Chronic Wasting Disease Surveillance and Emergency Response Plan

for the Confederated Salish and Kootenai Tribes

DIVISION OF FISH, WILDLIFE, RECREATION & CONSERVATION

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I. INTRODUCTION AND BACKGROUND

Indigenous people around the world have historically relied upon the native species of local wildlife as subsistence, cultural and spiritual components of their lives and beliefs. Indeed, the well-being of wildlife and of these people are inextricably intertwined. Tribal interest, and concern about wildlife, has existed as long as the individual tribes have existed. From time immemorial, the Confederated Salish and Kootenai Tribes (CSKT) have relied on their homeland and the fish and wildlife it produced. Wildlife was one of the most important resources for the provision of food, clothing, tools and raw materials used to fill a variety of basic needs.[1] The Tribes are comprised of Selis, Qlispe and Ksanka people, whom traditionally occupied a twenty million acre area stretching from Central Montana to Eastern Washington and north into Canada[1]. The signing of the Hellgate Treaty of 1855 ceded the vast majority of ancestral lands to the United States Government and created the designated exterior boundary of the current Flathead Indian Reservation (FIR), encompassing approximately 1.3 million acres. Under provisions of the Hellgate Treaty of 1855, Article Three, the members of the Tribes retained the exclusive right to hunt and fish on the Reservation, as well as the right to hunt, fish and gather on traditional open and unclaimed lands outside the Reservation boundaries in aboriginal territories.

It is the mission of the CSKT Tribal Wildlife Management Program (Wildlife Program) to protect, enhance and manage wildlife species and habitats to provide viable populations of all native wildlife species on the FIR for use by generations of today and tomorrow. The Tribes of the Reservation are closely tied to our natural environment and many Tribal members rely on big game hunting for subsistence. It is, therefore, essential for the Wildlife Program to protect these cultural resources if the Tribes CSKT are to sustain Tribal values and cultures.

Chronic Wasting Disease (CWD) has been identified as a threat to FIR populations of big game. This document will provide the Wildlife Program with direction on CWD surveillance and management, including logistical details for executing effective CWD surveillance, management, and communications. Elements of this CWD Surveillance and Emergency Response Plan for the Confederated Salish and Kootenai Tribes (Plan) were modeled from the '*Montana Chronic Wasting Disease Management Plan*', April 19 2020 revised version[2], to ensure streamlined communication and coordination with MT FWP in surveillance efforts and response in the case of CWD detection on the FIR.

[1] T. McDonald et al., "Mission Mountains Tribal Wilderness: A Case Study" (Confederated Salish and Kootenai Tribes, Pablo, MT, 2005)

[2] MT FWP CWD Action Team., "Montana Chronic Wasting Disease Management Plan". April 19, 2020

It is the intention of this Plan to: 1) improve communication and educational outreach on CWD with Tribal membership, 2) provide Tribal member hunters opportunities to have their harvested animal tested for CWD, 3) manage detections of CWD on the FIR, 4) maintain or reduce the prevalence of CWD in herds in areas detected with CWD, 5) limit the spread of CWD on the FIR.

AUTHORITY

Resolution No.XXXX

RESOLUTION

OF THE GOVERNING BODY OF THE CONFEDERATED SALISH AND KOOTENAI TRIBES OF THE FLATHEAD RESERVATION, MONTANA

RESOLUTION APPROVING THE ADOPTION OF THE CHRONIC WASTING DISEASE SURVEILLANCE AND EMERGENCY RESPONSE PLAN FOR THE CONFEDERATED SALISH KOOTENAI TRIBES

BE IT RESOLVED BY THE TRIBAL COUNCIL OF THE CONFEDERATED SALISH AND KOOTENAI TRIBES THAT:

WHEREAS, the Confederated Salish and Kootenai Tribes have been organized to represent, develop, protect and advance the views, interests, resources, and education of its members; **AND**

WHEREAS, the Tribes have established a Tribal Wildlife Management Program to monitor wildlife populations and habitats, recommend appropriate wildlife and habitat management actions, inform the public about wildlife issues and oversee wildlife management projects; **AND**

WHEREAS, the Tribal Wildlife Management Program strives to inform and educate the public regarding wildlife populations and issues on the Reservation; **AND**

WHEREAS, the United States Department of Agriculture Animal and Plant Health Inspection Service has provided the Tribal Wildlife Management Program with funding to prepare a Chronic Wasting Disease Emergency Response Plan; **NOW; THEREFORE,**

BE IT RESOLVED that the Tribal Council of the Confederated Salish and Kootenai Tribes approves the adoption of the attached Surveillance and Emergency Response Plan for Chronic Wasting Disease on the Flathead Indian Reservation.

BE IT FURTHER RESOLVED that the Tribal Council Chairman is authorized to negotiate and execute the grant documents and any amendments hereto.

CERTIFICATION

The foregoing resolution was duly adopted by the Tribal Council of the Confederated Salish and Kootenai Tribes on December XX, 2022, with a vote of X for; X opposed; and X not voting, pursuant to the authority vested in it by Article VI, Section I, (a), (c), (u) of the Tribes' Constitution and Bylaws; said Constitution adopted and approved under Section 16 of the Act of June 18, 1934 (48 Stat. 984), as amended.

_____

Attest: Chairman, Tribal Council

_____

Tribal Council Secretary

BACKGROUND

What is CWD?

Chronic Wasting Disease (CWD) is a fatal neurologic disease of elk, deer and moose, for which there is no known cure. It belongs to a group of diseases called transmissible spongiform encephalopathies (TSEs), similar to mad-cow-disease in cattle and scrapie in sheep. CWD presents as an abnormally folded prion protein (prion) that causes normal prions in the body to miss-fold into disease-causing forms[2,3]. These miss-folded prions accumulate in infected animals and cause cell death that eventually leads to fatal nerve and brain damage. CWD prions have been detected throughout the body of infected individuals, including the brain and central nervous system[2,4], tonsils and lymph nodes[2,5,6], saliva and blood[2,7,8], the intestinal tract, bladder, urine, and feces[2,9], muscle[2,10], fat[2,11], and antler velvet[2,12].

Symptoms of animals sick with CWD vary, but may include dramatic weight loss (emaciated appearance), stumbling and lack of coordination, drooling, drooping ears, excessive thirst and a lack of fear of people. There are no known records of a positive CWD animal surviving the disease.

The first detection of CWD in free-ranging deer in Montana occurred in October 2017. It was, however, detected in captive game farms in Montana in 1999, and again in 2020. The map in *Figure 1* indicates the current distribution of confirmed positive CWD cases in wild ungulates in Montana (Montana FWP, 2023). Though CWD spreads into uninfected big game herds and new areas gradually, it is difficult to manage and prevent further spread in wild populations once detected. It has been identified in research that habitats with high densities of animals may increase the rate and risk of transmission across the landscape.

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[3] Prusiner, S.B., 1998. Prions. Proceedings of the National Academy of Sciences, 95(23), pp.13363-13383

[4] Williams, E.S., 2005. Chronic wasting disease. Veterinary Pathology, 42(5), pp.530-549.

[5] Sigurdson, C.J., Williams, E.S., Miller, M.W., Spraker, T.R., O'Rourke, K.I. and Hoover, E.A., 1999. Oral transmission and early lymphoid tropism of chronic wasting disease PrPres in mule deer fawns (Odocoileus hemionus). Journal of General Virology, 80(10), pp.2757-2764.

[6] O'Rourke, K.I., Zhuang, D., Lyda, A., Gomez, G., Williams, E.S., Tuo, W. and Miller, M.W., 2003. Abundant PrPCWD in tonsil from mule deer with preclinical chronic wasting disease. Journal of veterinary diagnostic investigation, 15(4), pp.320-323.

[7] Mathiason, C.K., Powers, J.G., Dahmes, S.J., Osborn, D.A., Miller, K.V., Warren, R.J., Mason, G.L., Hays, S.A., Hayes-Klug, J., Seelig, D.M. and Wild, M.A., 2006. Infectious prions in the saliva and blood of deer with chronic wasting disease. Science, 314(5796), pp.133-136.

[8] Haley, N.J., Mathiason, C.K., Carver, S., Zabel, M., Telling, G.C. and Hoover, E.A., 2011. Detection of chronic wasting disease prions in salivary, urinary, and intestinal tissues of deer: potential mechanisms of prion shedding and transmission. Journal of Virology, 85(13), pp.6309-6318.

[9] Tamgüney, G., Miller, M.W., Wolfe, L.L., Sirochman, T.M., Glidden, D.V., Palmer, C., Lemus, A., DeArmond, S.J. and Prusiner, S.B., 2009. Asymptomatic deer excrete infectious prions in feces. Nature, 461, pp. 529–532.

[10] Angers, R.C., Browning, S.R., Seward, T.S., Sigurdson, C.J., Miller, M.W., Hoover, E.A. and Telling, G.C., 2006. Prions in skeletal muscles of deer with chronic wasting disease. Science, 311(5764), pp.1117-1117.

[11] Race, B., Meade-White, K., Race, R. and Chesebro, B., 2009. Prion infectivity in fat of deer with chronic wasting disease. Journal of Virology, 83(18), pp.9608-9610.

[12] Angers, R.C., Seward, T.S., Napier, D., Green, M., Hoover, E., Spraker, T., O'Rourke, K., Balachandran, A. and Telling, G.C., 2009. Chronic wasting disease prions in elk antler velvet. Other Publications in Zoonotics and Wildlife Disease, p.46.

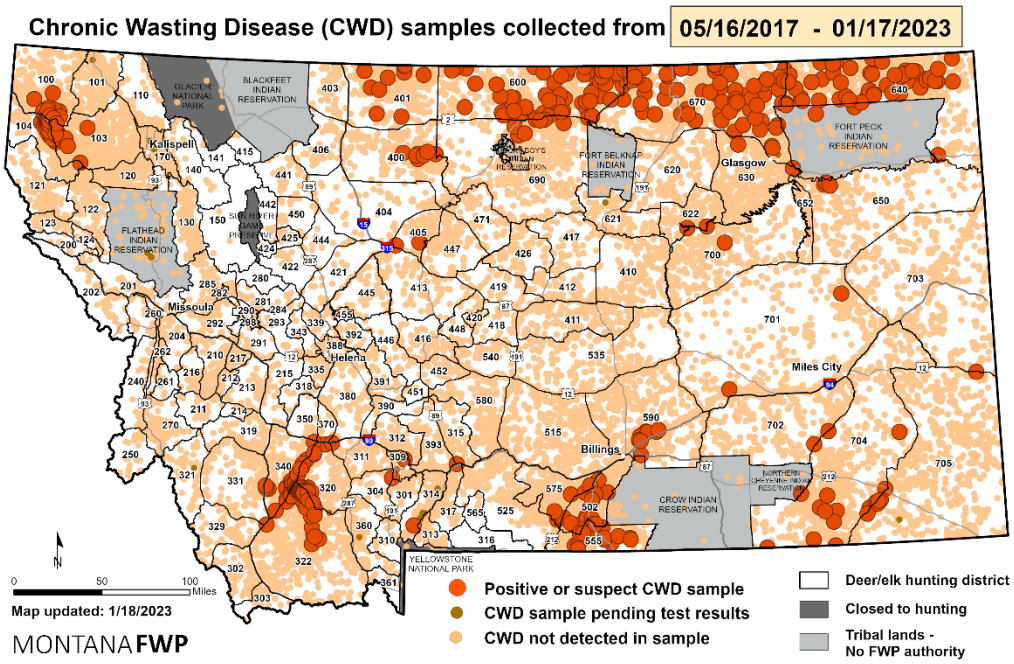

Figure 1. Montana FWP map of CWD sampling and testing results for Montana, as of January 17, 2023. The CSKT Wildlife Management Program began submitting samples regularly for testing in 2021.

