

# North Central Nebraska Community Wildfire Protection Plan



FOR THE COUNTIES  
OF BOYD, BROWN,  
CHERRY, HOLT,  
KEYA PAHA, AND  
ROCK

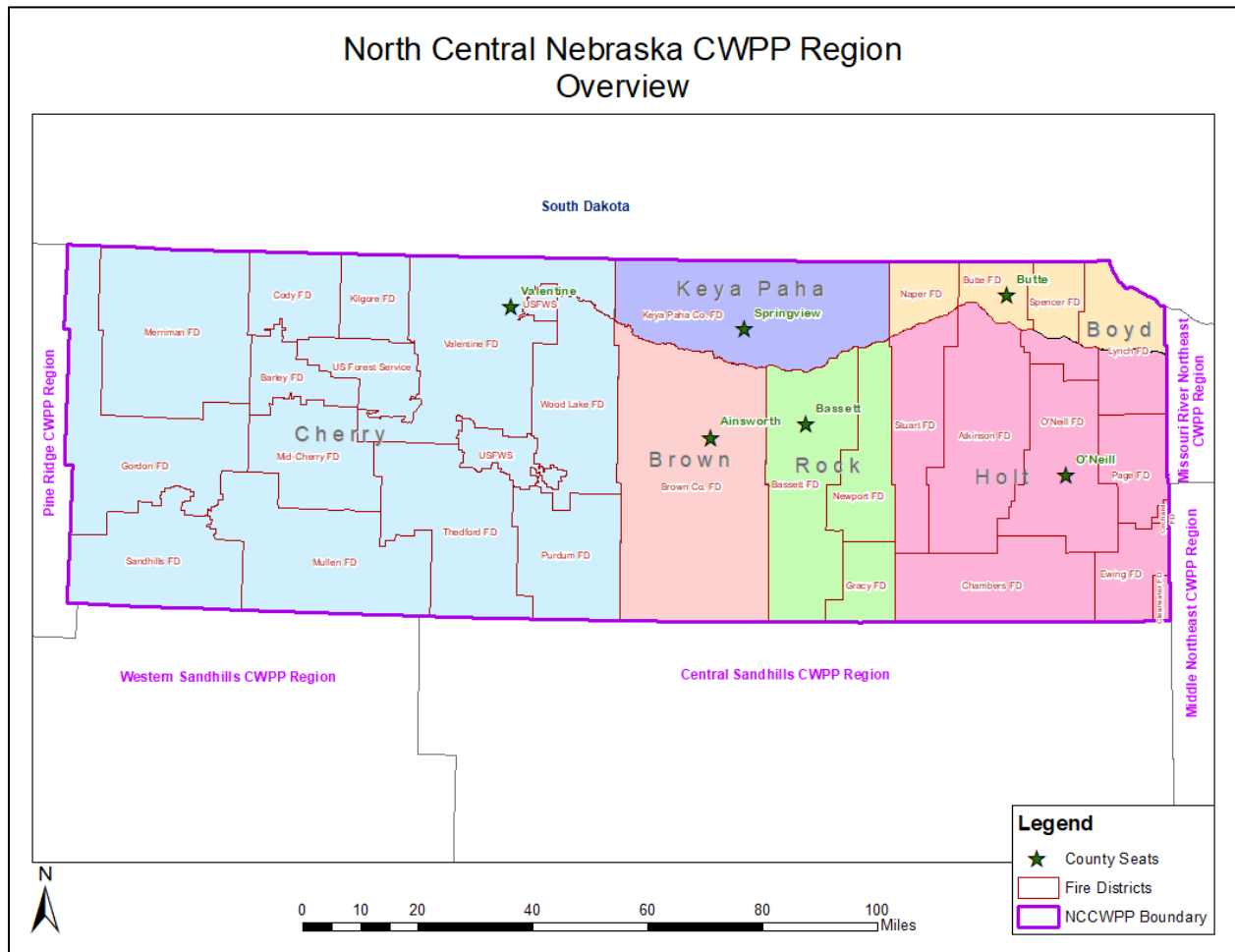
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*Photo courtesy of Seth Peterson*

## 2020 Update



# North Central Nebraska Community Wildfire Protection Plan



Map 1: Overview of the North Central Nebraska CWPP Region and fire districts located all or partly within it.

# North Central Nebraska Community Wildfire Protection Plan

FACILITATED BY THE

## Nebraska Forest Service

IN COLLABORATION AND COOPERATION WITH

BOYD, BROWN, CHERRY, HOLT, KEYA PAHA, AND ROCK COUNTIES

LOCAL VOLUNTEER FIRE DISTRICTS

REGION 24 AND HOLT COUNTY EMERGENCY MANAGEMENT

CENTRAL NIOBRARA WATERSHED FIRE ADVISORY COUNCIL

LOCAL MUNICIPAL OFFICIALS

LOCAL, STATE, AND FEDERAL NATURAL RESOURCES AGENCIES

AREA LANDOWNERS

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# North Central Nebraska Community Wildfire Protection Plan

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# North Central Nebraska Community Wildfire Protection Plan

## Community Wildfire Protection Plan Acronyms

Acronym	Meaning
AoC	Area of Concern
BLM	Bureau of Land Management
BUL	Biologically Unique Landscape
CWPP; NCCWPP	Community Wildfire Protection Plan; North Central Nebraska Community Wildfire Protection Plan
EMA; FEMA	Emergency Management Agency; Federal Emergency Management Agency
FAC	Fire Advisory Council
FAP	Forest Action Plan
FD	Fire District, Fire Department
FEPP; FFP	Federal Excess Property Program; Firefighter Property (program)
GIS	Geographic Information System
GPS	Global Positioning System
HMP	Hazard Mitigation Plan
IC	Incident Commander
ID	Identification
KBR; KBRC	Keya Paha, Brown, Rock, Cherry
LEOP	Local Emergency Operations Plan
MA, MAA, MAD	Mutual Aid, Mutual Aid Agreement, Mutual Aid District
MNNRD	Middle Niobrara Natural Resources District
MOU	Memorandum of Understanding
NE	Nebraska
NEMA	Nebraska Emergency Management Agency
NFS	Nebraska Forest Service
NGPC	Nebraska Game and Parks Commission
NNLP	Nebraska Natural Legacy Project
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRD	Natural Resource District
NWR	National Wildlife Refuge
PL, PFL	Priority Landscape, Priority Forest Landscape
RA	Risk Assessment
RH	Relative Humidity
RR	Risk Reduction
SEAT	Single Engine Air Tanker
SRIA	Structural Risk & Ignitability Analysis
TNC	The Nature Conservancy
USFWS, FWS	US Fish and Wildlife Service
UHF; V-TAC	Fire radio channels
VFD; RFD	Volunteer Fire Department; Rural Fire District/Dept.
WMA	Wildlife Management Area
WUI	Wildland-Urban Interface

# North Central Nebraska Community Wildfire Protection Plan

## Introduction

The purpose of the North Central Nebraska Community Wildfire Protection Plan (CWPP) is to provide a tool for effectively managing fire and hazardous vegetative fuels and to bolster collaboration and communication among the various agencies and organizations who manage fire in North Central Nebraska. Having a CWPP in place allows the Nebraska Forest Service (NFS) to apply for US Forest Service (USFS) grant dollars to cost-share forest fuels reduction treatments in at-risk areas within the boundaries of the CWPP. It also may increase opportunities for counties, municipalities, and rural fire districts to seek grant funding for activities related to fire protection.

A CWPP can help people be proactive in their approach to wildfire. North Central Nebraska has experienced many large wildfires. Between 2000 and 2019, volunteer fire departments (VFDs) reported 1,791 fires that burned nearly 265,000 acres in the region's six counties.

Extreme wildfires in 2006 and 2012 demonstrated that intense fire behavior can start in rural areas, move aggressively over large expanses, and threaten population centers. For this reason the CWPP planning team designated the entire six-county region as Wildland Urban Interface (WUI) and, for planning purposes, treats each county as a "community." Woody fuels treatment within the forested areas mitigates the risk of wildfire throughout the WUI.

This 2020 revision of the CWPP updates information contained in the 2015 plan, adds new data that has become available since then, and eliminates material that is no longer pertinent. The document format has been changed to match other Nebraska CWPPs.

## Legislative Background

To be eligible for federal conservation cost-share funding assistance, the federal government requires states to prepare action plans that lay out a strategy for forest and wildlife conservation. The Nebraska Game and Parks Commission (NGPC) published the Nebraska Natural Legacy Project (NNLP) in 2005 as the state's first Wildlife Action Plan (updated in 2011). It identified 40 Biologically Unique Landscapes (BULs) to help prioritize where conservation work can best be directed. The North Central Nebraska CWPP region lies within the Sandhills and Mixedgrass Prairie Ecoregions identified in the NNLP. All or parts of ten BULs are found within this CWPP boundary. (Appendix A, Map 3).

In accordance with the 2008 Farm Bill's requirement for states to conduct a comprehensive analysis of their forests, in 2011 the NFS published the Statewide Forest Resource Assessment and Strategy, known as the Forest Action Plan (FAP). This plan was updated in 2015 and 2020. Priority forest areas were identified throughout the state using the National Land Cover Dataset. This dataset represents 15 land cover and land use types including open water, development, crops, shrubs, grasslands, wetlands, and forests. The Niobrara Priority Landscape (PL) and part of the Missouri River, Elkhorn River, Loup Rivers and Central Loess Hills PLs are located within this CWPP boundary (Map 2). A full description of the PLs is found in the Nebraska Forest Action Plan:

<https://nfs.unl.edu/statewide-forest-action-plan>.

The Healthy Forest Restoration Act (US Congress, 2003) requires CWPPs to be developed collaboratively; identify and prioritize areas for fuels reduction and methods to reduce fuels on those areas; and recommend strategies to reduce structural ignitability. This CWPP addresses these requirements and other needs identified by stakeholders.

# North Central Nebraska Community Wildfire Protection Plan

## North Central Nebraska Community Wildfire Planning History

In 2008, members of the Central Niobrara Watershed Fire Advisory Council (FAC) collaborated to develop the region's first CWPP, then known as the *Central Niobrara Watershed Fire Management Plan*. The document was adopted by the FAC partners in 2009. The purpose of the plan was to effectively manage fire and hazardous fuels and to improve collaboration and communication between the various agencies and organizations who manage fire in the central Niobrara River valley. The focus area included only a small portion of the central Niobrara River watershed in Brown, Cherry, Keya Paha, and Rock Counties along the Niobrara River between US Highway 20 and Nebraska Highway 12, from Valentine to Nebraska Highway 137, plus Long Pine/Hidden Paradise, Plum Creek Wildlife Management Area (WMA), and the Valentine WUI. That boundary did not encompass portions of several priority landscapes identified in the NFS Forest Action Plan that could benefit from woody fuels treatment cost share programs, which require that funds be expended only in areas covered by a CWPP.

In 2014, the FAC assisted the NFS in updating the original plan, renamed the *North Central Nebraska Community Wildfire Protection Plan (2015 Update)*. This effort expanded the boundary of the original plan to coincide with the Region 24 Emergency Management Area, encompassing all of Boyd, Brown, Cherry, Keya Paha, and Rock Counties. Subsequently, Holt County, which has its own emergency management area, opted in. For planning purposes, these counties constituted the CWPP's "communities." Adjusting the CWPP boundaries was intended to increase opportunities for counties, municipalities, and rural fire districts to seek grant funding for activities related to fire protection. All six counties adopted the plan in March, 2015. The amended CWPP was intended to augment, not replace, the original plan, which was included in its entirety in an appendix (see links to the 2009 and 2015 plans in Appendix B).

In 2020 the FAC partners again assisted the NFS in updating the CWPP. In order to streamline the CWPP preparation process, the Nebraska Forest Service created a statewide network of CWPPs that follow county boundaries instead of watershed or fire district boundaries. This plan has been reformatted for consistency with other Nebraska CWPPs, reviewed for outdated and missing items, and updated accordingly.

## Plan Integration

This CWPP strives to coordinate with existing federal, state, and local plans and provides specific detail on wildfire hazards, areas at-risk from wildfire, emergency operations and capacity, and critical infrastructure. It includes an action plan addressing wildfire-specific issues including a risk assessment procedure, risk reduction measures, preparedness recommendations, training and education, fuels mitigation strategies, and a monitoring and evaluation plan.

The components of the State Emergency Operations Plan are patterned after the National Response Plan. The Nebraska Emergency Management Agency (NEMA) prepared a basic plan that details Nebraska's operational functions approach to the response and recovery phase of emergency management. It defines the roles and responsibilities of the responding and supporting agencies and organizations and defines broad policies, plans, and procedures.<sup>1</sup>

Each county has its own Local Emergency Operations Plan (LEOP). The content of these plans is defined by statute, which stipulates that each county's LEOP consist of specific components, including operations, organization and responsibilities; functional annexes supporting activities critical to emergency response and recovery; technical information on response procedures; protective measures unique to a hazard; and methods for use in emergency operations. It is the responsibility of local emergency management staff to maintain the LEOP according to the guidance from the State.<sup>1</sup>

# North Central Nebraska Community Wildfire Protection Plan

Each LEOP contains an “Annex F” that covers fire services and includes a listing of county fire departments and mutual aid (MA) partners, as well as equipment lists. Fire department information is listed in Appendix F of this CWPP. Mutual aid associations are listed in Appendix E. One of the gaps common to many county-level LEOPs is a lack of wildfire-specific information. In many, fire is lumped in with hazardous materials. The information contained in this CWPP is intended to augment existing information and support these LEOPs.

Nebraska has a state Hazard Mitigation Plan (HMP), which establishes the policies, plans, guidelines, and procedures for the Hazard Mitigation Program in Nebraska. NEMA coordinated with regional emergency management agencies, Natural Resource Districts (NRDs), and counties to update and maintain multi-jurisdictional hazard mitigation plans throughout the state.<sup>2</sup> Five of the six North Central CWPP counties are included in the Region 24 HMP. Holt County is included in the Tri-County HMP. Appendix B contains links to these plans. As entities across Nebraska update their HMPs, they are increasing efforts to share information and coordinate with other plans.

This CWPP is consistent with the USFS *Nebraska National Forests and Grasslands Fire Management Plan*, which includes the Samuel R. McKelvie National Forest in Cherry County. That plan is consistent with the *Federal Wildland Fire Management Policy and Program Review* (December 1995) and the *Wildland and Prescribed Fire Management Plan* (August 1998) and all subsequent updates.

In addition, fire management activities endorsed in this CWPP comply with the policies identified in state regulations on wilderness, threatened and endangered species, and cultural/historic preservation, as well as federal and state regulations for air and water quality. Wildfire events consistently provide both positive and negative environmental impacts to the impacted areas. Potential impacts will be considered and negative impacts will be mitigated, as much as is practical, during implementation of this plan.

