land acquisitions;
- Promote cross-fertilization, information sharing, and coordination on wildlife issues of interjurisdictional concern; and
- Provide direct support for state habitat wildlife research and management programs, as well as habitat restoration, mitigation, and landscape connectivity projects.

Finally, the State should fully engage in the formulation of federal programs that relate to the conservation of big game habitat. For example, Governor Polis provided recommendations to the Secretary of the Interior to inform preliminary recommendations for the federal "America the Beautiful" initiative, noting the importance of private land conservation to statewide conservation priorities, as private lands make up nearly 60 percent of Colorado and contribute significantly to habitat conservation and landscape connectivity. CPW, along with CDA, can further engage in "America the Beautiful" by elucidating how private lands factor into the state's

⁶⁸ See Rocky Mountain Restoration Initiative (RMRI), <https://restoringtherockies.org/>

wildlife conservation and agricultural priorities, and by expanding upon existing efforts to communicate land conservation priorities to private partners eager to contribute. While awaiting additional guidance from the federal administration on the implementation of the Initiative, CDNR should also continue to spearhead discussions with external partners and other Colorado state agencies to explore how the initiative can add to the state’s existing conservation objectives and programs mandated by the legislature and Governor.

F. Implement local SO 3362 conservation plans

A fundamental tenet of SO 3362 is that activities and priorities are to be led by states. In order to take advantage of funds made available under SO 3362, western states, including Colorado, were required to create action plans identifying priority landscapes to be the focus of future research and conservation activities. CPW’s 2020-21 State “Big Game” Action Plan selected five such emphasis areas, based on their importance to big game herds in Colorado, understanding of big game movement patterns, and the amount of federal public land in the landscape. The next step in implementation is to encourage local planning to incorporate project delivery in priority landscapes. CPW should provide leadership for local planning efforts with conservation partners to ramp-up the execution of projects associated with SO 3362. Additional research is also needed to refine habitat priorities to target for conservation and restoration, as well as important highway segments with potential to improve permeability.

Finally, a lack of dedicated funding inhibits the continued implementation of the state’s Big Game Action Plan as well as the SO 3362 program’s continued success. The State should continue to participate in efforts to secure permanent and expanded support for the SO 3362 program within DOI, create a complementary initiative within USDA, and increase Tribal participation to build upon the important accomplishments in coordination, research, and restoration to-date.



2. Land Use, Residential Growth and Development

A. Improve inter-jurisdictional disturbance mapping and data-sharing

A lack of coordination and data-sharing across jurisdictions currently prevents federal, state, tribal, and local wildlife managers and land use planners from effectively tracking habitat disturbance at scale. Activities and infrastructure on private lands, for instance, contribute to overall disturbance, but are often not reflected in assessments. State, federal, Tribal and local agencies, and their academic and private sector partners, would collectively benefit from the adoption of a uniform system that could provide shared data, with appropriate protocols for protecting private property and interests, for tracking land cover habitat disturbance across jurisdictions and planning units. Such a system would result in better information about disturbance thresholds within particular zones or management areas, and allow for the steering of development into less sensitive habitat. Shared data could also be utilized in designing approaches for mitigating the impact of specific projects or activities on wildlife habitat. For example, this data would be useful to COGCC as it begins to track the cumulative impacts of new oil and gas developments under the requirements of SB19-181.

Emerging tools currently being employed to model disturbance within greater sage-grouse (GrSG) habitat to inform oil and gas leasing and mitigation decisions could also be appropriate for tracking habitat disturbance on a

broader scale. The Colorado Conservation Data Explorer (CODEX), under development by the Colorado Natural Heritage Program and NatureServe, in coordination with CPW and others, will expand access to a wide range of pertinent information and is expected to include features that could significantly streamline shared surface disturbance analysis within the state.⁶⁹ An example currently in use by federal agencies is the Surface Disturbance Analysis and Reclamation Tracking Tool (SDARTT), created in partnership between the BLM and United States Geological Survey (USGS).⁷⁰ BLM's 2015 Greater Sage Grouse (GrSG) Approved Resource Management Plan Amendment contains thresholds for habitat disturbance and development densities within individual GrSG management zones, which are tracked using this geospatial database.⁷¹ Colorado may consider a partnership with these federal agencies to expand the use of SDARTT within WAFWA's Crucial Habitat Assessment Tool could also be leveraged to contribute to comprehensive disturbance tracking.⁷²

B. Expand cooperation with local governments to direct development away from priority habitat

State laws and policies establish broad requirements and incentives for -- and impose some restrictions upon -- county and municipal comprehensive plans, but otherwise, state government has limited influence over local land use decisions. Local governments, with authorities over zoning and other land-use determinations, have a wide array of tools at their disposal for steering development away from big game movement routes and sensitive habitat. However, local zoning regulations are

often geared toward reducing barriers to private property development in rural areas, which benefits landowners looking to subdivide large properties into smaller land units, and decision-makers face considerable economic and political pressures to approve new developments in their communities.⁷³ The resulting "parcelization" can contribute to big game habitat fragmentation, particularly in low-lying winter range that is especially desirable for residential development.⁷⁴ And while conservation easement and other voluntary programs have been effective at incentivizing development into larger parcels, or steering development away from sensitive habitat, these approaches are not applied consistently.

Recognizing that state agencies are not currently resourced to scale existing efforts, there are interim actions that CDNR and CPW, in partnership with CDOT, the Division of Conservation within the Colorado Department of Regulatory Affairs, and DOLA can undertake to begin to address this fundamental issue. As a first step, state agencies should work in partnership with Colorado's county associations to convene a working group comprised of local governments, wildlife managers, developers, and conservation organizations with aims to:

- Develop recommendations for incentivizing and improving the uptake of big game habitat and corridor protections in local planning initiatives and land-use ordinances;

⁶⁹ Colorado Natural Heritage Program, Colorado State University CODEX page, online: <https://cnhp.colostate.edu/maps/codex/>

⁷⁰ U.S. Geological Survey, Surface Disturbance and Reclamation Tracking Tool: <https://on.doi.gov/397Yvo>

⁷¹ U.S. Bureau of Land Management, 2015 Northwest Colorado Greater Sage Grouse Resource Management Plan, Appendix E: Methodology for Calculating Disturbance Cap

⁷² Western Association of Fish and Wildlife Agencies (WAFWA), Crucial Habitat Assessment Tool: <https://www.wafwachat.org/>

⁷³ A discussion of market-driven incentives in local zoning decisions provided in: W.A. Fischel, "Zoning Rules!: The Economics of Land Use Regulation," Lincoln Institute for Land Policy, Cambridge, 2015, Ch. 4. See also Schuetz, J., Governance and Opportunity in Metropolitan America, "Is Zoning a Useful Tool or Regulatory Barrier?," Brookings Institution online, 2019: <https://www.brookings.edu/research/is-zoning-a-useful-tool-or-a-regulatory-barrier/>

⁷⁴ The impacts of high density zoning patterns on ecological systems are discussed in: S. Brody, "The Characteristics, Causes, and Consequences of Sprawling Development Patterns in the United States," *Nature: Education and Knowledge*, 4(5): Ch. 2, 2013. See also J. Berger, "The Last Mile: How to Sustain Long Distance Migration in Mammals," *Conservation Biology* (18:2) (2004), 320-331.

- Examine applications of 1041 regulations, which vest some habitat protection authorities in local governments;⁷⁵
- Review existing state and local policy frameworks to identify possible impediments to implementing best practices around big game movement route and sensitive habitat conservation; and
- Explore opportunities to leverage related state resources for natural resource management and planning, such as CSFS' recently-revised Forest Restoration and Wildland Risk Mitigation program, which is similarly exploring approaches for improving wildland-urban interface (WUI) planning in local communities.⁷⁶

State agencies are already working with several local governments across Colorado to shape innovative zoning ordinances and incentive programs to encourage development outside of big game habitat. In one recent example, CPW worked with Aspen Valley Land Trust on a five-year strategic plan to protect habitat, open space and agricultural land.⁷⁷ Some communities have also passed ballot measures to direct tax dollars or visitor fees toward habitat conservation and mitigation, recreation lands, watersheds and other related needs, such as Grand County's Open Lands, Rivers and Trails Fund, the City of Steamboat's Wildlife Habitat Mitigation (WHILD) Local District Fund, and Chaffee County Common Ground Fund.⁷⁸ Finally, through the CWTA, CPW and CDOT are developing a template agreement with counties that would recognize the need to maintain open space adjacent to planned wildlife crossing structures to protect investments in these structures.

⁷⁵ Daken, 2017.

⁷⁶ Colorado State Forest Service (CSFS), Forest Restoration and Wildfire Risk Mitigation Program:
<https://csfs.colostate.edu/funding-assistance/2020>

⁷⁷ Aspen Valley Land Trust 2020-2024 Strategic Plan, online:
<https://www.avlt.org/strategic-plan.html>

⁷⁸ Grand County Open Lands, Rivers and Trails Fund

C. Promote uptake of wildlife land use policy

CPW recently formalized its HPH land use guidelines as agency policy through an administrative directive, and this policy was also incorporated into COGCC's recently-revised 1200 series wildlife regulations.⁷⁹ Other CDNR agencies, such as the State Land Board, should adopt these recommendations and incorporate them in future planning and project design decisions. CPW, with support from CDNR, should also encourage other federal, state, and private land managers to take these recommendations into consideration in future land use decisions, and draw on enforceable mechanisms, where available, to drive consistency with state policy.



3. Outdoor Recreation

A. Engage in regional and statewide planning to balance conservation and recreation

Since FY 2015-16, visitation at Colorado's state parks has increased by approximately 25 percent, from about 13.6 million visitor days to more than 17.1 million visitor days. In FY 2019-20, 2.3 million more people visited state parks than in the prior year, a 15.7 percent increase from FY 2018-19. On top of the broader trend of increased visitation, state parks have been experiencing a recent and significant increase in visitation resulting from the COVID-19 pandemic. Visitation in calendar year 2020 exceeded 2019 visitation by approximately 30 percent as a

⁷⁹ COGCC 2021; CPW 2021 OG-1

result of increased participation in outdoor recreation. CPW is also experiencing increased use of its wildlife areas and increased interest in hunting and angling, and similar increases in recreational activity are also being observed on public lands managed by local and federal governments.

