

EAST SLOPE MOUNTAIN LION MANAGEMENT PLAN

Colorado Parks and Wildlife

November 2024



Executive Summary

Colorado Parks and Wildlife (CPW) manages mountain lions (*Puma concolor*) on the East Slope of Colorado to conserve, protect and enhance lions for the use, benefit, and enjoyment of the state's citizens and visitors. CPW's goal is to ensure that lions continue to exist in stable numbers on the East Slope of our state for their scientific, ecological and intrinsic value and for current and future generations to enjoy through hunting and occasional observation. This lion management plan provides the framework for how CPW will achieve this goal in the Northeast and Southeast CPW Administrative Regions and replaces existing lion management plans for populations in Data Analysis Units (DAUs) L-4, L-12, L-11, L-16, L-17 and L-19.

This East Slope Mountain Lion Management Plan is written to address the concern that CPW's six DAU plans for the East Slope of Colorado, five of which were written in 2004, are each individually too small in spatial scale to properly manage solitary, low-density, wide-ranging carnivores like lions (Logan and Runge 2021). This plan increases the size of the management unit at which analysis and evaluation will occur to a more appropriate scale: the pooled CPW Administrative Northeast and Southeast Regions. As under the current lion management framework, hunter harvest will continue to be allocated across groups of Game Management Units (GMUs), but the size of most of these groups will be increased.

This plan incorporates the best available lion science published in the peer-reviewed literature, which strengthens integral parts of the framework of this plan. A strong body of research and management citations support the monitoring thresholds included in this plan. In addition, this plan outlines the process of annual review, evaluation, and adjustment to management. It also borrows heavily from the basic framework established under the West Slope Mountain Lion Management Plan, which has proven to be a successful model for lion management in Colorado since approval in 2020 and implementation in 2021.

East Slope (L-ES) DAU Objective: The management objective across the entire East Slope is to maintain a *stable* lion population. This would mean lion population levels will remain similar to what we see today. This replaces historical objectives in the six individual DAUs, two of which were managed for suppression of the population. Allocating allowable harvest mortality across harvest limit groups provides managers the flexibility to distribute harvest limits to meet local management needs, while L-ES DAU-scale thresholds ensure the maintenance of population stability at the larger scale.

Annual Data Collection and Monitoring Thresholds

Two annual monitoring thresholds are established in this plan and will be evaluated independently for the entire East Slope:

- 1) ***Adult Female Harvest Composition Threshold: Adult female composition in total L-ES DAU harvest will not exceed 22% in any year***
 - a. *Adult females are ≥ 3 years old or a female of any age that shows evidence of past nursing*

- 2) ***Total Human-Caused Mortality Threshold: The 3-year average of total reported human-caused mortality will not exceed 17% of the extrapolated abundance index from the resource selection function for the L-ES DAU***
 - a. *Human-Caused Mortality sources include hunter harvest, depredation or control removal of lions, lions killed by vehicles, etc.*

Current 2024-2025 East Slope DAUs (L-4, L-11, L-12, L-16, L-17 & L-19) harvest limits total: 208 lions

Proposed 2025-2026 East Slope (L-ES) harvest objective: 160 lions. This harvest objective will be in place for 2025-2026 to allow the completion of the 10th and final year of the Upper Arkansas lion research project. This is an initial reduction in DAU-wide harvest limits of 48 lions (23%) from 2024-2025 levels

Proposed 2026-2027 East Slope (L-ES) harvest objective: 155 lions. This is a reduction of 53 lions (25%) from 2024-2025 levels

Proposed East Slope (L-ES) total human-caused mortality threshold: 214 lions

Annual evaluation of adult female harvest composition allows assessment of population trajectory based on the selective nature of hound hunting and the proportional abundance of each age/sex class on the landscape. Limiting adult female harvest also acts to protect the component of the population responsible for reproduction. The use of a total human-caused mortality threshold acknowledges the biological importance of other known human-caused lion mortality factors beyond harvest (Logan and Runge 2021) and sets a ceiling for the maximum acceptable mortality that interacts with information derived from adult female composition evaluations.

By complementing different aspects of our understanding of lion population performance across the East Slope, these monitoring thresholds interact and balance each other during annual analysis. If either threshold is exceeded, this plan lays out clear and supportable steps that will be taken with harvest management to keep the population trajectory from a decline.

This plan also articulates future research needs and programmatic improvements to statewide harvest reporting that will be evaluated as part of the initial implementation of this plan. Additionally, CPW will initiate lion density estimation work on the East Slope as part of this plan to help inform our population projections.

Management Plan Public Engagement:

Given the technical complexities of lion management and the need to inform the general public about the species, CPW staff held eight public meetings before drafting the East Slope plan and releasing it to the public for feedback. Six in-person meetings across the Southeast and Northeast Regions and two virtual meetings were held in February and March 2024. Approximately 700 members of the public attended the eight meetings. The meetings were interactive, with activities such as lion biology trivia, opportunity for discussion, and time for participants to ask questions and hear responses from CPW subject matter experts. Attendees discussed topics such as implications for harvest limits, female harvest thresholds, lion ecology and human-lion interactions.

The draft plan was available online for public review and input for 30 days beginning on May 15th, 2024. Input was gathered and reviewed by CPW staff as part of the planning process prior to the final draft plan being presented to the Parks and Wildlife Commission to consider for approval. 181 individuals shared public input during the 30 day period. Five stakeholder organizations also provided input. Additionally, CPW staff solicited a peer review of the draft plan as well as an academic review by independent, objective professionals in the field.

Appendices to this plan should be referenced for comprehensive explanations on the following topics:

Appendix A: Mountain Lion Life History, Ecology and Monitoring

Appendix B: Mountain Lion Management History in Colorado and the East Slope

Appendix C: Mountain Lion Resource Selection Function Model

Appendix D: Literature Cited

Appendix E: Public Engagement and Input on East Slope Mountain Lion Plan