STAFF SUMMARY FOR JUNE 24-25, 2020

24. DEPARTMENTAL INFORMATION ITEMS

Today's Item **Information ☒** **Action ☐**

This is a standing agenda item to receive and discuss informational updates from DFW.

(A) Director's report
   I. Update on actions taken after May 14, 2020 pursuant to the emergency sport and recreational fishing regulations

(B) Wildlife and Fisheries Division, and Ecosystem Conservation Division
   I. Update on surveillance plan for treponeme-associated hoof disease

(C) Law Enforcement Division

Summary of Previous/Future Actions (N/A)

Background

Verbal reports are expected at the meeting for items (A) through (C). DFW news releases of potential interest related to wildlife and inland fisheries are provided as exhibits A1-A2 and B2-B4.

Under Item (B), the Wildlife and Fisheries Division and Ecosystem Conservation Division report will include an update on the *Strategic Surveillance Plan for Treponeme-Associated Hoof Disease (TAHD) in California*. TAHD, also known as elk hoof disease, was confirmed for the first time in California in a Roosevelt elk in Del Norte County in April 2020. The plan outlines DFW's strategy to better understand and mitigate the risks this disease may pose to California's elk populations.

Significant Public Comments

(A) FGC has received two comments related to fishing closures. One comment expresses concern related to a specific closure made under the authority granted to DFW under the emergency sportfishing regulation in Section 8.02 that FGC adopted on Apr 15, 2020 (Exhibit A4). The other addresses more general concerns that anglers cannot access fishing due to closures of state parks, beaches, launch ramps, etc. in response to the COVID-19 pandemic (Exhibit A3).

(B) Two emails express concern regarding the effect of TAHD on Roosevelt elk, the availability of information, and question how the disease may impact the elk quotas approved in April 2020 (exhibits B5 and B6).

Recommendation (N/A)

Exhibits

A1. DFW news release: *After Coordination with Local Government, CDFW Lifts Fishing Delay in Mono County*, dated May 22, 2020

A2. DFW news release: *After Coordination with Local Government, California Department of Fish and Wildlife Lifts Delay in Inyo County*, dated May 27, 2020

A3. Email from Alan Earles to DFW, received Apr 15, 2020
A4. Email from Bob White to DFW, received May 7, 2020
B1. DFW report: *Strategic Surveillance Plan for Treponeme-Associated Hoof Disease in California*, dated Jun 2020
B2. DFW news release: *Elk Hoof Disease Detected in Del Norte County Herd,* dated May 7, 2020
B3. DFW news release: *Deadly Disease Detected in California Wild Rabbits for the First Time*, dated May 13, 2020
B4. Email from Tom Wheeler, received May 11, 2020
B5. Email from Phoebe Lenhart, received Jun 7, 2020

Motion/Direction (N/A)

After Coordination with Local Government, CDFW Lifts Fishing Delay in Mono County

May 22, 2020

As requested by county officials, California Department of Fish and Wildlife (CDFW) Director Charlton H. Bonham is lifting the delay of the trout opener in Mono County. Beginning May 23, trout season will be open in the county.

The trout season was originally scheduled to open in Mono County on April 25, 2020. In April, CDFW had discussions with county leadership regarding trout fishing, which typically draws a high tourism influx to the area. Local officials were concerned about the transmission of COVID-19 and its potential to put a strain on their healthcare systems. Further, all non-essential businesses including lodging, dining and camping options were closed in compliance with state and local public health officers' orders. Thus, CDFW, in consultation with Fish and Game Commission President Eric Sklar, delayed the opener through May 31, 2020.

However, in a letter yesterday, Mono County officials requested that CDFW end the delay before May 31, indicating that the county received approval from the California Department of Public Health to move into the Governor's Phase Two, Stage Two Resilience Roadmap and would begin discussions of reopening. Though county officials requested the opening on May 22, CDFW required one additional day for consultation and processing this request, thus the delay in Mono County will expire at midnight on May 22 and fishing can resume on May 23, 2020.

This decision does not affect the trout season in any other county.

CDFW reminds anglers to abide by all state and local health guidelines regarding non-essential travel and physical distancing. Staying home in order to stay healthy is still the best way to keep yourself and others safe. Anglers are also advised to check with local authorities on the status of access points as many site closures and access restrictions exist and may change daily.

Pursuant to the emergency regulation approved by the Commission, CDFW will provide accurate information for the angling public at this website or by phone at (916) 445-7600.

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Media Contact:
Jordan Traverso, CDFW Communications, (916) 654-9937

After Coordination with Local Government, California Department of Fish and Wildlife Lifts Delay in Inyo County

May 27, 2020

As requested by county officials, California Department of Fish and Wildlife (CDFW) Director Charlton H. Bonham is lifting the delay of the trout opener in Inyo County. Beginning May 28, trout season will be open in the county.

The trout season was originally scheduled to open in Inyo County on April 25, 2020. In April, CDFW had discussions with county leadership regarding trout fishing, which typically draws a high tourism influx to the area. Local officials were concerned about the transmission of COVID-19 and its potential to put a strain on their healthcare systems. Further, all non-essential businesses including lodging, dining and camping options were closed in compliance with state and local public health officers' orders. Thus, CDFW, in consultation with Fish and Game Commission President Eric Sklar, delayed the opener through May 31, 2020.

However, in a letter yesterday, Inyo County officials requested that CDFW end the delay before May 31, indicating that the county received approval from the California Department of Public Health to move into the Governor's Phase Two, Stage Two Resilience Roadmap and would begin discussions of reopening. Though county officials requested the opening on May 27, CDFW required one additional day for consultation and processing this request, thus the delay in Inyo County will expire at midnight on May 27 and fishing can resume on May 28, 2020.

This decision does not affect the trout season in any other county.

CDFW reminds anglers to abide by all state and local health guidelines regarding non-essential travel and physical distancing. Staying home in order to stay healthy is still the best way to keep yourself and others safe. Anglers are also advised to check with local authorities on the status of access points as many site closures and access restrictions exist and may change daily.

Pursuant to the emergency regulation approved by the Commission, CDFW will provide accurate information for the angling public at this website or by phone at (916) 445-7600.

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Media Contacts:

Jordan Traverso, CDFW Communications, (916) 654-9937

From: [redacted]
Sent: Wednesday, April 15, 2020 8:04 AM
To: Wildlife DIRECTOR <DIRECTOR@wildlife.ca.gov>
Subject: Delays/suspensions.