There is a need to foster greater coordination among recreation and conservation planning efforts to ensure the protection of sensitive big game habitat and movement routes in the face of this dramatic increase in recreational pressure. To address this issue, Governor Polis recently signed the Regional Partnerships EO creating the Colorado Outdoor Regional Partnerships initiative. The goal of the initiative is to build community ownership of conservation and outdoor recreation planning efforts that support conservation of Colorado's lands, water, and wildlife, while providing for appropriate and sustainable outdoor recreation opportunities. Through this initiative, CPW has invited existing and new regional coalitions to identify and prioritize local conservation and recreation projects guided by a statewide vision that will stress the importance of protecting big game movement routes and sensitive habitat.

In addition to local and regional planning, the Regional Partnerships EO tasked state agencies with developing a statewide vision and plan for the future of landscape-scale conservation and outdoor recreation. Wildlife migration and movement routes, by definition, span regional and even state boundaries. A statewide conservation and recreation plan is necessary to strengthen and link regional conservation and recreation plans and strategies, and identify objectives and metrics to track collective success. To that end, the Regional Partnerships EO requires that CDNR, CPW, and the CO-OP collaborate with regional partnerships to incorporate local priorities and strategies into the Statewide Comprehensive Outdoor Recreation Plan by December 1, 2023, and continue to refine and develop those strategies into a statewide conservation and recreation plan. CPW should work to ensure that each

regional plan and the statewide plan take into account the need to conserve identified wildlife routes and other priority habitats. One way to accomplish this could be by developing a statewide Habitat Conservation and Connectivity Plan, discussed above, in tandem with a statewide conservation and recreation plan.

B. Plan trails with wildlife in mind

In September 1998, Colorado State Parks published "Planning Trails with Wildlife in Mind: A Handbook for Trail Planners" to outline how trails can best be planned and managed to accommodate conservation objectives and recognize what trail developers can do to minimize impacts on wildlife. Since that time, trail use in Colorado has skyrocketed, and there is increasing demand for new routes to accommodate traditional activities such as hiking and mountain climbing and newer activities such as mountain biking and e-biking. In response, CPW updated and expedited the release of a new Planning Trails with Wildlife in Mind Handbook, in partnership with federal and local government partners, stewardship organizations, conservation organizations, and trail advocates. Among other recommendations, the handbook adopts CPW's HPH land use recommendations for recreational facility siting and trail/route density.

This new resource will contribute to avoiding and minimizing wildlife impacts from existing and proposed trails, and identify when mitigating impacts from new trail construction is necessary to maintain habitat function and facilitate wildlife movement. Key considerations include avoidance of high density trail networks within movement routes and sensitive habitat, maintaining low route densities in high priority habitats (i.e. on average, one mile of route per square mile), and species-specific best management practices for trail planners. CDNR, CPW, and CDOT should invest in outreach and education to promote adoption of these recommendations in federal travel management plans and local recreation plans. In

addition, adoption of these recommendations should be required for all Regional Partnerships.

C. Emphasize the Value of Hunting for Wildlife Management

It is difficult to overemphasize the key role that hunting plays in wildlife conservation in Colorado. For over 125 years, Colorado has used hunting as the primary method to manage sustainable and healthy wildlife populations and to generate (through license fees) the bulk of funding supporting conservation actions for both hunted and non-hunted species. Funds generated by big game hunting license sales are used in the conservation of Colorado's wildlife in numerous ways, which includes habitat improvement and conservation projects that benefit a diversity of species.

Hunting and angling, and other wildlife-related recreation, contribute over \$5 billion annually to Colorado's economy, and the demand for this recreation resource is increasing. In 2021, CPW received 35,703 additional applications for big game licenses (as compared to 2020), an increase of over 5 percent. As a result, a greater number of prospective hunters did not obtain big game licenses during CPW's 2021 primary draw. CPW and CDNR should strive to maximize big game population abundance to the extent consistent with habitat and other resource objectives.

CDNR, CPW, and the SLB should explore further development of voluntary, incentive-based programs that provide hunting opportunities to the public on state and private lands, consistent with state public access goals. For instance, Ranching for Wildlife is an important program that forms a partnership between CPW and private landowners to obtain public access to large private land holdings in Colorado, and has the co-benefit of contributing to habitat protection objectives. The value is associated with not only public access, but these

agreements play a key role in the achievement of population objectives for a number of deer and elk populations in Colorado. Given the importance of hunting in the management of big game, access for our hunting public is important to achieve our management objectives. Where consistent with big game population management objectives, CPW should work to facilitate access to private or public lands currently not available to hunting.



4. Transportation Infrastructure

A. Secure new state funding for safe passage infrastructure on Colorado highways

The benefits of wildlife highway crossing structures in terms of human lives saved and wildlife protected have been well documented by the CWTA and others. CDOT notes that an annual average of 3,300 wildlife-vehicle collisions (WVCs) have been reported in Colorado over the past decade, with an estimated \$66.4 million annually in property damage and human injury cost, while many more collisions likely go undocumented.⁸⁰ One example of a successful highway mitigation project to reduce WVCs and provide continued habitat connectivity in Colorado is State Highway 9 (SH 9), south of Kremmling. Between 1996 and 2016, nearly 600 vehicle accidents related to

⁸⁰ CDOT Wildlife Program, Annual Roadkill Reports, <https://www.codot.gov/programs/environmental/wildlife/data>

wildlife occurred on SH 9, with an average of 56 wildlife collisions a year. WVCs have decreased annually by 90 percent since the construction of five wildlife underpasses and two overpasses, connected by 10.5 miles of fencing.⁸¹

However, wildlife crossing projects can be costly, running from \$1 million for basic underpasses and fencing to tens of millions for comprehensive systems, and neither CDOT nor CPW have dedicated funding sources to support these projects. To address this challenge, CPW and CDOT recently completed the West Slope Wildlife Prioritization (WSWPS) study, a rigorous research project to prioritize big game herds and highway segments across western Colorado in most need of mitigation to reduce wildlife vehicle conflicts. The WSWPS also provides mitigation recommendations for the top priority areas within a decision support framework which includes a cost-benefit analysis and guidance for integrating mitigation into CDOT Transportation planning and project development. CDOT is scheduled to complete a complementary study for the East Slope and High Plains in 2021, which will provide similar guidance for the eastern part of the state.

As part of its recently adopted 10-year plan, CDOT has identified between \$1.5 billion and \$2.7 billion of capital and asset management projects, and over 100 projects of all sizes that are prioritized for construction and will be constructed as funding becomes available. These include 25 migration corridor enhancement projects to help wildlife, particularly deer and elk populations, thrive while reducing collisions with vehicles and helping keep the traveling public safe. Projects currently in design, under construction, or recently completed to reduce WCVs include portions of SH 13, I-25, I-70, US 160, US 50, US 550 and US 285. Although construction of new wildlife

crossings are needed in many areas to maintain or enhance wildlife connectivity, improvements to existing bridges and culverts in need of repair improve infrastructure integrity while increasing driver safety and wildlife connectivity.

While progress has been made, the General Assembly should prioritize new funding for transportation projects identified by CPW and CDOT that provide a clear benefit to wildlife populations and human health. For example, Wyoming is accessing funding from the Wyoming Wildlife and Natural Resource Trust, the newly-created WYldlife Fund, and Game and Fish Commission funds to help construct wildlife crossing structures throughout the state. The General Assembly could follow suit by creating a dedicated fund to support the construction of wildlife crossings in Colorado.

New funds could also be used to acquire conservation easements on properties adjacent to crossing structures, promote the development and use of new technology and design options, and finance continued research to determine project efficacy and connectivity value. For example, the CDOT Research Branch made "Mitigating Wildlife Vehicle Collisions and Improving Safe Wildlife Passage" a research emphasis area in 2021; providing funding for a novel research project to determine via existing published literature and unpublished reports if there is a point of diminishing returns in effectiveness when it comes to sizing highway wildlife passages. This will assist in optimizing the sizing of passages leading to the most cost effective implementation while addressing concerns outlined in the Big Game EO, and also serve as a reference for crossing structure dimensions, allowing for a more informed project planning and design process.

⁸¹ Average WVC 87% reduction, depending on design features, per M.P. Huijser et al., "Wildlife-Vehicle Reduction Study: Report to Congress," FHWA-HRT-08-034, U.S. Department of Transportation, Federal Highway Administration, pp. 12, 186.

B. Advocate for additional federal transportation funding for wildlife safe passage infrastructure

The State should work with Colorado's congressional delegation and the federal administration to advocate for federal funding to support state wildlife safe passage and related transportation projects, as well as investments in mechanisms to improve inter-state and federal coordination and information sharing related to WVCs. The transportation bills passed by the house in July, 2021 and under consideration in the Senate, if signed into law, would address several provisions related to highway transportation infrastructure including wildlife related provisions. Provisions important to Colorado big game include:

- Authorization of dedicated funding for programs to improve connectivity, reduce WVCs and make highways safer for people and wildlife;
- Development of a voluntary template to standardize wildlife collision and carcass data and expand eligibility for wildlife infrastructure under other transportation grants and funding sources;
- Funding for transportation and wildlife agency staff development and training; and
- Expanded research into the causes and solutions to reduce WVCs while improving habitat connectivity.

C. Invest in the CWTA and agency capacity to improve coordination and prioritization

Despite the significant demands placed on CDOT and CPW in the Big Game EO and SO 3362, neither agency maintains full-time staff dedicated to the CWTA or associated coordination on wildlife corridor and highway permeability projects. In addition, the operation of the CWTA itself has been supported ad hoc by both agencies on a year-to-year basis without a dedicated source of funding. It is evident that this staffing deficit must be addressed when considering the fact that these recent

directives require CPW and CDOT to study and author reports regarding big game migration patterns and seasonal habitats, develop action plans to periodically update lists of high-priority big game migration and movement corridors and seasonal habitats statewide, consider policy and regulatory actions, work with private landowners, local governments, public landowners and Tribal representatives, work with neighboring states for habitat and movement routes spanning state lines, and develop public information campaigns and outreach efforts regarding wildlife movement, among other tasks.