## Goals and Objectives

### *State Forest Action Plan Goals and Objectives*

The 2020 FAP goals and objectives appear below:

1. Enhance and promote the role of Nebraska’s forests and trees for mitigation and adaptation to the global change in climate
2. Manage trees and forest landscapes to include rural and community forest settings
3. Manage the function of forest and tree systems in Nebraska for maximum and sustained benefits
4. Improve, protect, and enhance fish and wildlife habitat in Nebraska
5. Restore fire-adapted landscapes to reduce risk of wildfire impacts on Nebraska’s trees, forests, and communities
6. Manage for the health and productivity of Nebraska’s trees and forests
7. Manage and build the capacity of Nebraska’s trees and forests, in conjunction with the forest products industry, agriculture, and communities, which are all vital to Nebraska’s economy
8. Maintain the natural environments of Nebraska including trees and forests, waterways, and rangelands
9. Manage Nebraska’s forest and trees to enhance the water resources of Nebraska
10. Improve air quality and energy conservation through tree planting
11. Connect people to the state’s trees and forest resources
12. Engage Nebraskans in the stewardship of trees and forests

This CWPP and the results of its implementation relate directly or indirectly to all of these. Sustainable forest management maintains natural environments and reduces wildfire impacts in the region’s forests and adjacent communities, and it reduces threats to ecosystem health. Healthy forests and grasslands, in turn, protect air and water resources and fish and wildlife habitat, helping these ecosystems better cope with a changing climate.



# North Central Nebraska Community Wildfire Protection Plan

Communities that plan for and reduce wildfire risks and engage in environmental stewardship activities may also reap both direct and indirect economic benefits of healthy forests in fire-adapted landscapes.

Implementation of this CWPP relates directly to the NNLP goals of conserving natural communities, keeping common species common, and protecting at-risk species. Sustainably managed, fire-adapted forests include diverse habitats for both at-risk and common species. Restoring unnaturally dense forests to a more natural mosaic vegetative pattern benefits both wildlife and human communities.

## *CWPP Goals and Objectives*

The steering committee identified the following goals and objectives that are consistent with the state Forest Action Plan and specific to community wildfire protection planning in North Central Nebraska.

1. Identify wildfire risk potential
  - a. Evaluate vegetation, land use, response capacity, and other risk factors associated with wildfire
  - b. Identify areas of concern
2. Reduce wildfire risk
  - a. Identify, prioritize, and treat hazardous fuels
  - b. Suppress unplanned ignitions to protect private property and natural and cultural resources from unacceptable impacts attributable to fire
  - c. Support emergency response through training and acquisition of equipment
3. Promote wildfire prevention and education
  - a. Partner with natural resources agencies, schools, prescribed fire organizations, and other groups to ensure that outreach targets a broad audience, including the agricultural community, schools, landowners, home and business owners, recreationists, and the general public; identify specific ways to address this
  - b. Increase public awareness of wildfire and damage from uncharacteristic wildfires
  - c. Educate the public in *Firewise*® landscaping and construction techniques
  - d. Promote the use of defensible space to reduce fuel loads to protect communities and resources
  - e. Encourage communities to develop strategies to reduce wildfire risk; provide communities with tools to address human-caused fires
  - f. Integrate fire prevention protocols into plans and procedures for schools; educate youth to prevent and respect wildfires; address accidental ignitions caused by children
4. Provide training to enable rapid assessments of burned lands and the implementation of stabilization techniques
5. Restore fire-adapted ecosystems
  - a. Provide land managers with resources to use native plant species when restoring ecosystems
  - b. Safely incorporate prescribed fire into historically fire-adapted ecosystems, using trained personnel and standard operating procedures
  - c. Encourage land managers to control non-native invasive plant species and to actively manage prolific and aggressive native species
6. Enhance communications among fire management agencies
  - a. Ensure all relevant Memorandums of Understanding (MOUs) and Mutual Aid Agreements (MAAs) are in place and updated appropriately
  - b. Train fire departments in the use of the V-TAC and UHF mutual aid radio channels
  - c. Partner with landowners, land managers, fire personnel, natural resources agencies, and other organizations to incorporate local concerns and objectives into fire management programs
  - d. Educate fire departments and 911 dispatchers about notifying assisting mutual aid departments which V-TAC or UHF Channel will be used when arriving at an event
7. Establish/Implement a monitoring and evaluation process
  - a. Annually evaluate the CWPP implementation effectiveness and recommend changes as needed
  - b. Conduct monitoring of selected collaboratively developed projects and activities to assess progress and effectiveness

# North Central Nebraska Community Wildfire Protection Plan

## Priority Landscapes

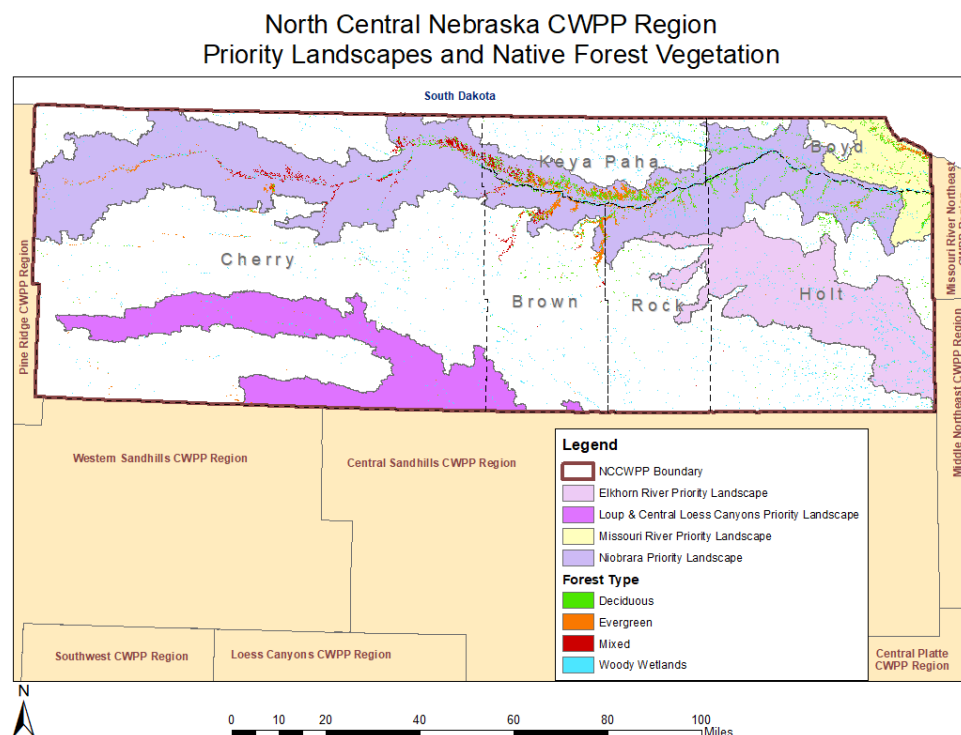
At the state level, the FAP identified PLs to help focus effort and funding on landscape-scale projects. This CWPP region includes the Niobrara River PL, the western tip of the Missouri River PL, the western section of the Elkhorn River PL, and the northern part of the Loup River and Central Loess Hills PL (see Map 2). These landscapes include many locally-identified “Areas of Concern” where vegetative fuels reduction activities can be targeted (see map in Appendix A).

Unnaturally dense and unhealthy woodlands and encroachment of eastern redcedar into grasslands create extreme wildfire risk. Drought cycles are predicted to occur with increasing frequency. Communities can protect structures by reducing their ignitability, reducing the surrounding woody fuels, and improving access for emergency equipment. Priority Landscapes help focus management activities on areas most at-risk.

## Vegetation Types and Areas of Concern within Priority Landscapes

The North Central Nebraska Priority Landscapes contain a range of topography and vegetation types, including evergreen forest (ponderosa pine/savanna and eastern redcedar), deciduous forest (upland mixed deciduous and riparian woodlands), mixed forest (evergreen and deciduous), and several types of prairie. Within each county, local stakeholders have identified “Areas of Concern” (AoCs)—specific sites that are at greatest risk for wildfire within the larger landscapes. Most of these lie within the statewide Priority Landscapes. Areas of Concern are shown in Appendix A, Maps 6 and 7.

Managing the grass component of the forested areas is extremely important. Ponderosa pine ecosystems develop a heavy grass and shrub component which, if not managed appropriately, create a significant fuels risk. The best management is done on a landscape basis—fuels mitigation treatments are only as effective as their weakest link. Unmanaged islands among managed areas pose a significant risk to the managed lands.



Map 2: Woody vegetation within the North Central Nebraska CWPP Region’s Priority Landscapes include evergreen forests (ponderosa pine and eastern redcedar), deciduous forests, and mixed forests (evergreen/deciduous). Areas shown in white are Sandhills and mixed-grass prairie.<sup>3</sup>

# North Central Nebraska Community Wildfire Protection Plan

## Process

The first step in the CWPP update process was to establish a steering committee, which included many of the same entities that guided the 2015 update: County boards; local and regional emergency management; fire departments; federal, state, and local natural resources agencies; and conservation organizations. A complete list of steering committee members appears in Appendix H. The planning team (a subset of the steering committee) performed the on-the ground work of data collection and update, seeking input from county officials, fire departments, and others to review and update CWPP goals and objectives, local wildfire risk factors, and Areas of Concern. This input provided a locally-focused framework for the CWPP update.

The NFS sent a questionnaire to all 29 fire departments in the CWPP region (see Map 1 on page ii) asking for current contact information, lists of equipment, and pertinent issues, concerns, and priorities. Responses from the 27 fire departments that returned the survey appear in Appendix F, along with information obtained from Annex F of each county's LEOP for all fire departments located entirely or partially within the CWPP boundary. The fire department survey and distribution list appear in Appendix G.

A news release sent to local newspapers and radio stations described the update process, encouraged input, and provided contact information for comments. CWPP update information was posted on the NFS website and social media page. The stakeholder list, outreach letters, and media releases appear in Appendix H. Feedback from counties, local municipalities, emergency response agencies, local fire departments, and others was incorporated into the draft.

Since the 2015 update, the NFS has facilitated a statewide network of CWPPs. As part of this process, the NFS reformatted this document to correspond with other Nebraska CWPPs. This document includes a broad overview of the CWPP region and its wildfire history, a hazard and risk assessment, community-specific considerations, and a CWPP regional action plan. After a 30-day public review of the draft CWPP, the planning team incorporated additional input and comments into the final document before sending it to county boards for adoption. NFS mailed copies of the finalized document to each county and emergency managers. The plan is available online at <https://nfs.unl.edu/documents/CWPP/NCCWPP.pdf>.

## Overview

This section contains background information common to all counties within the CWPP region. Information specific to only certain areas is included in the county (community) sections.

### Landforms, Climate and Weather

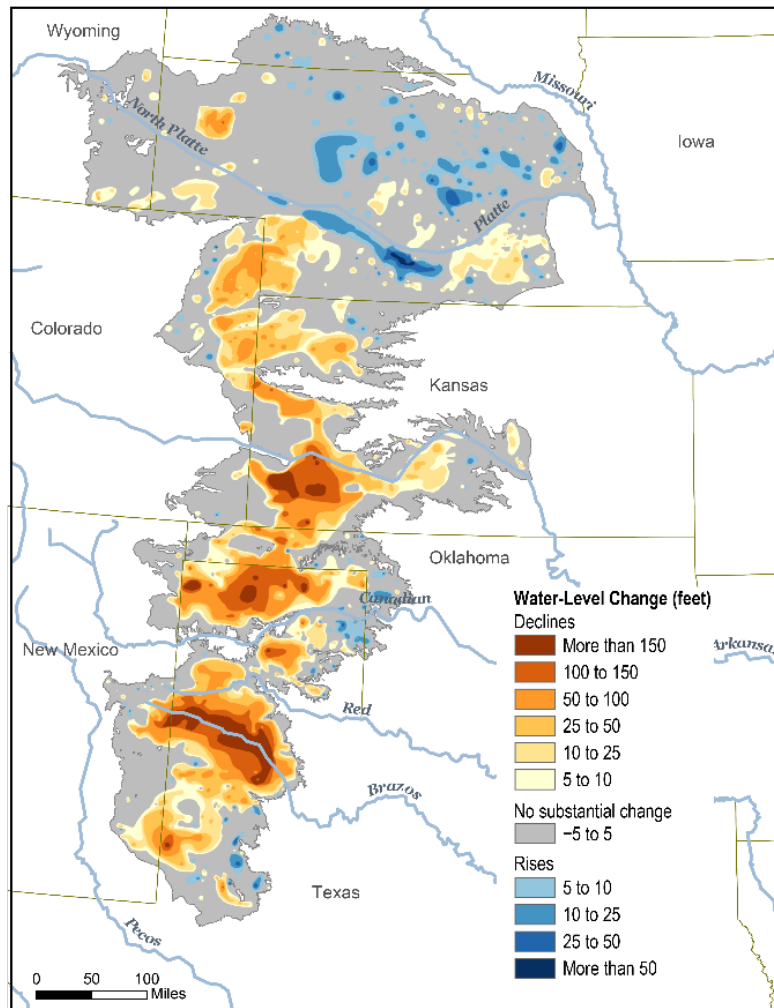
The North Central Nebraska CWPP counties lie within the NNLP Sandhills and Mixed-grass Prairie Ecoregions. The area sits atop the Ogallala Aquifer, which underlies about 175,000 square miles in eight states from Texas to South Dakota (see Map 3).

North central Nebraska has a continental climate with cold winters and hot summers. According to published climate data, annual rainfall averages in the area decrease from over 25 inches in the east to less than 18 inches in the west. Average relative humidity ranges from 33-92%, with extremes of 17-100%. July is the warmest month, averaging 87-89°F. Over the course of the year typical wind speeds vary from 1 mph to 21 mph, rarely exceeding 29 mph. The highest monthly average wind speed of 11-13 mph occurs in April and May, when the average daily maximum wind speed is 20-21 mph.

The National Climatic Data Center reported 2012 as the state's warmest, driest year on record, with the average temperature 4.3°F higher than the long-term average and some areas receiving less than half of normal rainfall. Since the beginning of the 20th century, temperatures in Nebraska have risen approximately 1°F. Temperatures in the 2000s have been warmer than the long-term average and comparable to the previous record warmest

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period of the early 1930s Dust Bowl era, when drought and poor land management likely exacerbated the hot summer temperatures. The recent warming has been concentrated in the winter and spring, while summers have not warmed substantially in the state. This is reflected in a below-average occurrence of extremely hot days and no overall trend in the number of warm nights since the 1960s. The winter warming trend is reflected in a below-average number of very cold nights since 1990.<sup>4</sup> In recent decades droughts have become more severe. Extreme drought and wildfire years occurred in 1988, 1994, 2000, 2006 and 2012.



*Map 3: The Ogallala Aquifer underlies much of the Great Plains. This graphic<sup>5</sup> shows the water level change between the early 1900s and 2015.*

Weather data was obtained from the University of Nebraska High Plains Regional Climate Center<sup>6</sup> and Iowa State University.<sup>7</sup> Weather factors including temperature, precipitation, humidity, and wind define fire season, as well as the direction and speed of fire spread. There are two fire seasons in this area. The early fire season occurs from snowmelt and the last spring frost (when the previous year's cured vegetation dries) until early May, then eases as vegetation greens up. The late season begins in mid to late summer as fine fuels, such as grasses and forbs, begin to dry. In most years the late season extends to mid-November, coinciding with agriculture crop harvests, leaf drop, and curing of prairie grasses. Wet springs can delay the onset of the early season, but they produce more fine fuels in ditches and across rangelands that, in late summer and fall, become tinder for sparks that can start wildfires. In drier years fine fuels can start curing by early to mid-July, but there is less growth, and consequently fewer fine fuels to catch sparks from trains, farm equipment, or motorists.