Message sent from www.wildlife.ca.gov/Explore/Director/Email:

Name: Alan Earles

County: Alameda

Message: Dear Director, I'm writing to you today in hopes that you see this and hear my concerns. With the current crisis developing I understand the measures being taken to slow the spread of Covid-19. However, while all this is understandably a priority not only for our great state of California but also our fellow Americans nationwide, I'm becoming more and more concerned with how local officials and counties are handling the situation. As you saw California fisherman are EXTREMELY worried that we are going to loose our fishing season. You promptly addressed those concerns, assuring us that fishing will not end in California but only a few delays of certain species in certain areas. I think it eased a lot of peoples minds, although I can't say the same for myself. Public health officials in various counties statewide have recommended the closures of boat ramps/state parks/beaches/parking lots etc severely limiting our access to the water. For example almost all launch ramps have closed on the coast denying boat/kayak fisherman access to the ocean as well as piers/beaches denying access to those who fish from shore. My worry here is that even though you assured the millions of Californian anglers that fishing is still allowed so long as we adhere to the state and local orders. With many access points to the waterways closing one by one, county by county across the state i'm starting to think fishing isn't allowed. As a fisherman I can't stress enough how critical it is to be able to access the water in order to fish. During this time of year it is prime time for fisherman to get out and fill their freezers with fresh non-farmed fish for their families. Millions of people are being laid off/furloughed without pay causing extremely tough times as I know you are fully aware of. Many of our states citizens are going out of business, behind on bills and for those of us who live paycheck to paycheck the savings just are not there in order sustain through this crisis. Fishing like hunting or any type of foraging allows citizens to go out and harvest their own food the way our ancestors did, without having to spend hundreds of dollars at a market. In California we spend on average about $1,282 per month on food. While Un-employment is recovering some of our lost wages it is just not enough to survive. Mr. Director fishing is a cost effective way to provide for our families during this time of financial burden. Allow fisherman to access the waterways in order to provide for our families. I hope you hear these concerns.Thank you for your time and consideration Sincerely, A concerned citizen

From: Bob White [redacted]
Sent: Thursday, May 7, 2020 8:35 AM
To: Bloom, Roger@Wildlife <Roger.Bloom@wildlife.ca.gov>
Cc: Richard White [redacted]
Subject: Yuba River Fishing Season Closure

Mr Bloom,

The decision to keep the fishing season closed on the Yuba River above Goodyears Creek until after May 31 is not based on any legitimate supportive data. Your department's action on this issue illustrates that those individuals in the department making these decisions are far more interested in their personal occupational interests than the interests of the public they serve. This decision is strictly political and should be immediately reversed.

Please forward my comment to Charlton H. Bonham and Eric Sklar.

--
Bob White
[redacted]

STRATEGIC SURVEILLANCE PLAN FOR TREPONEME-ASSOCIATED HOOF DISEASE IN CALIFORNIA

June 2020

California Department of Fish and Wildlife
1416 9th Street
12th Floor
Sacramento, CA 95814

Prepared By:

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Kristin Denryter, Ph.D.

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Suggested citation: Munk, B.A., Lantz, E.L., and Denryter, K. 2020. Strategic surveillance plan for treponeme-associated hoof disease in California. California Department of Fish and Wildlife, Sacramento, CA.

Executive Summary

Treponeme-associated hoof disease (TAHD), also known as elk hoof disease, was confirmed in California for the first time in April 2020 in a Roosevelt elk harvested from Del Norte County in December 2019. Subsequently, TAHD was been confirmed in two additional elk from the same area. This plan outlines the Department's strategy to determine geographic distribution, estimate prevalence when feasible, and inform research and management actions to better understand and mitigate risks this disease may pose to California's elk populations. Having and maintaining robust demographic data will be vital to the understanding of this disease in California's elk populations and continuing to prioritize Population Monitoring objectives, outlined in the 2018 Elk Conservation and Management Plan and detailed in specific Elk Management Unit (EMU) plans, will be critical.

As the name implies, TAHD is associated with one or more species of spiral-shaped bacteria, or spirochetes, in the genus *Treponema*. The disease was first described in 2009 following increasing reports of limping or lame Roosevelt elk in southwestern Washington the year prior. Since then, it has been detected in Roosevelt and Rocky Mountain elk in other parts of Washington, Oregon, Idaho, and now California. While much has been learned about this disease, much more remains unknown, including what factors lead to disease in individuals and what the potential impacts may be to affected elk populations. These unknowns make planning response and management actions and predicting outcomes to California's elk populations challenging. As such, the Department's immediate priorities for this disease are to determine its distribution in California and to better understand the ecology, epidemiology, and pathophysiology of this disease to better advise the Department's management actions.

Acknowledgments

We are grateful for the support, advice, and input of many individuals in the preparation of this strategic surveillance plan for treponeme-associated hoof disease in California. Several individuals from the Washington Department of Fish and Wildlife (WDFW), Oregon Department of Fish and Wildlife (ODFW), and Washington State University (WSU) generously shared their time and invaluable insights with us before and during the drafting of this plan. We are especially grateful to Kyle Garrison and Dr. Kristin Mansfield from WDFW, Dr. Julia Burco (ODFW), and Dr. Margaret Wild (WSU) for their review of this plan and their input. We also are grateful to Dr. Rachel Cook of the National Council for Air and Stream Improvement for providing materials to help standardize collection of nutritional condition indices from deceased elk.

Plan Overview

Plan Purpose and Goals

The Department developed this plan in response to the initial detection of treponeme-associated hoof disease (TAHD) in California. The purpose of this plan is to direct statewide surveillance for TAHD which will, in turn, support or direct research and management efforts related to elk hoof disease.

Surveillance Goal 1: Determine geographic distribution and, where feasible, estimate prevalence of TAHD in California.
Surveillance Goal 2: Inform research and management actions to better understand and mitigate the risk of this disease to California's elk populations.

Surveillance provides the foundation for understanding this disease in California and will both support and direct any proposed research or management objectives and actions by providing the necessary information to inform and adapt management priorities. Robust population monitoring as outlined in Elk Management Unit plans will be required to adequately interpret surveillance data over time and direct management priorities. Specific surveillance and population monitoring objectives will be incorporated into Elk Management Unit plans as disease and management priorities evolve. Surveillance goals may change as our understanding of this disease increases, new tools are developed, management priorities shift, and resources change.