CPW's budget request for a Wildlife Movement Coordinator position was recently approved, which will begin to address staffing constraints. However, both CPW and CDOT should make it a priority to address the workload demands of the CWTA in future budget requests and streamline intra-agency financial procedures. CDOT should also work to identify a reliable source of annual funding for internal staff to provide assistance in work plan deliverables. Securing new staff and resources for both agencies will support the future development and continued success of CWTA, and facilitate interagency coordination.

Finally, CPW and CDOT should continue to improve the consistency of wildlife impact assessments across regions, personnel, and project types. For example, the co-development of an inter-agency roadkill data tracking system currently being tested by select agency staff across the state will help inform future wildlife mitigation needs. In many instances, the extent of WVCs may not be thoroughly understood until a reliable and standardized statewide dataset is created. For instance, the SH 9 wildlife crossing monitoring project found that crash and carcass data compiled by CDOT accounted for only 19 percent and 63 percent, respectively, of the actual WVC counted during the monitoring study.

D. Strengthen adoption of wildlife guidelines for transportation infrastructure projects

CDOT should work with CPW to explore opportunities to strengthen internal guidance around big game movement and habitat, including the establishment of policies to ensure engagement with CPW from early project planning through the construction phase and the incorporation of wildlife mitigation features in project design. In tandem, CPW should foster coordination by contributing data and input to inform CDOT’s Long Range Planning Process and development of its 4-year and 10-year plans.

Policy shifts that prioritize wildlife-friendly projects, while more challenging to implement, could also eventually expand the scope and effectiveness of CDOT and CPW’s work to conserve big game and limit WVCs. For example, CDOT’s Transportation Commission could amend its Policy Directive 14.0 Policy Guiding Statewide Plan Development goals, performance measures, and objectives to incorporate goals to maintain habitat connectivity and reduce WVCs. CDOT could also incorporate priority wildlife crossings identified by the CWTA into its short- and long-term planning products, including the Statewide Transportation Plan (SWP), Regional Transportation Plans (RTPs), and 10-Year Plan. Finally, CDOT could amend its project-specific scoping form to include a requirement to address habitat connectivity and WVC mortality concerns for projects located in CPW-mapped big game movement corridors. To expedite these policy changes, the General Assembly could also consider requiring a review of wildlife impacts and the implementation of mitigation measures in all relevant transportation projects.



5. Energy Development

A. Implement state oil and gas wildlife rules

On November 23, 2020, the COGCC unanimously adopted robust new rules regulating the permitting, development, and operation of oil and gas facilities in wildlife habitat throughout Colorado. The new rules resulted from the passage of SB19-181, which changed COGCC’s mission from “fostering” to “regulating” oil and gas development in a manner that protects public health, safety, welfare, the environment, and wildlife resources.⁸² Some of the major wildlife-related updates to the oil and gas rules include the following:

- Designation of HPH, including big game migration routes, pinch points, priority habitat, including, production, calving, fawning, and summer concentration areas, and winter range, and a requirement to consult with CPW on oil and gas developments proposed within these habitats;
- A requirement that operators consider alternative locations that either avoid HPH altogether, or, where avoidance is not feasible, consider locations that minimize adverse impacts to the maximum extent possible;
- A requirement to develop Wildlife Mitigation Plans for oil and gas developments in HPH to address direct, indirect, and cumulative impacts of oil and

⁸² COGCC, 2021

gas development, and to describe operating practices and other measures that will be implemented to avoid, minimize, and in some cases, mitigate impacts to wildlife resources;

- The establishment of protective setbacks for oil and gas developments from the most sensitive HPH, including riparian areas;
- New rules incentivizing low density development in migration and movement routes and certain HPH to reduce fragmentation and maintain habitat function, and landscape permeability for free-ranging big game species; and
- A requirement for compensatory mitigation to offset the functional loss of habitat from oil and gas development in certain high priority habitat through payment of a habitat mitigation fee or the development of new habitat mitigation projects.

With an effective date of January 15, 2021, it is now the responsibility of COGCC to implement these rules without delay, and it is also likely that additional CPW staff resources will be required to support this new regulatory framework.

CPW and COGCC also should work with federal land management agencies to incorporate the wildlife recommendations contained in the rules into federal planning decisions to ensure management consistency across all lands in the state. This includes working with the BLM and USFS to update the longstanding Memorandum of Understanding for permitting processes on federal surface and mineral estate to reflect the new rules, as well as active participation in federal land use decisions.

In addition, CDNR and CPW should work with the BLM to initiate a statewide resource management plan amendment (RMPA) process to strengthen oil and gas lease stipulations consistent with the new wildlife rules, including implementing facility and route density

limitations to protect key big game migration movement routes, priority winter ranges, and production, calving, fawning, and summer concentration areas. (Appropriate density limitations should also be applied to other types of proposed development on BLM lands outside of the oil and gas, for example, recreational trail projects, clean energy infrastructure siting, etc.) Until all BLM plans in Colorado can be amended to accommodate HPH provisions, the BLM should issue an Instructional Memorandum (IM) requiring Colorado Field Offices to adopt the best practices for conserving big game habitats as described in CPW's HPH Recommendations. Similarly, the state should work with the USFS to ensure that standards and guidelines, travel management, and other provisions in forest management plans also align with state wildlife recommendations. To the extent practicable, these plans should incorporate careful monitoring and outcomes-based adaptive management provisions to account for new collaring or observational data, or changes in environmental conditions.

Additionally, the state should work with federal agencies and the Colorado Congressional delegation to ensure that lands under protected designations, such as CRAs, Areas of Critical Environmental Concern, Wilderness Study Areas, Wilderness and the like, can continue to provide landscape connectivity and high quality habitat.

Finally, it is particularly important for CPW to prioritize the development of a habitat mitigation fund to facilitate new requirements for compensatory mitigation in the 1200 series oil and gas rules, which allow operators to financially offset their direct and indirect impacts on wildlife habitat from proposed oil and gas development. While operators maintain the ability to conduct their own mitigation projects, it is anticipated that many will utilize the habitat mitigation fund for simplicity and to avoid devoting staff resources to the development of mitigation projects. The habitat mitigation fund will be utilized by CPW to plan and execute habitat enhancement and

conservation projects that mitigate, as much as possible, the impacts to the species or herd being impacted by the development. CPW staff will submit annual reports to the COGCC to document the amount of compensatory mitigation funds collected and subsequent projects completed.

B. Strengthen and Streamline Renewable Energy Project and Transmission Lines Recommendations

Current regulations are also insufficient to guarantee that big game movement and migration routes, and other sensitive habitats for big game and other priority species, are not impacted by utility-scale solar and wind development, transmission lines, and associated infrastructure on federal, state, and private lands. To begin to inform this issue, CPW recently finalized best management practices for solar energy developments for use in comments and during consultation with federal, state and local permitting authorities.⁸³ CDNR and CPW should also convene an inter-agency working group, including the State Land Board, CDA, DOLA, Colorado Energy Office (CEO), and Colorado Public Utilities Commission, to explore opportunities to further minimize the impacts of renewable energy development on big game habitat, including:

- Strengthening wildlife consultation requirements for renewable energy projects;
- Instituting project acreage limitations within big game movement and migration routes and habitat;
- Encouraging renewable energy facility placement in already developed areas with lower wildlife value;
- Creating a mitigation fund to offset the impacts of renewable energy development in these habitats, similar to recently-revised state oil and gas regulations; and

- Considering opportunities to redirect existing local assistance funds to incentivize development outside of priority big game habitat through clustering plans, co-location, and easements or covenants.

C. Improve habitat compatibility of federal renewable energy decisions

The current federal guidance regarding renewable energy project planning and permitting is cumbersome, creating barriers for industry to pursue projects on public lands. State agencies, including CEO, CPW, and CDNR, should work with federal land management agencies to initiate programmatic environmental assessments that would analyze opportunities for streamlining permitting procedures, identifying appropriate lands for renewable energy projects, and incentivizing development outside of high priority habitat.

Additionally, the State should work with members of the Colorado Congressional delegation and federal administration to advance legislation and programs that strengthen federal renewable energy requirements and create mechanisms for directing resources to states, Tribes, and other eligible entities to mitigate the impacts of renewable energy projects on wildlife habitat and movement routes on public lands.

⁸³ CPW, BMPs for Solar Energy Development, May, 2021:
[https://cpw.state.co.us/Documents/Commission/2021/June/Item.18-Colorado
Parks and Wildlife Solar Energy BMPs May 2021.pdf](https://cpw.state.co.us/Documents/Commission/2021/June/Item.18-Colorado%20Parks%20and%20Wildlife%20Solar%20Energy%20BMPs%20May%202021.pdf)



6. Conservation on Private Lands

A. Reauthorize and Streamline the Habitat Partnership Program

CPW’s Habitat Partnership Program (HPP) has been highly successful in reducing wildlife conflicts on agricultural lands, enhancing agency relations with private landowners, and limiting private landowners’ financial liabilities for improving big game habitat and otherwise contributing to herd maintenance. The program is strongly supported by agency staff, agricultural organizations, and numerous rural partners. However, considering the program’s forthcoming expiration in 2023 and limitations presented by its current structure in statute, CPW should pursue legislation to reauthorize and streamline HPP to continue to ensure critical local landowner support for big game management objectives. CPW staff and regional roundtables should also consider the potential efficiencies of investing unexpended funds in large-scale big game habitat restoration projects, such as through the RESTORE program, as consistent with agency priorities.

B. Continue to explore alternative valuation models to improve participation in conservation easement and tax credit programs

While conservation easements are a valuable tool for protecting big game movement routes and priority habitat, it is challenging for landowners in some regions of the state with important big game populations to benefit from the state tax credit because of the lack of direct development pressure that would make them eligible for a high conservation easement valuation. Recognizing this issue, HB19-1264 called for the director of the Division of Conservation to investigate “an alternative method to the appraisal process set forth in section 39-22-522 (3.3) to establish the amount of tax credits for which a qualified conservation easement contribution would be eligible.” Under this direction, CDNR and CPW should continue to work with land trusts, CSU, Division of Conservation and the General Assembly to develop an alternative valuation method for conservation easements with the goal of compensating private landowners for the conservation value of wildlife habitat or other ecosystem service protections protected by the easement, in addition to evaluating participation and outcomes resulting the passage of HB21-1233, which strengthened the existing conservation easement tax credit program to compensate landowners for the forfeited development potential of their eased property.