How does CWD Spread?

CWD can be transmitted through animal-to-animal contact and through animal contact with grass and soil contaminated with the prion. Infected animals shed prions through saliva, feces, and urine during most of their infection and via bodily tissues and fluids upon death. These prions may remain infectious in the environment for at least 2 years[2,13]. CWD can be unintentionally spread by humans if the bones, hides, and carcasses of harvested big game is not disposed of properly.

CWD has an average incubation period from infection to clinical signs of approximately 16 months, and the clinical phase (where symptoms are present) may last an additional 4-9 months, resulting in death[9,14,15].

[13] Miller, M.W., Williams, E.S., Hobbs, N.T. and Wolfe, L.L., 2004. Environmental Sources of Prion Transmission in Mule Deer. Emerging Infectious Diseases, 10(6), p.1003.
CWD Sampling and test results map. 1/17/2023. State. Montana FWP. https://fwp.mt.gov/conservation/chronic-wasting-disease/in-montana. 1/17/2023.

[14] Williams, E.S. and Miller, M.W., 2002. Chronic wasting disease in deer and elk in North America. Revue Scientifique et Technique (International Office of Epizootics), 21(2), pp.305-316.

[15] Williams, E.S., Miller, M.W., Kreeger, T.J., Kahn, R.H. and Thorne, E.T., 2002. Chronic wasting disease of deer and elk: a review with recommendations for management. The Journal of Wildlife Management, 66(3), pp.551-563.

Why is minimizing spread of CWD important?

Once CWD is present in a wild population, it may be extremely difficult or impossible to eliminate. Due to the 16-month incubation period before visible symptoms begin, once animals presenting symptoms are discovered CWD has been established and spreading through the herds, environments, and populations[2]. Without proactive monitoring, surveillance and sampling, CWD is difficult to detect before it is well established.

Many field studies and computer simulation models suggest that herds infected with CWD suffer population declines. Sometimes these declines can be rapid, and in some cases local extinction over time (>20 years).[16,17,18,19] Herd-level declines in mule deer, due to CWD, have been recorded at a 21% decline in Wyoming (with a 21-27% CWD Prevalence),[20,21] and a 45% decline in Colorado (with a 41% prevalence in males and 20% in females).[16] In Wyoming herds where prevalence reaches 33%, white-tailed deer suffer an annual 10% decline in population size. [22]

While uncertainty remains over the size and extent of any future CWD-associated impacts, high prevalence and increased spatial spread of the disease are likely to correspond to population-level declines. [2]

There have been no documented cases of CWD causing disease in humans, therefore the current risk of humans contracting CWD are low.[23,24] While some studies have shown that human and transgenic mice proteins don't readily convert to the diseased form when exposed

[16] Miller, M.W., Swanson, H.M., Wolfe, L.L., Quartarone, F.G., Huwer, S.L., Southwick, C.H. and Lukacs, P.M., 2008. Lions and prions and deer demise. PLoS one, 3(12), p.e4019.

[17] Geremia, C., Miller, M.W., Hoeting, J.A., Antolin, M.F. and Hobbs, N.T., 2015. Bayesian modeling of prion disease dynamics in mule deer using population monitoring and capture- recapture data. PloS one, 10(10), p.e0140687.

[18] Almberg, E.S., Cross, P.C., Johnson, C.J., Heisey, D.M. and Richards, B.J., 2011. Modeling routes of chronic wasting disease transmission: environmental prion persistence promotes deer population decline and extinction. PloS one, 6(5), p.e19896.

[19] Monello, R.J., Powers, J.G., Hobbs, N.T., Spraker, T.R., Watry, M.K. and Wild, M.A., 2014. Survival and population growth of a free-ranging elk population with a long history of exposure to chronic wasting disease. The Journal of Wildlife Management, 78(2), pp.214- 223.

[20] DeVivo, M.T., 2015. Chronic wasting disease ecology and epidemiology of mule deerin Wyoming. Ph.D., Department of Veterinary Sciences, University of Wyoming.

[21] DeVivo, M., D. Edmunds, M. Kauffman, B. Schumaker, J. Binfet, T. Kreeger, B. Richards, H. Schätzl, and Cornish, T., 2017. Endemic chronic wasting disease contributes to deer declines in Wyoming. Abstracts from the 2017 Deer & Elk Workshop, May 1-4, 2017, Sun Valley, Idaho. In press.

[22] Edmunds, D., Kauffman, M., Schumaker, B., Lindzey, F., Cook, W., Kreeger, T., Grogan, R., and Cornish, T., 2016. Chronic Wasting Disease Drives Population Decline of White-Tailed Deer. PLOS ONE. 11 (8): e0161127 DOI: 10.1371/journal.pone.0161127

[23] Belay, E.D., Maddox, R.A., Williams, E.S., Miller, M.W., Gambetti, P. and Schonberger, L.B., 2004. Chronic wasting disease and potential transmission to humans. Emerging Infectious Diseases, 10(6), p.977

[24] MaWhinney, S., Pape, W.J., Forster, J.E., Anderson, C.A., Bosque, P. and Miller, M.W., 2006. Human prion disease and relative risk associated with chronic wasting disease. Emerging infectious diseases, 12(10), p.1527.

to CWD prions,[2,25,26,27,28,29] other research indicates that certain non-human primates can be at risk from eating CWD-infected animals, or coming into contact with brain or body fluids.[30]

If CWD could spread to people it would most likely occur through the eating, or being exposed to brain or bodily fluids, of infected deer, elk or moose. Because of this, scientists and human health officials agree that it is prudent to minimize human exposure to CWD. People should avoid consuming the brain, spinal cord, eyes, spleen, tonsils, and lymph nodes of any harvested game animal.

Tribal peoples are at an increased risk of exposure to CWD due to traditional and cultural uses of animal parts (hide, brain, antlers, etc.). The Centers for Disease Control (CDC) and the World Health Organization (WHO) advise against consuming any animal known to be infected with CWD.

HUNTER SAFETY

It is important for Tribal member hunters to have each of their harvested animals tested for CWD prior to consumption and traditional uses of any animal parts. The CSKT Wildlife Management Program offers testing free to Tribal member hunters for every animal harvested on the reservation and in aboriginal treaty areas. Hunters may bring whole animals, or the head with upper neck attached to the Division of Fish, Wildlife, Recreation and Conservation office in Polson (408 6th Ave East) and a biologist will remove the lymph node sample. If hunters are comfortable extracting their own lymph nodes for sampling, the CSKT Wildlife Program has Hunter CWD Sample Kits available for member hunters to pick up from our office and return with the lymph nodes. Sample kits have all equipment needed to extract, package and store the sample for testing.

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[25] Raymond, G.J., Bossers, A., Raymond, L.D., O'rourke, K.I., McHolland, L.E., Bryant, P.K., Miller, M.W., Williams, E.S., Smits, M. and Caughey, B., 2000. Evidence of a molecular barrier limiting susceptibility of humans, cattle and sheep to chronic wasting disease. The EMBO Journal, 19(17), pp.4425-4430.

[26] Kong, Q., Huang, S., Zou, W., Vanegas, D., Wang, M., Wu, D., Yuan, J., Zheng, M., Bai, H., Deng, H. and Chen, K., 2005. Chronic wasting disease of elk: transmissibility to humans examined by transgenic mouse models. Journal of Neuroscience, 25(35), pp.7944-7949.

[27] Tamgüney, G., Giles, K., Bouzamondo-Bernstein, E., Bosque, P.J., Miller, M.W., Safar, J., DeArmond, S.J. and Prusiner, S.B., 2006. Transmission of elk and deer prions to transgenic mice. Journal of Virology, 80(18), pp.9104-9114.

[28] Sandberg, M.K., Al-Doujaily, H., Sigurdson, C.J., Glatzel, M., O'Malley, C., Powell, C., Asante, E.A., Linehan, J.M., Brandner, S., Wadsworth, J.D. and Collinge, J., 2010. Chronic wasting disease prions are not transmissible to transgenic mice overexpressing human prion protein. Journal of General Virology, 91(10), pp.2651-2657.

[29] Wilson, R., Plinston, C., Hunter, N., Casalone, C., Corona, C., Tagliavini, F., Suardi, S., Ruggerone, M., Moda, F., Graziano, S. and Sbriccoli, M., 2012. Chronic wasting disease and atypical forms of bovine spongiform encephalopathy and scrapie are not transmissible to mice expressing wild-type levels of human prion protein. Journal of General Virology, 93(7), pp.1624-1629.

[30] Czub, S., Schulz-Schaeffer, W., Stahl-Hennig, C., Beekes, M., Schaetzl, H., and Motzkus, D. 2017. First evidence of intracranial and peroral transmission of Chronic Wasting Disease (CWD) into Cynomolgus macaques: a work in progress. Presentation at the PRION 2017 Conference, Edenborough, Scotland. https://www.youtube.com/embed/Vtt1kAVDhDQ.

Hunters should not shoot, handle, or consume meat from any deer, elk, or moose that look sick, act strange, or are found dead, including roadkill, unless tested and found to be negative for CWD. All sightings of emaciated, drooling and stumbling big game should be reported to the CSKT Wildlife Management Program (406-675-2700).

A few safety tips for hunters while field dressing deer anywhere within the Flathead Indian Reservation include:

- Wearing rubber gloves and eye protection when field dressing game animals
- Don't use kitchen utensils or household knives for field dressing game animals
- Minimize the handling of brain and spinal tissues
- Wash hands thoroughly after field dressing is completed
- Wash instruments thoroughly after field dressing is completed. Concentrated (40% solution) household bleach, or hypochlorous acid (HOCl, Briotech Inc.) may be useful in decontaminating instruments if immersed for up to five minutes[31,32]
- Avoid cutting through bones or the spinal column (backbone)
- Bone deer or elk (remove meat from the bones and spinal column)
- Remove all fat, membranes and connective tissue from the meat. *Note: normal field dressing and trimming of fat from meat will remove all lymph nodes.*

How to prevent and reduce spread of CWD

Currently, CWD has not been found on the Flathead Indian Reservation (FIR), however it is prevalent in aboriginal hunting territories. Animals harvested off-reservation and brought back to the FIR are of concern, as they are at risk of being positive for CWD. If that animal is not disposed of properly, CWD will spread to the local environment and infect local big game populations. Big game herds that reside on the FIR also have territories and seasonal migration routes off-reservation, some in areas with positive CWD prevalence.

