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Parks and Wildlife
Department of Natural Resources

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MEMORANDUM

TO: Colorado Parks and Wildlife Commissioners

FROM: Brian Dreher, Terrestrial Section Manager

Date: April 25, 2024

Subject: Chronic Wasting Disease Update for Parks and Wildlife Commission

Dear Commissioners,

This briefing summarizes CPW's mandatory chronic wasting disease (CWD) findings from the 2022-2023 and 2023-2024 hunting seasons. Results provide the first indication of whether CWD management actions taken for deer over the past 5-7 years have had an effect on CWD prevalence (estimated percent infected) in each herd. In summary, CWD prevalence increased in 10 herds, decreased in 4 herds, and remained about the same in 12 herds.

Background

Chronic wasting disease, a fatal neurological disease found in deer, elk, and moose, is well established in herds throughout much of Colorado. We have detected CWD in 42 of our 51 deer herds, 17 of 42 elk herds, and 2 of 13 moose herds. CWD prevalence is highest in deer and lowest in moose. This disease is always fatal and animals die from the disease within about 2-2.5 years of infection. CWD infection shortens the lifespan of infected animals. If infection rates become too high, CWD can affect a herd's ability to sustain itself.

In response to increasing CWD prevalence, the Parks and Wildlife Commission approved a statewide CWD Response Plan in 2019. One element was a 15-year mandatory testing plan, which will include three 5-year rotations for deer. Pilot work in 2017 and 2018 had shown that the number of deer submitted for testing is much higher through mandatory testing than for voluntary submissions, which allows CPW to generate reliable estimates of CWD prevalence at the herd level.

In addition, the CWD Response Plan establishes a compulsory management threshold, which means when prevalence exceeds 5% in adult (>2 years) male deer then some form of management action will be taken to reduce prevalence until it falls below the 5% threshold.

CPW identifies various management actions in the plan that are available to local managers to prescribe in herd management efforts, all of which have the potential to help reduce prevalence in deer herds.

CWD prevalence was assessed via mandatory testing in all deer herds from 2017-2020; mandatory testing focused on elk in 2021. In 2022, CPW restarted the 5-year testing rotation and 11 deer herds were the first to be included in a second round of mandatory testing. In 2023, an additional 15 herds were included in a second round of mandatory testing.

Mandatory CWD Testing Results

CWD prevalence estimates have decreased in 4 deer herds, remained about the same in 12 deer herds, and have increased in 10 deer herds (Figure 1, Table 1). Additional data and robust analyses are needed over the next 8 years of mandatory testing to guide our interpretation of these results before we are in a position to show an association between prescribed management actions and CWD prevalence. However, these preliminary data are encouraging and suggest harvest-based management actions could be a promising CWD control strategy. Considering that various management actions were prescribed to each of the 26 herds, CPW will need to evaluate why prevalence increased in some herds and decreased in others.

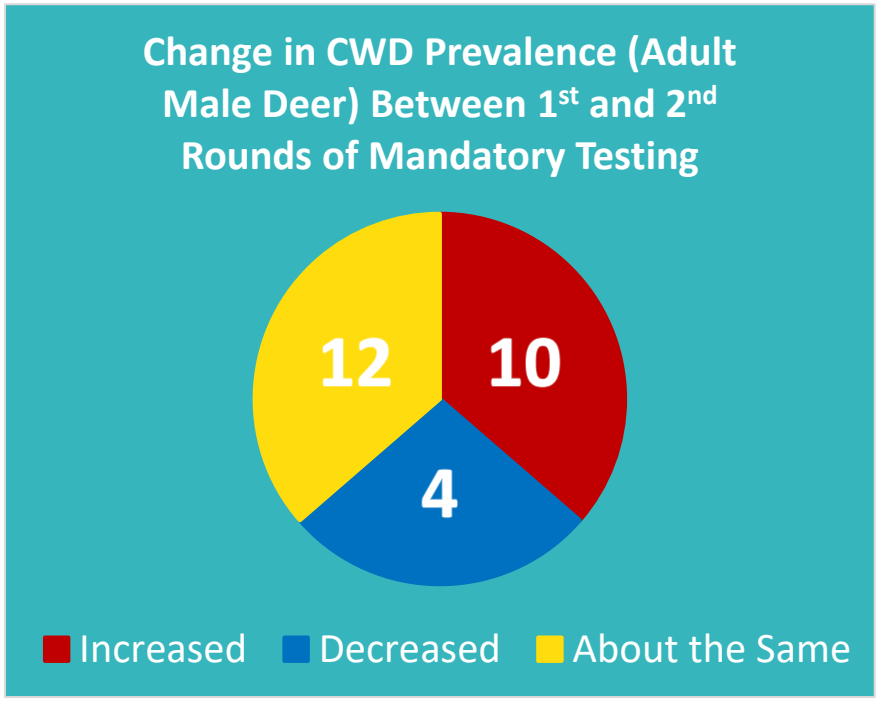

Figure 1. Number of deer herds with CWD prevalence estimates that increased, decreased, or stayed about the same between the first and second rounds of mandatory testing. Mandatory testing rounds were spaced 5 years apart for most of the 26 herds.

Table 1. Change in prevalence between 1st and 2nd rounds of mandatory CWD testing for 26 Colorado mule deer herds. Summary of management actions prescribed by local managers to reduce or maintain low CWD prevalence. The point estimate for CWD prevalence decreased (blue), increased (red), or remained about the same (yellow) between testing rounds. Prevalence estimates with 95% confidence intervals are available for every deer herd in the 2024 Big Game License Recommendation Summary report.