C. Improve uptake and effectiveness of USDA Farm Bill programs

The 2018 Farm Bill is the largest single source of funding for conservation on private lands, resulting in distributions of approximately \$6 billion through NRCS annually. A number of 2018 Farm Bill programs provide important wildlife habitat conservation benefits through conservation easements or financial or technical assistance to private landowners. CDNR divisions, along with CDA,

regularly consult with NRCS and landowners. However, state agency personnel historically have had limited capacity to provide technical assistance to prospective applicants to improve program participation, or to coordinate with one another to identify shared priorities or develop high-value proposals. CPW, other CDNR divisions and CDA should work to improve the effectiveness of 2018 Farm Bill programs by continuing to dedicate staff and resources for active participation in State Technical Committees and Sub-Committees related to forestry and wildlife, and by providing feedback on eligibility criteria and program effectiveness.

Given the importance of federal support in light of state budget constraints, CDNR and CPW should spearhead an interagency working group to consider input into the 2023 Farm Bill and provide recommendations to ensure that the state's wildlife needs are reflected in this important legislation, and continue to work with WAFWA and AFWA to ensure effective conservation titles in the bill. In the future, the working group could also champion local, community-based efforts and the state's habitat conservation objectives in NRCS program priorities, maximize enrollment of Colorado landowners in NRCS programs, and help to position proposals poised to benefit big game habitat to receive funding.⁸⁴ Farm Bill programs would also benefit from more strategically-driven priorities for wildlife at local and landscape levels, such as priorities developed with input from CPW personnel in a statewide habitat conservation and connectivity plan, Outdoor Regional Partnership conservation and recreation plans, or others.

D. Continue support for innovative private land conservation programs

Private lands make up almost 60 percent of Colorado's landmass and provide important big game conservation benefits across the state. (*See Appendix A: Colorado Land*

Ownership Map) In recognition of private landowners' important contributions, Colorado has developed a suite of innovative tools to incentivize their participation in wildlife habitat protection efforts. Both the Colorado Wildlife Habitat Program (CWHP) and Ranching for Wildlife (RFW) support actions that benefit wildlife on private lands. CWHP offers opportunities for private landowners to voluntarily protect key wildlife habitat through perpetual conservation easements and related mechanisms, provide wildlife-related recreational access to the public and, if appropriate, facilitate property acquisition by CPW. RFW secures public hunting access, and habitat protection and enhancement particularly on large ranches along big game movement routes and in other priority habitat. Supporting these programs, with a continued emphasis on evaluating their role in providing benefits to big game populations, provides additional opportunities to partner with private landowners in accomplishing goals related to wildlife habitat.

Along similar lines, the Colorado Habitat Exchange (CHE) was created in partnership with external entities to provide an alternative source of revenue for landowners to maintain large working ranches, and subsequently reduce further subdivision of private holdings. While the program is still in existence, stakeholder interest in the CHE has waned in recent years. CPW, in coordination with CDA and other stakeholders, should consider revitalizing the CHE partnership. Renewed interest and investment would ensure that this mechanism remains available as an option in the future.

⁸⁴ See Center for Landscape Connectivity (2019), 22.



7. Research Needs and Data Gaps

A. Expand animal research capabilities

For 60 years, CPW's Research Unit's active wildlife monitoring, research and observation have allowed the agency to identify movement routes and sensitive habitats that are crucial to maintaining healthy big game populations.⁸⁵ As a national leader, CPW works both independently, and collaboratively with public and private partners, to gather information through animal collaring, disease monitoring, wildlife surveys, habitat assessment, data modeling, and other methods. These activities are crucial to informing decision-making, and to maximizing management and resource allocation efficiencies, and also serve to identify data gaps and additional research needs. Ongoing or expanded investments in habitat enhancement projects, climate adaptation research, animal collaring and disease studies, in particular, must be prioritized in future resource allocation decisions, along with projects that protect big game winter range and maintain landscape permeability.

As a key example, CPW invests significant time and resources in capturing and collaring between 1,000 to

⁸⁵ Observation has been important to shaping wildlife and habitat management priorities since the inception of Colorado's game program, however, the first wildlife agency research unit was formally established in 1961.

1,500 elk, mule deer, pronghorn, bighorn sheep and moose annually. In recent years, the agency has been transitioning from very high frequency (VHF) collars, for which animals must be physically located by staff to obtain locations, to global positioning system- (GPS-) enabled collars that gather real-time location data by satellite communication. GPS data is then either stored on the collar for later retrieval or transmitted directly for download. GPS allows for an abundance of real-time location data to be gathered (a single project can generate hundreds of thousands of locations), and furthermore, provides location data throughout the day and night, even from remote locations. Although this improved technology has greatly contributed to wildlife managers' understanding of animal movements, it is significantly more costly, and can result in data management and storage issues, as well as increased concerns associated with the distribution of real-time locations.

CPW lacks the hardware, software development, and staffing to address the need to develop an intra-agency, server-based database for GPS collar data storage and analysis to streamline data collection and processing while maintaining privacy protections for private landowners. These capacity improvements would allow for the best available science to be used as a planning resource in identifying wildlife seasonal ranges and movement routes.

However, as the use of GPS collars to track big game and sensitive species increases, so does the need to protect location data. There are several reasons why protection of wildlife location data is important, including:

- The need to protect data associated with on-going research and management studies as it relates to proprietary use;
- The concern that location data, especially real-time locations, would be used to pursue wildlife during hunting activities, negating the value of ethical and

sportsmanlike pursuit and potentially putting collared sensitive species at risk;

- The concern for animal welfare and increased harassment if location data is distributed, which may include activities associated with commercial gains such as wildlife viewing, hunting, and shed collection; and
- The potential for the public to scrutinize collaring studies if the data is released and misused for unattended purposes.

Several western states have passed bills to limit the release of collar data, and Colorado should consider similar legislation in consultation with CPW staff and conservation partners.

B. Build capacity to develop a priority habitat and movement route climate adaptation strategy

Funding for land conservation and restoration is limited, and investments should be informed by climate change data to help ensure that we are conserving the most resilient landscapes. However, our understanding of the localized impacts of climate change on big game habitat and strategies to address these impacts are limited. As a result, CPW should explore partnerships with research organizations, such as the Colorado State University and the University of Colorado, that further extend the agency’s capacity and knowledge around climate resiliency. In addition, CPW should work with partners to consider conservation strategies that lead to more climate resilient wildlife populations through the use of new modeling technologies, such as the Nature Conservancy’s Resilient and Connected Lands Tool, CNHP’s CoMAP or CODEX tools, or others.



8. External Partnerships and Public Outreach

A. Expand external partnerships and coordination to advance state wildlife priorities

Wildlife movement routes and habitats often cross jurisdictional boundaries, requiring multi-state and multi-agency conservation efforts. As a state agency, CPW is a member of WAFWA and AFWA, both of which advance collaborative, science-based conservation. Through these collaborations, information is shared and developed related to wildlife issues, strategies, policy, and conservation. CPW is also an active member in several different councils, including those that focus on big game, habitat, and/or transportation topics such as the WAFWA Mule Deer Working Group; Wildlife Movement and Migration Working Group; and Habitat Committee, and the AFWA Transportation and Wildlife Community of Practice and Agricultural Committee. Collaboration and communication among states facilitates effective management approaches, better data standardization, and the development of influential policy and action across jurisdictional boundaries.

Data and information can also be pooled and analyzed at larger landscape scales beyond the state boundaries. One example is the USGS Ungulate Migrations of the Western United States publication, Volume 2 (as well as future volumes), which presents a standardized analytical and

computational method and workflow to apply to state-collected data related to winter range and movement routes. Through this and projects, the state should encourage collaborative, multi-jurisdictional cooperation regarding movement route and priority habitat identification and conservation.

Finally, both SO 3362 and the Big Game EO underscore the importance of regional and multi-stakeholder cooperation in research and monitoring efforts. Because these efforts can be resource-, staff- and time-intensive, they are often sidelined in favor of more immediate or localized priorities. Federal funding for coordination, as provided by DOI under SO 3362 and, to a lesser degree, USDA, will continue to be critical sources of support. CPW, CDOT and other state agencies should also prioritize inter-jurisdictional research in federal funding requests, and identify opportunities to augment federal support with existing financial and staff resources.

B. Build Support through Outreach and Education

Although wildlife managers have long understood the importance of promoting wildlife habitat connectivity, the concept is relatively nascent for the general public and policy makers. As a result, it is important to build awareness about how big game species move across the Colorado landscape, and how particular actions can contribute to habitat fragmentation, degradation, or loss. State agencies, including CPW, CDOT, and CDNR, can strengthen support for policy interventions by engaging a diverse range of partners in education and outreach, including conservation and sportspersons stakeholders, local, federal, and Tribal governments, and interested citizens.

CPW has a long-term commitment to public education and outreach related to big game and wildlife management, including promoting the value of protecting

big game habitat and connectivity. In addition to a team of education coordinators around the state, CPW's field staff conduct numerous education programs each year in association with schools, volunteer programs, colleges, teacher workshops, and hunter education programs and create materials that can be leveraged by teachers or wildlife professionals. For example, CPW staff recently developed two school modules focusing on wildlife movement for CWTA.

Additionally, CDOT and CPW spearheaded the development of an interactive online map to display nearly 70 dedicated wildlife crossing structures in Colorado, ranging from smaller pipe culverts to larger span bridges and wildlife overpasses. This product will serve as an informative tool both for internal decision-making and public education purposes. Other efforts include participating in webinars and workshops hosted by external partners, co-hosting conservation film viewings, and taking part in community events to share habitat connectivity success stories.

Regardless of the format or forum, it will be critical for state agencies to continue to invest in expanded public outreach initiatives and campaigns with a diversity of external partners, and to tailor materials and messages to resonate with target audiences.⁸⁶

⁸⁶2019. Wildlife Connectivity: Opportunities for State Legislation. Center for Large Landscape Conservation: Bozeman, Montana, R.R. Amend et al (2019).