Because there are currently no effective treatments or vaccines for CWD, prevention is critical to the control of CWD over large landscapes. Preventative tools include restricting the transport

[31] Hughson AG, Race B, Kraus A, Sangaré LR, Robins L, et al. (2016) Inactivation of Prions and Amyloid Seeds with Hypochlorous Acid. PLOS Pathogens 12(9): e1005914. https://doi.org/10.1371/journal.ppat.1005914
[32] Williams, K., Hughson, A.G., Chesebro, B., and Race, B., 2019. Inactivation of chronic wasting disease prions using sodium hypochlorite. PLoSONE 14(10): e0223659.

of carcasses from CWD-infected areas, and requiring the responsible disposal (e.g. incineration or disposal in certified landfills) of carcasses from infected regions.

Carcass Transport of Off-Reservation Hunting

CWD prions in animal waste, fluids or carcasses have been shown to remain infectious for at least two years in the environment.[14] To prevent the spread of Chronic Wasting Disease from areas in Montana known to be infected, to the herds residing on the Flathead Indian Reservation, the head and spinal column of animals harvested off-reservation in aboriginal territories should remain in the field at the location of the kill site or disposed of in a Class II Landfill. Carcasses of animals harvested under aboriginal treaty rights off-reservation should not be discarded on the FIR in any manner other than at a certified Lake or Sanders County landfill.

Carcass Disposal

Environmental contamination through dispersal of carcass waste, especially heads and spinal columns, has the potential to introduce or spread CWD in wild populations. The U.S. Environmental Protection Agency (EPA) currently recommends using Municipal Solid Waste Landfills (MSWLFs) for the large-scale disposal of potentially CWD-contaminated carcasses and wastes.

Carcass waste of animals harvested from areas in Montana where CWD has been detected should be disposed in an approved MSWLF. The Montana Department of Environmental Quality, Solid Waste Division, regulates and certifies MSWLFs and the following list of Class II sanitary landfills are qualified to dispose of potentially CWD-contaminated materials (Table 1). Carcasses and carcass waste with CWD may also be incinerated.

Table 1. Class II municipal solid waste landfills (MSWLFs) in on the Flathead Indian Reservation.

Rural Container Sites	City	Hours of Operation
55633 Herak Road	Charlo, MT	8am – 4pm Wednesday, Friday and Sunday
45642 Lake Mary Ronan Road	Proctor, MT	7am – 7pm daily
66972 N Valley Creek Road	Ravalli, MT	8am – 4pm Tuesday, Thursday and Saturday
36117 N Reservoir Road	Polson, MT	7am – 5pm daily
38 Little Bitterroot Road	Hot Springs, MT	9am – 4pm Tuesday, Thursday and Saturday

II. CONFEDERATED SALISH & KOOTENAI TRIBES CWD SURVEILLANCE PLAN

SURVEILLANCE

Wildlife and big game are a trans-boundary resource, meaning that wildlife have habitat and home ranges that span both on and off the FIR in aboriginal territories. Due to this sharing and mixing of big game herd and populations, the Wildlife Program works closely with Montana Fish, Wildlife and Parks (MT FWP) both in managing big game and in monitoring for chronic wasting disease. MT FWP's CWD surveillance plan was created to increase the likelihood of detecting CWD in areas where it is not currently known to exist.[2] While CWD has not been detected on the FIR, it is prudent to adopt a similar surveillance and response plan to MT FWP in order maximize our ability to detect CWD on the Reservation, as well as increase communication and coordination with MT FWP in the event of a confirmed detection of CWD within the FIR.

The CSKT CWD Surveillance and Emergency Response Plan will (1) continue testing any symptomatic cervid (deer, elk, moose) reported within the FIR, (2) focus systematic surveillance on deer and elk, (3) implement a standardized, weighted surveillance strategy aimed at detecting 1% CWD prevalence with 95% confidence,[33] and (4) offer free testing to Tribal member hunters of the Confederated Salish and Kootenai Tribes. Portions of the reservation are within 40 miles of a known CWD population. Wildlife Management Units on the FIR within 40 miles of a known CWD area will be considered as our High Priority Surveillance Area (Figure 2).

CSKT will prioritize the sampling of mule deer and white-tailed deer, the species likely to have the highest prevalence within Montana, as well as elk. Some elk herds within the FIR have high connectivity and migration corridors with herds from districts that have CWD, so elk will be a priority in sampling efforts. We will also sample moose on an opportunistic basis. Samples will be collected from symptomatic animals, animals necropsied from research projects, hunter harvested animals, and road-killed animals.

[33] Walsh, D.P. and Otis, D.L., 2012. Disease surveillance: Incorporating available information to enhance disease-detection efforts, In: Enhanced surveillance strategies for detecting and monitoring chronic wasting disease in free-ranging cervids: U.S. Geological Survey Open- File Report 2012–1036, pp. 11-23.

Figure 2. Units shaded in color indicate High Priority chronic wasting disease (CWD) surveillance units on the Flathead Indian Reservation (FIR), identified by a 40-mile buffer on known positive CWD locations. High Priority Areas may change depending on new detections of CWD in Montana and the FIR. All Wildlife Management Units are displayed.

Surveillance and Sampling Methods

Since CWD could be present in areas far from known positives, we will continue to monitor the entire FIR through voluntary hunter submissions and through the testing of symptomatic cervids. Within the High Priority Surveillance Area (Figure 2), we will use a weighted surveillance strategy. [33] Weighted surveillance incorporates the relative risk of different demographic groups (age, sex, or cause of death categories) to economize sampling efforts. For example, symptomatic individuals are much more likely to be CWD-positive than apparently healthy, hunter-harvested animals.[33] Similarly, mule deer, that have died due to vehicle collisions, predation or other unexplained mortalities are more likely to be infected with CWD than healthy individuals. Adults of either sex are more likely to be infected than young animals; males are more likely to be infected than females. These differing probabilities of infection have been used to create a weighted point system, where animals that are more likely to be infected with CWD are given more points towards meeting a sample size goal (Table 2)[33,34]. These estimated points are unique to each cervid species and cannot be combined across species.

	Weight/Points		
Demographic Group	**Mule Deer**	**White-tailed Deer**	**Elk**
Symptomatic female	13.6	9.09	18.75
Symptomatic male	11.5	9.09	8.57
Road-killed males/females	1.9	.022	.041
Other mortalities (predation, other unexplained in adults and yearlings)	1.9	7.32	.041
Harvest - adult males	1	3.23	1.16
Harvest - adult females	0.56	1.30	1
Harvest - yearling males	0.19	1	NA
Harvest – yearling female	0.33	1	NA
Harvest – fawns / calves	0.001	0.04	NA

Table 2. The relative weights or "points" associated with each demographic group of deer and elk that count towards meeting a sample size goal using a weighted surveillance strategy based on data from mule deer and elk in CWD-positive areas in Colorado[33] and white-tailed deer in Wisconsin's CWD management zone.[34]

[34] Jennelle, C.S., Henaux, V., Wasserberg, G., Thiagarajan, B., Rolley, R.E. and Samuel, M.D., 2014. Transmission of chronic wasting disease in Wisconsin white-tailed deer: implications for disease spread and management. PloS one, 9(3), p.e91043.

With this weighted surveillance system, we would be able to detect the presence of CWD with 95% confidence (given ≥ 1% prevalence in the population). The required sample size within the High Priority Surveillance Area, calculated by the number of samples needed to demonstrate freedom from disease, is 300 points[35] (see sample size calculations to detect disease presence with 95% confidence in Appendix A).

This means that with a total of 300 weighted surveillance sample points, we would expect to be able to detect at least one positive animal with 95% confidence, if CWD were present at ≥1% prevalence within the High Priority Surveillance Area. As an example, if we tested 10 symptomatic female mule deer (worth 13.6 points each) and 164 hunter-harvested adult male mule deer (worth 1 point each) broadly sampled from across a minimum surveillance unit, the 300-point goal would be met after having only sampled 174 animals (e.g. 10 X 13.6 + 164 X 1 = 300 points). Using these relative weights would allow us to maximize the value of our limited resources.

Sample size estimates are specific to a single species within a minimum surveillance unit (elk, mule deer, and whitetail deer, would have their own tally of 300 weighted points for surveillance within each species). Our surveillance efforts will focus on both mule deer and white-tailed deer since both species are infected at a higher prevalence than either elk or moose[36]. If a surveillance unit is dominated by one of these two deer species, we may focus our efforts on the dominant species and sample the other species opportunistically. Elk are also a high priority on the FIR for surveillance, as we have important wintering grounds in the Ferry Basin Wildlife Management Unit. High densities of elk winter on this WMU and include herds that migrate from off-reservation areas.

Within the High Priority Surveillance Area, every effort must be made to broadly distribute the sampling effort to maximize the detection of infection[33]. CWD infections are highly localized when they do occur,[37,38,39,40] and we are less likely to detect an infection if sampling is highly clustered or biased to one portion of the minimum surveillance unit. While road-kills and symptomatic animals are most valuable, they are also most likely to be collected within a small portion of the surveillance unit (e.g. roadways, human-populated areas). ***Therefore, in order to***

[35] Dohoo, I., Martin, W., and Stryhn, H., 2009, Veterinary Epidemiologic Research, Second Edition: Charlottetown, Canada, VER, Inc., 865 p.

[36] Miller, M.W., Williams, E.S., McCarty, C.W., Spraker, T.R., Kreeger, T.J., Larsen, C.T. and Thorne, E.T., 2000. Epizootiology of chronic wasting disease in free-ranging cervids in Colorado and Wyoming. Journal of Wildlife Diseases, 36(4), pp.676-690.

[37] Conner, M.M. and Miller, M.W., 2004. Movement patterns and spatial epidemiology of a prion disease in mule deer population units. Ecological Applications, 14(6), pp.1870-1881.

[38] Miller, M.W. and Conner, M.M., 2005. Epidemiology of chronic wasting disease in free-ranging mule deer: spatial, temporal, and demographic influences on observed prevalence patterns. Journal of Wildlife Diseases, 41(2), pp.275-290.

[39] Farnsworth, M.L., Hoeting, J.A., Hobbs, N.T. and Miller, M.W., 2006. Linking chronic wasting disease to mule deer movement scales: a hierarchical Bayesian approach. Ecological Applications, 16(3), pp.1026-1036.