Departmental Jurisdiction and Authority

California Fish and Game Code (FGC) declares various objectives for preservation, conservation, and maintenance of wildlife resources under the jurisdiction and influence of the state, including alleviation of public health or safety problems caused by wildlife (§1801) and establishes the California Department of Fish and Wildlife (hereafter CDFW or Department) as the trustee agency for the conservation, protection, and management of fish and wildlife (§1802). Additionally, California FGC §1001 grants CDFW the authority to take wildlife for prevention or relief of suffering.

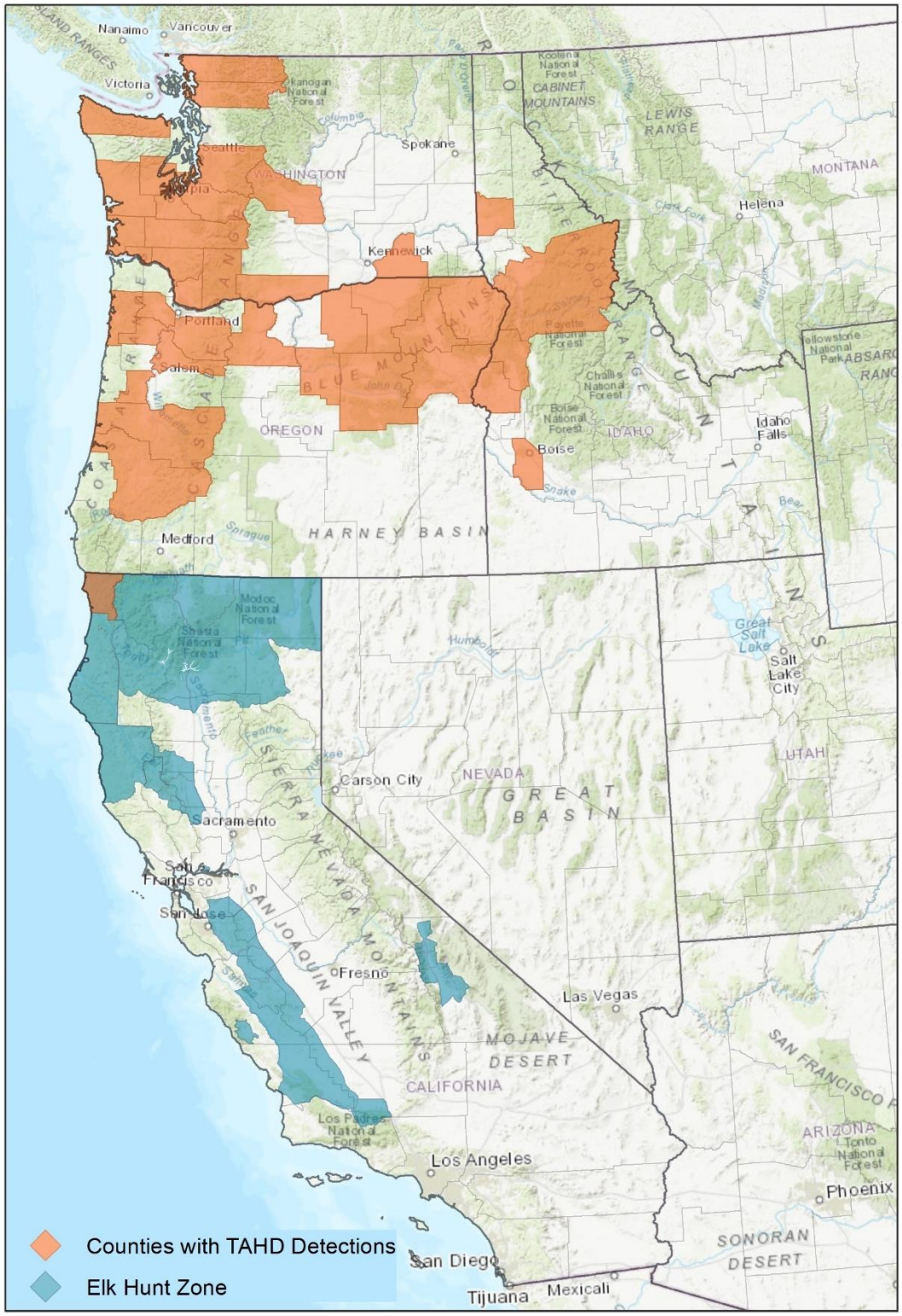
Background and Current Understanding of Treponeme-Associated Hoof Disease

History and Known Geographic Distribution

Treponeme-associated hoof disease (TAHD), sometimes referred to simply as elk hoof disease, was first characterized in Roosevelt elk from southwest Washington in 2009, following sporadic reports of limping elk back to the 1990s and a dramatic increase in 2008 (Han and Mansfield 2014, Han et al. 2019). It has since been detected in Roosevelt and Rocky Mountain elk in Oregon (2014), Idaho (2018), and California (April 2020) (Fig. 1). As of May 2020, TAHD is not known to occur in tule elk. The first cases of TAHD in California were

from hooves of two Roosevelt elk harvested by hunters in December 2019. While much has been learned about this multifactorial disease in recent years, still more remains unknown.

FIGURE 1: KNOWN DISTRIBUTION OF TAHD AS OF MAY 2020. ORANGE SHADING INDICATES COUNTIES WHERE TAHD HAS BEEN CONFIRMED IN FREE-RANGING ELK. NOTE, DEL NORTE COUNTY IS THE ONLY KNOWN AFFECTED COUNTY IN CALIFORNIA BUT SURVEILLANCE FOR TAHD WILL BE PERFORMED WHEREVER ELK ARE PRESENT IN CALIFORNIA.



Clinical Findings and Etiology

To date, few studies have been published on TAHD and research efforts have focused largely on describing the disease in individual elk and identifying pathogens associated with the disease (Han and Mansfield 2014; Clegg et al. 2016; Han et al. 2019). Early infections are characterized by superficial changes (e.g. erosions, ulcers, hyperkeratosis) at the coronary band and interdigital space of affected feet and hooves. As the disease progresses, ulcers undermine the coronary band, hoof capsule, and/or heel-sole junction. Further ulceration associated with inflammation and necrosis of deep and superficial tissues leads to increasingly overgrown, broken, or otherwise damaged hoof capsules. In severely affected hooves, the hoof capsule can ultimately break or slough off (Table 1; Appendix A). Hoof capsule overgrowth or deformity may be found at any stage of TAHD (Han et al. 2019). Hoof lesions are painful and can lead to limping or lameness. Secondary bacterial infections, both localized and systemic, may occur and could contribute to disease in affected animals.