Conclusion

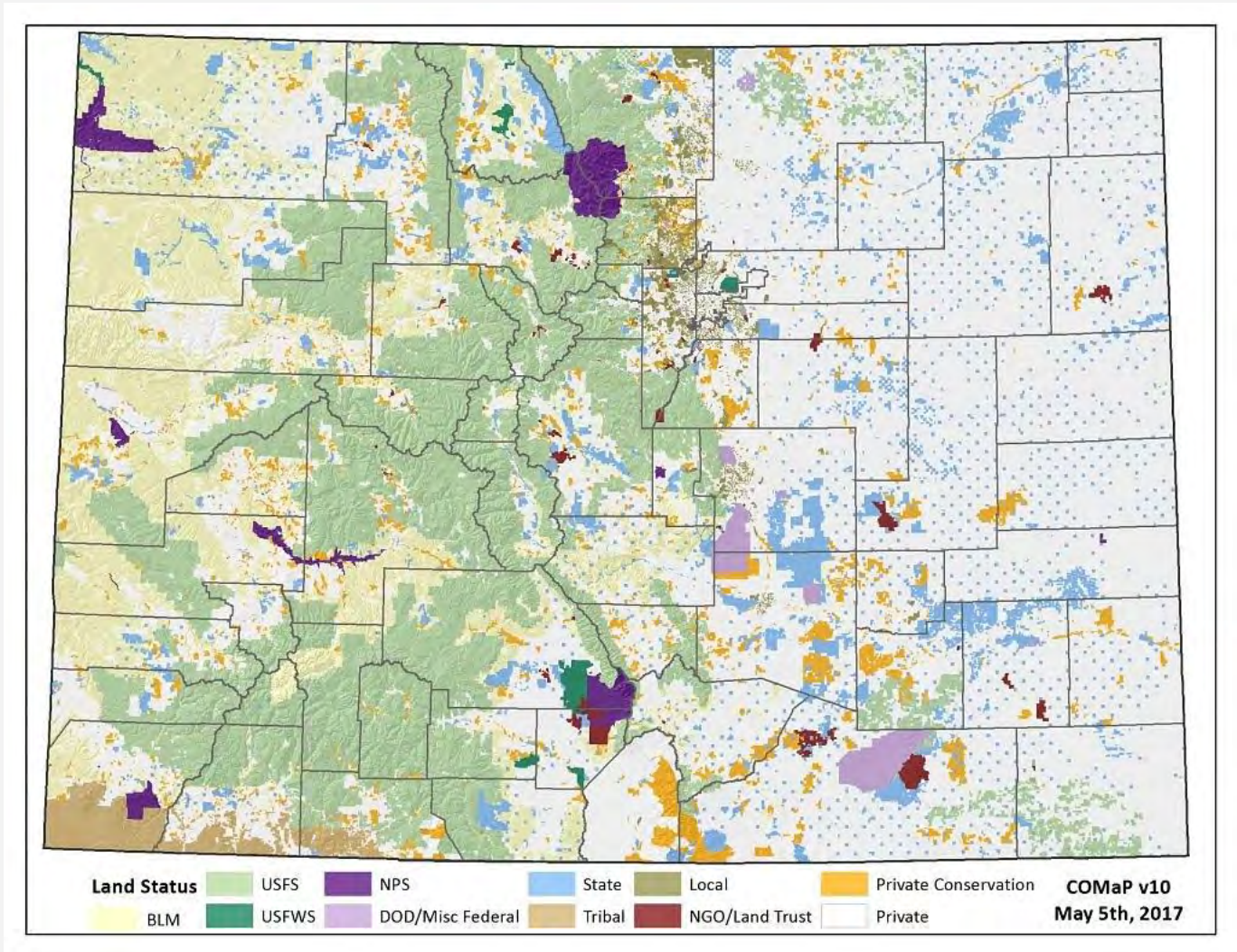
The future viability of Colorado's big game and other wildlife species will be determined by the actions of the state and its federal, Tribal, local and private partners at this critical juncture. State wildlife managers and their partners have positioned Colorado at the forefront of big game management and habitat conservation for nearly 150 years. However, persistent environmental, development and population pressures threaten to undermine significant investments in the management of the state's big game populations, with impacts on big game winter range and movement routes of particular concern.

As this report suggests, no single policy, regulatory or management action is sufficient to address these challenges. Instead, the state must adopt a comprehensive approach to improving habitat for Colorado's iconic big game species, including the development of a statewide habitat and connectivity plan, and enlist the full cooperation of its partners in implementing near-and long-term solutions. With leadership by Colorado Parks and Wildlife, and a focus on collaboration, we can ensure that Colorado's big game and other wildlife populations are conserved for future generations.



Appendix A

Map: Land Ownership in Colorado



Source: Colorado Natural Heritage Program, CoMAP (2017)

Appendix B:

Examples of Federal, State and Collaborative Conservation Funding Programs

Federal Conservation Funding Programs

Beneficiaries	Program Title and Administrator	Description	Est. Total Annual Program Funds	Recent CO Program Funds/Allocations
Private landowners	Environmental Quality Incentives Program (EQIP)* (USDA - NRCS)*	Financial assistance for conservation practices to optimize priority environmental benefits on working lands. (May be augmented by states.) (75% fed cost share capped at \$450,000; 1-10 year contract term.)	\$1.85 billion (ave. annual funding through FY23)	\$37.6 million (FY20)
Private landowners	Agricultural Conservation Easement Program (ACEP)* (USDA - NRCS)*	Conservation easements to landowners through cooperating entities to limit production on working lands and protect wetlands. (50%-100% fed cost share; up to 30 year contract terms.)	\$450 million (annual funding through FY23)	\$5.1 million (FY20)
Private landowners	Conservation Stewardship Program (CSP)* (USDA - NRCS)	Performance-based incentives for existing conservation system enhancements to address priority resources concerns (Max \$40,000 per year, 5 year contract term)	\$1.5 billion (annual funding through FY23)	\$5.6 million (FY20)
Private landowners	Regional Conservation Partnerships Program (RCPP)* (USDA-NRCS)	Coordinated funding partnerships in support of large-scale innovation projects in priority conservation areas, through Critical Conservation Area (65% non-federal match) or state/multi-state (75% non-federal match) funding pools	\$300 million (annual funding through FY23)	\$560,000 (FY20)
Private landowners	Conservation Reserve Program (CRP)* (USDA - NRCS/FSA)	Annual rental payments and additional cost share incentives for cropland acreage contributing to priority stewardship benefits issued on competitive or continual basis	\$1.8 billion (FY21-23 ave/year)	Not accessible
Private landowners	Conservation Reserve Enhancement Program (CREP)* (USDA-NRCS/FSA)	Program within CRP supporting regional or state environmental priorities in targeted geographic areas	Included in CRP	Not accessible
State and Local Governments, Private landowners	Forest Legacy Program (USDA-FS via CSFS)**	Competitive grants to states to conserve priority forests threatened by conversion to nonforest uses, through conservation easements or fee simple purchase, administered in cooperation with states (max. \$20 million)	\$94 million (FY21)	\$7 million (FY20)
Local, Tribal Governments; Non-profits	Community Forest and Open Space Conservation Program (USDA- FS)	Competitive grants to communities for acquisitions and management of forest lands with public access and conservation benefits (50% non-federal match)	\$4 million	\$225,000 (FY16 Project Grant)
Federal Government	Land and Water Conservation Fund (LWCF) - Core ** (USDOI-NPS)	Federal land acquisitions in support of recreation/public access and conservation priorities, distributed between USDOI and USDA agencies	\$280 million (FY21 - all federal acquisitions)	\$30 million (FY21) (Incl. \$20 million BLM unspecified)
Local, Tribal and State Governments	LWCF - State and Local ("Stateside")** (USDOI-NPS; CPW)	Competitive and formula grants to state, local and Tribal governments to create and expand park and recreational facilities through, administered by state agencies (\$250,000-\$750,000; 50% non-fed match)	\$325 million (FY21; \$220 million formula, \$125 million competitive)	\$5.1 million (FY21 CO state formula apportionment)
State and Local	Cooperative Endangered	Competitive grants to states (or local subgrantees) for	\$30 million (FY21)	~\$600,000 (FY20 new)

Governments	Species Fund (“Section 6”) - Land Acquisition grants** (USDOI - FWS)	restoration projects and land acquisitions in support of Habitat Conservation Plans (HCP) for ESA-listed, candidate or at risk species; or ESA-listed species recovery plan (Recovery Land Acquisition) (max ~\$10 million; 50% non-federal match)	(\$19 million HCP; \$11 million RLA)	projects)
	North American Wetlands Conservation Act (NAWCA) (USDOI-FWS)	Competitive standard and small grants programs for wetland and upland habitat conservation, primarily benefiting migratory birds	\$46 million (FY21)	N/A
Private Landowners (Landowner Incentive Program (USDOI-FWS, through CPW) **	Competitive and noncompetitive project grants for private conservation efforts in support of State Wildlife Action Plans, supplementing state incentive programs (Tier 1 max \$200,000)	--	~\$5 million (FY2017-21)
State, Local, Tribal Govts. Non-profits, Private Landowners	Colorado Partners for Fish and Wildlife (USDOI - FWS)	Cooperative program between state, local, tribal, and federal agencies, conservation organizations and landowners offering incentives for voluntary habitat restoration, enhancement and connectivity efforts on private lands (max \$750,000)	\$57 million (FY21)	--
States	Wildlife and Sport Fish Restoration Program (WSFR) State Wildlife Grants (SWG)*** (USDOI - FWS)	Support to state wildlife agencies for habitat restoration, species conservation, research, monitoring, and related activities to implement SWAPs disbursed through formula-based annual apportionments and competitive project grants.	\$55 million (FY21)	\$1.2 million (FY21 apportionment) \$345 million (FY17 project grant)
State Governments	WSFR Wildlife Restoration Funds (PR Funds)***	Annual apportionments in support of state fish and wildlife agency operations	\$679 million (FY21)	\$17 million (FY21 apportionment)

* Included among 2018 Farm Bill programs aimed at incentivizing voluntary conservation efforts on privately owned lands through various financial and technical assistance mechanisms. (Additional programs also authorized by the the Agriculture Improvement Act of 2018 (P.L. 115-334).

