

**UNIFIED SPORTSMEN OF PENNSYLVANIA'S
CWD SPONSORED RESEARCH PARTNERSHIP
AND
NATIONAL DEMONSTRATION PROJECT**

**A PARTNERSHIP OF PRIVATE ORGANIZATIONS TOWARD PROTECTING HUMAN HEALTH
AND REMEDIATING CHRONIC WASTING DISEASE IN PENNSYLVANIA AND AMERICA**

**RESULTING FROM
A MUTUALLY-BENEFICIAL AGREEMENT
OF
UNIFIED SPORTSMEN OF PENNSYLVANIA (USP)
TOWARD FUNDING THE RESEARCH OF
DR. FRANK BASTIAN,
NEUROLOGICAL SCIENTIST AT
LOUISIANA STATE UNIVERSITY (LSU)**

October 14, 2018

**Prepared For
Unified Sportsmen of Pennsylvania
By
John Eveland
Consulting Biologist**

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INTRODUCTION

Chronic wasting disease (CWD) is a lethal neurological disease of species within the deer family (cervids), including deer, elk, and moose. It occurs in about half of the states and in provinces of Canada, is significantly impacting deer populations in some states, and the frequency of infection and rate of spread are increasing.

For the last 40 years, the working hypothesis, known as the prion theory, claims that the causative agent of CWD (transmissible spongiform encephalopathies (TSE)) is a spontaneous self-replicating (malformed) protein. However, Dr. Frank Bastian, a scientist at Louisiana State University (LSU), has discovered that the transmissible agent of CWD is a tiny wall-less bacterium called a spiroplasma.

The strategies for control of such a bacterium include the development of a diagnostic test for live animals. This would permit identification of undetected infected animals and the ability to remove them from the herd (thus decreasing the infectious reservoir), and the possible development of a vaccine to decrease spread or prevent the disease entirely. Both of these developments would be nearly, if not completely, impossible under the prion theory. Toward this end, continued financial research support is vital.

Unified Sportsmen of Pennsylvania (USP or Unified) has entered into a mutually-beneficial agreement toward funding Dr. Bastian's research, eradicating CWD, and protecting human health in Pennsylvania and throughout America. According to the agreement, Unified will provide grant funding for Dr. Bastian to continue and complete his research. In return, Unified will be provided with first-stage diagnostic tests for Pennsylvania hunters to test deer in the field at the point of harvest for CWD infection – thus protecting humans from the possible infection of CWD. The diagnostic tests would further be a significant research and management tool for understanding and remediating CWD. Unified would also be offered first-stage testing of a vaccine if development is successful. These Unified-coordinated Pennsylvania field tests would serve as a national demonstration project for protecting human health and dispersing these preventative CWD strategies throughout America.

Unified has created a private Sponsored Research Partnership to provide the opportunity for other concerned organizations (and individuals) to participate as partners in this historic effort to protect the health of sportsmen and those who consume venison from possible infection of CWD, to prevent further infection of cervids, to advance the science and management strategies of CWD, and to place the disease in remediation within Pennsylvania and throughout America.

This report presents three single-page assessments of the CWD crisis and the solution toward ending the disease:

- a discussion of the science and management of CWD,
- a description of the USP agreement and Sponsored Research Partnership, and
- Dr. Bastian's analysis of the CWD epidemic and his possible control measures.

A Sponsored Research Partnership Form is offered at the end for those who wish to donate to Dr. Bastian.

Organizations are now encouraged to join Unified in this historic partnership. The future of deer, elk, and moose depend on the research of Dr. Bastian, and his research may depend on the success of our Partnership.