TABLE 1. DESCRIPTION AND GRADES OF TREPONEME-ASSOCIATED HOOF LESIONS FROM HAN ET AL. (2019); SEVERITY OF LESIONS INCREASES WITH INCREASING GRADE NUMBER.

Grade of foot lesion	Description
I	Cutaneous only with coronary, interdigital skin, or heel erosions or ulcers with or without hoof capsule overgrowth and deformity
II	Ulceration with undermining of the hoof capsule or heel-sole junction, with or without hoof capsule overgrowth and deformity
III	Sole ulceration with inflammation or necrosis of the epidermal and dermal lamina, with or without hoof capsule overgrowth and deformity
IV	Grade II or III lesions with breakage or sloughage of the hoof capsule, with or without hoof capsule overgrowth and deformity

Spirochete (spiral-shaped) bacteria in the genus *Treponema* are consistently detected in affected hooves (Clegg et al. 2016, Han et al. 2019), though in combination with diverse species of aerobic and anaerobic bacteria, hence the descriptive name treponeme-associated hoof disease (Han et al. 2019). Genetically related treponemes are associated with similar hoof diseases, digital dermatitis (DD), found in domestic livestock including cattle, pigs, sheep, and goats (Clegg et al. 2016). However, the role these treponemes play in the development of TAHD or DD is not fully understood and other species of bacteria routinely identified in association with these diseases may play a role in developing disease (Han et al. 2019). To date, TAHD has not been detected in other wild ungulate species.

Ecology and Epidemiology

Relatively little is known about the ecology and epidemiology of TAHD and much work is needed to describe and understand the various host, pathogen, and environmental factors associated with the disease. Susceptibility of individual elk to TAHD is believed to be multifactorial (Han et al. 2019). Understanding these factors is necessary to effectively manage this (and any) disease in wildlife populations (Wobeser 2007).

Development of TAHD is likely influenced by multiple factors including environmental conditions (e.g., moist soils, bacterial community makeup), population densities, nutritional condition of individual animals, and mineral deficiencies (e.g., selenium, copper) (Han and Mansfield 2014; Han et al. 2019). Preliminary results from a Washington Department of Fish and Wildlife (WDFW) study of the Mount Saint Helen's elk population suggest that affected elk were in poorer nutritional condition in December (usually the time of year of peak body fat levels in temperate environments), had lower pregnancy and lactation rates, and had lower annual survival than unaffected elk. Additionally, WDFW found that more elk affected by TAHD died from general debilitation and predation than unaffected elk (Hoenes et al. 2018). These findings, taken together, suggest that TAHD has the potential to negatively influence susceptible elk populations. However, many risk factors remain unknown and much work remains to understand what effects TAHD may have on elk populations and what effective management strategies may be.

Surveillance

In their Terrestrial Animal Health Code, the OIE (World Organisation for Animal Health) defines surveillance as the "systematic on-going collection, collation, and analysis of information related to animal health and the timely dissemination of information so that action can be taken." In accordance with this definition, CDFW's surveillance efforts are described below and will be incorporated into existing population assessment efforts across every elk management unit. The Department is responsible for collecting population data which will continue to be critical to help inform potential management actions. Population monitoring will be continuous and disease surveillance intensities will adapt and vary over time as detections are confirmed and our understanding of the disease improves. We anticipate broad interest in the potential implications of the disease so efforts will coordinate with other state and federal wildlife and agricultural agencies, universities, federally recognized Tribes, and the public to monitor and document the distribution of TAHD in California. Surveillance activities are underway where TAHD has been detected and will be expanded to other Elk Management Units (EMU) as we implement this plan.

Determining Geographic Distribution of TAHD

To determine the geographic distribution of TAHD and monitor for changes in that distribution, surveillance will be conducted throughout the range of elk in California. Surveillance intensities will vary between EMUs based on presence/absence of TAHD, presence of risk factors associated with TAHD, and management priorities in each EMU. The Department will work with partners including other state and federal resource agencies and

land managers; federally recognized tribes; hunters; scientific collecting permit holders; law enforcement; CalTrans; private landowners enrolled in Private Lands Management (PLM) or Shared Habitat Alliance for Recreational Enhancement (SHARE) programs; non-governmental organizations; and the general public to facilitate disease surveillance. These efforts will focus on the following surveillance activities:

1. Reporting limping elk or elk with deformed hooves through WIL's online disease/mortality reporting tool:
    a. Used to prioritize populations to sample.
    b. May come from the public, CDFW staff during routine population management activities (surveys, captures, depredation, etc.), or CDFW partners and volunteers.
    c. https://wildlife.ca.gov/Conservation/Laboratories/Wildlife-Investigations/Monitoring/Mortality-Report.
2. Hooves from hunter-harvested elk (removed approximately four inches above the "ankle" joint):
    a. Initial focus on PLM and SHARE program and managed hunts.
    b. Brought to CDFW Regional Offices or hunter check stations, as organized by Regional staff in coordination with the Wildlife Branch (WLB) Elk Species Lead and Wildlife Investigations Lab (WIL).
    c. Visual inspection of hooves by trained CDFW staff, partner, or volunteer to identify lesions consistent with TAHD. Training will be provided by the WIL.
    d. Submit a subset of hooves either directly to the California Animal Health and Food Safety (CAHFS) Laboratory or the WIL for confirmation of TAHD and collection of samples for archive (biopsy interdigital space, coronary band; cryovial; freeze -80ºC).
    e. Hooves not sampled for diagnostics may be stored frozen for ongoing TAHD research collaborations.
3. Sick or debilitated elk may be euthanized by CDFW staff for Animal Welfare or Management purposes.
    a. Collect and submit all four hooves (described above) and a 2" x 2" piece of liver to the WIL or directly to CAHFS in coordination with WIL.
    b. Store on ice or refrigerate for up to 48 hours, otherwise freeze at -20ºC until samples can be submitted.
    c. There may be cases where a full necropsy and postmortem investigation is required. For these cases, a standardized necropsy protocol will be developed in coordination with the WIL.
4. Elk mortalities from other sources may be opportunistically inspected or sampled for TAHD.
    a. Regional staff should coordinate with scientific collection permit holders, CalTrans, and Tribes to facilitate visual inspection and/or sampling.
    b. Hooves and liver samples will be collected and submitted as described in 3(a), if visual inspection suggests TAHD or if samples are from an EMU with negative or unknown disease status.