[40] Heisey, D.M., Osnas, E.E., Cross, P.C., Joly, D.O., Langenberg, J.A. and Miller, M.W., 2010. Linking process to pattern: estimating spatiotemporal dynamics of a wildlife epidemic from cross-sectional data. Ecological Monographs, 80(2), pp.221-240.

reach sampling and surveillance goals must include the participation of Tribal member hunter-harvested samples.

If we are unable to meet sample size requirements within the High Priority Surveillance Area in a given year, we may continue to collect a limited number of samples in subsequent years to achieve our 300-point sample goal within a two to three-year period. CWD is a relatively slow-moving disease at the population level, and since prevalence is unlikely to substantially change over a two to three-year period, aggregating samples over this time frame is reasonable. Sampling beyond the primary surveillance year will require CSKT Wildlife Management staff and hired technicians to continue to sample symptomatic, road-killed, and hunter-harvested animals.

Sample Collection, Storage, Testing and Reporting

CSKT Wildlife will collect samples at designated CWD Tribal member hunter check-stations and at our office located at 408 6th Ave East, Polson, MT. Tribal member hunters can bring their animal, or the head with upper neck still attached, to our office in Polson and we will be able to obtain a lymph node sample. Our office will also have sampling kits available for hunters who would like to collect their own sample in the field. Kits include all tools, storage bags and instructions required to obtain a sample for CWD.

Tribal member hunters ***must*** be willing to share a general location of the animals harvest in order to submit a viable sample. Without a location of harvest written on the hunter information card, a positive CWD sample would give no useful information to CSKT Wildlife in regards to identifying where to designate an Emergency Response Zone to contain the spread of CWD on the FIR. The lab will also not process a CWD sample if a location of harvest is not given, so the sample cannot count towards our 300 point goals.

CSKT Wildlife may also work with CSKT Fish and Game Wardens, Montana Department of Transportation, and local meat processors to obtain additional samples.

For each cervid sampled as part of the CWD surveillance program, staff will collect 1) a retropharyngeal lymph nodes from deer and elk[41] and an obex sample from moose (obex may also be sampled from deer and elk if the lymph nodes are not available), 2) an incisor tooth for aging, and 3) a small genetic sample (muscle tissue) when possible. In addition, field staff will work with hunters or others to gather location information on where the animal was harvested/found, species, age, and sex. Each sample is assigned a unique barcode to each

[41] Hibler, C.P., Wilson, K.L., Spraker, T.R., Miller, M.W., Zink, R.R., DeBuse, L.L., Andersen, E., Schweitzer, D., Kennedy, J.A., Baeten, L.A. and Smeltzer, J.F. 2003. Field validation and assessment of an enzyme-linked immunosorbent assay for detecting chronic wasting disease in mule deer (Odocoileus hemionus), white-tailed deer
(Odocoileus virginianus), and Rocky Mountain elk (Cervus elaphus nelsoni). Journal of Veterinary Diagnostic Investigation, 15(4), pp.311-319.

sample, and the barcode can be used by the hunter to check lab test results at a later date. Lymph nodes and obex from deer and elk will be frozen for subsequent enzyme-linked immunosorbent assay (ELISA) testing, whereas lymph nodes and obex from moose will be fixed in 10% buffered formalin for immunohistochemistry (IHC) testing. As new validated testing methods become available, they may be considered. Samples will be submitted to a National Animal Health Laboratory (NAHL) Network-accredited diagnostic laboratory (e.g. Colorado State University Diagnostic Laboratory and/or the Montana Veterinary Diagnostic Laboratory) as soon as possible, with an expected turn-around time for results of 1-2 weeks.

Results from hunter-harvested animals will be emailed to CSKT Wildlife staff who will contact the hunter with the results. Additionally, results are also posted on Montana Fish, Wildlife and Park's website as soon as results are received from the lab, which is generally within 2-3 weeks from the time the sample was collected; Tribal member hunters can use their unique bar code number to check for their test results on this website. If a harvested animal tests positive for CWD, CSKT Wildlife will directly contact the associated hunter to inform them of the test results, that the meat may be legally disposed of, confirm location of harvest, and determine the disposition of carcass parts. An annual surveillance report will be published and presented to Tribal Council following the end of the previous hunting season. Press releases will be issued as needed to keep the public informed.

Surveillance after CWD Detection

Upon any new detection of CWD, CSKT Wildlife would seek Tribal Council approval to mount a separate, intensive effort within a designated Initial Response Area (IRA), which may include the infected and surrounding WMAs, to determine prevalence and distribution of the disease (*see Chapter 3 – Response Protocol to a Detection of CWD on the Flathead Indian* Reservation). We will develop a monitoring program to track changes in distribution and prevalence over time and in response to management actions. Established, CWD-positive areas may be dropped from the surveillance rotation. Statewide surveillance outside of established positive areas will be expected to continue as described in this plan. CWD detections outside of the FIR, but within 10 miles of the border, will be evaluated on a case by case basis by CSKT Wildlife as to whether to increase surveillance or initiate a Special CWD Hunt.

III. RESPONSE PROTOCOL TO A DETECTION OF CWD ON THE FLATHEAD INDIAN RESERVATION

CWD EMERGENCY RESPONSE PLAN

The following are the proposed actions that CSKT Wildlife may take upon any new detection of CWD within the Flathead Indian Reservation. These efforts are designed to minimize spread among herds and maintain low prevalence in infected herds. This response plan is broken into two phases, each with several steps. Phase I is the response to CWD detection in a new area. Phase II is the long-term management of the area once prevalence and distribution of the disease is better known.

While we focus on mule deer, white-tailed deer and elk, similar actions would be considered for a detection in moose, as warranted.

Objectives for CWD Management:

- Minimize effects of CWD on big game populations
- Minimize health risks of CWD for humans
- Increase understanding of CWD impacts on cervid populations and human health
- Use Adaptive Management to evaluate management effectiveness
- Minimize cost

It is the goal of CSKT Wildlife, in managing CWD, to reduce prevalence to and/or maintain it at 5% or lower within the affected population to minimize population effects and disease spread. Regardless of prevalence, any detection of CWD needs to be addressed through management. The geographical size of the area to be managed long-term in Phase II will depend on the results of sampling during an initial response described below but would most likely be at least at the hunting district or county scale. This goal takes into consideration that once discovered, CWD prevalence in the local cervid population may already exceed 10%. If this is the case, reducing prevalence to ≤5% may prove difficult or impossible.

Phase 1: Response to a New Detection & Defining an Initial Response Area (IRA)

Step 1 – CWD Team

When an initial detection of a CWD positive animal outside of a current management zone occurs, the objectives will be to measure prevalence and distribution. CWD detections outside of the FIR, but within 10 miles of the border, will be evaluated on a case by case basis as to whether an increase in surveillance or management actions are warranted. There may be different methods used to achieve these objectives. CSKT Wildlife will determine communication, logistical, and personnel needs and issues, initial response procedures, immediate and long-term communication needs and determining the need for holding public meetings. Field operations (training, enforcement, check stations) and ongoing contingency response needs will be addressed.

Defining an Initial Response Area (IRA)

Immediately following a new detection of CWD, CSKT Wildlife may define at least a 10-mile radius around the site of the detection and use this as a guide to legally define the Initial Response Area (IRA). In certain cases, an IRA may be established based on a positive detection outside of the FIR, but within 10 miles of the Reservation border. The IRA will be legally described using boundaries and landmarks such as roads, creeks, ridge tops, etc. to facilitate ease of understanding and subsequent management actions. An entire WMU and portions of neighboring WMUs may be defined in the IRA. CSKT Wildlife may put up signs at major access points identifying the area as an IRA and that special hunting and other regulations apply (see Appendix II). CSKT Wildlife will estimate the herd size, distribution, age and sex ratios, and density and will identify important movement corridors and connectivity with neighboring populations. Subsequent survey flight data may be used to modify the original IRA boundaries.

Step 2 – Defining CWD Management Zone

Once a new detection of CWD occurs, CSKT Wildlife will define a CWD Management Zone. The CWD management zone will be at least as large as the IRA but may initially be at the Wildlife Management Unit level. The CWD management zone may be expanded to include multiple adjacent WMUs as additional CWD positives are detected. WMUs that are within 10 miles of a known CWD detection may also be included in a CWD Management zone prior to the detection of a CWD positive in that WMA. The CWD Management Zone will identify the area in which CWD is considered to be present for public information purposes and is recommended hunters consider having their deer and elk tested. If carcass transport restrictions are implemented, the

CWD management zone would be the boundary outside which the transport of whole heads or spinal cords would not be allowed.

Step 3 – Wildlife Program Manager and Tribal Council determine the need for and authorize a Special CWD Hunt in designated IRAs

Not every new detection of CWD will require a Special CWD Hunt. For example, if there is a new detection during a general hunting season, CSKT Wildlife may choose to hold a Special CWD Hunt as part of the general season the following year. This would allow for any additional positive animals harvested during the ongoing season to be considered in defining a more comprehensive IRA and CWD Management Zone and allow for rules and regulations to be included in hunting regulations for the following year. CSKT Wildlife may choose to issue special doe/cow only harvests within the IRA for a partial season Special CWD Hunt to increase sample points and reduce herd densities in populations in heavy densities.

This approach would require significant public education efforts to inform hunters of the impending Special CWD Hunt, the area it will take place, and any temporary regulation / hunting changes, and the need for mandatory sampling as outlined below. It is important that public outreach clearly conveys that because CWD moves slowly through populations, delaying action for a year is not expected to increase prevalence or spread significantly. Enough animals may be sampled during a general hunting season or general season Special CWD Hunt that a late hunt is not needed.

If an IRA and Special CWD hunt are defined and authorized, changing the parameters of the hunt while it is ongoing should be avoided. Changing these parameters would lead to hunter confusion. CSKT Wildlife may put up signs at major access points during a Special CWD Hunt identifying the area as Special CWD Hunt area direct Tribal member hunters to check with CSKT Wildlife on any hunting restrictions / regulation changes (see Appendix III).

Step 4 – Begin Public Information Campaign

Immediately following verification of a new detection of CWD, CSKT Wildlife and the Natural Resource Department Information and Outreach Coordinator will begin an aggressive information campaign. The information campaign will identify the site of the detection, the actions CSKT Wildlife is going to take, and, most importantly, the reasons such actions are necessary. Public education concerning CWD is critical in maintaining support for our management efforts and maintaining public trust and support.