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County	April			July			October		
	Max. Temp.	Precip.	Min. RH	Max. Temp.	Precip.	Min. RH	Max. Temp.	Precip.	Min. RH
Boyd	59.47	2.95	32	86.83	2.92	47	62.49	2.17	40
Brown	59.41	2.57	32	86.69	3.06	47	62.79	1.70	37
Cherry	59.00	2.37	31	86.93	3.02	40	62.72	1.48	34
Holt	47.33	2.79	35	86.52	3.03	49	62.51	2.22	39
Keya Paha	58.45	2.55	32	86.70	3.02	45	61.97	1.81	38
Rock	59.21	2.71	33	86.57	3.12	47	62.43	2.00	38

*Table 1: Average maximum temperatures (degrees F), precipitation (inches) and median minimum relative humidity (percent) 1982-2019 for April, July, and October for North Central Nebraska CWPP counties. RH data interpolated from selected area weather stations.<sup>8</sup>*

Wind is a primary factor in fire spread, even where fuels are light or discontinuous as in much of the plan area. Some areas are more than half agriculture and grass fuels. Wind rosettes for April, July, and October from three stations in the plan area—Ainsworth, O’Neill, and Valentine—are in Appendix C.

### Vegetation and Natural Communities

Six different ecosystems meet and mix within the Niobrara River watershed. These include ponderosa pine forests, relict boreal forests of paper birch and aspen, eastern deciduous forests, Sandhills prairie, northern mixed-grass prairie, and patches of eastern tallgrass prairie along the river. Much of the area south of the Niobrara River consists of rolling and choppy Sandhills, a vast dune field stabilized by vegetation with interspersed wetlands.

Map 2 shows the deciduous forests in the drainages and coniferous forests (ponderosa pine and eastern redcedar) on the bluffs. In many areas eastern redcedar has encroached into pine and deciduous woodlands, as well as into prairies. Open grassland and savannas exist within a few pine forests where periodic low-intensity fires have burned. The ponderosa pine forest ecosystems are in a state of flux, constantly changing to adapt to the forces of nature and the influences of humans. The catastrophic wildfires in 2006 and 2012 burned over large expanses of the Middle Niobrara watershed, vegetatively reverting these areas to early seral stages.

Coniferous species in the region are primarily ponderosa pine and eastern redcedar. The principal deciduous tree species are bur oak, cottonwood, hackberry, box elder, and green ash. Foresters expect most of the green ash to die when the emerald ash borer, an invasive pest, moves into the region. Other locally-abundant woody species are snowberry, sand cherry, smooth sumac, and wild plum. Riparian deciduous woodlands follow the major drainages. Most of the deciduous trees and shrubs are found in stringers and patches along the drainages with cooler, more humid environments. In general, fuel continuity in the forested areas is high.

Grasslands in the region primarily consist of Sandhills and mixed-grass prairie, with patches of tallgrass prairie along the Niobrara River. There are salt marshes and flats in parts of the Sandhills in Cherry and southern Brown Counties. Agricultural fields are a significant component of Holt and Brown Counties, the tablelands north of the river in Keya Paha County, and portions of northern Rock County. Land cover and native vegetation maps appear in Appendix A.

### Land Use

There are about 7,668,480 acres (7,016 sq. mi.) in the North Central Nebraska CWPP region. Public and conservation lands primarily include 214,100 acres in federal ownership (National Forests, National Wildlife Refuges, and scattered tracts owned by the Bureau of Land Management (BLM) and the National Park Service



## North Central Nebraska Community Wildfire Protection Plan

(NPS); 27,992 acres in NGPC properties (state parks, recreation areas, wildlife management areas, and a fish hatchery); 73,340 acres in non-government organization (NGO) conservation lands; and 332,689 acres in state school lands.<sup>9</sup> There are also county and municipal properties in the CWPP region. The remainder of the land in the region is privately owned.

Agriculture (livestock and crops) is the predominant use on rural private and school lands. Residential, commercial, manufacturing, and industrial land uses dominate the region's 24 incorporated municipalities and their immediate surroundings. Land use is primarily agricultural in the region's 10 unincorporated communities. Rural residential land use exists in conjunction with agricultural operations.

All counties in the CWPP region have county zoning plans in place. There are currently no restrictions in any of the counties pertaining to wildfire preparedness and risk or for building construction in fire-prone areas such as canyon rims. Some of the county zoning offices provide Firewise® information when they issue new building permits.

Recreation is a significant land use in the area, particularly along the Niobrara River. According to 2018 US census data, there are 23,037 permanent residents within the six counties in the CWPP region. However, tourism brings in over 66,000 visitors annually to the Niobrara National Scenic River, 84,000 visitors to the Fort Niobrara National Wildlife Refuge, 27,100 visitors to the Valentine National Wildlife Refuge, and thousands more visitors to state and private lands throughout the region. Popular region-wide recreational activities include hunting, fishing, boating, hiking, biking, and camping at federal and state facilities in the region, as well as floating on the Niobrara, Calamus, and Loup Rivers.

### Wildland Urban Interface

The WUI is defined as areas where homes and other structures are built on or near lands prone to wildfire. According to the "Ready, Set, Go!" program, managed by the International Association of Fire Chiefs, the WUI is not necessarily a place, but a set of conditions that can exist in nearly every community. It can be a major subdivision or it can be four homes on an open range. National Fire Protection Association literature states that conditions include, but are not limited to, the amount, type, and distribution of vegetation; the flammability of the structures in the area and their proximity to fire-prone vegetation and to other combustible structures; weather patterns and general climate conditions; topography; hydrology; average lot size; and road construction. The WUI exists in every state in the country, and in every county/community within the CWPP boundary. Site-specific WUI issues are listed in each county section of this CWPP.

### Infrastructure

Webster defines infrastructure as: "the system of public works of a country, state, or region; also: the resources (such as personnel, buildings, or equipment) required for an activity." In the North Central Nebraska CWPP region, infrastructure includes county, state, and federal roads and bridges, communications systems, the power grid, water systems, hospitals, schools, parks and fairgrounds, public administration buildings, fire halls, public officials, law enforcement officers, and fire personnel. For the purpose of this plan infrastructure does not include privately owned properties or residences, although these structures also benefit from the same wildfire risk reduction projects. These systems, structures and people are critical to regional functionality. One of the goals of community planning is to protect the basic physical and organizational structure of communities. This infrastructure, in turn, protects citizens.

Regional infrastructure expedites access to a fire by emergency responders, allows them to communicate with one another and the public, facilitates evacuations and support functions, and assists recovery efforts after the event. It is important for both local and out-of-area responders to know what facilities and resources are available and where they are located.

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Emergency evacuations depend on infrastructure. Immediate evacuation destinations are likely to be in areas away from the fire that have water, power, and room for gathering. Often fairgrounds or parks make good short-term destinations, as they have large parking areas, restrooms, and electricity. In a wildfire evacuation scenario, local officials will designate immediate evacuation destinations. During prolonged evacuation periods or when homes or access routes have been destroyed, longer range planning is needed.

The Participant Profiles sections of regional HMPs identify specific sheltering locations, which are primarily the mass care facilities identified in the county LEOPs. The Department of Homeland Security's website <https://www.ready.gov/evacuating-yourself-and-your-family> also offers some ideas.

The CWPP region is crossed by several high tension power lines. Rural electric service in the counties is provided by the Nebraska Public Power District, KBR Rural Public Power, Rosebud Electric Coop, and Cherry-Todd Electric Coop. Both cellular and landline telephone services are available region-wide. Cellular reception is spotty in some areas.

### Hazardous Fuels Reduction

Hazardous fuels reduction is key to decreasing risks to human life and damage to property. In terms of wildfire, hazardous fuels include any kind of living or dead vegetation that is flammable. Implementation of hazardous fuels reduction projects reduces fuels that feed wildfires, resulting in less extreme fire behavior and intensity. Fire behavior reductions include reduced rates of spread and shorter flame lengths. Fuels treatment in the North Central CWPP region is being accomplished via several approaches, including forest thinning, fuelbreak and firebreak establishment, prescribed fire, prescribed grazing, and implementing Firewise® practices around structures.

The NFS, NGPC, and Natural Resources Conservation Service (NRCS) offer cost share programs to help private landowners mechanically reduce hazardous woody fuels on their properties. According to a NPS survey, these agencies cost-shared forest thinning and eastern redcedar removal projects on 6,960 acres in the CWPP region from 2016 through 2019. The National Wild Turkey Federation (NWTf) cost-shared on another 1,602 acres between 2004 and 2019. Fuels reduction is discussed in detail in the Action Plan section of this document.

### Prescribed Fire and Prescribed Burn Associations

In recent years, prescribed fire has increased as a method of keeping woody encroachment in check, particularly in grasslands, where it can be extremely efficient for managing eastern redcedar. In forested settings, prescribed fire is more effective and safer when used to maintain woodlands after they have been mechanically thinned. When tree densities are reduced prior to burning, it is easier to keep the fire on the ground, where it cleans up downed woody fuels. Crown fires are difficult to control, and they kill healthy trees. The original CWPP extensively discussed prescribed fire (see link in Appendix B).

Prescribed fire practitioners include individual landowners, prescribed fire associations, non-profit conservation organizations, and public agencies. In the North Central Nebraska CWPP Region, the US Fish and Wildlife Service (USFWS), USFS, NGPC, The Nature Conservancy (TNC), and Audubon Kansas use prescribed fire as an effective land management tool on federal, state, and non-profit lands. Members of the Niobrara Valley Prescribed Fire Association actively burn on private lands in Boyd County.

### Fire Districts and Emergency Management

There are 29 VFDs all or partially within the CWPP boundary (see Map 1). Table 3 summarizes reported fires for each district.

Each fire department received a survey that asked for contact information, equipment lists, and a summary of their wildfire issues and concerns. The responses that were received appear in Appendix F.

# North Central Nebraska Community Wildfire Protection Plan

Boyd, Brown, Cherry, Keya Paha, and Rock Counties constitute the Region 24 Emergency Management Area. Holt County has its own full-time emergency management director.

## Wildfire Hazard: History and Impacts

### Historic Role of Fire

Prior to European settlement, large fires (started by lightning or intentionally as management activities by indigenous people) were common, and these fires kept the prairies free of most woody vegetation. Based on evidence from tree rings at the Niobrara Valley Preserve, parts of the Niobrara River Valley may have experienced a mean fire interval of 6 to 10 years prior to Euro-American influence.<sup>10</sup> However, since settlement, people have become increasingly adept at suppressing wildfire, and without fire, over time, the forests became densely overcrowded and woody vegetation encroached on prairies. Table 2 shows a mean replacement fire interval of 300 years for low-elevation ponderosa pine forests and 11 to 15 years for the prairies.

Vegetation Community	Fire Severity	Fire Regime Characteristics			
		% of Fires	Mean Interval (years)	Min. Interval (years)	Maximum Interval (years)
Ponderosa Pine (Black Hills, low elevation)	Replacement	7	300	200	400
	Mixed	21	100	50	400
	Surface or Low	71	30	5	50
Nebraska Sandhills Prairie	Replacement	58	11	2	20
	Mixed	32	20	n/a	n/a
	Surface or Low	10	67	n/a	n/a
Northern Mixed-Grass Prairie	Replacement	67	15	8	25
	Mixed	33	30	15	35

Table 2: Fire intervals for the ponderosa pine, Sandhills prairie, and mixed-grass prairie vegetation types are shown above. The Black Hills low elevation model is the closest approximation for the Niobrara Valley.<sup>11</sup>

### Local Fire History

Nebraska is no stranger to extremely large wildfires. In 1865 the US Army and ranchers intentionally set a 300 mile wide prairie fire during a dispute with Native Americans. The fire blackened the entire section of Nebraska south of the Platte River and west of Fort Kearny. It was visible from Colorado and Kansas, and eventually burned all the way to Texas.

Closer to home, a historic marker near Newport, in Rock County, tells the story of a 40-mile wide fire that threatened the town in 1904. Nebraska's largest wildfire occurred in 1972, when 100,000 acres burned near Mullen. In 1999 about 40,000 acres of Sandhills prairie burned along a 10-mile front from Thedford almost to Valentine, killing one firefighter. In 2006 about 9,600 acres burned near Halsey, just south of the CWPP area. An 11,000 acre fire near Thedford in 2011 seriously injured two Valentine firefighters.

Locally, large fires in recent years included the 1,720-acre Big Rock Fire near Valentine in 2006 and, in 2012, the Region 24 Wildfire Complex (75,856 acres in Keya Paha, Brown, and Cherry Counties), a 6,717 acre fire that burned into Cherry County from South Dakota and caused the evacuation of Crookston, and a 3,238-acre fire along the Niobrara River south of Merriman. As observed in 2012 and evidenced in historical research, the Niobrara River is not always a barrier to fire spread.<sup>10</sup>

Prehistorically, small and medium-sized fires occurred in the region fairly frequently. Occasionally, the fires would burn large areas, sometimes starting in the grassland type and moving into the timber type. At other times, summer lightning would ignite a fire in a forested area and it would smolder for weeks or months.

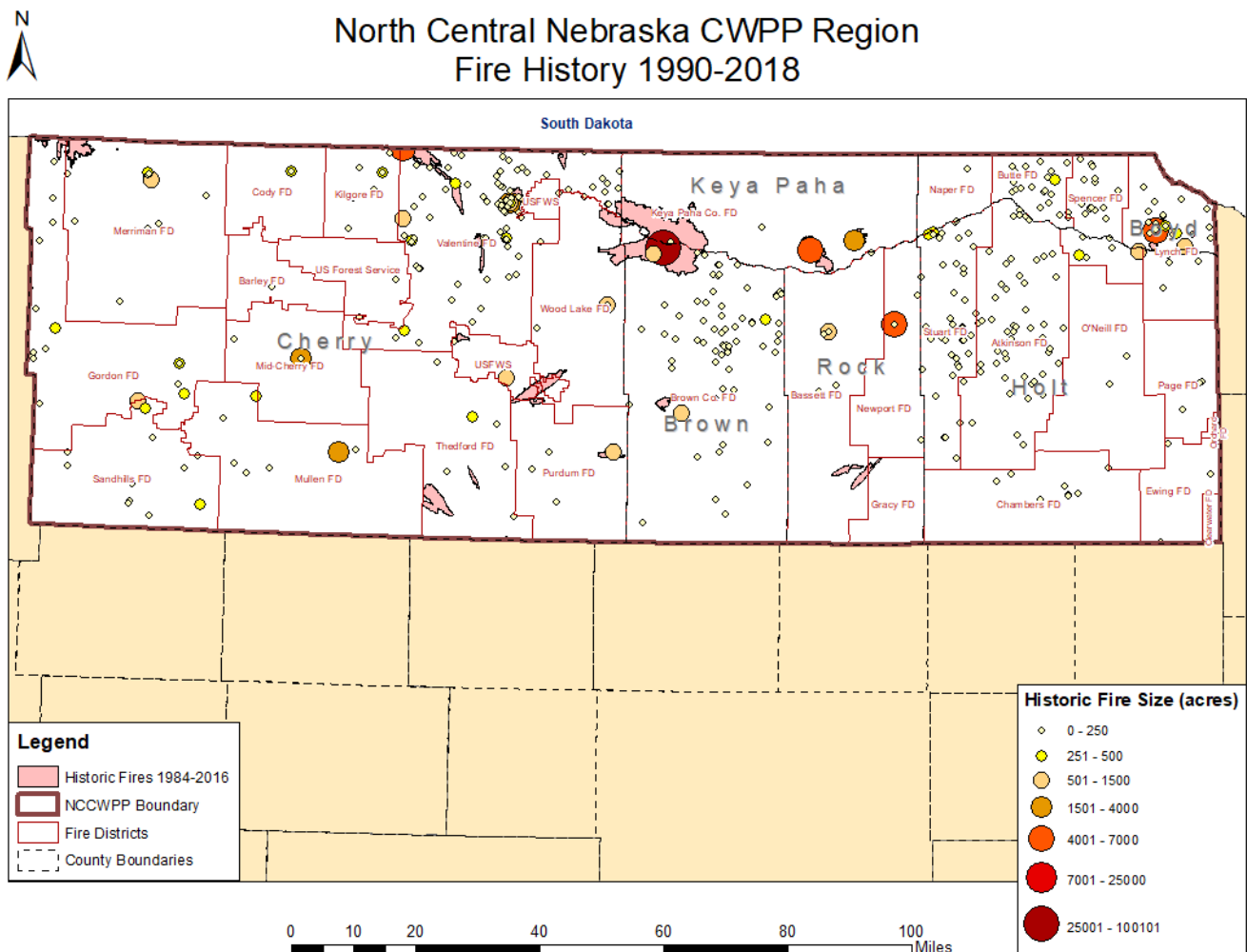
## North Central Nebraska Community Wildfire Protection Plan

Sometimes these fires would burn hot and kill an entire stand and at other times they crept along the ground, not creating a lot of heat intensity. The result was usually a mosaic of trees of varying age and size classes.