Surveillance in Elk Herds Following Initial Detection

Following initial detection and confirmation of TAHD in a herd or EMU, the Department may increase surveillance and sample collection intensity in an EMU to accomplish specific objectives that may be developed in response to TAHD or management priorities, otherwise disease monitoring will continue as described in the previous section. The decision to increase surveillance intensity will depend on multiple factors including evolving management, disease, and research priorities, defined as we work with partners and gain a broader understanding of this disease in California, and resource availability. Situations that may require increased surveillance intensity include, for example, confirming disease status of herds with negative or unknown disease status that are adjacent to known positive herds, determining prevalence within an affected population, measuring success of disease management actions, or to support specific research goals.

As we learn more about TAHD in California, specific population, management, and disease objectives will be developed and more intensive surveillance strategies may be required to support those objectives. As such, they will be developed as specific Research and Management priorities are developed. Where required, a specific and detailed disease sampling and surveillance plan will be developed collaboratively by WLB, WIL, and Regional staff within Research and/or EMU Plans. These plans will, at a minimum, identify:

1. Specific Research or Management Goal(s) and Objective(s) to be addressed.
2. The specific Surveillance Goal(s) and Objective(s) to accomplish.
3. Population(s) to be sampled.
4. Sampling unit(s) defined.
5. Minimum sample size(s) and, where appropriate, predictive values.
6. Samples to be collected and tests performed.

Confirmation of Treponeme-Associated Hoof Disease

Confirmation of TAHD in an individual animal will be based on identifying one or more gross and microscopic lesions consistent with TAHD and in association with argyrophilic (silver-loving) spirochete bacteria (Han et al. 2019). As understanding of this disease expands additional diagnostic assays like immunohistochemistry (IHC), polymerase chain reaction (PCR), metagenomics, or others may become available and modify or replace this standard for case confirmation.

Sampling, testing, and surveillance strategies may change based on the availability of diagnostic assays or resources, disease detections, and management or research priorities. For example, once TAHD is detected in a herd, identification of additional diseased animals may be based on evidence of lame elk or by visual inspection of affected hooves, and confirmatory testing may be waived.

For continuity, a minimum dataset will be collected from each animal sampled or inspected to include:

- Reporting party or inspector's name and contact information
- Location of affected elk, EMU and GPS (UTM) coordinates.

- Date of observation and/or collection.
- Number of elk affected.
- Age and sex of affected elk.
- Identify and label which hooves have lesion(s) and which were collected.
- Note any antler abnormalities.

Research

Much remains unknown about TAHD and research into the disease, particularly the causes and effects, will be crucial for developing effective management strategies (Wobeser 2007, Han et al. 2019). As such, research into TAHD performed or supported by CDFW will focus on understanding the ecology and epidemiology, causative factors, population level effects, and effective management strategies of TAHD in California's elk populations. This will be accomplished by initially defining the geographic extent of TAHD in California and monitoring trends over time through disease surveillance (described above), continued demographic monitoring (described in CDFW's 2018 Elk Conservation and Management Plan), and working with local and regional partners to develop and implement specific research priorities. We will continue to support already established research collaborations to further understand the pathophysiology, confirm causative relationships between pathogens, and develop additional diagnostic tests for TAHD.

Specific research Objectives and Actions will be developed collaboratively within and among CDFW and CDFW's partners. Research goals, objectives, and actions will be modified or expanded as additional needs arise. As our understanding of the etiology, epidemiology, and ecology of TAHD increase, we will transition to research efforts that prioritize identifying strategies for managing TAHD.

Disease Management

Selecting appropriate methods for managing a disease requires a clear understanding of the cause, ecology, and epidemiology of the disease. Generally, objectives for managing wildlife diseases focus on prevention and reducing the prevalence and spread of disease, rather than eradication which is often not feasible once a disease becomes established in a wild population. In controlled or captive settings, animal disease management can include contact tracing, quarantine, treatment, vaccination, husbandry or habitat manipulation, and culling. However, these tools are often unavailable or ineffective for managing diseases in wildlife.

Contact tracing is generally not feasible in wildlife populations since not all animals are marked to be individually identifiable, individual movements and interactions among individuals cannot be tracked with adequate detail, and it is often impractical, dangerous, or impossible to capture and mark or quarantine all affected animals. Similarly, treatments available for similar hoof diseases in domestic livestock (e.g., topical antibiotics, prophylactic footbaths) are not feasible in free-ranging wildlife as they require repeated treatments and resource prohibitive to implement. There is no vaccine available for TAHD or

similar diseases in livestock. That leaves habitat manipulation and culling as the remaining options to consider, with our current understanding of TAHD.

Lethal removal has been used in Washington and Oregon for management of TAHD and is currently the only tool considered feasible for managing TAHD in California. To the extent feasible, management will focus on disease containment and mitigation, with lethal removals being a tool to help achieve that goal. Where lethal removal is employed, it will be performed to maximize animal welfare and conducted whenever possible in accordance with the American Veterinary Medical Associations guidelines. It is likely that habitat features (moist environments, overlap with livestock) are important risk factors as such habitat manipulation that alters habitat usage patterns by elk may be an option to consider as we learn more about the risk factors and ecology of TAHD. However, much work remains before habitat manipulation is likely to be a viable management action. Surveillance and research will inform TAHD-related management objective and actions. Management objectives and actions will be developed within specific EMU plans.

Potential Management Actions, unknown efficacies:

- Identify and cull affected animals (Wildlife Services and/or CDFW staff).
    - Removes sources of transmission and environmental contamination.
    - Decrease or slow disease transmission and spread.
- Lowering population objectives in affected areas.
    - Increase tag limits in affected areas.
    - Decrease density dependent disease transmission.
- Improve habitat conditions and forage quality.
    - Increase nutritional status of elk.
    - Decrease (yet undefined) environmental risk factors.
- Ban translocations of elk into or out of affected populations.
- Increase disease surveillance prior to any translocation from an unaffected herd.
- Habitat management/manipulation to affect habitat use by elk.
    - Fire or mechanical manipulation of habitats.
    - Fencing to exclude elk from certain habitats.
    - Decrease interactions with livestock.