Determining CWD Prevalence and Distribution within IRAs

Step 5 – Determine CWD Prevalence and Distribution within the Initial Response Area (IRA)

After initial detection, CSKT Wildlife will start to collect samples to determine CWD prevalence (proportion of herd testing positive) and distribution within the IRA. This may be done through administrative action conducted by CSKT Wildlife staff and seasonal technicians, but will rely heavily on the participation of Tribal member hunters hunting within a designated IRA to submit harvested animals for sampling. These actions may occur during the general season, but could also include a Special CWD Hunt (any harvest of an animal from a Special CWD Hunt zone would be subject to mandatory testing). Prevalence will be assessed primarily using samples from hunter-harvested or administratively sampled animals using a non-weighted sampling design that differs from the surveillance plan sampling used pre-detection. CSKT Wildlife's biologists will determine the sample size necessary to describe prevalence with 95% confidence within a 3% margin of error, accounting for the estimated number of deer within the IRA. This could result in required sample sizes ranging from 100-200 animals (Table 3, see also Sample size calculations for measuring CWD prevalence in Appendix IV. for a more detailed explanation).

Samples should be collected as evenly as possible from across the IRA and in rough proportion to the available sexes within the population to achieve an unbiased estimate of prevalence. This would mean that a certain ratio of male / female animals will need to be harvested to achieve an accurate calculation of prevalence. There is evidence to suggest that prevalence differs between the sexes. If prevalence is significantly different between the sexes, sample design may be adjusted to target a specific sex.

Size of deer or elk population in the IRA	Sample size needed to determine prevalence
250	112
500	145
750	152
1000	169
2000	184
3000	190

Table 3. Examples of sample size needed to determine CWD prevalence with a 3% margin of error and 95% confidence in cervid populations of different sizes based on a predicted 5% prevalence using sample size calculations found in Appendix IV.

5000	195

These sample size goals will be applied to target species as determined through surveillance; however, all other cervid species within the IRA will be sampled opportunistically. CSKT Wildlife will continue to collect samples from symptomatic and road-killed animals to inform the distribution of CWD within the IRA, but for statistical sampling reasons that require an unbiased sample, these will not contribute to our estimates of prevalence.

Sampling to measure prevalence and distribution will be achieved using public hunting however, there may be situations where public hunting is not suitable or unlikely to achieve desired results such as within populated areas. In these cases, other sampling means like administrative lethal removal may be considered. In these cases, meat may be donated for human consumption by CSKT Wildlife after samples have been collected and submitted for CWD testing. If the first detection occurs when a hunting season could be authorized (September 1 – January 31) a public hunting effort will be the priority. Seasonal movements and concentrations will be considered when determining the timing of hunts.

CSKT Wildlife staff will sample animals harvested within the IRA. At minimum, animals will be sampled by age and sex in proportion to their estimated availability in the population. If a sex is under-sampled, additional sampling may be required.

Special CWD Hunt and Management

Special CWD Hunts within a CWD Management Zone would be temporary and will require Tribal Council approval, as regulations will differ significantly from regular hunting season regulations, even if the hunt occurs during the general season. The following are some of the special regulations, rules and reporting requirements that Tribal members hunting in a designated Special CWD Hunt unit must follow. Additional special regulations may be warranted.

- The CWD Management Zones and special regulations for hunt participation will be publicized by CSKT Wildlife and the Natural Resource Department's Outreach and Education Coordinator through press releases, social media, our website, radio, and other venues. This will include a definition of the IRA and any transport restrictions, pertinent special hunt rules and regulations, and hunt dates.

- Special CWD Hunts would aim to be conducted during existing general hunting seasons (September 1 – January 31) so that the harvest of does and cows would be in season. All Tribal members hunting in the CWD management zone of a Special CWD Hunt will be subject to all the special rules and regulations of the Special CWD Hunt. This may include

mandatory CWD sampling, transport restrictions (leaving the head and spine of each harvested animal where the animal is harvested or required disposal at a certified Landfill), and in certain cases restricting areas to cow/doe harvest only restrictions to ensure necessary sampling proportions to determine prevalence.

- The Special CWD Hunt may be open to any legal weapon unless, conditioned by a landowner providing access to private property.

- All animals harvested during the Special CWD Hunt must be sampled by CSKT Wildlife within three days of harvest, or hunters may use Hunter Sampling Kits provided by CSKT Wildlife to collect their own sample in the field. CSKT Wildlife may establish one or more check stations at access points to the CWD Management Zone to collect samples and aid hunters. Check station operation parameters (time, location, duration) may vary by location and funding availability. These check stations will be operated only as part of the CWD management action. The stations will be staffed by CSKT Wildlife staff and possibly volunteers or staff from partner agencies. Hunters within a Special CWD Hunt will be required to document the exact location of the kill using a GPS, a USGS Topographic Map, or a map available by CSKT Wildlife at check in. Hunters who quarter or bone out their animal must bring the head, lymph nodes, or obex to the check station for inspection.

- Submission of a sample for CWD testing will be mandatory for all cervids harvested in the CWD Management Area during a Special CWD Hunt regardless of the species. Sex hunted. Species, sex, and age of the animal will be recorded and retropharyngeal lymph nodes and/or obex, a tooth for aging, and a genetic sample will be collected.

- Transport restrictions may apply to whole carcasses or whole heads and/or spinal columns of cervids harvested within the Special CWD Hunt CWD Management Area. Cervids taken within the CWD Management Area and checked by CSKT Wildlife may be tagged with a tag reading “CWD TEST” and a unique identification number. Heads of animals may be surrendered to CSKT Wildlife, although special accommodations may be made for heads destined for taxidermy. The carcass tag will identify the animal as having been checked by CSKT Wildlife. Unless prohibited by a private landowner, the spinal column may be left in the field at the kill site. Disposal in a Class II Landfill is another effective option. Carcass parts that may be removed from the CWD Management Zone, if transport restrictions are in place, include:

    - meat that is cut and wrapped or meat that has been separated from the bone

    - quarters or other portions of meat with no part of the spinal column or head attached
    - hides with no heads attached
    - skull plates or antlers with no brain tissue attached
    - skulls that have been boiled and cleaned to remove flesh and tissue
    - To reduce risk of CWD spread, hunters are strongly encouraged to dispose of hides, bones, brains, and trimmings at class II landfills

- Hunters will be encouraged to take precautions, including using gloves and eye protection, minimizing the handling of brain and spinal tissues, washing hands, and cleaning instruments thoroughly after field dressing an animal. Concentrated (40% solution) household bleach, or hypochlorous acid (HOCl, Briotech Inc.) may be useful in decontaminating instruments if immersed for up to five minutes[31,33].

- Avoid consuming brain, spinal cord, eyes, spleen, tonsils, and lymph nodes of any harvested animals.

- Any area where a Special CWD Hunt is established is likely to include private land. A Special CWD Hunt does not grant hunter access to any private land. Hunters must get landowner permission to hunt on private land.

- If the required number of samples are not collected by February 1, CSKT Wildlife may consider other options including, but not limited to:

    - Resuming the hunt the following September 1.
    - Additional sampling during the general hunting season the following year.
    - Continuing the Special CWD Hunt after February 1, which will require special Tribal Council Approval and action.
    - In circumstances where administrative lethal removal and sampling is employed, meat may be distributed to local charities or the general public with the understanding that the recipient may be responsible for processing and housing the meat until CWD testing results are available.

- The Special CWD Hunt may terminate once pre-determined goals for sample size and sampling distribution have been met, although any transport restrictions may remain in

effect indefinitely for animals harvested in the CWD Management Zone [e.g. hunting district(s) or county(s)]. Goals are to estimate prevalence within a 3% margin of error with 95% confidence with broad sampling coverage across the IRA.

- CSKT Wildlife and the Natural Resource Department's Outreach and Education Coordinator will publicize the end of the hunt through press releases, social media, our website, radio, and other venues.

- At the conclusion of the established Special CWD Hunt, CSKT Wildlife will make available a hunt summary.

Most hunters will want to know the test results prior to consuming their meat. Every effort will be made to return test results from within the CWD Management Zone to hunters in a timely manner; however, because test results may not be known for two weeks or more, hunters will likely have to process their meat before they have a test result in hand. CSKT Wildlife will attempt to contact hunters whose animal tests positive for CWD to inform them of the test results and that the meat may be legally disposed of and to determine the disposition of carcass parts. If the general season or Special CWD Hunt is still open, those hunters may continue hunting to receive a replacement animal.

As with any response of this nature, unpredicted circumstances are likely to arise. While this plan attempts to prepare for many of those, some could result in a level of situational complexity that will require widespread attention by department staff. For instance, if in our efforts to determine prevalence, the IRA expands dramatically by finding more positives, say from approximately 314 square miles (one positive = 10-mile radius IRA) to 3,000 square miles (10 positives depending on where they're found), the logistical complexity of our response will increase dramatically. This plan allows for that increased complexity by providing clear direction on requirements for estimating disease prevalence and guidelines for trying to contain the disease within the IRA. Additionally, though we understand that more complex scenarios will increase involvement with the public, stakeholders and the media, our communication plan can expand appropriately. Furthermore, CSKT Wildlife recognizes that with complexity comes additional requirements of staff, and possibly cooperation with partnering Agencies. Because this plan is adaptive, CSKT Wildlife will make prudent management decisions based on the circumstances of each situation.

CWD in Special Regulation Hunting Districts

Some special designated hunts (such as the Ferry Basin Bull Elk hunt) on the Flathead Indian Reservation are managed for mature aged game. In these special hunts, a hunter must possess

a permit to harvest an antlered animal within a certain designated area. Special hunt areas managed for mature and older males pose additional issues for CWD management if CWD is found there. First, it is known that older bucks and bulls are the most likely to become infected with and spread CWD. Second, instituting a Special CWD Hunt to determine prevalence and distribution, and any long-term change in management, is likely to meet opposition from some hunters. Yet, if CWD is detected in a special hunt management district, it is just as important to address it as in any other district, perhaps more important because of the increased likelihood of older animals acting as vectors to other areas. It will be important that CSKT Wildlife increase its efforts of public education regarding the risks involved with an unmanaged CWD-infected herd.

Urban Area CWD Management

Detection of CWD within an urban area poses additional management challenges. In many urban areas across the Reservation, deer exist at relatively high densities, potentially leading to higher CWD prevalence than in more natural settings. Local residents may have differing opinions concerning “town” deer; some perceive them as a nuisance or safety issues, while others perceive them in a positive light. These differing opinions pose additional challenges for management. In some urban areas, standard CWD response plans may be adequate and additional steps may not be needed. In situations where they are not, the following guidelines are meant to help navigate an urban area infection.

1. Establish immediate communication with the local city and county commissions, as well as local law enforcement agency.

2. In some cases, an additional surveillance area encompassing the urban zone may be established to determine prevalence. Sampling requirements will need to be established for this area as well but should be centered around the initial urban detection.