Prior to 1900 the ponderosa pine forested areas were much more open than they are today. Mature ponderosa pine trees have thick bark and a high tolerance of surface fire. In the past, the open grasslands within these forests were larger and more connected. Because of the higher tree density in the present environment, many of the wildfires in the ponderosa pine type today burn into the forest canopy (crown fires) and kill the trees.

Today the CWPP region regularly experiences wildfires, some quite large. Between January, 2000 and April, 2020, CWPP area VFDs reported 1,791 wildfires that burned a total of 264,774 acres and caused \$1,331,340 in property and crop losses. There were 142 homes and other structures threatened, with 20 of those destroyed. Although reporting has improved in recent years, not all fire departments report every year, so the actual numbers are likely much higher. Both 2006 and 2012 were extreme fire years in Nebraska. In 2012, over half a million acres burned in Nebraska, mostly in the Niobrara River and Pine Ridge areas.

*Map 4: Some of the larger fires reported in the CWPP area since 1984 are shown in the map below. Since 2000, CWPP area fire departments reported nearly 1,800 fires that burned over a quarter million acres.*



A list of some of the more significant wildfire events that have occurred in the CWPP region appears below:

- Crookston Fire (1988): Burned 2,688 acres south of Crookston.
- Simmons I Fire (1988): Burned 1,764 Cherry County and South Dakota acres northwest of Sparks.

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- Gordon Creek Fire (1989): Burned 1,032 acres southwest of Valentine.
- Brown County (1989): 1,804 acres burned south of Johnstown.
- Goose Creek Fire (1990): Burned 8,408 acres in the Wood Lake and Purdum Fire Districts and USFWS land.
- Rock County (1995): Burned 3,145 acres in the Bassett and Gracy Fire Districts north of Rose.
- TNC Fire (1998): Burned 4,683 acres in the Wood Lake and Brown County Fire Districts.
- Cherry County (1999): Burned 1,224 acres south of Valentine.
- Has No Horse Fire (2000): Burned 13,422 acres in the Gordon and Merriman Fire Districts and South Dakota.
- Cherry County (2000): Burned 1,946 acres in the Gordon Fire District.
- Jackson Fire (2000): Burned 1,481 acres in the Merriman Fire District.
- 28C Fire (2000): Burned 1,917 acres in the Purdum Fire District and USFWS land.
- Cherry County (2000): Burned 3,500 acres in the Mid-Cherry Fire District.
- S-Higgins Fire (2001): Burned 1,863 acres in the Purdum Fire District in Cherry County.
- Rock County (2002): Burned 2,130 acres in the Bassett Fire District north of Rose.
- Rock County (2002): Burned 7,000 acres in the Newport Fire District.
- Cherry County (2003): Burned 1,048 acres southwest of Brownlee.
- Cherry County (2004): Burned 1,500 acres in the Valentine Fire District.
- Valentine Fire (2006): Burned 1,721 acres in and north of Valentine.
- Cherry County (2007): Burned 1,000 acres in the Gordon Fire District.
- Cherry County (2007): Burned 1,000 acres in the Merriman Fire District.
- Cherry County (2009): Burned 800 acres in the Valentine Fire District.
- Cherry County (2011): Burned 3,650 acres in the Mullen Fire District.
- Region 24 Complex (2012): These fires burned 76,135 acres in Keya Paha, Brown, and Cherry Counties.
  - Fairfield Creek Fire: Burned 66,350 acres along the Niobrara River.
  - Wentworth Fire: Burned 6,910 acres in Keya Paha County.
  - Hall Fire: Burned 2,875 acres in Keya Paha County.
- Cherry County (2012): Burned 7,980 acres in the Thedford Fire District.
- Crookston Fire (2012): Burned 14,956 acres around and northwest of Crookston in Cherry County and South Dakota.
- Kalkowski Fire (2012): Burned 5,160 acres in the Lynch Fire District.
- Brown County (2012): Burned 800 acres south of Ainsworth and 1,000 acres north of Johnstown.
- Boyd County (2013): Burned 700 acres in the Lynch Fire District.
- Cherry County (2017): Burned 850 acres in the Purdum Fire District.
- Cherry County (2017): Burned 1,000 acres in the Wood Lake Fire District.

Some fire districts voluntarily report their annual fire response data to the NFS. Table 3 shows the fire data reported by fire departments from 2000 to 2019.<sup>12</sup> Because the fire districts vary in their level of reporting, there is no accurate, comprehensive fire history available for the CWPP area.

Fires Reported 2000-2019							
Department/Report Years	# Fires Human	# Acres Human	# Fires Lightning	# Acres Lightning	Total # Fires	Total # Acres	# Mutual Aid Responses
Ainsworth (09-15; 17-19)	56	2,075	21	68,273	77	70,348	27
Atkinson (03-06; 08; 10-11; 13-19)	88	493	30	54	118	547	12
Barley (18-19)	1	80	1	100	2	180	0
Bassett (00-03; 08)	20	1,537	18	316	38	1,853	0
Butte (00; 02; 04; 06; 08; 10-16)	30	539	7	173	37	712	21



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Department/Report Years	# Fires Human	# Acres Human	# Fires Lightning	# Acres Lightning	Total # Fires	Total # Acres	# Mutual Aid Responses
Chambers (00; 02; 04-06; 14-17)	21	223	6	175	27	398	3
Clearwater (06; 08; 10-13; 17)	6	1,125	1	1	7	1,126	2
Cody (00; 02-04; 06; 08; 19)	11	688	18	593	29	1,281	3
Ewing (12-13; 16-18)	6	23	1	2	7	25	8
Gordon (00; 04-07; 11-19)	55	6,088	62	31,086	117	37,174	45
Gracy (18-19)	1	1	0	0	1	1	1
Johnstown (03-07)	7	179	2	3	9	182	1
Kilgore (00-03; 05-06; 12; 17; 19)	14	834	22	378	36	1,212	18
Long Pine (04-06; 15-19)	7	17	4	55	11	72	4
Lynch (00; 02-06; 08-13)	36	8,917	10	241	46	9,158	2
Merriman (04-08; 11; 18)	15	129	15	1,707	30	1,836	3
Mid-Cherry (00; 10)	1	1	3	3,661	4	3,660	0
Mullen (00; 02; 04-8; 10-12; 16; 19)	25	8,780	52	10,583	77	19,363	30
Naper (06)	0	0	2	13	2	13	0
Newport (00-06; 09-11; 17-18)	26	7,256	11	81	37	7,337	6
O'Neill (01-03; 06-07)	20	426	5	3	25	429	2
Orchard (00-02; 04-19)	424	16,301	48	18,747	472	35,048	15
Page (03-06; 09; 11-12; 14; 17)	27	222	1	1	28	223	3
Purdum (03; 05-06; 12-18)	11	8	14	1,131	25	1,139	35
Sandhills (03-08; 10-12; 14-19)	55	18,053	25	1,137	80	19,190	35
Spencer 00; 02-07; 09-15)	49	1,182	11	75	60	1,257	8
Springview (00-03; 06; 12; 19)	23	452	21	9,115	44	9,567	6
Stuart (03-04; 07-19)	41	1,179	15	33	56	1,212	5
Thedford (00-04; 06-08; 11-12; 14-15; 17-18)	35	16,483	24	3,176	59	19,659	12
Valentine (01-17; 19)	112	13,972	72	4,605	184	18,577	36
Wood Lake (03-06; 10-13; 15-19)	30	808	16	1,186	46	1,994	22
<b>Total</b>	<b>1,253</b>	<b>108,071</b>	<b>538</b>	<b>156,703</b>	<b>1,791</b>	<b>264,774</b>	<b>365</b>

*Table 3: Fires reported by North Central CWPP fire departments between 2000 and 2019. Departments reported a total of 893,673 volunteer hours for this period. Only departments that reported are listed. Some departments did not report every year. Actual numbers are higher. Fire districts report the total number of fires and acres for their district. These figures were not adjusted for districts that include land outside of the CWPP region.*

From 2003 through 2014, the US Fish and Wildlife Service reported a total of 12,442.6 acres burned on its properties in Cherry and Rock Counties. Of these acres, 11,285 were prescribed fires, and 1,157.6 acres were wildfires. Wildlife refuge fire crews also assisted neighboring fire districts with wildfire suppression on 35,743 acres during this period. From 2015-2019 they treated 3,658 acres with 14 prescribed fires at Fort Niobrara NWR and 10,819 acres with 13 prescribed fires at the Valentine NWR.

From 1994 through 2019, the US Forest Service reported a total of 3,497.2 acres burned in wildfires on the Samuel R. McKelvie National Forest. Of these acres, 1,040 were human-caused fires and the rest were lightning fires. In 2002 USFS personnel conducted a 450-acre prescribed fire in McKelvie's Lord Lakes area. Additionally, the USFS has mechanically treated eastern redcedar fuels on 3,745 acres at McKelvie.

Since 2014, TNC reported using prescribed fire to treat 11,983 acres on the Niobrara Valley Preserve and 886 acres on nearby private lands. According to a NPS survey, NGPC conducted or facilitated prescribed fire on 4,490

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acres of public and private lands from 2016-2019. NGPC also reported a 50-acre wildfire at a Brown County WMA in 2017.

### Fire Hazard

In the years since European settlement, exclusion of low-intensity ground fires, limited forest management, and prolific regeneration of eastern redcedar and ponderosa pine have increased the fire danger in forested areas. This, combined with severe drought, created conditions conducive to the catastrophic wildfires of 2006 and 2012. Drought conditions also increased the wildfire risk in the grasslands.

Although nearly 70% of reported fires between 2000 and 2019 were human-caused, those acres accounted for just over 40% of total acres burned. Nearly 60% of all acres burned were attributed to lightning (see Table 3). During most years the majority of wildfires are small and do not burn with high intensity because of rain or quick suppression. However, every few years medium-sized and large fires occur and burn with high intensity and extreme fire behavior, posing a threat to rural homes and damage to major watersheds. Often the fires are wind driven from the southwest or northwest and can burn across drainages at a rapid rate. This situation challenges fire suppression personnel and agency managers to remain vigilant while monitoring the fire danger ratings and indices, particularly the heavy fuel moisture (1,000-hour time lag fuels), during the fire season. These wildfires, which have burned with high intensity, do not readily regenerate for years afterward even with organized reforestation efforts. The Valentine Fire of 2006 and the Region 24 Complex of 2012 are examples. Fuel continuity throughout the forested areas and in some of the open grasslands in this planning region is very high to extreme. Fires in these areas can have a high rate of spread and, in the forests, a high resistance to control during very high and extreme fire danger.

Dead fuels are classified according to how fast they gain and lose moisture. They are categorized into 1, 10, 100, and 1,000-hour fuel size classes.<sup>13</sup> The larger the fuel, the longer it takes for the weather to affect it. Large branches (100-hour fuels) will take much longer to dry out than dead fine fuels such as grass (1-hour fuels). Once 100 and 1,000 hour fuels become dry, it also takes a long time for them to regain moisture from wetter weather. See Appendix D for more information on fuel models.

The planning team asked fire department personnel, emergency managers, and other stakeholders to identify specific areas of concern for wildfire response. These are described in each community-specific section of the CWPP and shown on Maps 6 and 7 in Appendix A. The locations include numerous wooded areas along rivers and creeks where there are homes and other structures. Many of these areas experience heavy seasonal visitor use, have limited access, are high-risk ignition sources due to dense undergrowth, and they often experience dry weather conditions conducive to fire ignition from lightning and hot farm machinery.

Wildfire Hazard is described in further detail in the Wildfire section of the Region 24 Emergency Management Multi-Jurisdictional HMP (see link in Appendix B). The Tri-County HMP (Holt) does not discuss wildfire in depth. It references this CWPP for further information.

#### *Fuel Models*

The primary fuels within the planning area are grasslands, shrubby or cedar-encroached grasslands, and forests. NFS fire staff identified the following fuel models<sup>14</sup> as the most prevalent within the CWPP region:

Grassland Models (GR): In the prairie portions of the CWPP region, the primary carrier of fire is grass. Grass fuels can vary from heavily grazed grass stubble or sparse natural grass to dense grass more than 6 feet tall. Fire behavior varies from moderate spread rate and low flame length in the sparse grass to extreme spread rate and flame length in the tall grass models. All GR fuel models are dynamic, meaning that their live herbaceous fuel load shifts from live to dead as a function of live herbaceous moisture content. The effect of live herbaceous

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moisture content on spread rate and intensity is strong. The following fuel models best represent the grasslands in the region, with GR6 in the more humid eastern part of the region and GR7 in the more arid western part.

- GR6 Dryland grass about 1 to 2 feet tall. Spread rate very high; flame length very high.
- GR7 Moderately coarse continuous grass, average depth about 3 feet. Spread rate very high; flame length very high.

Grass-Shrub Models (GS): In the portions of the CWPP region where there is up to 50% eastern redcedar encroachment into the grasslands, the primary carrier of fire is grass and shrubs combined; both components are important in determining fire behavior. All GS fuel models are dynamic, meaning that their live herbaceous fuel load shifts from live to dead as a function of live herbaceous moisture content. The effect of live herbaceous moisture content on spread rate and intensity is strong and depends on the relative amount of grass and shrub load in the fuel model. The following fuel models best represent the cedar-encroached grasslands in the region, with GS1 and GS2 in the more arid western part of the region and GS3 and GS4 in the more humid eastern part.

- GS1 Low Load, Dry Climate: Shrubs are about 1 foot high, grass load is low. Spread rate is moderate; flame length low. Moisture of extinction is low.
- GS2 Moderate Load, Dry Climate: Shrubs are 1 to 3 feet high, grass load is moderate. Spread rate is high; flame length moderate. Moisture of extinction is low.
- GS3 Moderate Load, Humid Climate: Moderate grass/shrub load, average grass/shrub depth less than 2 feet. Spread rate is high; flame length moderate. Moisture of extinction is high.
- GS4 High Load, Humid Climate: Heavy grass/shrub load, depth greater than 2 feet. Spread rate high; flame length very high. Moisture of extinction is high.