Subject: Science and Management of Chronic Wasting Disease (CWD) in Pennsylvania and America
By: John Eveland, Wildlife Biologist and Cervid Neurological Disease Scientist

BACKGROUND: CWD IN PENNSYLVANIA AND AMERICA

- Chronic Wasting Disease is a lethal neurological disease of the cervid (deer) family, including white-tailed deer, elk, mule deer, and moose. It was discovered in 1967 in Colorado and is now confirmed in 24 states and two provinces of Canada. CWD was first identified in Pennsylvania in 2012.
- CWD has been confirmed in 177 free-ranging deer in Pennsylvania, including 78 in 2017 and 26 through June 2018. The Game Commission (PGC) has established three current Disease Management Areas (DMAs) which include free-ranging and/or captive deer in all or parts of Bedford, Blair, Cambria, Fulton, Franklin, Lancaster, Jefferson, and Clearfield Counties.
- After initial infection, the incubation period can last for 18-24 months with no visual signs of the disease. In late stages, symptoms from brain lesions include aimless wandering, falling, drooping ears, and excessive salivating. It results in death.

SOUND SCIENCE AND MANAGEMENT STRATEGIES FOR PREVENTING CWD

- A 12-year study by the USGS Cooperative Wildlife Research Center, University of Wisconsin, found that adult bucks are twice as likely to be infected by and spread chronic wasting disease than adult female white-tailed deer. Adult males were five times more likely to be infected than yearlings of either sex. CWD infection sexual variation was reported as follows: (1) yearling males (3.2% infection rate), (2) yearling females (3.6%), (3) adult females age 3+ (8.1%), and (4) adult males age 3+ (16.3%).
- The study indicated that the best way to stem the spread of CWD is to promote a higher proportion of does in the herd (the least likely portion to be infected), and to kill more buck (the most likely portion to be infected). By harvesting adult buck (management without antler restrictions), the rate of CWD infection can be stemmed as the higher prevalence class (older adult buck) is reduced in the population, and the lowest prevalence class (females) is increased. According to researchers: *"We show that harvest focused on the greater-affected sex (males) can result in stable population dynamics and control of CWD."* Conversely: *"High female harvest reduces population size...and results in host and disease extinction."*
- According to the study, when a state's management strategy is focused on harvesting females in order to reduce herd growth rate and size of the deer herd, nearly 50% of adult males and 25% of adult females are expected to become infected within a decade. Even worse, when this management strategy is combined with promoting older buck (using antler restrictions), not only are deer densities expected to be low (thus decreasing deer numbers for sport hunting), but more than 50% of surviving adult bucks and 30% of adult does would be infected within a decade.
- The rate at which deer become infected is based on CWD prevalence in the herd, not on the size of the herd. Indiscriminately shooting deer to reduce herd size (such as using sharp-shooters over bait) has no effect on the prevalence of CWD in the herd, but simply reduces the number of deer for hunters.

PGC'S DEER MANAGEMENT AND CWD PROGRAM

- There are two principal deer-management strategies of the Game Commission: (1) promoting herd reduction by focusing on high harvests of female deer, and (2) increasing the proportion of older adult bucks in the herd through an antler-restriction policy. In addition, PGC's primary CWD-management strategy promotes herd reduction by indiscriminately sharp-shooting deer. According to the Wisconsin study, all three of these PGC strategies are encouraging the frequency-of-infection and the rate-of-spread of CWD and are projected to result in the infection of 50% of surviving bucks and 30% of does within the next 10 years. **PGC's deer-management program threatens the Commonwealth's white-tailed deer and elk herds and risks the future of sport hunting in Pennsylvania. If PGC's deer-management program continues, it is likely to have catastrophic biological, social, and economic repercussions that could last for generations.**