3. Host multiple public meetings for outreach to local residents.

4. Department sampling may be necessary in the urban zone. This may require additional staff.

Step 6 – Evaluate results of Phase 1

The first sampling efforts through the Special CWD Hunt will inform CSKT Wildlife about the prevalence and distribution of CWD within the Initial Response Area. Prevalence will be reported to Tribal Council for all cervids by species and sex. Depending on what is learned, the geographic size of the IRA may be increased, and Response Phase I efforts may continue. If other positives are detected more than five miles from the index case, CSKT Wildlife will evaluate, and has the option of, expanding the initial IRA as well as the CWD Management Zone based on staff and Tribal Council input. Depending on what is known about animal habitat use and movements, it may be desirable to radio-collar an appropriate sample of animals to better determine seasonal movements and distribution.

If satisfied with Response results, we will proceed to Phase II.

Phase II: Long-term Management Plan

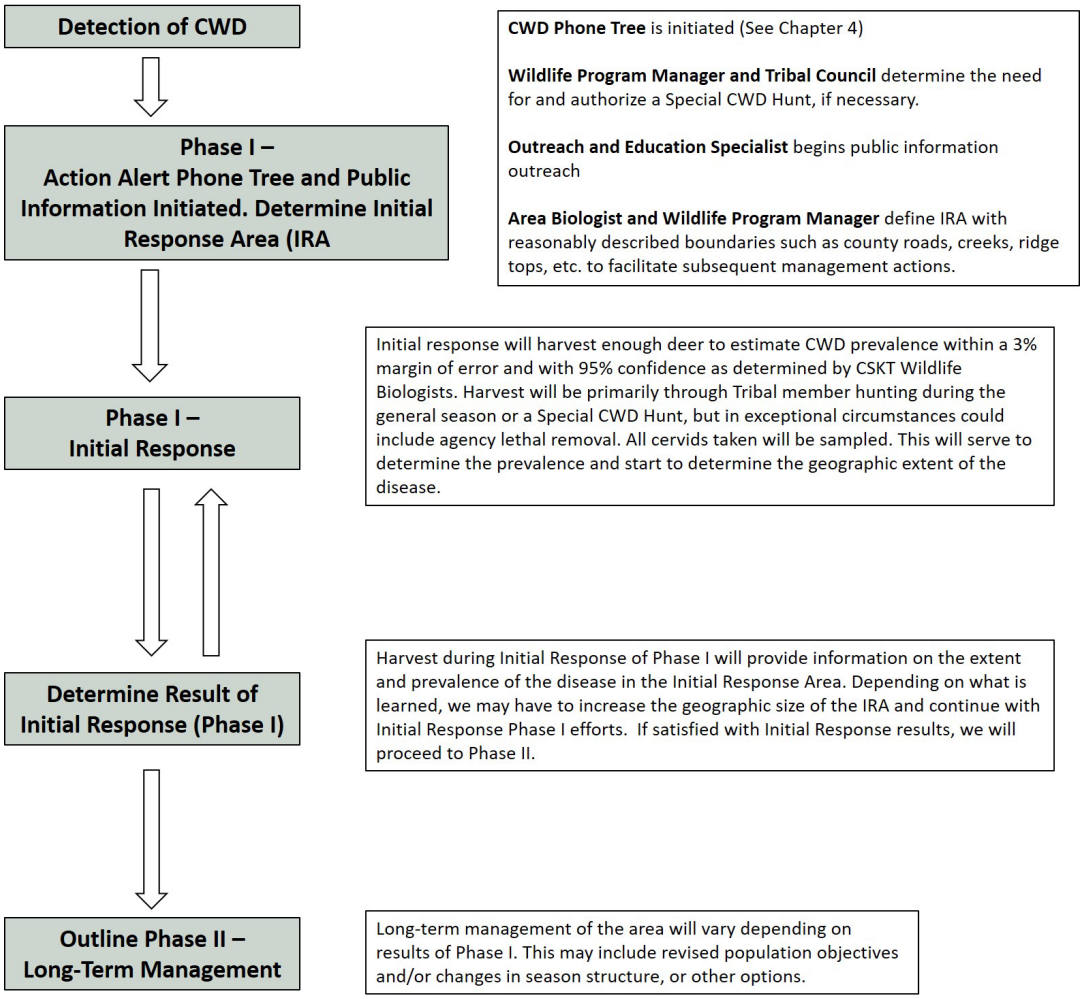
Long-term management in CWD Management Zones will be designed to reduce or maintain prevalence below 5% and limit distribution. A program designed to reduce density and/or modify age or sex structure may be necessary. Even if prevalence is below 5%, CSKT Wildlife will initiate CWD management to keep prevalence low and help prevent disease spread.

A monitoring strategy will be developed to detect the spread of CWD and track CWD prevalence over time among susceptible cervid species in the infected area. This may entail annual or periodic surveillance, depending on available resources. As in the initial response effort, prevalence will be tracked primarily using samples collected from hunter-harvested animals. Road-kills and symptomatic animals will also contribute to the monitoring of the distribution of the disease. Sample collection may entail the use of “head barrels” where hunters can deposit heads of harvested animals, increased sampling at area game check stations, or other means determined necessary.

A “one size fits all” approach to CWD management is not possible given the diversity of habitats where cervids exist. CSKT Wildlife biologists may develop herd or population plans tailored specifically to circumstances, populations, or areas at a Wildlife Management Area or larger scale. CSKT Wildlife will cooperate with neighboring and adjacent Agencies on CWD management. Depending on what would be covered in a herd plan, it may be necessary to seek Tribal Council approval. Management actions may consist of one or more of the following alternatives or additional alternatives not included in this list:

- Increased harvest, especially of antlered deer in a particular area.
- Hot spot culling/targeted removal in limited areas around CWD detections.
- Reducing cervid aggregations within the management zone by removing or fencing highly localized attractants, hazing, dispersal hunts or by other means.
- Transport and carcass disposal restrictions.
- Additional methods developed and proven effective in other states and provinces.
- Experimental approaches with scientific research designs and a commitment to monitor effectiveness.

CWD RESPONSE FLOW CHART



IV. OUTREACH AND EDUCATION

COMMUNICATION EFFORTS

This outreach and education plan is intended to guide CSKT's communication efforts for CWD surveillance and CSKT Wildlife's response to new detections of CWD on the Flathead Indian Reservation. It includes key messages targeting various audiences such as the general public, hunters, and other state agencies, as well as communication techniques that will be used, timing of strategies, overall communication objectives, and personnel responsible for executing each piece of the plan. The communication strategies will evolve over time with increased community awareness of the disease and the department's response.

Communication Problem

Currently, Tribal member hunters of CSKT may not yet understand the full potential impact CWD poses to the Reservation's wild ungulate populations.

Unmanaged, CWD could cause population declines of ≥40%, with additional 10% declines per year, until local extinction, as have been seen in other states (see page 9, *Why minimizing the spread of CWD is important*). We must be able to effectively inform the Tribal membership and Tribal hunters about the seriousness of CWD and get appropriate buy-in on proposed CSKT Wildlife actions. We must also plan for the effective communication of CSKT Wildlife response to CWD.

This outreach and education plan explores two specific areas of focus: general information about CWD and CSKT Wildlife's surveillance and communication following any new detection. The communication objective for each will be different.

- General information about CWD and CSKT Wildlife's surveillance: The objective for this phase of the plan is to increase awareness about CWD and CSKT Wildlife's surveillance and response plan, while generating support for the plan, as well as prevention and monitoring activities.

- Response to a new detection message: The objective in this phase is to generate awareness and understanding of response, getting buy-in/support from Tribal membership and hunters is needed for an effective response.

This Outreach and Education plan should achieve the following:

- Increase awareness of CWD and current CWD management strategies amongst targeted audiences.
- Provide clear understanding of surveillance program, goals and accomplishments.
- Increase awareness and understanding of CSKT Wildlife's CWD response plan.
- Increase support for CWD response plan amongst targeted audiences.
- Generate support for response activities so response goals can be more easily met.

Consistent Messaging

General information about CWD and CSKT Wildlife's surveillance Speaking Points:

- CSKT Wildlife staff and Tribal leaders worked diligently to prepare for CWD in FIR cervids. Our response plan reflects these efforts and is our best way to control CWD in the immediate cervid population.
- There is no known cure for CWD.
- If left unmanaged:
    - CWD could have long-term dramatic impacts to Reservation cervid population numbers, and shift the population towards younger, immature, sub-prime-aged deer.
    - The prevalence of CWD will increase. High prevalence leads to population declines.
    - CWD will lead to the decrease in subsistence hunting of big game on the Reservation.
    - CWD could spread to other areas and/or other species.
- CSKT Wildlife's initial response to a new CWD detection will be to sample cervids to determine disease prevalence and distribution.

- Initial management actions to determine prevalence and distribution may involve some level of herd reduction, dependent on individual circumstances. Removed animals will be utilized in food sovereignty and elders distribution programs, with proper testing of CWD.

- Determining disease prevalence and distribution is critical to assess risk and prepare for overall disease management.

- CSKT Wildlife's sampling effort will utilize member hunting and will likely include a Special CWD Hunt; however, if enough samples are not obtained by hunters, the CSKT Wildlife Management Program may explore other options including administrative sampling.

- CSKT Wildlife will use science to guide decisions when determining specific management decisions, but other factors will also be considered. These would include landowner cooperation, social acceptance of management decisions, access to animals for needs of subsistence harvest, hunter willingness to participate, and financial impacts.

- Hunters should never eat meat from, or use animal parts from an animal that appears sick. Even in a healthy animal the brain, spinal column or lymphatic tissues should not be used without a negative CWD test. CWD has not been proven or suspected to pass from an infected animal to a human. However, the Centers for Disease Control (CDC) and the World Health Organization (WHO) advise against consuming meat from CWD-positive animals. Furthermore, the CDC recommends that hunters strongly consider having their animals tested before eating the meat when hunting in areas where CWD is known to be present.

- Meat from CWD positive animals should be disposed of properly in a class II landfill.

Responses to a New Detection Speaking Points:

- CSKT Wildlife will respond to the new discovery of CWD, as per the approved response plan. The program will work closely with Tribal Council, local communities, the public, and other state and federal agencies.

- An Initial Response Area (IRA) may be established and encompass the area where the infected animal was found.

- Specific details about CSKT Wildlife's response include:
  - Specific species, age, sex, geographic area, date and prior level of testing in the area where the infected animal was harvested

  - Herd population numbers and susceptible species in the area.

  - Specific management actions recommended in CSKT Wildlife's Response Plan, with rationale for action stressing need to determine the prevalence and distribution of disease before other long-term management plans are implemented.

  - Accompanying the above, a statement that CSKT's Wildlife's management actions aren't meant to eradicate the disease, but rather to estimate prevalence and distribution, reduce prevalence if possible, and halt the spread of CWD. Inaction is not a valid alternative.

- Announcement of any public meeting in affected area to discuss incident and program responses.

- CSKT Wildlife has been looking for the disease, with specific attention to "high-risk areas" and is not surprised at its arrival.

