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Chronic Wasting Disease (CWD) Data Clearinghouse

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Chronic Wasting Disease (CWD) Data Clearinghouse

The node will provide scientific, technical, and geospatial information on Chronic Wasting Disease.

Background on the NBII

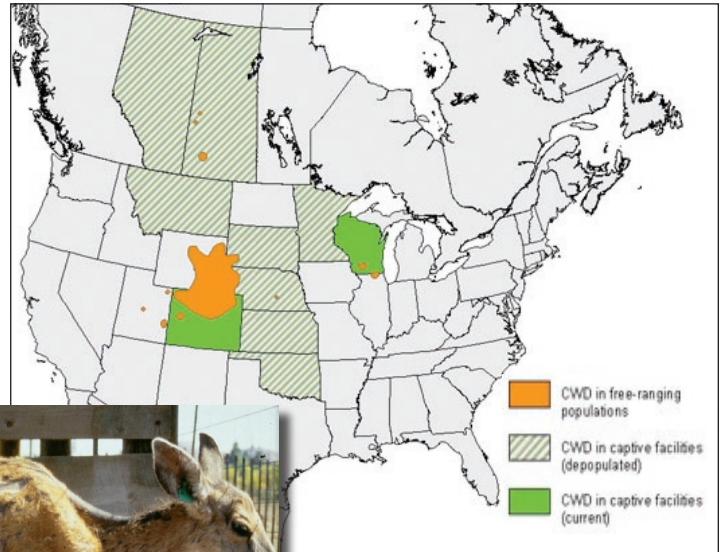
The National Biological Information Infrastructure (NBII) <www.nbio.gov> is an electronic information network that provides access to biological data and information on our nation's plants, animals, and ecosystems. Information contributed by federal, state, and local government agencies; non-government organizations; and private-sector organizations is linked through the NBII gateway and made accessible to a variety of audiences, including researchers, natural resource managers, decision-makers, educators, students, and other members of the general public. Implementation of the NBII is being accomplished through the development of "nodes" that serve as entry points to the network. These nodes function as fully digital, distributed, and interactive systems that focus on content on a defined subject area or a geographic region. The NBII Wildlife Disease Information Node (WDIN) addresses the need for information on a variety of disease agents in wildlife and their implications, including those affecting domestic animals and humans. The Chronic Wasting Disease Data Clearinghouse (CWDDC) is an innovative product of WDIN built through collaborative efforts to assist in the study of Chronic Wasting Disease.

Background on CWD

Chronic Wasting Disease (CWD) is a fatal disease of the nervous system affecting elk, white-tailed deer, and mule deer in a limited number of areas

▼ Infected mule deer with CWD

Photo credit: Christina Sigurdson, Colorado State University. Photo taken at Colorado Division of Wildlife Research Facility.



▲ CWD throughout North America as of December 2004. Map courtesy of USGS National Wildlife Health Center: <http://www.nwhc.usgs.gov/research/chronic_wasting/chronic_wasting_map.html>.

in North America. It belongs to a group of diseases known as transmissible spongiform encephalopathies (TSEs) that result in distinctive brain lesions believed to be caused by a modified protein (prion). TSEs include diseases such as scrapie in sheep, mad cow disease in cattle, and Creutzfeldt-Jakob disease in humans. Due to the potential health and economic impacts, diligent surveillance and accurate information are critical to managing CWD effectively. The national CWDDC is designed to address this need, allowing easy access to CWD surveillance, research, and testing data.

CWD Data Integration and Information Management Needs

The management and sharing of scientific, technical, and geospatial information is critical to states, federal agencies, Native American communities, and other groups involved in CWD issues. Currently, no national system exists for common

access to scientific, technical, and geospatial information on CWD, and there are many aspects of the disease for which information is very limited. As additional experience is gained and surveillance, research, and testing results are obtained, all partners can benefit from the presence of an active clearinghouse for CWD information from which nationwide trends can be analyzed and informed management decisions can be made.