** Programs funded in whole or in part through Land and Water Conservation Fund as authorized by the Great American Outdoors Act of 2019 (P.L. 116-94)

*** WSFR funds are authorized by the Federal Aid in Wildlife Restoration Act of 1937 (“Pittman-Robertson Act”), and funded by a federal excise tax on hunting equipment and annual Congressional appropriations. In addition to formula-based SWG and WR apportionments to states and Tribes, FWS administers a suite of incentive and grant programs under WSFR.

Collaborative Conservation Funding Programs

Beneficiaries	Program Title and Administrator	Description	Est. Total Annual Program Funds^	Est. CO Annual Program Funds^
State, Local, Tribal Governments, Non-profits	Rocky Mountain Restoration Initiative (National Wild Turkey Federation)	Cooperative pooled funding program convened by the FS and National Wild Turkey Federation and partners to support landscape-scale forest, habitat and community resiliency projects.	--	>\$50 million (multi-year)
State, Local, Tribal, Federal Governments, Non-profits,	RESTORE Colorado (National Fish and Wildlife Foundation)(NFWF)	Collaborative, public-private pooled resource program providing competitive grants for large-scale priority habitat restoration, enhancement and land acquisition projects in Colorado (min. \$100,000)	--	\$2.7 million (FY20); \$3.1 million (FY21)
State, Tribal, Local, Federal Governments; Non-profits	Improving Habitat Quality in Western Big Game Migration Corridors and Habitat Connectivity (NFWF)	Pooled federal-private resource competitive grants in Western states in support of S.O. 3362 Big Game Action Plans, including land acquisitions, easements, research, safe passage infrastructure, and related activities (50% non-program match)	\$4 million	\$580,000 (FY20); \$150,000 (FY21)

State Conservation Funding Programs

Beneficiaries	Program Title and Administrator	Description	Est. Total Annual Program Funds (As applicable)	Est. CO Annual Program Funds
Private Landowners	Habitat Partnership Program (HPP) (CDNR- CPW)	Financial and technical assistance designed to alleviate or mitigate wildlife and agricultural or livestock conflicts on private lands in Colorado, allocated to regional committees.	--	\$2.5 million (FY21)
CPW, Non-profits	Big Game Hunting License Auctions and Raffles (CPW)	CPW retains a portion of revenues from donated big game hunting license raffles conducted by non-profit conservation partner organizations (up to 75%)	--	~\$592,000 /year
Private Landowners, Land Trusts	Conservation Easement Tax Credit (CO Dept. Regulatory Affairs - Division of Conservation)	Voluntary incentive program providing conservation easements on private lands providing priority environmental benefits (90% of donated assessed value, up to \$5 million)	~\$45 million	--
Private Landowners	Colorado Wildlife Habitat Protection Program (CPW)	Support for habitat protection and expanded public access on private lands through easements and land acquisitions, funded in part by Habitat Stamp proceeds	--	\$11 million (FY21)
CPW and Local Governments; Non-profits	Great Outdoors Colorado (GOCO)	Grants for state parks and open space land acquisition, recreation and wildlife restoration projects funded by 50% of state lottery proceeds (many grants have cross-cutting benefits. Also includes RESTORE.)	--	~\$70 million (FY21) (Across all programs)
Local Governments	Conservation Trust Fund (CTF) (CO Dept. Local Affairs)	Grants to local governments for open space and recreation grants apportioned annually by a population-based formula and funded by 40% of state lottery proceeds.	--	\$58 million (FY21)

^ Estimated Total and State Program Funds as applicable and accessible.

References

Federal:

- National Sustainable Agriculture Coalition: <https://sustainableagriculture.net/>
- Federal grant allocations, USASpending.gov - <https://www.usaspending.gov/>
- CRS Report: Agricultural Conservation: A Guide to Programs (Updated August, 2019): <https://fas.org/sgp/crs/misc/R40763.pdf>
- U.S. Senate Appropriations Committee - FY21 Explanatory Statement DOI Appropriations: <https://www.appropriations.senate.gov/imo/media/doc/INTRept.pdf>
- CRS Report - FY2021 USDA Appropriations - <https://crsreports.congress.gov/product/pdf/R/R4643>
- USDOJ - FWS - Cooperative Endangered Species Conservation Program Awards - <https://www.fws.gov/endangered/esa-library/index.html#grants>
- USFS 2021 Forest Legacy Project Awards - <https://www.fs.usda.gov/sites/default/files/FY2021-FLP-ProjectsFinalList-508.pdf>

State:

- CPW Hunting Raffle Fact Sheet: <https://cpw.state.co.us/auctionrafflelicense>
- Great Outdoors Colorado FY21-25 Spending Plan: https://goco.org/sites/default/files/GOCO-Spending%20Plan-062821_0.pdf
- Colorado Legislature, Joint Budget Committee FY21-22 Long Bill, Operating Agency Budgets: https://leg.colorado.gov/sites/default/files/documents/2021A/bills/2021a_nat_act.pdf

Collaborative:

- NFWF Rocky Mountain Rangelands: <https://www.nfwf.org/programs/rocky-mountain-rangelands>
- Rocky Mountain Restoration Initiative: <https://restoringtherockies.org/>

Appendix C: Summary of Recommendations

Category 1: Habitat Alterations and Loss

Topic	Recommendation	Priority Level/ Implementation Barrier	Lead/ Support Entities	Capacity Requirements	Type of Action Implications	Considerations
A. Develop a statewide habitat conservation and connectivity plan	Identify priority landscapes and develop recommendations for future funding/programmatic priorities	High Priority/ Medium Barrier	CPW (support from CDNR, external partners)	<ul style="list-style-type: none"> Existing or expanded staff capacity New external consultant support 	<ul style="list-style-type: none"> Programmatic and/or budgetary prioritization 	<ul style="list-style-type: none"> Account for unique development pressures, climate, animal movement patterns Integrate other statewide wildlife and conservation planning efforts
B. Direct new funding toward strategic land conservation priorities	Work with legislature to continue to advance CPW's future funding initiative to secure new resources for conserving key habitat, landscapes, projects	High Priority/ Medium Barrier	CPW/CDNR	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> Legislative action Programmatic/budgetary prioritization 	<ul style="list-style-type: none"> Emphasize habitat conservation and connectivity plan implementation or similar state priorities
	Lay groundwork through interagency/external coordination to position state to take advantage of new federal programs, e.g., "America the Beautiful" init.	High Priority/ Medium Barrier	CDNR (support from other relevant state agencies, GA, GOV)	<ul style="list-style-type: none"> Existing staff capacity New external consultant support 	<ul style="list-style-type: none"> Programmatic/budgetary prioritization; Executive or Legislative action 	<ul style="list-style-type: none"> Integrate with other statewide conservation planning efforts Align with federal requirements/priorities
C. Coordinate existing conservation funding	Annually convene partners to identify/review conservation priorities	Medium Priority/ Medium Barrier	CDNR/CPW (coordination with state agencies and external partners)	<ul style="list-style-type: none"> New external coordination / convening capacity 	<ul style="list-style-type: none"> Interagency and External planning/coordination 	<ul style="list-style-type: none"> May be statutory, regulatory, or institutional barriers to consider in identifying shared priorities, in addition to logistical challenges May require additional authorizations
	Expand agency ability to provide guidance across state programs to steer collective investments and acquisitions toward targeted landscape-small-scale conservation opportunity completion	High Priority/ Low Barrier	CPW (coordination with CDNR and other state agencies)	<ul style="list-style-type: none"> Expanded staff capacity 	<ul style="list-style-type: none"> Additional financial resources, and/or Programmatic/budgetary prioritization Interagency coordination 	
	Provide planning, technical assistance and coordination to help match applicants of priority projects with relevant state, federal, private funding programs	High Priority/ Low Barrier	CDNR/CPW (support from other state agencies)	<ul style="list-style-type: none"> Existing or expanded staff capacity 	<ul style="list-style-type: none"> Planning and external coordination Programmatic/budgetary prioritization 	
D. Invest in large-scale habitat conservation and restoration projects	Pool investments in large-scale projects to benefit high-priority landscapes, guided by statewide habitat conservation and connectivity plan	Medium Priority/ Medium Barrier	CDNR/CPW (coordination with other state agencies, external partners)	<ul style="list-style-type: none"> Existing and expanded staff capacity External support 	<ul style="list-style-type: none"> Planning and external coordination Programmatic/budgetary prioritization 	<ul style="list-style-type: none"> May require board or commission review/approval, or other authorizations

	Work to ensure that publicly funded forest and watershed health projects are planned in consultation with CPW to maximize wildlife habitat co-benefits	Medium Priority/ Medium Barrier	CDNR/CPW	<ul style="list-style-type: none"> Existing and expanded staff capacity 	<ul style="list-style-type: none"> External coordination Input and analysis 	<ul style="list-style-type: none"> Agency expertise exists but insufficient staffing resources to meaningfully engage in projects on consistent basis Anticipate acceleration in federal decision-making, projects in light of new fed funding and priorities Requires significant and ongoing outreach, relationship building, coordination
E. Promote state cooperation and interests in federal land use decisions, policies and programs	Secure meaningful roles for the state in federal land use decisions and rulemakings (e.g. through cooperative agreements, project level consultation)	High Priority/ Medium Barrier	CPW/CDNR	<ul style="list-style-type: none"> Existing and expanded staff capacity 	<ul style="list-style-type: none"> External coordination Input and analysis 	<ul style="list-style-type: none"> Agency expertise exists but insufficient time/resources to meaningfully engage on consistent basis Expect acceleration in large-scale planning / regulatory decisions in light of current fed priorities Requires significant and ongoing outreach, relationship building, coordination
	Work with CO Congressional delegation and partners to advance state wildlife and conservation priorities in federal legislation	High Priority/ Medium Barrier	CDNR/CPW (support from GOV)	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> Input and analysis 	<ul style="list-style-type: none"> Current national political realities may constrain movement on key legislation
	Contribute to shaping federal programs related to big game habitat conservation	High Priority/ Medium Barrier	CDNR, CPW, GA, GOV	<ul style="list-style-type: none"> Existing and expanded staff capacity 	<ul style="list-style-type: none"> Input and analysis External outreach Potential future legislative, executive action 	<ul style="list-style-type: none"> Alignment with “America the Beautiful” initiative, fed stimulus and infrastructure programs present potentially game-changing opportunities, but current staffing may constrain ability to engage New priorities may require additional leg, board or commission action
	Engage in “America the Beautiful” initiative by demonstrating private land contributions to state conservation priorities	Low Priority/ Low Barrier	CDNR, CPW, CDA, CWCB	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> External outreach Input and analysis 	<ul style="list-style-type: none"> Related to other federal engagement recommendations Ensure coordination with other state planning efforts
F. Implement local S.O. 3362 conservation plans	Provide leadership in local planning efforts for projects associated with S.O. 3362	High Priority/ Low Barrier	CPW	<ul style="list-style-type: none"> Existing and (possibly) expanded staff capacity, TBD 	<ul style="list-style-type: none"> Field-level planning and implementation Input and analysis External coordination and outreach 	<ul style="list-style-type: none"> Contingent upon continued federal admin and Congressional prioritization/funding