- Assurance that CSKT Wildlife has contacted the hunter who harvested the positive animal and Tribal Council has waived requirement that meat be consumed.

- Assurance that CSKT Wildlife is contacting landowners in affected area, specifically requesting access, where appropriate, to conduct management activities.

- In subsequent seasons, hunters in the IRA may be required to submit heads of deer, elk and moose for testing. Results of tests will be expedited and made available to the hunters.

- Requirements for disposal of carcass wastes and/or contaminated carcasses, especially from IRA.

- Q&A format addressing basic questions of disease and its implications (see *Appendix for Example FAQ's).*

Action Alert Phone Tree to Implement Initial Response to a New Detection

- A positive test result is reported to Fish Wildlife and Park's (FWP) Wildlife Disease Ecologist (currently Dr. Emily Almberg), or the FWP Wildlife Veterinarian (currently Dr. Jennifer Ramsey).

- CSKT Wildlife contacts hunter, landowner and any other affected state, tribal or county jurisdictions, including other states if a harvested animal has been transported out of state.

- CSKT Wildlife informs Tribal Council and Culture Committees of new, confirmed positive detection.

- Natural Resource Department Outreach and Education Specialist contacts first-tier media.

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APPENDIX I

Sample size calculations to detect disease presence with 95% confidence

The basic equation for calculating the number of weighted-sample "points" needed (n) to establish freedom from disease at a specified prevalence level (P; or proportion of the population testing positive) and with a desired level of statistical confidence (α), assuming the number of positive cases follow a Poisson distribution is[35]:

$$n = \frac{-\ln(1-\alpha)}{P}$$

There are variations on this equation that account for population size or for imperfect test sensitivity (ability of a test to correctly identify those with the disease) and specificity (ability of a test to correctly identify those without the disease). However, since the number of weighted sample points needed is relatively invariant over the range of animal population sizes commonly encountered with ungulates and there are errors associated with field estimates of ungulate population sizes, we have chosen to use the above, conservative equation. Similarly, test sensitivity and specificity are both high for the CWD ELISA test, and therefore we have chosen to use the simple calculation. For a weighted surveillance strategy, the above calculation is used to determine the number of "points" needed (as opposed to the number of animals) to establish freedom from disease at a specified prevalence level and with a desired level of confidence[33] (Table 3).

Weighted surveillance allows one to incorporate previous estimates of the relative risk of various demographic groups (age, sex, or cause of death categories) to economize sampling efforts. Animals that are more likely to be infected are given more points towards meeting a sample size goal.

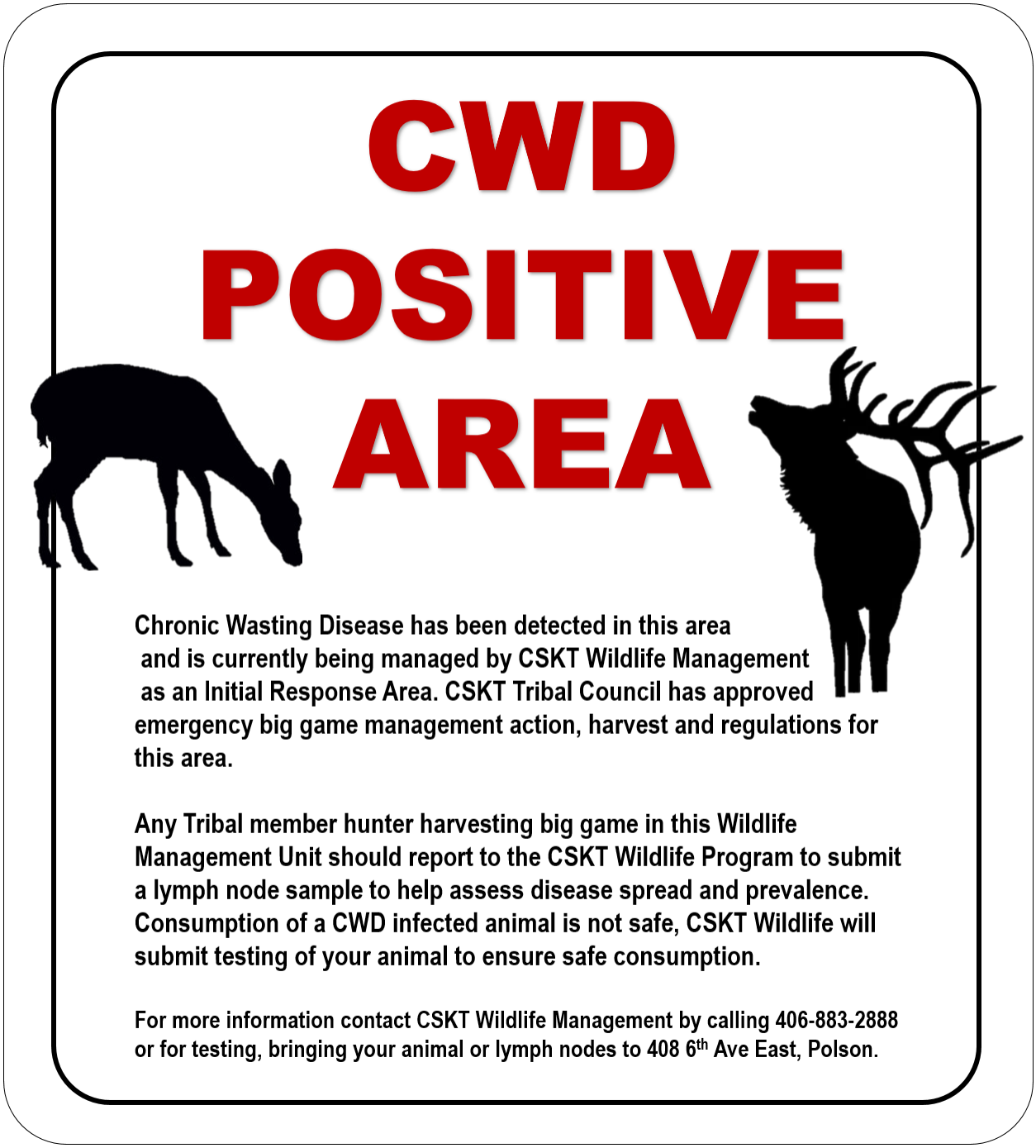
Table 4. Weighted sample points needed to detect a specified prevalence (P; proportion of the population testing positive) with 95% confidence.

Prevalence (P)	Points Needed
0.1%	2996
1%	300
5%	60
10%	30

APPENDIX II

IRA Posted Signs

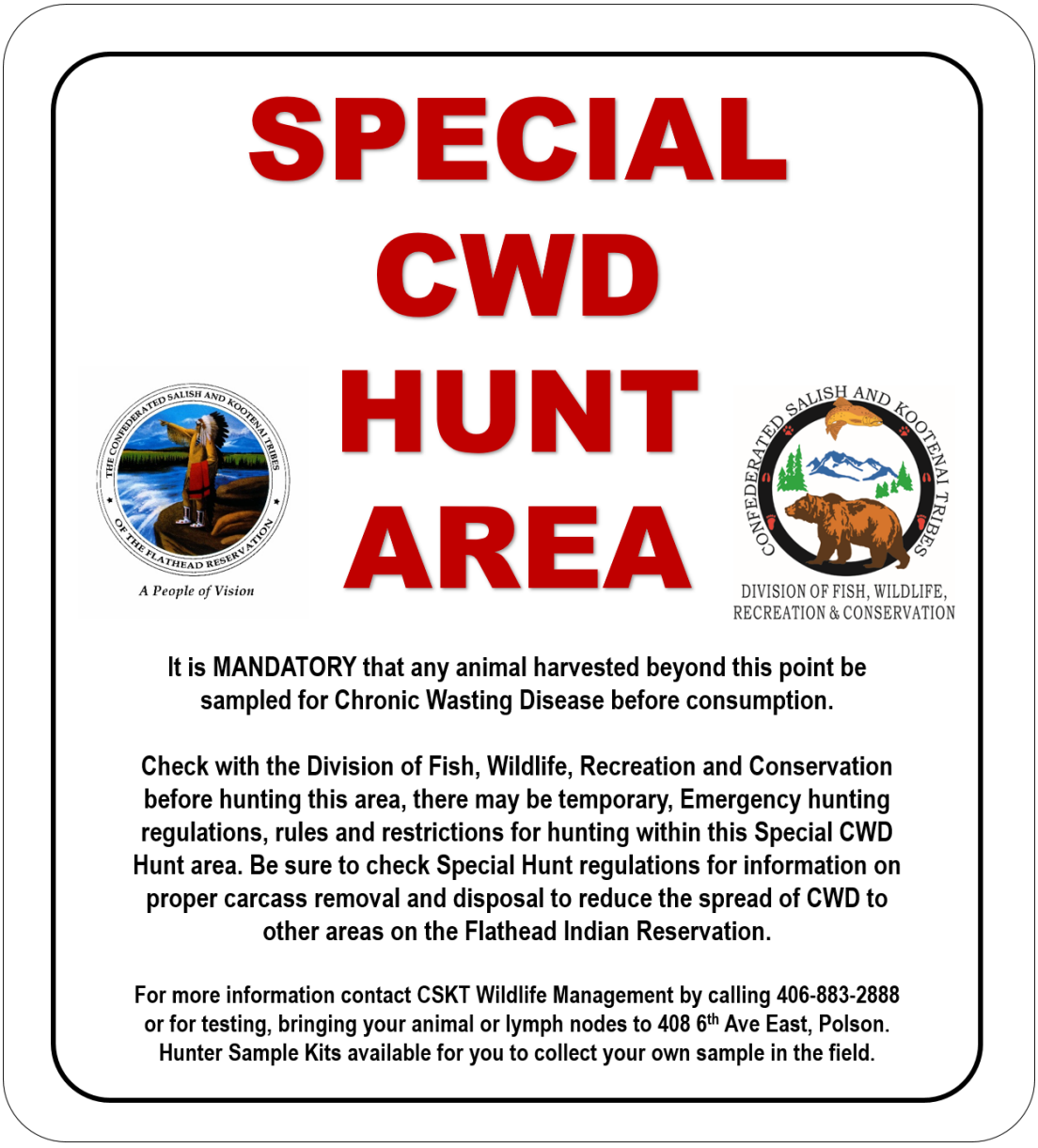
Example of posted signs that may be put up at major access points identifying areas as Initial Response Areas, indicating the need to have any animals harvested from this area tested for CWD and how to contact CSKT Wildlife for testing and further hunting / regulation change information.



APPENDIX III

Special Hunt Posted Signs

Example of posted signs that may be put up at major access points in the case of a Special CWD Hunt. These would be posted next to signs from Appendix II and direct all Tribal member hunters to check with the Division of Fish, Wildlife, Recreation and Conservation prior to hunting to be aware of any temporary, special hunting regulations, rules, or carcass disposal restrictions.