Shrub Models (SH): In the portions of the CWPP region where eastern redcedar encroachment into the grasslands is greater than 50% and grass is sparse to non-existent, the primary carrier of fire is live and dead shrub twigs and foliage in combination with dead and down shrub litter. A small amount of herbaceous fuel may be present.

- SH1 Low Load Dry Climate: Low shrub fuel load, fuelbed depth about 1 foot; some grass may be present. Spread rate is very low; flame length very low.
- SH2 Moderate Load Dry Climate: Moderate fuel load (higher than SH1), depth about 1 foot, no grass fuel present. Spread rate is low; flame length low.
- SH5 High Load, Dry Climate: Heavy shrub load, depth 4-6 feet. Spread rate very high; flame length very high. Moisture of extinction is high.

Timber Models (TU, TL): In the river corridors, grass remains the main carrier of fire; however, several timber fuel models also may apply in the forested portions of these areas. The primary carrier of fire in the Timber Understory (TU) fuel models is forest litter in combination with herbaceous or shrub fuels, such as eastern redcedar. The primary carrier of fire in the Timber-Litter (TL) fuel models is dead and down woody fuel. Live fuel, if present, has little effect on fire behavior.

- TU2 Moderate Load, Humid Climate Timber-Shrub: Moderate litter load with shrub component. High extinction moisture. Spread rate is moderate; flame length low.
- TU5 Very High Load, Dry Climate Timber-Shrub: Heavy forest litter with a shrub or small tree understory. Spread rate is moderate; flame length moderate.
- TL2 Low Load Broadleaf Litter: The primary carrier of fire in TL2 is broadleaf (hardwood) litter. Low load, compact broadleaf litter. Spread rate is very low; flame length very low. (This applies to riparian areas in the eastern part of CWPP region.)
- TL4 Small downed logs: The primary carrier of fire in TL4 is moderate load of fine litter and coarse fuels. Includes small diameter downed logs. Spread rate is low; flame length low.
- TL5 High Load Conifer Litter: The primary carrier of fire in TL5 is high load conifer litter; light slash or mortality fuel. Spread rate is low; flame length low.

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Full descriptions of these fuel models appear in Appendix D.

## Economic Impacts

Excessive fuel loading can affect local economies in many ways. It reduces available forage, and therefore the grazing carrying capacity, for livestock and wildlife. If woody fuels are removed by uncontrolled, high intensity wildfire, other resources are affected. Intense fires may induce hydrophobic soils, which significantly increase runoff and erosion in steep terrain. Loss of grazing capacity and decreased water quality can be long-lasting problems for landowners whose livelihoods depend on livestock and hunting income.

A proactive approach to reducing hazardous fuels can provide jobs and generate valuable wood products such as lumber, posts, and biomass. Mechanically thinning forests reduces the hazard and risk of intense wildfire, can improve grazing capacity and wildlife habitat, and can increase the amount of precipitation that reaches streams, lakes, and the water table. Adherence to the *Forestry Best Management Practices for Nebraska* (<https://nfs.unl.edu/documents/ruralforestry/NebraskaBMP.pdf>) by those conducting mechanical thinning operations can reduce the potential for soil erosion from equipment use.

## Emergency Operations

### Responsibilities and Mutual Aid Agreements

VFDs are the first line of defense against wildfires on private and state lands in this planning area and statewide. During large wildfires, they rely on mutual aid (MA) agreements with neighboring jurisdictions. The USFWS and the USFS have fire divisions that respond to wildfires on the federal lands those agencies manage, and both agencies have agreements with MA districts that adjoin national forests and wildlife refuges.

The 29 fire departments in the CWPP counties belong to one or more of the five Nebraska MA associations that overlap the region: Boyd/Holt MA, Cherry County MA, KBRC MA, Sandhills MA, and Pine Ridge MA. Fire departments in counties along the north border of the CWPP area also participate in mutual aid with neighboring South Dakota counties.

Boyd, Brown, Cherry, Keya Paha, and Rock Counties have mutual support responsibilities under the Region 24 Common Emergency Management Agreement. Brown, Cherry, Keya Paha, and Rock County fire departments are members of the KBRC MA District. Fire districts in Holt and Boyd Counties comprise the Holt/Boyd MA Association. Holt County handles dispatch for Boyd County. Holt County will also respond to Rock and other neighboring counties, as needed. See Appendix E for a complete list of mutual aid associations and member fire departments.

Five of the six North Central Nebraska CWPP Counties are part of Nebraska's Region 24 Emergency Management Area. Holt County has its own full-time emergency management director. A map of statewide Local Emergency Management Areas appears in Appendix A.

In addition to notification by Sheriff's Department personnel and/or dispatch, Emergency Management areas have notification from "Code Red" that allows them to develop groups that can be called in an emergency situation for notification of evacuations, hazardous material incidents, and any emergency notification, including wildfire. This allows notification of a large geographical area or a group of people. This is an 'opt-in' program which can be used to notify residents in the area of wildfire events, but would likely not reach all members.

Prior to the 2012 wildfires, the state introduced the Salamander ID card check-in system for emergency response personnel and equipment. This identification and credentialing system allows first responders (agencies, personnel, and equipment) to more efficiently respond to incidents. It streamlines the incident check-

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in process and tracks time spent on an incident for both personnel and equipment. The ID cards use bar codes that identify equipment, people and their qualifications, and can even track volunteers.

The Mobile Express program is used to track an incident. The Rapid Tag program helps track volunteers. A volunteer's driver's license is swiped and the data used to print an identification card which is then used by Mobile Express to track the volunteer. The program can also be used to generate a printed "Battle Book" that lists equipment (with picture, description, and ID card) and personnel so that first responders can check into an incident via radio without having to physically check in. Training for this system is ongoing statewide.

## Staging Areas and Safety Zones

The forested drainages throughout the CWPP region are separated by expanses of grasslands and farm ground. There are abundant staging area locations in the uplands away from the drainages. Grazed pastures, green alfalfa fields, and fallow farmland can provide staging areas away from forested areas. Fairgrounds and city parks are generally good staging areas, depending on the particular location of a wildfire. Safety zone sites are designated by fire officials and will depend upon the wildfire location and characteristics.

## Roads/Bridges

In addition to the federal and state highways, the region is served by a network of county-maintained roads. Farm and ranch trails provide additional access for emergency vehicles. Restricted bridges and roads which could restrict truck/lowboy passage have not been mapped. Developing such a map has been identified as a need that should be addressed (see Action Plan). Road and bridge information specific to each county appears in the county detail sections.

## Communications

All VFDs in the region operate on VHF radio, which is required to communicate with the SEAT plane. Some have low band capability as well, but the departments have each other's VHF frequencies. The mutual aid channels are the same VTAC and V-fire frequencies that can be used if they need multiple channels or to communicate with resources coming from other areas. Most departments in the region use the same radio company, which makes communicating easier. Cherry County has a mobile radio tower that can be set up to expand radio coverage, and Ainsworth Fire has a mobile repeater they can deploy for that purpose.

Some radio compatibility issues in Nebraska were addressed after the 2012 wildfire season. Location-specific data about communications is listed in each county section of this CWPP for those entities that provided such information. Gaps in cellular service exist across some parts of the CWPP region, particularly in steeper drainages. Cell service in the area varies, depending on the service provider.

## Capabilities and Capacity

Resources to support emergency responder safety and help fire departments prepare for and respond to fire, natural disasters and non-fire emergencies can include vehicles, equipment, air support, and personnel. The resources described in this section are available to VFDs in North Central Nebraska.

### *Vehicles and Equipment*

A listing of apparatus and staffing for each fire district is included in Appendix F. Some districts have agreements with outside agencies or county departments (such as Roads) for assistance with heavy equipment.

Through the Federal Excess Property Program (FEPP) and Fire Fighter Property (FFP) program, a cooperative effort with the U.S. Forest Service, the NFS acquires and reconditions excess equipment which is no longer needed by the federal government. This equipment is then loaned to rural fire districts, which are responsible for maintenance. When no longer needed, the equipment is returned to the NFS and either re-assigned or sold, with the proceeds being returned to the US Treasury or state program. In 2019 there were 879 pieces of FEPP equipment in use by 297 rural fire districts and emergency management areas across Nebraska, valued at



## North Central Nebraska Community Wildfire Protection Plan

\$105,225,700. In the North Central CWPP Region there are 111 pieces of FEPP equipment, valued at \$9,921,000 and housed at 32 fire districts.

These programs allow fire districts to obtain essential fire-fighting equipment at an affordable price. The NFS Fire Shop also offers cooperating fire districts resources to reduce vehicle maintenance costs. This includes securing parts for vehicles and providing complimentary maintenance checks. Mechanics can also provide routine vehicle maintenance at the NFS Fire Shop in Mead or fire districts may use a trusted local mechanic. Two NFS mobile repair units are available to respond to the maintenance needs of cooperating fire districts. These units can provide routine repairs, as well as on-site support for cooperating districts in the event of catastrophic fires.

### *Aerial Resources*

The Wildfire Control Act of 2013 enabled the establishment of Single Engine Air Tanker (SEAT) bases in Nebraska. The SEAT provides critical observation and access for remote areas. Tanker support is vital for locations away from towns and for wildfires located in difficult terrain or spreading quickly. Having a SEAT dedicated strictly to wildfire suppression provides nearby resources for quick initial attack on small fires, keeping them from growing into large catastrophic wildfires.

Permanent SEAT bases enhance fire aviation and initial attack capabilities. SEAT bases are staffed by NFS personnel during the fire season, working with a SEAT on contract to Nebraska through its partners at NEMA. During peak wildfire season (generally July 15-September 15) the state of Nebraska hires a SEAT for at least a 60 day contract period. NEMA pays for the aircraft's daily rate, and flight time is paid out of the Governor's Emergency fund. NFS provides the SEAT Manager who directs the entire operation. It is an interagency effort managed by NFS and paid for by NEMA.

Valentine is the only one of the five permanent (Type 1) SEAT bases in Nebraska that serves this CWPP Region. The other bases are located in Chadron, Alliance, Scottsbluff, and McCook. In addition, NFS has a mobile SEAT base to support operations at airports without a permanent base, such as Thedford. Each base houses LC 95 retardant.

Prior to the onset of fire season, the Wildfire Advisory Group assesses wildfire risk throughout the state. This committee consists of representatives from the NFS, State Fire Marshal's Office, NEMA, USFS, and Great Plains Dispatch. They have two in-person meetings per year plus weekly conference calls to discuss wildfire operations, fuel conditions, and resources. The group recommends to NEMA which SEAT base is the best location to station the SEAT plane, and when and for how long the SEAT will be contracted.

The state has a long history of utilizing agricultural aerial applicators for fire suppression. These are an important resource because they are available year around; not just during the peak fire season. Aerial applicators sign up yearly to be part of this program, but are not "on call" for wildfire response. Any fire chief who decides one is needed can simply call directly to see if the applicator is available. These aircraft can only carry loads of water or foam, not the preferred and more effective retardant product. Their availability may be limited due to the pilot not being present or out spraying fields. These pilots and the aircraft are not federally "carded" to fly missions on federal land, so they cannot be utilized on USFS or USFWS fires.

The NFS *Yellow Book* (link in Appendix J) contains detailed information about aerial resources, including:

- Contact information for state, federal and private agencies that have emergency suppression resources or can provide technical expertise in the suppression of wildfires
- Aerial Applicator and Foam Retardant Directory
- Deployment procedures and forms needed to order a SEAT
- Map of cooperating aerial applicators and SEAT base locations

# North Central Nebraska Community Wildfire Protection Plan

## *Overhead Teams*

In major wildfire situations, overhead teams can be called in to help VFDs. State assistance starts with a Wildfire Incident Response Assistance Team (WIRAT) response. This team is comprised of State Fire Marshals and the NFS. When an Incident Commander (IC) orders the team, the four closest members will respond and assist. This could include scouting the fire, ordering additional resources, establishing a communication plan, operations, communicating with aircraft, or reloading aircraft. The team does not take over responsibility for the fire. Once a state disaster is declared by NEMA and the governor, a state-level All Hazard Type 3 Team can respond. At this point the fire is beyond the capabilities of the local IC. The team either takes control of the fire or shares the responsibility with the local IC. If the fire grows beyond their capabilities, then the Federal Emergency Management Agency (FEMA) and a Type 1 or 2 team become involved.

## **Training**

The NFS, Nebraska State Fire Marshal's Office, and NEMA provide wildland fire training through classes in communities across the state as well as mutual aid schools and State Fire School attended by thousands of people each year.

In addition, the NFS sponsors the Nebraska Wildland Fire Academy, held annually in April at Fort Robinson State Park. Launched as an interagency effort by the NFS and the USFS, the Academy provides opportunities for Nebraska volunteer firefighters to attend nationally-recognized wildland fire and incident management training at little or no cost, on a schedule that does not require them to be away from home more than what is already required by their volunteer efforts. It utilizes the expertise of local, state, and federal firefighters to ensure the fire training needs of Nebraska and the surrounding region are met. It also enables local volunteers to enter the national red card system and develop certifications that are recognized across the nation.

Classes cover a variety of topics ranging from beginning to advanced firefighting techniques, Firewise® landscaping and construction, leadership, and fire prevention education. The classes offer flexibility and can be fine-tuned to meet the needs of local fire departments. NFS delivered and sponsored course hours grew from just 73 in 2007 to 10,506 in 2019. Wildland fire instructors are based in Ainsworth, Chadron, and Lincoln.