ALTERNATIVE PLANS TO REDUCE THE RATE OF INFECTION, REVERSE THE SPREAD, AND CURE CWD

- **Immediate Legislative Remediation.** In contrast to PGC policies, a bill was introduced in the 2017-18 Legislative Session that would implement the findings of the Wisconsin study. HB 1483's deer and CWD management strategy was designed to remove the focus of the harvest from killing does and to focus on harvesting buck. Provisions of the bill would result in stable population dynamics and control the spread of CWD.
- **Permanent CWD Cure.** Unified Sportsmen of Pennsylvania (USP) has entered into an official agreement toward funding the CWD research of Dr. Frank Bastian, a scientist at the Louisiana State University (LSU). Dr. Bastian has discovered the bacterial cause of the disease, with a malformed protein (called a prion) associated as a by-product of the bacterial action of the disease. He is developing a vaccine to halt and prevent CWD throughout the nation as well as a field-test for hunters to immediately check their kills in the field for the presence of CWD. Upon completion of the research, this revolutionary hunter test kit and vaccine will be first tested in Pennsylvania by USP and its Sponsored Research Partners as a national demonstration project to protect human health and provide a permanent cure for CWD.
- **Working in Tandem.** The provisions of the bill and the USP agreement are designed to operate in tandem toward providing an effective mechanism to halt the spread of CWD in Pennsylvania and to distribute the permanent cure throughout America. **The future of Pennsylvania's deer and elk herds now depends on passage of the bill and on USP's field-testing of Dr. Bastian's revolutionary discoveries.**

Subject: The USP/LSU Official Agreement and Sponsored Research Partnership for Ending CWD

By: Wayne Haas, Chairman, CWD Committee, Unified Sportsmen of Pennsylvania

Prepared for: Sponsored Research Partners for Ending CWD in Pennsylvania and America

THE USP MUTUALLY-BENEFICIAL AGREEMENT FOR ENDING CWD

- In October 2018, Unified Sportsmen of Pennsylvania (USP or Unified) entered into a Memorandum of Understanding (MOU) with Louisiana State University as a mutually-beneficial agreement toward ending chronic wasting disease (CWD) and protecting human health in Pennsylvania and throughout America.
- Dr. Frank Bastian of LSU is actively working to develop a vaccine to prevent a bacterial infection of cervid animals (including white-tailed deer, elk, and moose) known as chronic wasting disease (CWD) and to further develop a test for hunters to field-test their harvested cervids at the point of harvest for the presence of CWD. Unified desires to assist Dr. Bastian toward solving this deadly disease within Pennsylvania and throughout America.
- Toward this end, Unified has entered into a Sponsored Research Agreement toward funding the CWD research of Dr. Bastian. Unified and its partner organizations will fund research through Unified.
- In addition, Unified will assist Dr. Bastian in the first-stage field-testing of hunter-harvested deer for the disease. Unified will coordinate field tests with the appropriate government agencies. Unified will use the independent scientific services of John Eveland (Wildlife Biologist with special experience in neurological cervid disease).
- If research is successful, Unified will be provided such first-stage field tests for testing in Pennsylvania.
- Further, if the research agreement is successful and leads to the development of injectable and/or orally administered vaccines for CWD, Unified is projected for first-stage testing of such vaccines in Pennsylvania.

SPONSORED RESEARCH PARTNERSHIP / JOIN THE CONSORTIUM TO END CWD

- Unified Sportsmen of Pennsylvania is a private, non-profit, statewide organization representing tens of thousands of sportsmen and is dedicated to defending and promoting the rights of sportsmen for recreational hunting, fishing, trapping, and shooting; to promoting abundant wildlife and healthy forest ecosystems; and with a special interest in the protection of wildlife from major diseases, especially CWD.
- Toward this end, Unified has created a private Sponsored Research Partnership and is now providing the opportunity for other concerned organizations to participate as partners in this historic effort to protect the health of sportsmen and those who consume venison from possible infection of CWD, to prevent further infection of cervids, and to place the disease in remediation throughout Pennsylvania and America. The Partnership is designed to end the great biological, social, and economic impacts of CWD that have resulted and will continue to occur without completion of Dr. Bastian's research and without the successful Pennsylvania field-testing and national distribution of these research and management strategies.
- Partner organizations will receive full acknowledgement for their contributions to the research project and will be acknowledged as a Sponsored Research Partner in the field-testing of hunter test kits and vaccines if the research is successful and once final products are developed for testing.
- USP urges our traditional partners toward preserving wildlife populations and sport hunting in Pennsylvania, and our fellow citizens who desire a healthy forest ecosystem with abundant wildlife to join USP in this nationally significant project to save our great herds of deer, elk, and moose throughout North America. If we do not create such a conservation consortium with such a noble goal, then for what purpose do our organizations exist.
- **To join the Sponsored Research Partnership, please contact USP – see the contacts on page 2 of this report. Donations should be made according to directions on the Partnership form at the end of this document.**