Appendix IV.

Sample Size Calculations for Measuring CWD Prevalence

Upon any new CWD detection, CSKT Wildlife may define an IRA and coordinate a special hunt to measure the prevalence and distribution of the disease. We want to ensure that we measure prevalence with a high level of precision while accounting for the estimated cervid population size within the IRA. This is a random sampling design and is not the same as the weighted sampling used during surveillance. Weighted sampling is used only to determine the presence of CWD.

The sample size necessary (n) for estimating the disease prevalence ($\hat{\rho}$) in a small finite population of size N with (1-α)100% confidence and error no larger than € is calculated as:

$n = \frac{m}{1+\frac{m-1}{N}}$, where $m = \frac{z^2\alpha/2 \; \hat{\rho}(1-\hat{\rho})}{\epsilon^2}$ is the sample size necessary for estimating the disease prevalence ($\hat{\rho}$) for a large population.

As an example, to estimate prevalence with a 3% margin of error (ϵ = 0.03) with 95% confidence ($z^2\alpha/2$ = 1.962), assuming prevalence is 5% ($\hat{\rho}$ = 0.05) and the target population size (N) is 1000, then m = (1.962*0.05*0.95/(0.032)) = 203 and n = 203/(1 + (203-1)/1000) = 169 animals needed in our random sample design.

Appendix V.

Example of General Information about CWD and CSKT Wildlife's surveillance FAQs

Q. What is Chronic Wasting Disease and how do deer, elk, and moose catch it?

A. Chronic wasting disease (CWD) is one type of a class of diseases called Transmissible Spongiform Encephalopathies (TSEs) that infects members of the deer family, including deer, elk, moose, and caribou. TSEs are caused by infectious, miss-folded prion proteins (not a virus, bacteria, or fungus) which cause normal prion proteins throughout a healthy animal's body to miss-fold, resulting in organ damage and eventual death. These prions are found throughout bodily tissues and secretions and are shed into the environment before and after death. When other animals come in contact with the prions, either from infected animals or from contaminated environments, they can be infected. The disease is slow acting, degenerative, and always fatal. The name comes from the appearance of symptomatic animals, which get very skinny and sick-looking before they die.

Q. ***Where does CWD come from?***

A. The origin of CWD is unknown. It was discovered in 1967 in mule deer at a research facility in Colorado. Shortly thereafter it was also found in captive mule deer and elk in Ontario, Colorado and Wyoming. By the 1990s, it was discovered in wild white-tailed and mule deer, elk and moose in Colorado and Wyoming and among captive animals in Saskatchewan, South Dakota, Montana and Oklahoma. By the early 2000s, CWD was found in the wild in Saskatchewan, Alberta, Illinois and Wisconsin. CWD has continued to spread. As of 2018, it has been found in captive or free-ranging herds in 26 states, three Canadian provinces, Norway, Finland and South Korea. CWD was found among wild deer in Montana in 2017.

Q. ***Is CWD found on the Flathead Indian Reservation?***

A. No. Currently CWD has not been detected within the FIR, however our herds do migrate to areas that are positive for CWD in wild cervid populations. We also have animals harvested off-reservation that are brought back onto the reservation, which are potential vectors for the disease entering the environemnent if carcasses are not disposed of properly (in a landfill)

Q. What is a CWD Management Zone?

A. A CWD Management Zone is one or more Wildlife Management Units, or portions of Wildlife Management Units, that contain an area where CWD was detected.

Q. What are the rules for carcass transportation and disposal within the Flathead Indian Reservation?

A. Deer, elk and moose taken in the FIR may be transported to a camp, a private residence for processing, a taxidermist, a processor, or a CWD sample collection site, provided all portions of the spinal column remain at the site of the kill or such parts are disposed of in any Class II Landfill in Montana. The head with neck attached can be brought to the CSKT Wildlife Management Program (406 6th ave. East, Polson, Montana) for CWD testing.

** Nothing in this section shall apply to the transportation or disposal of deer, elk and moose taken by any Tribal agency or CSKT Wildlife staff.*

Q. What is CSKT doing to manage CWD?

A. Where CWD is detected, the CSKT Wildlife Management Program will develop a herd management plan that will aim to keep prevalence of the disease at ≤5%in the affected population. Potential management tools include increasing harvest, especially of antlered animals; targeted removal in limited areas around CWD detections; minimizing large groupings of deer by removing or fencing attractants and through hazing or dispersal hunts; and carcass transport restrictions

Q. Why is CWD management important?

A. Without management, CWD will spread, increase in prevalence, and may cause population declines in deer, elk and moose as it has in other states. CSKT Wildlife is committed to doing all it can to keep wildlife on the Reservation healthy so that subsistence hunting can continue for generations to come. CSKT Wildlife's goal is to effectively manage the disease in wild populations and limit the prevalence and spread of CWD. There are no vaccines for CWD so management and prevention are critical to help prevent long-term population decline in infected herds, and slow the decline of wildlife-related recreation opportunities.

Q. Where is CSKT looking for CWD?

A. CSKT's Wildlife Management Program has identified priority surveillance areas based on known CWD positives within Montana and along our Reservation borders. These areas have been identified as those at highest risk of becoming infected through the natural spread of the disease. We will periodically update our priority surveillance areas as new information on CWD within the state becomes available. Since CWD could be spread through the inadvertent movement of a CWD-positive deer or elk carcass into the Reservation, we also plan to periodically survey other areas of the reservation that fall outside of the high-priority surveillance zones.

Q. Can CWD be eradicated?

A. After decades of CWD management across the country, most agencies and researchers agree that CWD cannot be eradicated once it infects a herd. States have attempted eradication and set up unreasonable expectations with hunters and the public. Eradication is not the goal of CSKT Wildlife.

Q. Can humans be infected by CWD?

A. There is no known transmission of CWD to humans. However, The Centers for Disease Control and Prevention (CDC) recommends that hunters harvesting a deer, elk, or moose from an area where CWD is known to be present have their animal tested for CWD prior to consuming the meat, and to not consume the meat if the animal tests positive.

Some simple precautions should be taken when field dressing deer, particularly in CWD Management Zones:

- Wear rubber gloves and eye protection when field dressing your deer.
- Minimize the handling of brain and spinal tissues.
- Wash hands and instruments thoroughly after field dressing is completed.
- Avoid processing and consuming brain, spinal cord, eyes, spleen, tonsils and lymph nodes of harvested animals. (Normal field dressing coupled with boning out a carcass will essentially remove these parts.)

Q. How will CWD impact deer and elk herds of the Flathead Indian Reservation?

A. The short answer is we don't know. If CWD infects enough animals, it will probably reduce the herd in the long term. Other states have seen deer populations decline when CWD infects 20 to 40 percent of a herd. In Wyoming, heavily infected herds of mule deer declined 21 percent per year and whitetails declined by 10 percent. Colorado saw a 45 percent decline in infected mule deer herds over 20 years. Clearly, if left unchecked, CWD could result in large-scale population declines.

Because the distribution and intensity of CWD infections are variable across a broad landscape, the impacts across the landscape will also be variable. Keeping deer numbers down and dispersed, and reducing buck:doe ratios, may keep the prevalence low and manageable. CSKT Wildlife's focus will be on managing CWD-infected areas for prevalence at 5 percent or lower and preventing spread. This may also mean keeping deer or elk numbers low in certain areas.

Q. How do you test for CWD?

A. The standard test is to look at an animal's lymph nodes or brainstem for evidence of CWD. These samples can only be collected from dead animals and are submitted to a certified CWD-testing diagnostic laboratory. Unfortunately, there are no non-invasive CWD tests for live animals.

Q. How long will it take for me to find out if my deer has CWD?

A. If your animal is sampled by CSKT Wildlife staff at a check station or office (406 6th Ave. East, Polson, Montana), results will be posted online (fwp.mt.gov/cwd) within three weeks. Hunters will be given a code to check their results directly from the fwp.mt.gov/cwd website, and CSKT Wildlife biologists will also contact hunters as soon as the results are reported. We recommend obtaining results before consuming meat from deer killed within a CWD Management Zone. If your harvested deer is found to be positive, you can dispose of the meat appropriately at a landfill.

Q. How can you tell if an animal has CWD?

A. Animals with CWD cannot be diagnosed based on clinical signs because they are unspecific and mild at the beginning of the disease. Diagnosis is therefore made by testing tissues from the central nervous system and lymph nodes. Symptoms of infected animals can include emaciation, excessive salivation, lack of muscle coordination, difficulty swallowing, excessive thirst and excessive urination. Clinically ill animals may have an exaggerated wide posture, may stagger and carry the head and ears lowered, and are often found consuming large amounts of water. However, these symptoms don't appear until the terminal stage of the disease. It is important to remember that infected animals may not have symptoms but can still be shedding infectious prions. Most CWD-positive deer sampled appeared outwardly normal and healthy.

Q. What happens if I shoot a sick deer?

A. If you have harvested an animal that appears sick, contact the CSKT Wildlife Management office (406-883-2888).

Q. What is a Special CWD Hunt?

A. A Special CWD Hunt may be initiated by Tribal Council following the detection of CWD outside of existing CWD Management Zones. This hunt may be held during the hunting season and will be designed to sample enough harvested animals to determine the prevalence and spatial distribution of the disease. Special rules and regulations may apply and will be communicated with the public. All animals harvested during a special hunt must be brought to a Tribal CWD Hunt check stations or Division of Fish, Wildlife, Recreation and Conservation office (406 6th Ave. East, Polson, Montana) for sampling and to be tagged with a tag reading "CWD TEST" and a unique identification number. To prevent spread of the disease, new CWD

Management Zone boundaries may be defined, and brain and spinal column material of animals taken during a Special CWD Hunt will not be allowed out of the Management Zone boundaries (*unless the head is being brought to the CSKT Wildlife offices in Polson*). The Special CWD Hunt will end when enough deer are sampled to precisely measure the prevalence and spatial distribution of the disease, which is estimated to be between 150-400 animals.

Q. Why should ranchers and farmers care about CWD?

A. CSKT Wildlife uses hunters as a key tool to help ranchers, farmers and other landowners manage the impact of wildlife on their property and to their crops and livestock. If CWD were to increase in prevalence, CSKT Wildlife would anticipate some localized decline in hunting interest. Recent research has shown that plants, including plants used for livestock food, can uptake CWD prions from the soil. If continued research shows that animals can catch CWD by eating infected plants, it could have huge repercussions on the agricultural industry. Concerns nationally and internationally about CWD transmission through feed has led many states and other countries to restrict the sale of such products from CWD-positive areas.

Q. Why should compost owners care about CWD?

A. Composting facilities sometimes take animal carcasses for use in composting piles. If animals from a CWD infected area is used in composting, it may affect the ability of the business owner to sell their contaminated compost. CWD is spread through soil, and infected compost could be a vector of continued spread.