The Nature Conservancy conducts the Niobrara Valley Prescribed Fire Training Exchange (TREX) annually as a resource for training within the area and a potential resource for implementation to help with priority prescribed fire, fuels treatment, and other projects. The TREX brings to the area a fair amount of resources that could be used to address wildfire protection in the community and raise awareness. According to TNC, "Prescribed Fire Training Exchanges provide experiential training through one- to two-week events that bring together diverse groups of practitioners from federal, state, and local agencies; tribes; NGOs; universities; private contractors and local landowners. Grounded in NWCG standards and using a typical incident command system, TREX build local capacity and provide new perspectives to professional fire workers, while completing treatments that help communities and ecosystems."<sup>15</sup>

# North Central Nebraska Community Wildfire Protection Plan

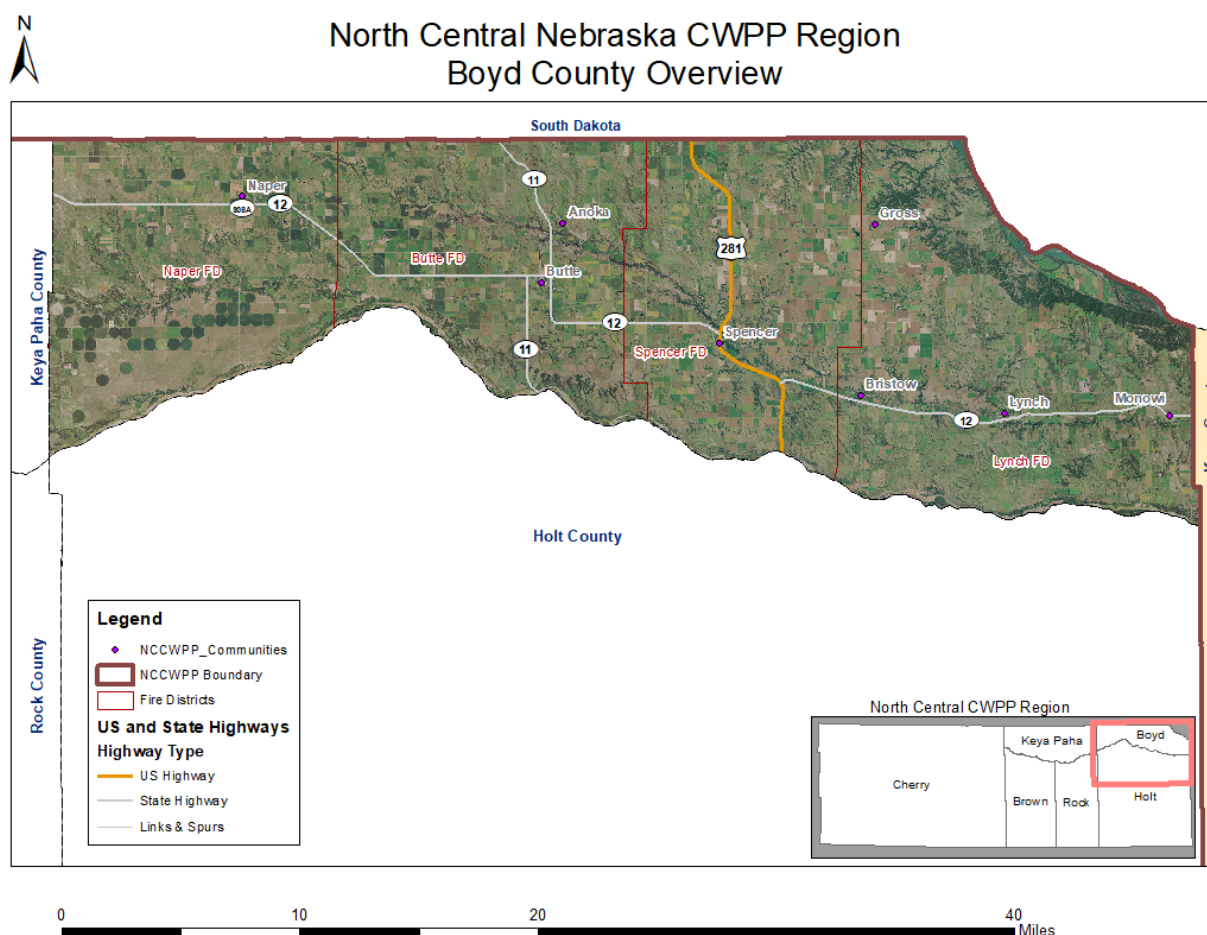
## Community-Specific Considerations

Topics pertinent to the entire CWPP region appear in the overview portion of this plan. For planning purposes, each county is considered a community. This part of the document contains elements specific to each county/community. Each community section consists of a “Community Profile” (description, fire history, and fire hazard) and “Infrastructure and Protection Capabilities” (fire districts, emergency operations, greatest concerns listed by fire departments, and infrastructure such as water sources, roads and bridges). The HMPs contain complete critical infrastructure lists; therefore, these community sections include only a reference to the HMPs (links in Appendix B). Critical facilities are determined based on the discretion of the jurisdiction.

### Boyd County

545 sq. miles

2018 population: 1,955



### Community Profile

Boyd County occupies the northeast corner of the CWPP area. It is bounded on the west by Keya Paha County, on the south by the Niobrara River and Holt County, on the east by Knox County, and on the north by the state of South Dakota and the Missouri River. Incorporated towns and villages include the county seat of Butte (pop. 308), Spencer (pop. 428), Lynch (pop. 230), Naper (pop. 79), Bristow (pop. 61), Anoka (pop. 6), and Gross (pop. 2). Monowi (pop. 1) is unincorporated.

## North Central Nebraska Community Wildfire Protection Plan

Besides municipal lands, public lands in Boyd County include three NGPC Wildlife Management Areas south of Butte (approx. 225 acres total), a 30-acre extension of the Karl E. Mundt National Wildlife Refuge (the remainder of this refuge lies in South Dakota), 527 acres of BIA/Yankton Sioux tribal lands, 48 acres in four scattered BLM tracts, and 10,388 acres in school lands. Although the NPS manages no land in Boyd County, the western part of the county abuts 14 miles of the Niobrara National Scenic River. The primary land use is agriculture and livestock operations.

Vegetation zones include riparian deciduous forest along the Niobrara, Keya Paha, and Missouri Rivers and their tributaries and mixed-grass prairies in the uplands. Agriculture crop fields are concentrated in the southwest and scattered elsewhere throughout the county. In some areas eastern redcedar has encroached sufficiently into grasslands and deciduous forests to become a distinct and highly flammable vegetation type.

### *Fire History*

In 2012 the Lynch Fire District (FD) reported that power lines caused a 5,000-acre fire, and the Kalkowski fire burned 1,967 acres. The district also reported a 700-acre fire in 2013 and a 500-acre fire in 2000. The Butte FD reported a 300-acre debris fire in 2013, and the Spencer FD reported a 425-acre equipment fire in 2010.

### *Fire Hazard*

The areas most at-risk from wildfire are the lands surrounding municipalities and recreational and rural residential areas where there are heavy fuels and limited access. Locations of special concern include the wooded bluffs along the Niobrara, Keya Paha, and Missouri Rivers and their tributaries, where dense stands of eastern redcedar have encroached under deciduous forests, creating high fire hazard. WUI areas of concern include homes along these river corridors. Eastern redcedar encroachment into pasture lands, particularly near the canyon rims, is creating an increasing risk of extreme fire behavior in these areas.

The Butte VFD identified the rural Anoka area as being of concern due to difficult access, rough terrain, and lack of water within effective distance. The Lynch and Naper VFDs have concerns about areas in their district that have difficult access, rough terrain, and heavy fuels.

Areas of Concern are mapped in Appendix A, Map 7. Agricultural lands in those portions of the county which lie outside mapped Areas of Concern do have their own fire risk variables; however, irrigated croplands are not as fire-prone as forests and grasslands. All of Boyd County's villages and all of the forested areas along the rivers and streams lie within the boundaries of the WUI as defined by the NFS in the introduction to this CWPP.

### **Infrastructure and Protection Capabilities**

The Region 24 HMP includes a full geo-located critical infrastructure list (see link in Appendix B).

### *Fire Districts and Emergency Operations*

The Butte, Lynch, Naper, and Spencer Fire Districts lie all or partly within the county, which is part of the Region 24 Emergency Management jurisdiction. The Lynch and Spencer districts also include lands in Holt County. See Appendix F for VFD contact information, equipment lists, and responses to the questionnaire.

The fire departments are responsible for fire protection and assist with other emergencies in their fire districts. The Boyd County Sheriff's department provides assistance as needed. All Boyd County fire departments are part of the Holt/Boyd MA district. The Lynch VFD also has a MA agreement with the Niobrara VFD in Knox County.

### *Water Sources*

The only developed water systems (other than private wells) are in the larger municipalities. The Missouri, Niobrara, and Keya Paha Rivers and their larger tributaries are reliable water sources. Reservoirs, ponds, and stock tanks are located throughout the county. During drought conditions some reservoirs and ponds are not

## North Central Nebraska Community Wildfire Protection Plan

dependable. Many smaller streams have only intermittent flows and are not reliable. Windmills are abundant in the county and can provide water when they are operational.

### *Utilities/Phone Service*

Boyd County is crossed by several high tension power lines. Rural electric service is provided by Nebraska Public Power District. There is both cellular and landline telephone service available in the county. There are gaps in cell coverage in some canyon areas.

### *Roads and Bridges*

Boyd County is served by US Highways 281 and Nebraska Highways 11 and 12. These are augmented by a network of county-maintained roads.

### *Staging Areas*

During the original preparation of this CWPP, in 2014, the Naper Fire Chief noted that the community of Naper provides a good staging area in the event of a large wildfire.

### *Greatest Concerns*

The fire departments were asked to list their greatest concerns for their district, shown in the table below:

<b>Department</b>	<b>Greatest Concerns</b>
Butte	None listed
Lynch	Obtaining access; rough terrain
Naper	None listed
Spencer	None listed

# North Central Nebraska Community Wildfire Protection Plan

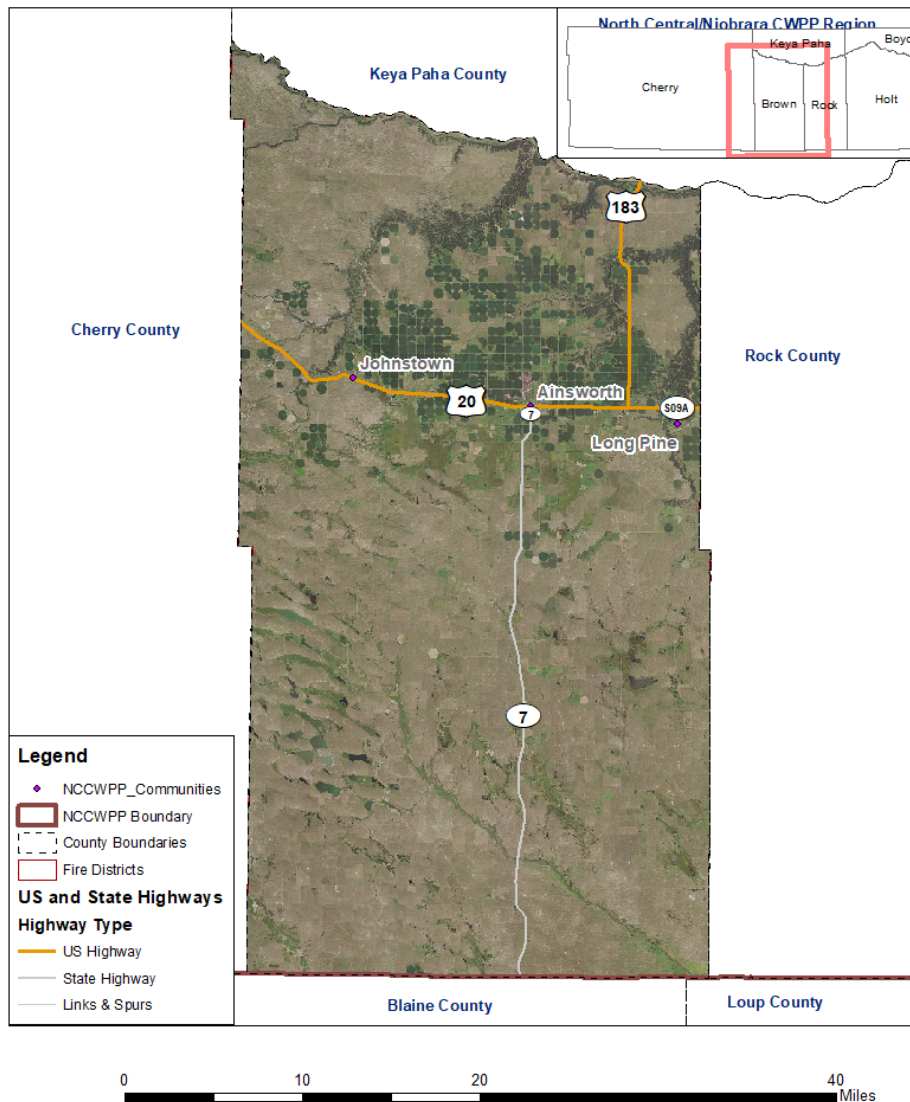
## Brown County

1,225 sq. miles

2018 population: 2,973



### North Central Nebraska CWPP Region Brown County Overview



### Community Profile

Brown County is located in the south central portion of the CWPP area. It is bounded on the west by Cherry County, on the north by the Niobrara River and Keya Paha County, on the east by Rock County, and on the south by Blaine County.

Incorporated communities include the county seat of Ainsworth (pop. 1,649), Johnstown (pop. 61), and Long Pine (pop. 296). US Highway 20 bisects the county from west to east and State Highway 7 and US Highway 183 cross the county from south to north in the central and eastern parts of the county.

Besides municipal lands, public lands in Brown County include 38,847 acres in state school lands, nine state wildlife management areas and three state recreation areas (5,644 acres total), 1,991 acres of the University of

## North Central Nebraska Community Wildfire Protection Plan

Nebraska's Barta Brothers Ranch, a 484-acre USFWS parcel, and about 790 acres in 14 tracts owned by the BLM and the NPS. The balance of the land within the county is privately owned, including most of the land abutting 30 miles of the Niobrara National Scenic River. Approximately 34,811 acres of The Nature Conservancy's Niobrara Valley Preserve are located south of the Niobrara River within the county. TNC is a non-profit, non-governmental conservation organization.

Although the primary land use is agriculture and livestock operations, recreation on both public and privately-owned property is growing. The state recreation and wildlife management areas and the Niobrara National Scenic River attract many recreational visitors annually.

Vegetation zones include ponderosa pine forests and savannas along the bluffs of the Niobrara River and its tributaries, deciduous forests along the Niobrara and Calamus Rivers and their tributaries, and Sandhills-mixed grass prairie throughout the county. Agriculture crop fields are concentrated in a wide band north of US Highway 20 and scattered elsewhere throughout the county. In some areas eastern redcedar has encroached sufficiently into grasslands and forests to become a distinct and highly flammable vegetation type. Much of the ponderosa pine forest along the Niobrara River burned in the 2012 Fairfield Creek wildfire.

### *Fire History*

From the time this area was settled by Europeans until the 1970s, wildfire activity was limited to small fires which were rapidly and effectively controlled. This allowed woody vegetation to become more dense and widespread. Beginning in the last quarter of the 20<sup>th</sup> century, wildfire occurrence and intensity increased sharply in Brown County and other parts of north central Nebraska.

Some of the larger fires reported in Brown County include:

- July, 2012: 36,745 acres of the Fairfield Creek Fire
- April, 1998: 4,683 acres along the Niobrara River in the Johnstown and Wood Lake Fire Districts
- April, 1989: 1,804 acres south of Johnstown
- March, 2012: 1,000-acre lightning fire north of Johnstown
- August, 2012: 800-acre equipment fire southwest of Ainsworth
- February, 2012: 500-acre equipment fire north of Long Pine

### *Fire Hazard*

The Fairfield Creek wildfire of 2012 (part of the Region 24 Wildfire Complex) successional set back many acres of forest to forbs, grasses and shrubs. Over time, fine fuels build up in burned woodlands because grazing animals are often unable to access areas where burned tree "skeletons" have fallen in jackstraw fashion across the landscape. These areas carry a high fuel load of both standing and downed heavy fuels, as well as fine fuels, putting them at high risk of extreme fire behavior once again when the next fire passes through, sometimes years later. The fallen trees also impede emergency access during subsequent wildfires.

The area most at-risk from wildfire is located in the northern part of the county, in the rough terrain of the Niobrara River's breaks and canyons. Locations of special concern include the wooded bluffs along the Niobrara River and its tributaries, where dense stands of eastern redcedar have encroached under pine and deciduous forests, creating high fire hazard. Eastern redcedar encroachment into pasture lands, particularly near the canyon rims, is creating an increasing risk of extreme fire behavior in these areas. WUI Areas of Concern include homes along the Niobrara River and its tributaries.

Hidden Paradise, an unincorporated recreational community on Pine Creek adjacent to Long Pine, has been identified as the most wildfire-vulnerable community in Nebraska. In addition to heavy woody fuels, it has steep access with road and bridge limitations. These characteristics apply to other parts of Pine Creek Canyon as well. Fire personnel in both Ainsworth and Long Pine identified Hidden Paradise and the entire Long Pine WUI area as



## North Central Nebraska Community Wildfire Protection Plan

being of particular concern. Other high-risk wooded locations identified by the planning team include Keller Park and Long Pine State Recreation Areas and Plum Creek Canyon.