	Undertake add'l research to refine wildlife habitat conservation, restoration habitat, and transportation infrastructure priorities with potential to improve landscape permeability	Medium Priority/ Medium Barrier	CPW	<ul style="list-style-type: none"> Existing and expanded staff capacity External partner or consultant support 	<ul style="list-style-type: none"> Field-level planning and implementation Input and analysis 	<ul style="list-style-type: none"> Contingent upon continuation/ expansion of federal program Intersection with statewide habitat conservation and connectivity plan
	<ul style="list-style-type: none"> Contribute to efforts to secure permanent and expanded fed support for the SO 3362 program within USDOJ Create a complementary initiative within USDA; and increase Tribal participation 	High Priority/ Low Barrier	CDNR, CPW, GOV	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> External outreach and coordination 	<ul style="list-style-type: none"> Significant opportunity to build upon success and scale existing program, but prioritization may be affected by national political realities

Category 2: Land Use, Residential Growth and Development

Topic	Recommendation	Priority Level/ Implementation Barrier	Lead / Support Entities	Capacity Requirements	Type of Action	Considerations
A. Improve inter-jurisdictional disturbance mapping and data-sharing	<ul style="list-style-type: none"> Consider adopting uniform disturbance data sharing system across jurisdictions and planning units with appropriate protocols for protecting private property Consider federal partnership to expand SDARTT use within CHAT model 	Medium Priority/ Medium Barrier	CPW (collaboration with universities and external orgs)	<ul style="list-style-type: none"> Existing and new staff capacity New technological capacity 	<ul style="list-style-type: none"> External outreach and coordination Technology improvement 	<ul style="list-style-type: none"> Technology and methodology exist but may be organizational or resource / capacity barriers within partner orgs Ensure private property protection data protocols
B. Expand local government cooperation to improve strategies for directing development away from priority big game habitat	<ul style="list-style-type: none"> Convene working group to develop recs for incentivizing/improving uptake of big game habitat and connectivity protections in local planning initiatives and land-use ordinances Examine applications of 1041 regulations 	Medium Priority/ Medium Barrier	CDNR, CPW (collaboration with CDOT, DOLA, county associations, conservation orgs, other partners)	<ul style="list-style-type: none"> Existing staff capacity Possible external consultant support 	<ul style="list-style-type: none"> External outreach and coordination May require future regulatory or legislative action 	<ul style="list-style-type: none"> Important to be inclusive, sensitive to local dynamics and political considerations
	Encourage uptake of CWTA county agreements to maintain open space adjacent to safe passage structures	Low Priority/ Low Barrier	CDNR, CPW, CDOT, DOLA	<ul style="list-style-type: none"> Existing staff capacity External consultant support (CWTA) 	<ul style="list-style-type: none"> External outreach and coordination 	<ul style="list-style-type: none"> Regional Partnerships and DOLA programs also venues to educate, encourage uptake
C. Promote uptake of CPW land use policy	<ul style="list-style-type: none"> Promote uptake of HPH recommendations in federal, state and local land use, planning, project design decisions; Draw on enforceable mechanisms to drive consistency with state policy 	High Priority/ Medium Barrier	CPW (with support from CPW and affecting SLB, DOLA CEO and other agencies)	<ul style="list-style-type: none"> New and existing staff capacity 	<ul style="list-style-type: none"> Additional resources Planning and external coordination Leg, board/ commission and/or executive action 	<ul style="list-style-type: none"> Mixed ease of implementation depending on agency / entity May require board / commission authorization

Category 3: Recreation

Topic	Recommendation	Priority Level/ Implementation Barrier	Lead / Support Entities	Capacity Requirements	Type of Action	Considerations
A. Engage in regional and statewide planning to balance conservation and recreation	<ul style="list-style-type: none"> Collaborate with Outdoor Regional Partnerships to incorporate local priorities into the statewide comprehensive plan (December, 2023); Ensure that regional and statewide plans take big game habitat and connectivity into account 	High Priority/ High Barrier	CDNR, CPW, CDOT, CO-OP	<ul style="list-style-type: none"> New and existing staff capacity External consultant support 	<ul style="list-style-type: none"> External planning and coordination 	<ul style="list-style-type: none"> Significant investment of staff resources and time Coordination with other statewide planning efforts
B. Plan trails with wildlife in mind	Invest in outreach and education to promote adoption of wildlife recommendations in federal travel management plans and local recreation plans	Medium Priority/ Medium barrier	CDNR, CPW, DOLA	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization External coordination and outreach 	<ul style="list-style-type: none"> Mixed ease of implementation depending on specific agency or government, process or decision type
	Require adoption of wildlife recommendation for state-funded Outdoor Regional Partnerships plans	Medium Priority/ Low Barrier	CPW (in cooperation with external partners)	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> External coordination and outreach Programmatic priority 	
C. Emphasize the Value of Hunting for Wildlife Management	Explore further development of voluntary, incentive-based programs that provide hunting opportunities to the public on state and private lands, consistent with state public access goals.	High Priority/ Medium Barrier	CDNR, CPW, SLB	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> New and existing financial resources, including incentive programs and property acquisitions Legislative, administrative or executive action 	<ul style="list-style-type: none"> Already reflected in existing organizational mission and strategy, but need emphasis on the need to consistently prioritize across regions, and in coordination with habitat conservation and connectivity plan, Outdoor Regional Partnerships and other conservation initiatives Likely to require board/ commission authorizations
	Work to facilitate access to public or private lands where consistent with big game management objectives	High Priority/ Medium Barrier	CPW/CDNR	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> Programmatic/ budgetary prioritization Board/ commission action 	<ul style="list-style-type: none"> Already reflected in existing organizational mission and strategy, but need emphasis on the need to consistently prioritize across regions, and in coordination with habitat conservation and connectivity plan, Outdoor Regional Partnerships and other conservation planning initiatives May require new authorizations

Category 4: Transportation Infrastructure

Topic	Recommendation	Priority / Implementation Barrier	Lead / Support Entities	Capacity Requirements	Type of Action	Considerations
A. Secure new state funding for safe passage infrastructure on Colorado highways	Prioritize new funding for transportation projects that provide clear benefits to wildlife populations and human health	High Priority/ High Barrier	GA input from GOV, CDOT, CDNR)		<ul style="list-style-type: none"> Legislative, administrative or executive action 	<ul style="list-style-type: none"> Ensure statewide habitat conservation and connectivity plan, local ordinances consistency Include private or local government incentives and/or property acquisitions Requires long term planning
	Apply new funds to property easement acquisitions adjacent to safe passage structures; promoting new tech and design options, expanding research into project efficacy	High Priority/ Medium Barrier	CPW/CDOT (support from CDNR, GA, GOV)			
B. Advocate for additional federal transportation funding for wildlife safe passage infrastructure	Work with CO Congressional delegation and federal admin to advance support for state wildlife safe passage infrastructure projects, mechanisms to improve intra-state and federal coordination and WVC info sharing	High Priority/ Medium Barrier	CDNR, CPW, GOV	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> Federal admin and/or Congressional legislative action 	<ul style="list-style-type: none"> Significant opportunity exists, but implementation pathways and outcomes likely to be affected by national political realities
C. Invest in the CWTA and agency capacity to enhance coordination	Secure resources to support long-term operations of CWTA and associated project planning and implementation	Medium Priority/ Medium Barrier	CPW, CDOT, CDNR	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> Legislative action Programmatic / budgetary prioritization 	<ul style="list-style-type: none"> Long term solution may require more concerted legislative action, as opposed to annual budget requests
	Prioritize budget requests to address staff workload demands of CWTA participation; identify reliable funding, streamline intra-agency financial procedures to facilitate coordination	Medium Priority/ Medium Barrier	CDOT/CPW (input from GA, GOV, CDNR)	<ul style="list-style-type: none"> Existing and expanded staff capacity 	<ul style="list-style-type: none"> Administrative or legislative action Programmatic / budgetary prioritization 	
	Improve consistency of wildlife impact assessments across regions, personnel, and project types. (E.g., interagency roadkill data tracking system)	Medium Priority/ Medium Barrier	CDOT, CPW	<ul style="list-style-type: none"> Existing and expanded staff capacity New technological capacity 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization Inter-agency coordination 	
D. Strengthen adoption of wildlife guidelines for transportation infrastructure projects	Explore opportunities to strengthen CDOT internal guidance around big game habitat/connectivity, ensure CPW engagement throughout project lifecycles, and incorporate mitigation features in project design	Medium Priority/ Medium Barrier	CDOT (coordination with CPW)	<ul style="list-style-type: none"> Existing and expanded staff capacity 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization Internal agency policy change 	