DAU	Herd Name	1st Round Mandatory Testing: Adult Male Prevalence	2st Round Mandatory Testing: Adult Male Prevalence	Management Actions Taken to Reduce CWD Prevalence After First Round of Mandatory Testing
D-01	Little Snake	5.3%	4.8%	Low sample sizes, managers waited for 2-year prevalence estimate before taking action, population declined during this period
D-02	Bear's Ears	18.6%	20.8%	Increased male licenses, managed sex-ratio to lower end of sex ratio objective, incorporated CWD management into HMP, recent license setting responded to severe winter
D-03	North Park	9.0%	14.6%	Increased male licenses, maintained this increase despite the population decline from the severe winter
D-04	Red Feather	5.6%	4.7%	Created month-long late season buck hunt to increase removal of infected males
D-05	North Table Lands	32.7%	24.3%	Increased male and female licenses, reduced sex ratio, reduced density
D-06	Rangely	4.0%	6.7%	No action taken as CWD prevalence was <5% threshold.
D-07	White River	15.3%	23.6%	Increased buck harvest objective and licenses in 3rd and 4th seasons, increased PLO seasons and either-sex PLO licenses, redistributed hunter pressure in later seasons, increased doe harvest in hot spot areas
D-08	State Bridge	3.8%	3.4%	Sustained long-term harvest pressure on bucks, male and either-sex licenses increased since 2013 to decrease the sex ratio
D-09	Middle Park	3.5%	8.0%	Sustained long-term harvest pressure on bucks and does to manage to HMP objectives, long history of managing for hunting opportunity
D-10	Big Thompson	12.0%	8.0%	Increased male, female, and private-land-only (PLO) licenses

D-11	Bookcliffs	2.6%	2.7%	No action taken as CWD prevalence was <5% threshold.
D-12	North Grand Mesa	1.4%	5.3%	No action taken as CWD prevalence was <5% threshold.
D-13	Maroon Bells	<1%	2.5%	No action taken as CWD prevalence was <5% threshold.
D-14	Brush Creek	No detection	No detection	No action taken as CWD prevalence was <5% threshold.
D-17	Bailey	5.4%	2.5%	Increased male licenses to decrease the sex ratio, primary focus on increasing PLO harvest
D-18	Glade Park	No detection	<1%	No action taken as CWD prevalence was <5% threshold.
D-19	Uncompahgre	3.9%	14.0%	Created August either-sex PLO rifle hunt that increased harvest within a CWD hotspot, increased muzzleloader, 2nd, 3rd, and PLO licenses on low elevation private lands, managed to lower end of sex ratio objective
D-27	Boulder	19.3%	18.5%	Increased PLO licenses
D-40	Cimarron	1.5%	3.9%	Created August either-sex PLO rifle hunt that increased harvest within a CWD hotspot, managed to lower end of sex ratio objective
D-41	Logan Mountain	6.7%	6.7%	Managed to lower end of sex ratio objective
D-42	Rifle Creek	10.0%	9.0%	Increased male licenses in 3rd and 4th seasons, managed to lower end of the sex ratio objective
D-43	Sweetwater Creek	13.6%	6.7%	Increased male licenses to reduce sex ratio, managed to lower end of sex ratio objective
D-44	South Platte River	27.3%	26.3%	Increased male licenses to reduce sex ratio, managed to lower end of sex ratio objective, increased female licenses to reduced density
D-53	Basalt	<1%	<1%	No action taken as CWD prevalence was <5% threshold.
D-54	South Table Lands	22.4%	37.1%	Increased male licenses to reduce sex ratio (ratio was well above objective), increased female licenses to reduced density
D-55	Arickaree	33.6%	40.4%	Increased male licenses to reduce sex ratio, increased female licenses to reduced density

Further Analyses

CPW will continue analyses of these CWD prevalence changes by comparing various factors between herds and the respective management actions prescribed. Comparing changes to license quotas by season, dates of harvest and prevalence estimates by season, post-hunt buck/doe ratios, abundance of bucks and does, and the percent change in buck licenses and buck harvest, etc., all in relation to changes in CWD prevalence, should improve our ability to evaluate relationships between various management actions and disease prevalence.

In our more than 40-year history working with CWD, one of the most important lessons we have learned is that we rarely see immediate changes in CWD dynamics. This is a slow-moving disease and changes in prevalence (both increases and decreases) may not be readily apparent. Multiple repeated prevalence estimates over the long-term along with consistent management application will be necessary to evaluate patterns of change in relationship to management actions.

Lastly, severe winter conditions seen in Northwestern Colorado during the 2022-2023 winter generated many questions on potential implications for CWD dynamics in the region. Harsh winter conditions may cause more rapid mortality of infected deer in the clinical phase of disease and could reduce the number of infected animals on the landscape. Overall population reductions associated with harsh winter conditions may also affect deer/elk density on the landscape and reduce direct animal-to-animal transmission. On the other hand, prolonged concentrations of deer and elk on very limited winter ranges could facilitate increased contact as well as environmental accumulation of CWD prions (infectious agent) that could increase both direct and indirect transmission pathways. Ultimately, the interplay of weather conditions, changing population dynamics, and changes in habitat use associated with a severe winter limit our capacity to predict how CWD prevalence might change. As we proceed with analyses to evaluate factors influencing CWD prevalence in Colorado wildlife populations, incorporating changes associated with periodic severe winters will be an important consideration.

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