In the Sandhills, historic fires such as those south of Johnstown and Ainsworth in 1989 and 2012 demonstrated that prairie fires can move rapidly across large areas and put communities and ranch structures in harm's way.

The Middle Niobrara NRD (MNNRD) specifically identified the area that burned in the 2012 Region 24 Complex as at high risk for burning again in a future wildfire, and the region surrounding the burned area as containing large quantities of dense woody fuels. This encompasses the entire river valley and its tributaries and includes the community of Long Pine. The MNNRD named high-risk ignition sources, including heavy fuels (burned trees) in the fire footprint, dry unburned expanses of eastern redcedar and ponderosa pine, and grasslands. They identified specific areas with inadequate access, including homes on canyon points and in canyon bottoms. Topics the MNNRD would like to see incorporated into mitigation plans include promoting and making available fire extinguisher checks and fire extinguisher operation training and promoting chipping and utilization of overstocked ponderosa pine and eastern redcedar trees.

Areas of Concern are mapped in Appendix A, Map 7. Agricultural lands in those portions of the county which lie outside mapped Areas of Concern do have their own fire risk variables; however, irrigated croplands are not as fire-prone as the forests and grasslands near the Niobrara River and its tributaries. All of Brown County's population centers and all of the forested areas along the rivers and streams lie within the boundaries of the WUI as defined in the introduction to this CWPP.

### Protection Capabilities and Infrastructure

The Region 24 HMP includes a full geo-located critical infrastructure list (see link in Appendix B).

#### *Fire Districts and Emergency Operations*

Brown County is part of the Region 24 Emergency Management jurisdiction. The Ainsworth/Brown County Fire District includes the sub-districts of Long Pine and Johnstown. See Appendix F for their contact information, equipment lists, and responses to the VFD questionnaire. The fire departments are responsible for fire protection and assist with other emergencies in their fire district. The Brown County Sheriff's department provides assistance as needed. Brown County is part of the KBRC mutual aid agreement.

#### *Water Sources*

The only developed water systems (other than private wells) are in Ainsworth and Long Pine. The Niobrara and Calamus Rivers and their tributaries are generally reliable water sources. Reservoirs, ponds, and stock tanks are located throughout the county. During drought conditions many of the reservoirs and ponds are not dependable. Many smaller streams have only intermittent flows and are not reliable. Windmills are abundant in Brown County and can provide water when they are operational. The Ainsworth/Brown County Rural Fire Department has noted a severe lack of water sources in the grasslands in the south part of the county.

The Ainsworth Unit of the Pick-Sloan Missouri Basin Program, also known as the Ainsworth Irrigation Canal, originates at the Merritt Dam outlet on the Snake River in Cherry County and extends eastward nearly 53 miles through the Sandhills into Brown County. The canal is concrete-lined for its entire length to minimize seepage losses in the sandy soils it traverses, is 52.9 miles long, and has an initial capacity of 580 cubic feet per second. The canal's nearly 170 miles of laterals deliver irrigation water to over 34,500 acres of land in the Ainsworth Irrigation District in Brown County.<sup>16</sup>

#### *Utilities/Phone Service*

The county is crossed by several high tension power lines. Rural electric service is provided by KBR Rural Public Power District. There is both cellular and landline telephone service available in the county. Cell service is spotty in many locations, and not available at all in many of the canyons. The Ainsworth/Brown County Rural Fire

## North Central Nebraska Community Wildfire Protection Plan

Department has listed the Niobrara Valley as especially problematic for cellular telephone and radio communication.

### *Roads and Bridges*

Brown County is served by US Highways 183 and 20 and Nebraska Highway 7. These are augmented by a network of county-maintained roads. There are some Brown County roads that have missing bridges that could present access delays in a wildfire situation. Other roads have bridges with width and/or weight limitations that could limit emergency vehicle access.

### *Staging Areas*

The Ainsworth Fire Chief noted that, in the event of a large wildfire, potential staging areas and command centers could include the Ainsworth Fire Station, the Johnstown fairgrounds hall, and a self-contained mobile command trailer owned by the Ainsworth Fire Department.

### *Greatest Concerns*

The fire departments were asked to list their greatest concerns for their district, responses appear in the table below:

Department	Greatest Concerns
Ainsworth	Manpower. Ainsworth shares all of Brown County responsibility with other rural departments, so all of Brown County is our shared concern.
Johnstown	(Separate survey not returned; included with Ainsworth)
Long Pine	Structures, hydrants



## North Central Nebraska Community Wildfire Protection Plan

within the county is privately owned, including much of the land abutting 24 miles of the Niobrara National Scenic River.

The Nature Conservancy's 3,441-acre Horse Creek Fen and approximately 19,176 acres of their Niobrara Valley Preserve are located in Cherry County. TNC is a non-profit, non-governmental conservation organization.

Although the primary land use is agriculture and livestock operations, recreation on both public and privately-owned property is rapidly growing. Smith Falls State Park, two national wildlife refuges, Samuel R. McKelvie National Forest, and the upper portion of the Niobrara National Scenic River lie within Cherry County and attract a high volume of recreational visitors annually.

Forest vegetation zones include ponderosa pine forests and savannas on the bluffs of the Niobrara and Snake Rivers and their tributaries; deciduous forests along the Niobrara, Snake, North Loup, and Middle Loup Rivers and their tributaries; and remnants of northern boreal birch-aspen stands, mostly on the south side of the Niobrara River at Smith Falls State Park and the Niobrara Valley Preserve. Sandhills prairie occurs throughout most of the county. There is mixed-grass prairie north of the Niobrara River, and lowland tallgrass prairie in some areas along the river itself. Agriculture crop fields are common along and north of the Niobrara River and sparsely scattered throughout the Sandhills valleys. In some areas adjacent to the Niobrara and Snake Rivers and their tributaries, eastern redcedar has encroached sufficiently into grasslands and forests to become a distinct and highly flammable vegetation type.

### *Fire History*

From the time this area was settled by Europeans until the 1970s, wildfire activity was limited to small fires which were rapidly and effectively controlled. This allowed woody vegetation to become more dense and widespread. Beginning in the last quarter of the 20<sup>th</sup> century, wildfire occurrence and intensity increased sharply in Cherry County and other parts of north central Nebraska.

Some of the larger fires reported in Cherry County include:

- September, 1988: Simmons I Fire; 1,764 acres north of Valentine
- September, 1988: 2,688 acres southeast of Crookston
- June, 1989: Gordon Creek Fire; 1,032 acres in the Valentine FD
- February, 1990: Goose Creek Fire; 8,408 acres on USFWS and Wood Lake and Purdum FDs
- April, 1998: 4,683 acres along the Niobrara River in the Wood Lake and Johnstown FDs
- November, 1999: 1,224 acres south of the Gordon Creek Fire
- July, 2000: Jackson Fire; 1,481 acres on the Merriman FD
- July and September, 2000: 15,368 acres in the Gordon FD and South Dakota
- September, 2000: 1,917 acres on the Valentine Refuge and the Purdum FD
- April, 2001: 1,863 acres north of Elsmere in the Purdum FD
- October, 2003: 1,048 acres southwest of Brownlee on Thedford FD
- July, 2006: The Valentine Fire burned 1,721 acres in and adjacent to Valentine
- March, 2011: 3,650 acre equipment fire west of Brownlee in the Mullen FD
- July, 2012: 1,059 acres of the Fairfield Creek Fire burned in Cherry County
- July, 2012: 7,980 acres in the Thedford FD northeast of Seneca
- October 2012: 14,956 acres burned from South Dakota to Crookston

### *Fire Hazard*

The Fairfield Creek wildfire of 2012 and the Big Rock wildfire of 2006 successional set back many acres of forest to forbs, grasses and shrubs. Over time, fine fuels build up in burned woodlands because grazing animals are often unable to access areas where burned tree "skeletons" have fallen in jackstraw fashion across the

## North Central Nebraska Community Wildfire Protection Plan

landscape. These areas carry a high fuel load of both standing and downed heavy fuels, as well as fine fuels, putting them at high risk of extreme fire behavior once again when the next fire passes through, sometimes years later. The fallen trees also impede emergency access during subsequent wildfires.

The areas that are at highest risk from wildfire are located in the northern and central parts of the county, along the wooded bluffs of the Niobrara and Snake Rivers and their tributaries, where dense stands of eastern redcedar have encroached under ponderosa pine and deciduous forests, creating high fire hazard. Eastern redcedar encroachment into pasture lands, particularly near the canyon rims, is creating an increasing risk of extreme fire behavior in these areas. Locations of special concern include homes at the edges of Valentine, recreational use areas along the Niobrara River from Berry Bridge east to the county line, and residential/recreational areas along the Snake River, particularly in the area of existing and proposed golf courses.

The Cody and Kilgore VFDs noted that anywhere along the Niobrara River is problematic due to difficult access, heavy fuels, and rough terrain; the Cody fire chief added that one way in/out, and lack of water within effective distance are also issues near the river. Merriman Fire reported the area south of Merriman on the Niobrara River has difficult access and heavy fuels. The Wood Lake fire chief stated that the Village of Wood Lake is of concern due to multiple structures and heavy fuels. Mid-Cherry VFD did not specify individual locations, but said that multiple structures, difficult access, and rough terrain are issues. The Gordon VFD did not specify individual locations, but said that multiple structures, difficult access, rough terrain, heavy fuels, and manpower are issues. The Hyannis/Sandhills Fire Protection District chief stated the villages of Hyannis, Ashby, and Whitman (all in Grant County just south of the Cherry County line) are areas of concern due to multiple structures.

The Mullen VFD considers the Middle Loup River valley rugged, with limited access. The Mullen fire chief said theirs is the largest fire district in the state. It contains numerous types of topography, much of which is difficult to access. Many fires require hours of response time to reach the scene; especially at night in unfamiliar locations. There are limited access roads in most parts of the district.

The Valentine fire chief said that Niobrara and Snake River Canyons, Minnechaduza Creek Canyon, and Government Canyon are all areas of concern. He stated that the area around Valentine is all WUI: heavily wooded areas with many buildings. He identified multiple structures, difficult access, heavy fuels, rough terrain, one way in/out, and lack of water within effective distance as issues.

The Valentine City Manager identified the northern and northwestern edges of Valentine as at high risk because they border heavily wooded areas. There is a housing development on Lakeshore Dr. on the north side of town that has only one way in and out. He also identified dry grasses and burned trees from the Big Rock fire and overgrown, unthinned forests as posing a threat to Valentine.

Cherry County Commissioners and emergency management personnel identified the Snake River, Schlagel Creek, and Gordon Creek as areas at extremely high risk from wildfire. The Prairie Club Golf Course and the nearby residential areas have numerous structures on the canyon rim with dense woodlands below. A new golf course is planned north of the Prairie Club, with adjacent residential lots. These areas could benefit greatly from the implementation of Firewise practices and forest fuels treatment activities.

The Middle Niobrara NRD specifically identified the area that burned in the 2006 Big Rock and 2012 Fairfield Creek Fires as at high risk for burning again in a future wildfire, and the region surrounding the burned area as containing large quantities of dense woody fuels. Big Rock Fire locations include the area surrounding the Valentine water tower, the west side of US Highway 83 north of Valentine, and the North Mill Pond residential area. Fairfield Creek locations include the entire river valley and its tributaries from USFWS Fort Niobrara east to Highway 7 between Springview and Bassett, NE and communities involved (Norden, Meadville, Long Pine, and Sparks). The MNNRD named high-risk ignition sources, including heavy fuels (burned trees) in the fire footprint, dry unburned expanses of eastern redcedar and ponderosa pine, and grasslands. They identified specific areas

## North Central Nebraska Community Wildfire Protection Plan

with inadequate access, including homes on canyon points and in canyon bottoms. Topics the MNNRD would like to see incorporated into mitigation plans include promoting and making available fire extinguisher checks and fire extinguisher operation training and promoting chipping and utilization of overstocked ponderosa pine and eastern redcedar trees.

Merriman area fire personnel identified specific areas with inadequate access or road/bridge limitations as the Niobrara River and Leander Creek. Areas considered high-risk ignition sources in the Merriman area are along roads and on pasture ground that receives many lightning strikes.

The Mullen Fire District, which lies partly in Cherry County, has identified the woodlands along the Middle Loup River in Cherry County, as well as areas along the Dismal River in neighboring Hooker County as high-risk areas.

The prairie portions of the county are at risk from range fires, which can travel quickly through light fuels and spread into wooded areas. Historically, some of these fires have exceeded 100,000 acres in size.

Specific Areas of Concern are mapped in Appendix A, Map 6. Agricultural lands in those portions of the county which lie outside mapped Areas of Concern do have their own fire risk variables; however, irrigated croplands are not as fire-prone as forests and grasslands near the Niobrara and Snake Rivers and their tributaries. All of Cherry County's population centers and all of the forested areas along the rivers and streams lie within the boundaries of the WUI as defined in the introduction to this CWPP.

### **Protection Capabilities and Infrastructure**

The Region 24 HMP includes a full geo-located critical infrastructure list (see link in Appendix B).

#### *Fire Districts and Emergency Operations*

Cherry County is part of the Region 24 Emergency Management jurisdiction. Seven VFDs are located completely within Cherry County: Barley, Cody, Kilgore, Merriman, Mid-Cherry, Valentine, and Wood Lake. Five fire districts in neighboring counties include portions of Cherry County: Gordon, Mullen, Purdum, Sandhills, and Thedford. See Appendix F for their contact information, equipment lists, and responses to the VFD questionnaire. The fire departments are responsible for fire protection and other emergencies in their fire districts.

The Cherry County Sheriff's department provides assistance as needed. Cherry County is part of the KBRC and the Cherry County MA agreements. In addition to these, several departments have MA agreements with other jurisdictions. The Cody Rural Fire District has agreements with the USFS and the US Dept. of the Interior/Bureau of Indian Affairs. The Gordon VFD has an agreement with Northern Great Plains. Merriman Fire has an agreement with the Pine Ridge MA District. The Mid-Cherry, Mullen, Purdum, Sandhills/Hyannis, and Thedford VFDs are also part of the Sandhills MA district. See Appendix E for a statewide list of MA associations.

Additionally, the US Fish and Wildlife Service (Valentine and Fort Niobrara National Wildlife Refuges) and the US Forest Service (Nebraska National Forest/ Samuel R. McKelvie NF/Bessey Ranger District) have wildfire response capability for their properties and participate in MA agreements with neighboring fire districts.

#### *Water Sources*

The only developed water systems (other than private wells) are in the municipalities. The rivers and their larger tributaries are generally reliable water sources. Merritt Reservoir, located 26 miles southwest of Valentine, is the county's largest impoundment, about 3,000 acres, and it is a dependable water source. Smaller reservoirs, ponds, and stock tanks are located throughout the county. During drought conditions many of these are not reliable. Many smaller streams have only intermittent flows and are not dependable. Windmills are abundant in the county and can provide water when they are operational.

## North Central Nebraska Community Wildfire Protection Plan

The Ainsworth Unit of the Pick-Sloan Missouri Basin Program, also known as the Ainsworth Irrigation Canal, originates at the Merritt Dam outlet on the Snake River in Cherry County and extends eastward nearly 53 miles through the Sandhills into Brown County. The canal is concrete-lined for its entire length to minimize seepage losses in the sandy soils it traverses, is 52.9 miles long, and has an initial capacity of 580 cubic feet per second.<sup>16</sup>

According to Merriman area fire personnel, windmills are critical water sources and it can be a problem when windmills are turned off during the summer.