CWDDC: A 21st Century Tool for Managing Wildlife Health

The CWDDC marks the first time 21st century communications and GIS technology, combined with a standardized data collection format, are being used to study a wildlife disease on a national scale. This collaborative tool provides natural resource, agricultural, and other professionals with access to a powerful, interactive, and secure environment to store and query CWD surveillance, research, and testing

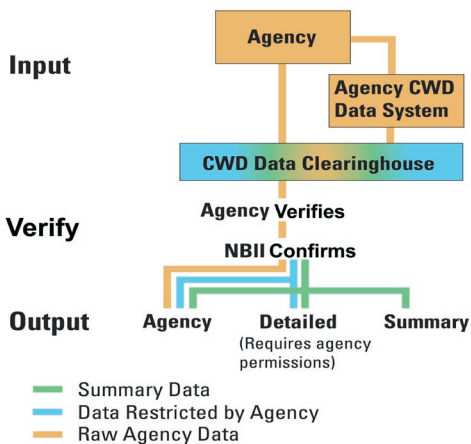
data. The CWDDC presents a vision for the future of wildlife health data management where collaborating with a colleague in the next time zone is as easy as collaborating with one in the next office. A common set of standards and GIS tools make entering data and retrieving test results easy and reliable.

How it Developed

The CWDDC was endorsed by federal, state, and Native American community representatives in the Interagency CWD Task Force. This group identified several objectives for what would become the Clearinghouse, among them developing a set of data standards so that partners could share data. To that end, the Conservation Management Institute held a CWD data standards workshop attended by nearly 50 representatives from state, federal, and Native American community agencies. The group established a set of standards and discussed methods for data transfer. The results of this workshop were incorporated into the CWDDC.

How It Works

The CWDDC is an effective mechanism for storing and providing access to comprehensive Internet-based CWD information in a secure, partner-based



data system. This central data repository will offer many advantages, including resource sharing and spatial analysis tools. From their own locations, partners can use this data entry and data visualization application without the expense of creating individual stand-alone systems.

Operation and Data Interface

Building upon collaborative efforts at the

CWD data standards workshop, NBII, USGS, and their partners developed the CWDDC. Data can be entered directly into the Clearinghouse, or can be batch entered from an agency's own data system. The data are organized into four primary tables (location, animal, sample,

▲ Sample Data Entry screen for animal information available through the CWDDC.

and test). The Clearinghouse will continue to evolve as partner needs are identified and integrated into the system. Additional GIS and analysis tools will be added to help users and managers make informed resource decisions.

Verification and Data Security

Security is a major system component. Partners maintain full control and ownership of their data and can choose which CWDDC collaborators can view selected data. To secure and protect partner data, a combination of user profiles, passwords, and database audit logs has been established. Before data are released, the contributing agency verifies data accuracy and the Clearinghouse coordinator confirms that agency data-sharing requirements have been met.

Products

The CWDDC can be a powerful tool for nationwide CWD analysis. Clearinghouse partners can expect the following:

- Integrated, multi-agency surveillance and monitoring CWD data,
- Graphic presentation of CWD data for more informed management decisions,
- Powerful and interactive GIS tools for

- mapping and analyzing CWD data,
- Flexible data views at variable scales,
- Integrated tools for spatial analysis, and
- Customized reports by species, age, location, and other selected variables.

Accomplishments

- ✓ Developed clearinghouse prototype using data standards from CWD workshop and objectives from Inter-agency CWD Task Force,
- ✓ Developed mapping application to view data spatially and temporally,
- ✓ Created Web-based application for data input,
- ✓ Validated security features to protect partner data, and
- ✓ Integrated sample CWD data from Wisconsin, Nebraska, and Tennessee.

Clearinghouse Goals

- Provide a Web-based system that can be used to conduct nationwide CWD analysis and be used as a tool for informed management decisions,
- Add additional clearinghouse content to meet partner's needs,
- Continue to refine GIS tools, system functionality, and capabilities to meet user needs,
- Build on established data standards to encourage collaborative research efforts in the wildlife disease community, and
- Develop new partnerships and integrate CWD data from all agencies conducting surveillance, research, and testing in North America.

For More Information

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Find us on the Web at:
<<http://wildlifedisease.nbii.gov/cwddc>>.

**CURRENT
CWDDC
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Conservation Management Institute ■ International Association of Fish and Wildlife Agencies ■ Maryland Department of Natural Resources ■ Native American Fish and Wildlife Society ■ Nebraska Game and Parks Commission ■ Southeastern Cooperative Wildlife Disease Study ■ Tennessee Wildlife Resources Agency ■ USGS National Wildlife Health Center ■ Wildlife Information Network ■ Wisconsin Department of Natural Resources