Data Management

Samples will be submitted directly to the WIL or to CAHFS in coordination with WIL. Copies of data sheets (Appendix B) will accompany all samples and be copied to the WLB. The WIL will store, archive, and submit samples for testing; report test results; enter data and maintain an TAHD database. Regional staff will be responsible for providing (and updating quarterly) all available data on elk to the WLB for maintenance in a relational database. The WLB and WIL will develop an TAHD website where we will report and map TAHD surveillance results.

Data will be analyzed, summarized, and reported on annually by July 1. Reports will be prepared collaboratively by WLB, WIL, and appropriate regional staff, and will include

information on surveillance efforts (including number of samples analyzed, maps of geographic distribution of samples, diagnostic results, changes in distribution or prevalence, and other pertinent information).

Communication Strategy

Communication and dissemination of results in a timely manner are integral to successful disease surveillance and management efforts.

Communication Goal 1: Increase public awareness of TAHD in California.

Objective 1.1: Facilitate transparency and timely sharing of information related to TAHD in California.

Action 1.1.1: Communicate important updates using press releases through CDFW's Office of Communication, Education, and Outreach.

Action 1.1.2: Produce and maintain an up-to-date webpage on TAHD and associated surveillance and research activities in California.

Action 1.1.3: Provide information to elk hunters on hoof disease in hunter information documents, including information on reporting hoof abnormalities.

Action 1.1.4: Produce a technical report, with accompanying non-technical summary, of TAHD surveillance and research efforts annually.

Action 1.1.5: Department staff provide updates at public meetings.

Literature Cited

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APPENDIX A: Depiction of elk hoof lesions and associated lesion grades from Han et al. 2019. Adapted by permission from Hoenes et al. 2018.

Elk Hoof Disease

Washington Department of FISH and WILDLIFE

Coronary band: where the hair meets the hoof

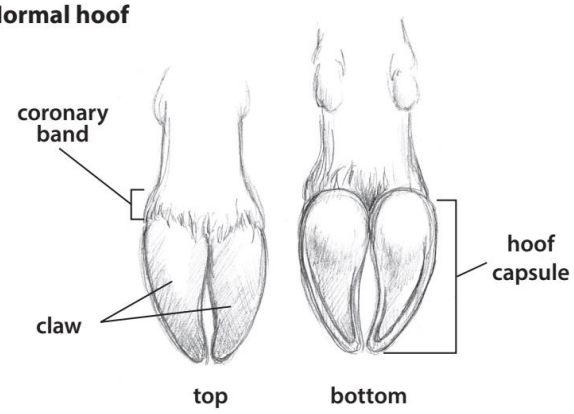
Claw: one of two digits/toes on each hoof

Hoof capsule: the entire structure, made of horn, that covers the digit/toe/claw

More Info:

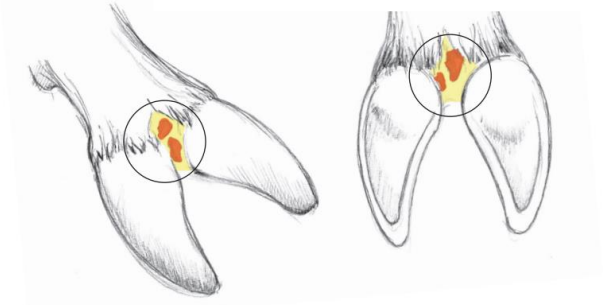
wdfw.wa.gov/conservation/health/hoof_disease/

Normal hoof



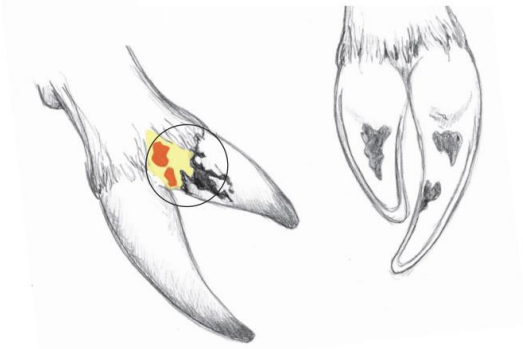
Grade 1

Broken or infected-appearing skin along the coronary band or between the toes/claws/digits. Lesions are limited to the skin with no hoof capsule involvement. Hoof capsule(s) may or may not be overgrown, but are not infected or broken.



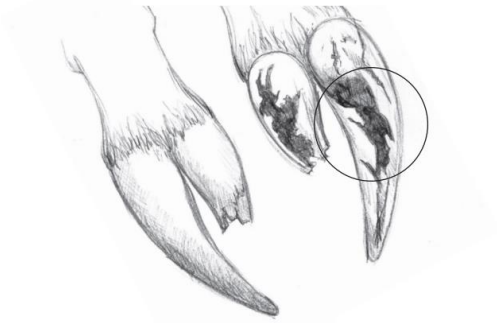
Grade 2

Skin wound is beginning to work its way underneath the hoof capsule. Hoof capsule(s) may or may not be overgrown.



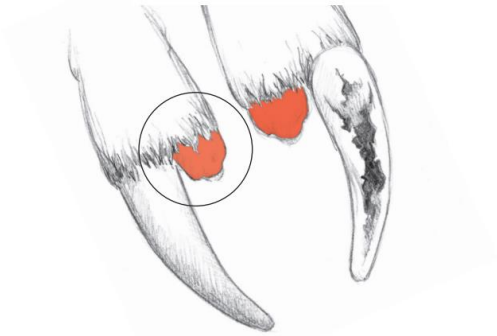
Grade 3

A large cavity or hole in one or both hoof capsules, usually on the bottom of the hoof. May include Grade 2 lesion. Hoof capsule(s) may or may not be overgrown.



Grade 4

Missing one or both hoof capsules. Remaining claw may include Grade 2 or Grade 3 lesions; and remaining hoof capsule is usually overgrown.



APPENDIX B: Sample Datasheet.