IMPORTANCE TO PENNSYLVANIA AND AMERICA

- White-tailed deer represent the flagship of a multi-billion-dollar outdoor industry in Pennsylvania. Deer are officially designated as Pennsylvania's State Mammal and are the focus of hundreds-of-thousands of sportsmen, the foundation of tens-of-thousands of jobs and family businesses, the prosperity of rural communities, and the recreational enjoyment of millions of the Commonwealth's citizens. Today, our deer herd is in great jeopardy to chronic wasting disease. At its current pace of decline to the disease, Pennsylvania's deer herd will continue to rapidly deteriorate along with sport hunting and the great and many benefits that are associated with whitetails.
- Currently, CWD has progressed to the edges of the Pennsylvania Elk Area and also at risk is our magnificent elk herd and the resulting collapse of the Elk Country Visitor Center.
- If the current Game Commission management plan remains ineffective, based on the progression and rates of recovery of other cervid diseases, our deer and elk herds will be lost as a viable part of Penn's Woods for upwards of a hundred years.
- Dr. Bastian's CWD research and USP's Sponsored Research Partnership represent the best and possibly last hope of stopping progression of this devastating disease in Pennsylvania and throughout America. The future of deer, elk, and moose depend on the research of Dr. Bastian, and his research may depend on the success of our Partnership.

Subject: LSU Scientist Discovers CWD Bacterium / Makes Field-Testing and Vaccine Breakthrough

By: Dr. Frank Bastian, Louisiana State University

Prepared For: Unified Sportsmen of Pennsylvania (USP)

Date: October 9, 2018

The CWD EPIDEMIC / POSSIBLE CONTROL MEASURES

- For the last 40 years, the working hypothesis, known as the prion theory, claims the causative agent of the transmissible spongiform encephalopathies (TSE), including chronic wasting disease (CWD) in cervids (deer, elk, moose), is a spontaneous self-replicating protein.
- The data supporting the prion theory is controversial in that, although a disease related host protein amyloid is deposited in tissues, the proposed mechanisms of replication is only conjecture and has never been proved.
- Recombinant prion protein itself is unable to transmit TSE, indicating that something else is the true cause of the disease.
- The prion theory contradicts the long-standing and well-accepted germ theory that has been essential to our modern understanding of infectious disease.
- Furthermore, research based on the prion theory will not resolve the CWD problem since the prion theory involves misfolded self (host) proteins, and development of a vaccine against a self-protein has never been a practical approach.

EVIDENCE FOR THE ROLE OF A BACTERIUM IN THE PATHOGENESIS OF TSE

- Our laboratory has presented morphologic and molecular evidence that the transmissible agent/s of TSE is a tiny wall-less bacterium called a spiroplasma.
- First seen by electron microscopy of a brain biopsy from a Creutzfeldt-Jakob disease (CJD) patient (TSE in humans), the DNA for this organism has been detected in brain and lymphoid tissues from CWD-infected deer.
- We have been able to culture the spiroplasma associated with CWD from CWD-affected tissues in cell-free culture media and thus are able to characterize it.
- We have shown that a Spiroplasma sp. isolated from a CWD-affected deer brain and inoculated intracranially into sheep and goats produced classic CWD pathology in the new hosts after a 12 month incubation period.
- Additionally, the Spiroplasma sp. isolated from these experimentally infected ruminant brains formed typical spiroplasma subsurface colonies on agar.
- The significance of these findings is that isolation and re-isolation of Spiroplasma sp. from previously inoculated animals that showed identical CWD pathology has satisfied the principles of Koch's postulates therein confirming that this bacterium is the likely causative agent of CWD and the other TSEs.
- Koch's postulates are an essential requirement in the germ theory for determining the cause of present day infectious diseases, but are ignored by prion researchers.
- Experiments are ongoing to gather further support for the role of spiroplasma in the etiology of CWD and the other TSEs.
- The strategies for control of a spiroplasma infectious agent would include development of diagnostic tests for live animals to cull undetected infected animals to remove the CWD infection reservoir and possible vaccines to decrease spread or prevent the disease entirely. Both of these developments would be near, if not completely, impossible under the prion theory, given the nature of prions as misfolded host proteins.
- Continued research support is essential to investigating the role of spiroplasma in CWD and the other TSEs in order to develop workable control strategies.