	Foster coordination by contributing to CDOT's Long Range Planning Process and development of its 4-year and 10-year plans		CPW (coordination with CDOT)	<ul style="list-style-type: none"> Existing and expanded staff capacity 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization Intra-agency coordination 	
	Seek Transportation Commission support to amend CDOT Policy Directive 14.0 to incorporate goals to maintain habitat connectivity and reduce WVCs	Medium Priority/ Medium Barrier	CDOT	<ul style="list-style-type: none"> Existing and expanded staff capacity 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization Internal agency policy change / administrative action Potential board/ commission action 	
	Incorporate priority wildlife crossings into multi-scale short- and long-term planning products, including the Statewide and Regional Transportation Plans, and Statewide Transportation Improvement Program	High Priority/ Medium Barrier	CDOT	<ul style="list-style-type: none"> Existing and expanded staff capacity 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization Internal agency policy change Board/ commission action 	<ul style="list-style-type: none"> Dependent upon board / commission priorities
	Amend CDOT project-specific scoping form to include habitat connectivity / WVC mortality requirement concerns for projects in priority big game habitat	Low Priority / Low Barrier	CDOT (in coordination with CPW)	<ul style="list-style-type: none"> Existing or expanded staff capacity 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization Internal agency policy change / administrative action 	
	Consider requiring wildlife impacts review and mitigation measure implementation of mitigation in all relevant transportation projects within HPH	Medium Priority/ Medium Barrier	GA (input from GOV, CDOT)	<ul style="list-style-type: none"> Existing or expanded staff capacity 	<ul style="list-style-type: none"> Potential admin or legislative action Internal agency policy change Programmatic / budgetary prioritization 	

Category 5: Energy Development

Topic	Recommendation	Priority / Implementation Barrier	Lead / Support Entities	Capacity Requirements	Type of Action	Considerations
A. Implement newly-approved oil and gas wildlife rules	Implement new O&G high priority (HPH) wildlife regulations on state and private lands	High Priority/ High Barrier	COGCC, CPW, SLB	<ul style="list-style-type: none"> Existing and expanded staff capacity 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization External coordination 	<ul style="list-style-type: none"> Additional staff resources required to support new regulatory framework May require additional authorizations
	<ul style="list-style-type: none"> Work to incorporate HPH wildlife recommendations into federal planning and land use decisions; Update inter-agency Oil and Gas MOU 	Medium Priority/ Low Barrier	COGCC/ CDNR	<ul style="list-style-type: none"> Existing and expanded staff capacity 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization External coordination Planning input and analysis 	<ul style="list-style-type: none"> Opportunity to improve fed-state alignment may be impacted by future Congressional priorities/ political realities Acceleration of fed planning decisions may strain staff capacity

	Promote swift initiation of BLM statewide big game resource management plan amendment	High Priority/ High Barrier	CDNR, CPW	<ul style="list-style-type: none"> Existing and expanded staff capacity 	<ul style="list-style-type: none"> Programmatic/Budgetary prioritization External coordination Planning input and analysis 	<ul style="list-style-type: none"> Implications for other BLM land use planning decisions Likely to demand significant staff and resource investment
	Promote BLM Instructional Memo requiring interim big game habitat land use best practices	High Priority/ Medium Barrier	CDNR, CPW	<ul style="list-style-type: none"> Existing and/or expanded staff capacity 	<ul style="list-style-type: none"> External coordination and outreach Planning input and analysis 	
	<ul style="list-style-type: none"> Work to ensure state wildlife recommendation alignment in USFS forest management plans Promote ongoing monitoring and adaptive management provisions in USFS plans 	High Priority/ Medium Barrier	CDNR, CPW	<ul style="list-style-type: none"> Existing and / or expanded staff capacity 	<ul style="list-style-type: none"> External coordination and outreach Planning input and analysis 	<ul style="list-style-type: none"> Requires significant investment of staff time and resources Staff capacity may be strained in light of participation in multiple simultaneous large-scale federal planning processes
	Work with federal agencies and CO Congressional delegation to advance protective federal land designations to improve high quality habitat and landscape level connectivity	Medium Priority/ Medium Barrier	CDNR, CPW, GOV	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> External coordination and outreach Planning input and analysis 	<ul style="list-style-type: none"> Opportunity to expand protective Congressional designations may be constrained by future Congressional priorities/ political realities
	Prioritize development of a habitat mitigation fund to facilitate compensatory oil and gas rule mitigation requirements	High Priority / High Barrier	CPW	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization Board / commission authorization Potential future legislative action 	<ul style="list-style-type: none"> May require additional legislative authorizations
B. Strengthen and Streamline Renewable Energy Project/ Transmission Line Recs.	Convene interagency working group to explore opportunities to minimize renewable energy development impacts on wildlife habitat, expand uptake of BMPs	Medium Priority/ Medium Barrier	CPW, CDNR, DOLA, PUC, SLB, CEO	<ul style="list-style-type: none"> Existing staff capacity External consulting support 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization External outreach and coordination Potential future administrative or legislative action 	
C. Improve habitat compatibility in federal renewable energy decisions	Work to initiate programmatic EAs to analyze fed renewable energy permit procedure streamlining, lands suitable for development and opps to incentivize infrastructure siting outside of habitat	Medium Priority/ Medium Barrier	CPW, CDNR, CEO	<ul style="list-style-type: none"> Existing staff capacity External consulting support 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization External outreach and coordination Planning input and analysis 	<ul style="list-style-type: none"> Opportunity to improve state-federal objective alignment may be constrained by competing federal administrative or Congressional priorities/ political realities
	Work to strengthen federal requirements for renewable energy development, and create habitat impact mitigation mechanisms	Medium Priority/ Medium Barrier	CPW, CDNR, CEO, GOV	<ul style="list-style-type: none"> Existing and/or expanded staff capacity 	<ul style="list-style-type: none"> External outreach and coordination Potential future administrative or legislative action 	<ul style="list-style-type: none"> May be constrained by competing federal admin Congressional priorities and/or political realities

Category 6: Conservation on Private Lands

Topic	Recommendation	Priority / Implementation Barrier	Lead / Support Entities	Capacity Requirements	Type of Action	Considerations
A. Streamline the Habitat Partnership Program	Pursue legislation to reauthorize and streamline HPP program to ensure critical local support for big game populations	High Priority/ Medium Barrier	CPW, CDNR, GOV	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization Legislative action 	<ul style="list-style-type: none"> Reauthorization by 2023
	Consider potential efficiencies of investing unexpended HPP funds in large-scale big game habitat projects through the RESTORE program	Medium Priority/ Low Barrier	CPW, HPP Roundtables	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization External outreach and coordination 	
B. Explore the viability of alternative valuation models to improve participation in state conservation easement and tax credit programs	Continue to work with external partners, Division of Conservation and General Assembly to develop an alternative valuation method for conservation easements with the goal of compensating private landowners for the conservation value of wildlife habitat or other ecosystem services	Medium Priority/ Medium Barrier	CDNR, CPW, CWCB, DOLA	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization External outreach and coordination Legislative or executive action 	<ul style="list-style-type: none"> Improvements to tax credit program should expand participation, but additional tools may be necessary to improve flexibility of and demand for state/private easement programs
C. Improve uptake and effectiveness of USDA Farm Bill programs	Work to improve effectiveness of 2018 Farm Bill programs	Medium Priority/ Low Barrier	CDNR, CPW, CWCB, DWR, CDA	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization External outreach and coordination 	<ul style="list-style-type: none"> Coordinate ongoing participation in technical sub-committees Coordinate across state agencies on public comment opportunities
	Spearhead interagency working group to consider input into 2023 Farm Bill; Integrate local priorities in Outdoor Regional Partnerships or habitat plans; Champion CO landowner enrollment in 2018 Farm Bill programs Continue to work with partners to ensure effective conservation titles	High Priority/ Medium Barrier	CDNR, CPW, CWCB, DWR, CDA (coordination with external partners)	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> External outreach and coordination 	
D. Continue support for innovative private land conservation programs	Support/expand CWHP and RFW programs; Consider revitalizing CHE partnership	Medium Priority/ Low Barrier	CPW, CDA (cooperation with external and local partners)	<ul style="list-style-type: none"> Existing staff capacity 	<ul style="list-style-type: none"> External outreach and coordination Programmatic / budgetary prioritization 	

Category 7: Research Needs and Data Gaps

Topic	Recommendation	Priority / Implementation Barrier	Lead / Support Entities	Capacity Requirements	Implied Type of Action	Considerations
A. Expand animal research capabilities	Prioritize investments in habitat enhancement projects, climate adaptation research, animal collaring and disease studies	High Priority/ Low Barrier	CPW	<ul style="list-style-type: none"> Existing and expanded staff capacity 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization 	<ul style="list-style-type: none"> Need to ensure appropriate animal welfare, data privacy and proprietary use protections
	Develop an intra-agency, server-based database for GPS collar data storage and analysis	High Priority/ Medium Barrier	CPW	<ul style="list-style-type: none"> Existing and new staff capacity Expanded and new technological capacity, expertise 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization 	<ul style="list-style-type: none"> Need to ensure appropriate animal welfare, data privacy and proprietary use protections
	Consider legislation to assure private property data privacy protections with respect to publicly available wildlife data	High Priority/ Medium Barrier	GA/GOV (input from CPW, CDNR)	<ul style="list-style-type: none"> Existing staff capacity Expanded or new technological capacity 	<ul style="list-style-type: none"> Legislative action 	
B. Build capacity to develop a priority habitat and movement route climate adaptation strategy	Explore partnerships to extend climate resiliency research capacity and knowledge Work with partners to consider conservation strategies for climate resilient wildlife populations through new modeling technologies	Medium Priority/ Medium Barrier	CPW (cooperation with CSFS, CNHP, external partners)	<ul style="list-style-type: none"> Existing and potentially new staff resources 	<ul style="list-style-type: none"> Programmatic / budgetary prioritization External coordination 	

Category 8: External Partnerships and Public Outreach

Topic	Recommendation	Priority / Implementation Barrier	Lead / Support Entities	Capacity Requirements	Implied Type of Action	Considerations
A. Expand external partnerships and coordination to advance state wildlife priorities	Prioritize inter-jurisdictional research efforts in federal funding requests, and identify opportunities to augment federal support through existing financial and staff resources.	Medium Priority/ Low Barrier	CPW, CDNR, CDOT, other state agencies	<ul style="list-style-type: none"> Existing staff resources 	<ul style="list-style-type: none"> External coordination and outreach Programmatic / budgetary prioritization 	
	Strengthen support for policy interventions by engaging a diverse range of partners in education and outreach	Medium Priority/ Low Barrier	CPW, CDNR, CDOT, other state agencies	<ul style="list-style-type: none"> Existing staff resources 	<ul style="list-style-type: none"> External coordination and outreach Programmatic / budgetary prioritization 	