ELK HEALTH SURVEILLANCE

ID Number

Date: _____ Subspecies: Roosevelt ☐ Rocky Mtn ☐ Tule ☐

Name: _____ Age Class: Calf ☐☐ Yearling ☐☐ Adult ☐☐ _____ (years)

Source: _____ Sex: Female ☐☐ Male ☐☐ Unknown ☐☐

Post-mortem condition: Good ☐ Fair ☐ Autolyzed ☐

Nutritional Status: Good ☐☐ Fair ☐☐ Poor ☐☐

Death via: Hunter ☐ Euthanasia ☐ Vehicular ☐ Predation ☐ Other ☐ Unknown ☐ _____

Date of death: _____ Hunter name: _____ Tag # (or GoID): _____

Notes: _____

GPS coordinates Latitude: _____ Longitude: _____

Easting: _____ Northing: _____

Datum: WGS 84 ☐ NAD83 ☐ Zone: _____

General location (*physical land description, address, hunt zone, etc.*): _____

Carcass injuries (*Mark general location of injuries on picture and describe below*)

Description of injuries

Marked individual: Ear Tag ID _____ Collar ID _____ Collar Frequency _____

Samples Collected

Hooves:	Right Front ☐	Left Front ☐	Right Hind ☐	Left Hind ☐		
Feces:	WhirlPak 1 ☐	WhirlPak 2 ☐				
Liver:	WhirlPak 1 ☐	WhirlPak 2 ☐				
CWD Samples:	WhirlPak RPLN ☐				Formalin RPLN & obex ☐	
GI:	Ileocecal LN ☐	Colon ☐	Mesenteric LN ☐			
Muscle:	WhirlPak 1 ☐					

Notes (*description of any abnormalities*)

Elk Hoof Disease Detected in Del Norte County Herd

May 7, 2020

The California Department of Fish and Wildlife (CDFW) has detected the state's first cases of a potentially crippling hoof disease in two Roosevelt elk from a resident herd in Del Norte County.

Treponeme-associated hoof disease (TAHD) – commonly referred to as "elk hoof disease" – can cause deformed, overgrown and otherwise damaged hooves. The lesions and resulting deformities are painful and lead to limping, lameness and even death as observed in other states. When the disease is severe, elk may become too weak to graze, fight off other infections or escape predators.

TAHD was first identified in elk from Washington state in the 1990s, but much remains unknown about the disease. Currently, there is no known cure or vaccination.

TAHD has been documented in elk in Washington, Oregon and Idaho. Recent detections in Oregon's Douglas County were previously the closest to California. TAHD gets its name from a bacterium, Treponema sp., that is associated with this disease, but other pathogens also may play a role. Scientists at Washington State University who are experienced with TAHD confirmed the disease in the two Roosevelt elk from Del Norte County.

It is unknown what impact TAHD may have on elk populations in California or other states. California is home to three subspecies of elk – Rocky Mountain elk, Roosevelt elk and tule elk – that together inhabit approximately 25 percent of the state. In other states, both Rocky Mountain and Roosevelt elk have contracted TAHD. To date, there are no known cases of TAHD among tule elk.

While the disease appears to be highly infectious among elk, there is no evidence that it affects humans. Still, hunters who harvest an elk exhibiting signs of deformed or damaged hooves should exercise caution and practice safe hygiene when processing, cooking and consuming the meat. Hunters also are encouraged to submit hoof samples to CDFW from suspect elk.

CDFW will be working with natural resource agencies in other western states and academic partners to increase surveillance for TAHD in California, plan management actions and facilitate research.

The general public can assist CDFW's efforts by reporting any elk that appears to be limping, lame or have abnormal hooves via CDFW's Wildlife Investigations Lab disease and mortality reporting website: https://wildlife.ca.gov/conservation/laboratories/wildlife-investigations/monitoring/mortality-report.

Additional information on elk hoof disease is available at the following links:

- Washington State University's webpage on TAHD: vmp.vetmed.wsu.edu/research/elk-hoof-disease
- Washington Department of Fish and Wildlife's web page on TAHD: wdfw.wa.gov/species-habitats/diseases/elk-hoof
- Oregon Department of Fish and Wildlife's fact sheet on TAHD: www.dfw.state.or.us/wildlife/health_program/docs/elkhoofdiseasefactsheetfinal.pdf

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Media Contacts:
Dr. Brandon Munk, *CDFW Wildlife Investigations Lab, (916) 358-1194*
Peter Tira, *CDFW Communications, (916) 215-3858*

Deadly Disease Detected in California Wild Rabbits for the First Time

May 13, 2020

The California Department of Fish and Wildlife (CDFW), in conjunction with the California Animal Health and Food Safety Lab, San Bernardino has diagnosed Rabbit Hemorrhagic Disease (RHD) in a black-tailed jackrabbit carcass submitted from private property near Palm Springs in early May. Samples submitted to the National Veterinary Services Laboratory in Plum Island, New York, confirmed the presence of the RHD virus type 2 (RHDV2) in California for the first time. This disease is highly contagious and often lethal to both wild and domestic rabbits. The carcass that was tested was one of about 10 dead jackrabbits observed on the Palm Springs property.

RHDV2 is not related to coronavirus; it is a calicivirus that does not affect humans or domestic animals other than rabbits. At this time, no other California rabbit populations are known to be infected, but the disease has spread quickly in other states, prompting CDFW biologists to prepare for more reports in the coming months. A "quick facts" reference guide can be found on CDFW's website.

Since March 2020, RHDV2 has caused mortalities of both wild and domestic rabbits in New Mexico, Colorado, Arizona, Texas and Mexico. Deaths of both wild rabbits and jackrabbits have occurred. Infected rabbits and jackrabbits may exhibit no symptoms leading up to their sudden death, or may suffer from fever, swelling, internal bleeding and liver necrosis. The range of susceptible species in North America is currently unknown, but all rabbit, jackrabbit, hare and pika species are likely susceptible.

CDFW Senior Wildlife Veterinarian Deana Clifford noted the introduction of RHDV2 to California could significantly impact wild rabbit populations, particularly those already at risk, such as the endangered riparian brush rabbit (Sylvilagus bachmani riparius) and those with limited distribution in the state, such as the pygmy rabbit (Brachylagus idahoensis).

"Unfortunately, we may also see impacts to species that depend on rabbits for food, as rabbits are a common prey species for many predators," noted Dr. Clifford.

CDFW will carefully monitor the progression of RHDV2 in California, including investigating and testing rabbits found dead, monitoring populations of endangered rabbits and working with partners, including the U.S. Fish and Wildlife Service, the California Department of Food and Agriculture (CDFA) and the U.S. Department of Agriculture.