UNIFIED SPORTSMEN OF PENNSYLVANIA'S CWD SPONSORED RESEARCH PARTNERSHIP FORM

Chronic wasting disease (CWD) is a lethal neurological disease of species within the deer family (cervids), including deer, elk, and moose. For the last 40 years, the working hypothesis, known as the prion theory, claims that the causative agent of CWD is a malformed protein. However, Dr. Frank Bastian, a scientist at Louisiana State University, has discovered that the transmissible agent of CWD is a tiny wall-less bacterium called a spiroplasma, and that the prion is a by-product of the bacterial infection.

Dr. Bastian is now attempting to develop a diagnostic test for the disease and possible vaccine. He estimates that it will require \$100,000 of new funding for each of the next three years in order to complete these tasks. The rewards of his research in stopping the progression of CWD throughout America are incalculable, as are the negative consequences if CWD is left unchecked.

Unified Sportsmen of Pennsylvania (USP or Unified) has entered into a mutually-beneficial agreement toward ending CWD and protecting human health in Pennsylvania and throughout America. According to the agreement, Unified will provide grant funding for Dr. Bastian to complete his research. In return, Unified will be provided with first-stage diagnostic tests for Pennsylvania hunters to test deer in the field at the point of harvest for CWD infection – thus protecting humans from the possible infection of CWD. The diagnostic tests would further be a significant research and management tool for understanding and remediating CWD. Unified would also be offered first-stage testing of a vaccine if development is successful. These Unified-coordinated Pennsylvania field tests would serve as a national demonstration project for dispersing these CWD strategies throughout America.

Unified has created a private CWD Sponsored Research Partnership to provide the opportunity for other concerned organizations and individuals to participate as partners in this historic effort to protect the health of sportsmen and those who consume venison from possible infection of CWD, to prevent further infection of cervids, to advance the science and management strategies of CWD prevention, and to place the disease in remediation within Pennsylvania and throughout America.

Organizations are now encouraged to join Unified in this historic partnership. The future of deer, elk, and moose depend on the research of Dr. Bastian, and their research may depend on the success of our Partnership.

Agreement for Participating Organizations

We (I) agree to join Unified in this Sponsored Research Partnership. Along with this agreement form, we (I) have included grant funding toward continuation of Dr. Bastian's research. Funding should be made payable to "Unified Sportsmen of Pennsylvania", and will be deposited in a CWD account for transfer to Dr. Bastian. It is understood that neither Dr. Bastian, LSU, or Unified can guarantee the successful outcome of the research nor the ability to successfully field-test associated diagnostic tests and/or vaccines. Unified will acknowledge all funding entities as being partners in this historic endeavor.

Name of Partner: _____

Address: _____

Officer or Representative: _____

Signature: _____ Date: _____

Amount of Grant: _____ Type of Payment: _____

Email(s): _____

Phone(s): _____

Make grants payable to "Unified Sportsmen of Pennsylvania". Please send this agreement form and funding to: Unified Sportsmen of Pennsylvania, c/o Pete Kingsley (Treasurer), 340 Hilltop Road, Strasburg, PA 17579. If questions: (717)682-3999.