Public reports are an extremely helpful tool as wildlife veterinarians monitor the situation. CDFW is asking anyone who lives, works or recreates in wild rabbit habitat to report any sightings of sick or dead rabbits to CDFW's Wildlife Investigations Laboratory. To report

sightings of sick or dead wild rabbits, hares or pikas contact the CDFW Wildlife Investigations Lab at (916) 358-2790 or file an online mortality report through CDFW's website.

Outdoor recreationists should take precaution when hiking, camping or backpacking and not handle or disturb carcasses to minimize the potential spread of RHDV2. Additionally, hunters should take precautions to prevent spreading the virus, such as wearing gloves when field dressing rabbits, washing hands and burying remains onsite so that scavengers cannot spread the virus. The virus is hardy and can remain viable on meat, fur, clothing and equipment for a very long time, making it easily transmissible to other areas.

In California, hunting season for brush rabbits and cottontails opens July 1 and runs through the last Sunday in January. The season is open statewide, except for a closed area in the Central Valley near the riparian brush rabbit range. Hunting season for jackrabbits is year-round and statewide.

A vaccine for RHDV2 is not currently available in the U.S., thus domestic rabbit owners should practice good biosecurity measures to protect their animals from this disease, such as washing hands before and after working with rabbits, not sharing equipment with other owners and keeping their rabbits isolated from wild or feral rabbits.

Domestic rabbit owners who have a sick rabbit should contact their veterinarian. If domestic rabbits are found dead, please contact the local CDFA Animal Health Branch or call (916) 900-5002.

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Media Contacts:
***Dr. Deana Clifford**, CDFW Wildlife Investigations Laboratory, (916) 358-2378*
***Kirsten Macintyre**, CDFW Communications, (916) 804-1714*

From: Tom Wheeler <tom@wildcalifornia.org>
Sent: Monday, May 11, 2020 10:35 AM
To: FGC <FGC@fgc.ca.gov>
Subject: Comment for May 15 meeting

Dear Fish and Game Commission,

On behalf of the Environmental Protection Information Center (EPIC), I write to bring to your attention significant new information concerning elk health on the North Coast that directly relates to the elk hunting quotas that the Commission previously approved at your April 16th meeting and future elk management decisions.

As you are likely aware, the California Department of Fish and Wildlife has recently announced the presence of treponeme-associated hoof disease (TAHD) in North Coast elk. TAHD has previously been detected in elk in both Washington and Oregon. From their experience, TAHD is extremely concerning for the following reasons:

- The disease causes lameness in elk populations, which in turn reduces the fitness of elk and increases mortality. Elk populations in Washington have experienced significant population declines as a result of the disease.
- Spread of the disease is rapid and can infect nearly all of a herd, with herds in Washington and Oregon reporting between 20-90% of elk experiencing symptoms.
- There is no treatment for the disease.
- Further regulations concerning elk hunting can minimize the spread of the disease and moderate the effects.

EPIC believes that this information constitutes significant new information and the cumulative impacts of the disease, together with approved hunting, is unknown. EPIC will provide more information about the disease and management recommendations in a future letter.

Thank you for your attention to this issue.

Sincerely,

Thomas Wheeler
Executive Director

--
Tom Wheeler
Executive Director and Staff Attorney
Environmental Protection Information Center
145 G Street Suite A
Arcata, CA 95521
Office: (707) 822-7711 | Cell: (206) 356-8689
tom@wildcalifornia.org
www.wildcalifornia.org

Pronouns: he/him/his

"If EPIC had not undertaken its lonely efforts on behalf of the Marbled Murrelet, it is doubtful that the species would have maintained its existence throughout its historical range in California." - Judge L. Bechtle, Marbled Murrelet v. Pacific Lumber Co.

From: Phoebe Lenhart [redacted]
Sent: Tuesday, June 9, 2020 8:05 PM
To: FGC <FGC@fgc.ca.gov>
Subject: FGC meeting on June 24 and 25, 2020

Dear FGC Commissioners,

It is not clear to me the appropriate category for my E-mail to you, regarding the treponeme-associated hoof disease (TAHD) found in 2 Roosevelt elk in Del Norte County (DNC), belongs in. On June 24, #2 on the agenda is for "general public comments"; as well as, June 25, #18 on the agenda is also for "general public comments". In addition, agenda item #25 pertains to the Wildlife Resources Committee (WRC) and to recommendations for topics to be added for future meetings. I am requesting that the TAHD infection in Roosevelt elk in DNC be included on the agenda for future FGC and WRC meetings.

I have tried, for over 1 month, to receive information from the CA DFW regarding the TAHD infection found in our Roosevelt, even before the May 14, 2020 FGC and WRC meetings. To date, I have not received any information. Many residents are very concerned about the appearance of the TADH in our elk. I have requested information on the location of these Roosevelt elk in relation to the "Big Game Drawing" (held by the DFW on June 2), as well as, the SHARE hunts (on June 24). Since the beginning of the SHARE hunting program in 2015, the number of elk being hunted has tripled! Has the Roosevelt elk population tripled? Absolutely not!

According to the DFW's own surveys, there are 50 fewer elk in 2019 than in 2018. Even worse, among the 9 small herds, there are 2 herds with no bulls, one herd with 5 bulls, and another with only 8 bulls. Within the approximately 400 remaining elk, 110 elk are calves and 48 are "spikes". If you were to subtract these 158 immature elk from the 400 remaining elk, that leaves a population of only 242 mature elk. Within this small population, the DFW unrealistically made their proposal for the 2020-2021 hunting season with the FGC's approval. Due to the fact that the DFW submitted their report 2 days before the May 14, 2020, FGC meeting, the public has not had an opportunity to review the DFW's proposal which did NOT consider the existence of TAHD at the time. I think that the DFW is very irresponsible and incompetent.

Please consider an emergency meeting before the hunting season begins (in about 2 months) to formulate the best stewardship of our small herds of Roosevelt elk in DNC. Many of us want to know if the DFW is testing the soil? Is the DFW examining cattle and livestock in the region where the TAHD was found in the Roosevelt elk? There are very many issues with the TAHD that need to be seriously considered before the DFW and FGC go on their merry way, (during summer vacations) abandoning the good stewardship of Roosevelt elk in DNC.

Sincerely,
Phoebe Lenhart
Supporters for Del Norte Roosevelt Elk
[redacted]