The Prairie Club Golf Course, located near the Snake River, has a system of approximately one hundred 150 psi water hydrants with 5,800 gpm capability that could be used for filling tanks on fire vehicles. These hydrants are not currently mapped, but the main hydrant is located at their maintenance facility headquarters. Similar hydrants are planned for the new golf course which will be constructed north of the Prairie Club.

The Middle Niobrara NRD manager named the Mill Pond, NGPC Hatchery Ponds, and Fish Hatchery Reservoir at the edge of Valentine as the best water supplies. He noted that most of the canyons do not have water in them, other than small creeks. He said that water supply wells are needed in the canyons.”

The Valentine City Manager noted that city water can be accessed at the Valentine Fire Department. He said that although the Mill Pond on the north edge of town was used in the past, it is filling with sand and may not always be available in the future.

### *Utilities/Phone service*

Cherry County is crossed by several high tension power lines. Rural electric service is provided by Cherry-Todd Rural Electric, KBR Rural Electric, and Panhandle Rural Electric Membership Association. There are both cellular and landline telephone services available in the county.

Cell service is spotty in many locations, and, according to the Middle Niobrara NRD, of limited availability or not available at all in some of the northern canyons. Merriman area fire personnel reported cell coverage and group communications are generally poor. They ranked putting a communications plan in place as a vital component of a mitigation plan. The Mullen Fire District noted that areas in Cherry County north and west of Mullen have gaps in cell phone coverage.

### *Roads and Bridges*

Cherry County is served by US Highways 20 and 83 and Nebraska Highways 61, 97, and 12. These are augmented by a network of county-maintained roads. The Barley VFD reported that the bridge on the Snake River south of the Gale Ranch will not support equipment weight. The Kilgore VFD said that Anderson Bridge (south of Kilgore) has a maximum capacity of 10,000 lbs. The Mullen VFD reported there are some untested, private bridges with unknown weight limits, crucial to river crossings and other culverts that also have unknown weight limits.

### *Staging Areas*

According to the Valentine City Manager, the Valentine fire department at the corner of Hall and B Streets was successfully used as a staging area during the 2006 fire, and it can be used as such again in the future. The Middle Niobrara NRD manager noted that, in the event of a large wildfire, potential staging areas could be the Cherry County fairgrounds and the Cherry County Hospital, both which are fairly close to the canyons. The Valentine Fire Department would be a safer alternative. Merriman area fire personnel identified areas that have already burned as potential safety zones.

### *Communications*

Cherry County Emergency Management provided the following overview of the capabilities of the Cherry County communications system:



# North Central Nebraska Community Wildfire Protection Plan

## Merriman

- Radio equipment is located approximately 14 miles south of Merriman
- Cherry County-Merriman law enforcement / Merriman fire
- Cherry County Road District #3
- Page forward repeater in Road Shop

## Cody

- Page forward repeater on Cody water tower
- Fire base station in fire hall
- Road district base station in road shop

## Kilgore

- Page forward repeater I on fire hall tower

## Nenzel

- Tower location: Approximately 25 miles south of Nenzel on county-owned tower
- Fire base station
- Law base station
- Road district base station
- Radio to contact Keith County / Mullen Fire

## Beaver

- Tower location: approximately 35 miles south of Valentine on US Hwy. 83 county-owned tower
- Fire base station
- Law base station
- Road district base station
- Radio to contact Region 26 / Thedford

## Wood Lake

- Tower location on city water tower
- Fire base station in fire hall

## Norden

- Tower location approximately 3 miles west of Norden
- Fire base station
- Law base station
- Road district base station
- Radio to Contact Keya Paha and Brown Counties

## Valentine

- Tower location north edge of Valentine
- Fire base station
- Law base station
- Road district base station
- Controls for all radios in other tower locations are located in dispatch
- State Radio System

## North Central Nebraska Community Wildfire Protection Plan

Dispatch center: From dispatch there is direct contact with

- Fire departments (entire county)
- Local and county law enforcement
- Nebraska Game and Parks Commission officers
- National Park Service rangers
- Valentine Utilities
- County road districts
- South Dakota state radio
- Winner (SD) police department
- Fort Niobrara fire units

Communications Trailer: Ability to talk to all above and also Paraclete Radio system with

- 800 UHF
- 300 UHF
- VHF high band
- VHF low band
- Cellular booster

All tower locations and trailer are generator-equipped

### *Additional Equipment*

Cherry County emergency management personnel noted that “ranch rigs”—4WD trucks with water tanks—often provide initial attack on wildfires. There are about 250 such units in the county.

### *Greatest Concerns*

The fire departments were asked to list their greatest concerns for their district; responses appear in the table below:

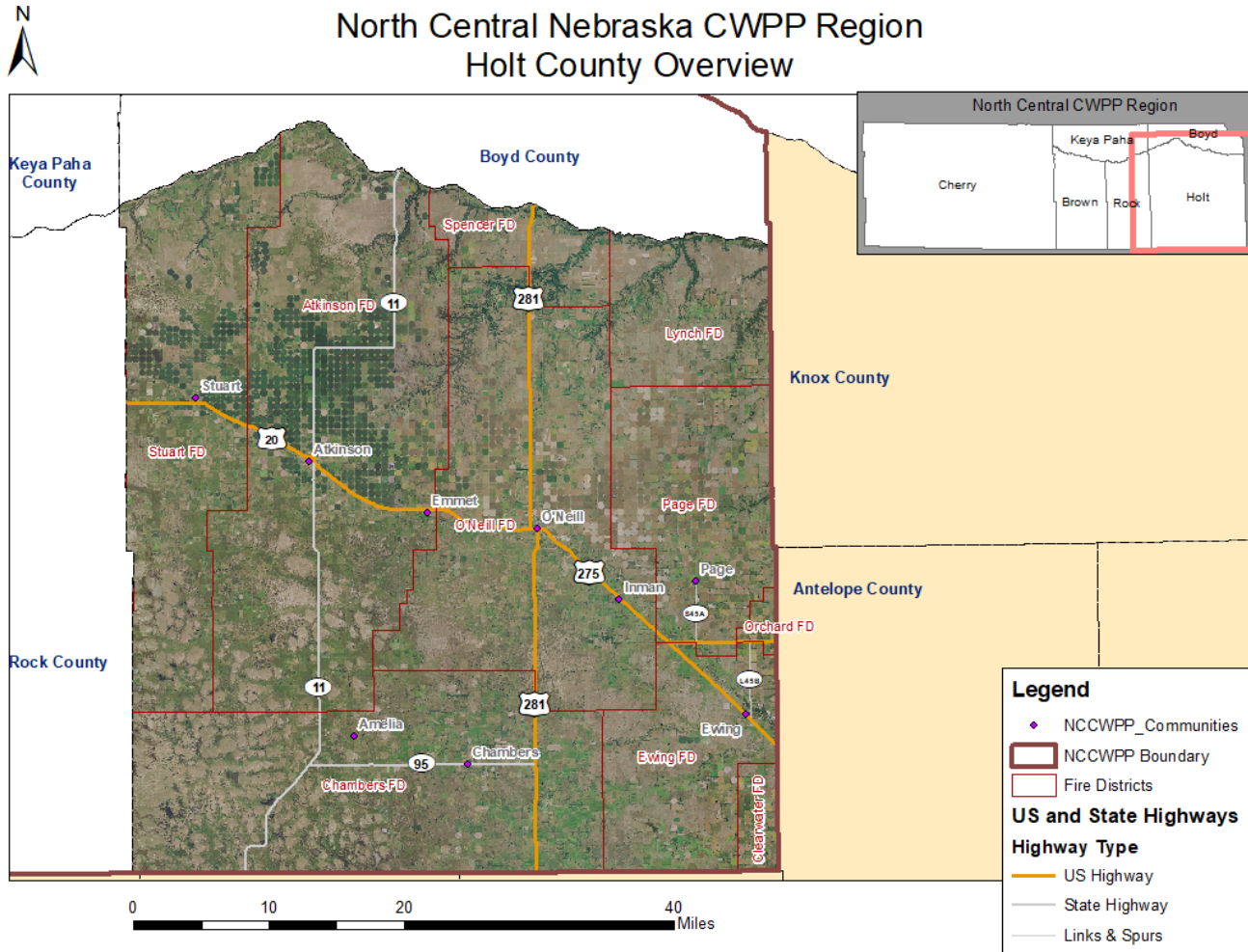
Department	Greatest Concerns
Barley	Wintertime, when trucks are drained
Cody	Being able to get to the head of the fire and stop it.
Gordon	Getting to fires when the roads are flooded; manpower
Hyannis/Sandhills	Distance for mutual aid and water supply
Kilgore	River canyon
Merriman	Depending on the size of river fire, being able to gain control.
Mid-Cherry	That everyone stays safe
Mullen	Structure protection for wildland fires. Grass for grazing causing economic impacts.
Purdum	(none listed)
Thedford	(none listed)
Valentine	Keeping the fire out of the canyons
Wood Lake	Not able to get mutual aid if there were multiple fires

# North Central Nebraska Community Wildfire Protection Plan

## Holt County

2,417 sq. miles

2018 population: 10,178



## Community Profile

Holt County occupies the southeast corner of the CWPP area. It is bounded on the west by Rock County, on the south by Garfield and Wheeler Counties, on the east by Knox and Antelope Counties, and on the north by the Niobrara River and Boyd County. Incorporated cities, towns, and villages include the county seat of O'Neill (pop. 3,635), Atkinson (pop. 1,251), Chambers (pop. 258), Emmet (pop. 47), Ewing (pop. 375), Inman (pop. 123), Page (pop. 161), and Stuart (pop. 584). The unincorporated community of Amelia is in southwestern Holt County.

Besides municipal lands, public lands in Holt County include 68,544 acres in school lands, seven NGPC properties (1,541 acres total in five WMAs, a state recreation area, and a fish hatchery), and four scattered small tracts (285 acres total) administered by the federal BLM. The balance of the land within the county is privately owned. The primary land use is agriculture and livestock operations.

Vegetation zones include riparian deciduous woodlands along the Niobrara and Elkhorn Rivers and their tributaries, agricultural crop fields concentrated along a wide strip north of the Elkhorn River and in the southeast corner of the county, mixed-grass prairie in the uplands south of the Niobrara River, and Sandhills-

## North Central Nebraska Community Wildfire Protection Plan

mixed grass prairie south of the Elkhorn River. In some areas eastern redcedar has encroached sufficiently into grasslands and deciduous forests to become a distinct and highly flammable vegetation type.

### *Fire History*

From the time this area was settled by Europeans until the 1970s, wildfire activity was limited to small fires which were rapidly and effectively controlled. This allowed woody vegetation to become more dense and widespread. Beginning in the last quarter of the 20<sup>th</sup> century, wildfire occurrence and intensity increased in north central Nebraska.

Some of the larger fires reported in Holt County include:

- July, 2012: Equipment fires south of the Niobrara River-1,000 acres, Spencer FD and 150 acres, Lynch FD
- May, 2009: 601 acres south of the Niobrara River, Stuart FD
- July, 2006: Equipment fires-70 acres northeast of Page, 80 acres near O'Neill, 75 acres in Atkinson FD

### *Fire Hazard*

The area most at-risk from wildfire is located in the northern third of the county, between the Niobrara River and the northern edge of cultivated farm ground. Locations of special concern include the wooded bluffs along the Niobrara River and its tributaries, where dense stands of eastern redcedar have encroached under deciduous forests, creating high fire hazard. Eastern redcedar encroachment into pasture lands, particularly near the canyon rims, is creating an increasing risk of extreme fire behavior. WUI areas of concern include homes along the Niobrara River and its tributaries.

Atkinson Fire and Rescue reported concerns about the Brush Creek and Sandy Creek areas approximately 20 miles north of Atkinson. Both are Niobrara River tributaries and have rough terrain, difficult access, and heavy fuel loads. The Clearwater VFD has concerns about areas in their district that have difficult access, rough terrain, one way in/out, and lack of water within effective distance. Ewing Fire and Rescue has concerns about the Ewing WUI and heavy fuels along the river. The Lynch VFD has concerns about areas in their district that have difficult access, rough terrain, and heavy fuels. The O'Neill Rural Fire District #7 named the oak and cedar-filled waterways of the Niobrara River tributaries of Eagle Creek Canyons, Redbird, and Blackbird as areas of concern due to difficult access, rough terrain, one way in/out, and heavy fuels. They also identified the Sandhills and the lowland meadows and swamps of the Elkhorn River meadows as areas with difficult access, rough terrain, one way in/out, and lack of water within effective distance. Orchard Fire & Rescue identified Grove Lake WMA and the CVA Royal Hub east of Orchard as areas of concern. Page Fire and Rescue has concerns about areas in their district that have multiple structures. The Stuart fire chief listed the northern parts of Cleveland and Dustin Townships, next to the Niobrara River as problematic, with multiple structures, difficult access, rough terrain, one way in/out, and heavy fuels; and areas in Holt Creek and Green Valley Townships with heavy grass fuels.

Specific Areas of Concern are mapped in Appendix A, Map 7. Agricultural lands in those portions of the county which lie outside mapped Areas of Concern do have their own fire risk variables; however, irrigated croplands are not as fire-prone as forests and grasslands near the Niobrara River and its tributaries. All of Holt County's population centers and all of the forested areas along the rivers and streams lie within the boundaries of the WUI as defined in the introduction to this CWPP.

### **Protection Capabilities and Infrastructure**

The Tri-County HMP includes a complete critical infrastructure list for Holt County (see link in Appendix B).

### *Fire Districts and Emergency Operations*

Four VFDs are located completely within Holt County: Atkinson, O'Neill, Page, and Stuart. Six fire districts in neighboring counties include portions of Holt County: Chambers, Clearwater, Ewing, Lynch, Orchard, and Spencer. See Appendix F for their contact information, equipment lists, and responses to the VFD questionnaire. The fire departments are responsible for fire protection and other emergencies in their fire districts. The Holt

## North Central Nebraska Community Wildfire Protection Plan

County Sheriff's department provides assistance as needed. Holt County has its own full-time Emergency Manager.

All Holt County fire departments are part of the Holt/Boyd mutual aid district. The Lynch VFD also has an agreement with the Niobrara VFD in Knox County. Page Fire and Rescue is also a member of the 40-12 MA District.

### *Water Sources*

The only developed water systems are in the municipalities. The Niobrara and Elkhorn Rivers and their tributaries are generally reliable water sources. Reservoirs, ponds, and stock tanks are located throughout the county. During drought conditions many of the reservoirs and ponds are not dependable. Some smaller streams have only intermittent flows and are not reliable. The Page Volunteer Fire Department has access to two wells in the northern part of their district; otherwise they rely on tankers and mutual aid.

### *Roads and Bridges*

US Highways 20/275 bisect the county from west to east and US Highway 281 and State Highway 11 cross the county from north to south in the central part of the county. These two highways are connected by State Highway 95 south of O'Neill. These are augmented by a network of county-maintained roads.

Atkinson Fire and Rescue personnel noted that there are some older bridges on the back roads that will not support equipment weight. Ewing Fire & Rescue has concerns with weight limits on older bridges in the district. The O'Neill Rural Fire District #7 chief said there are some wooden bridges in their district that will not support equipment weight. The Stuart fire chief said that not all bridges in their district are adequate for some equipment.

### *Greatest Concerns*

The fire departments were asked to list their greatest concerns for their district, shown in the table below:

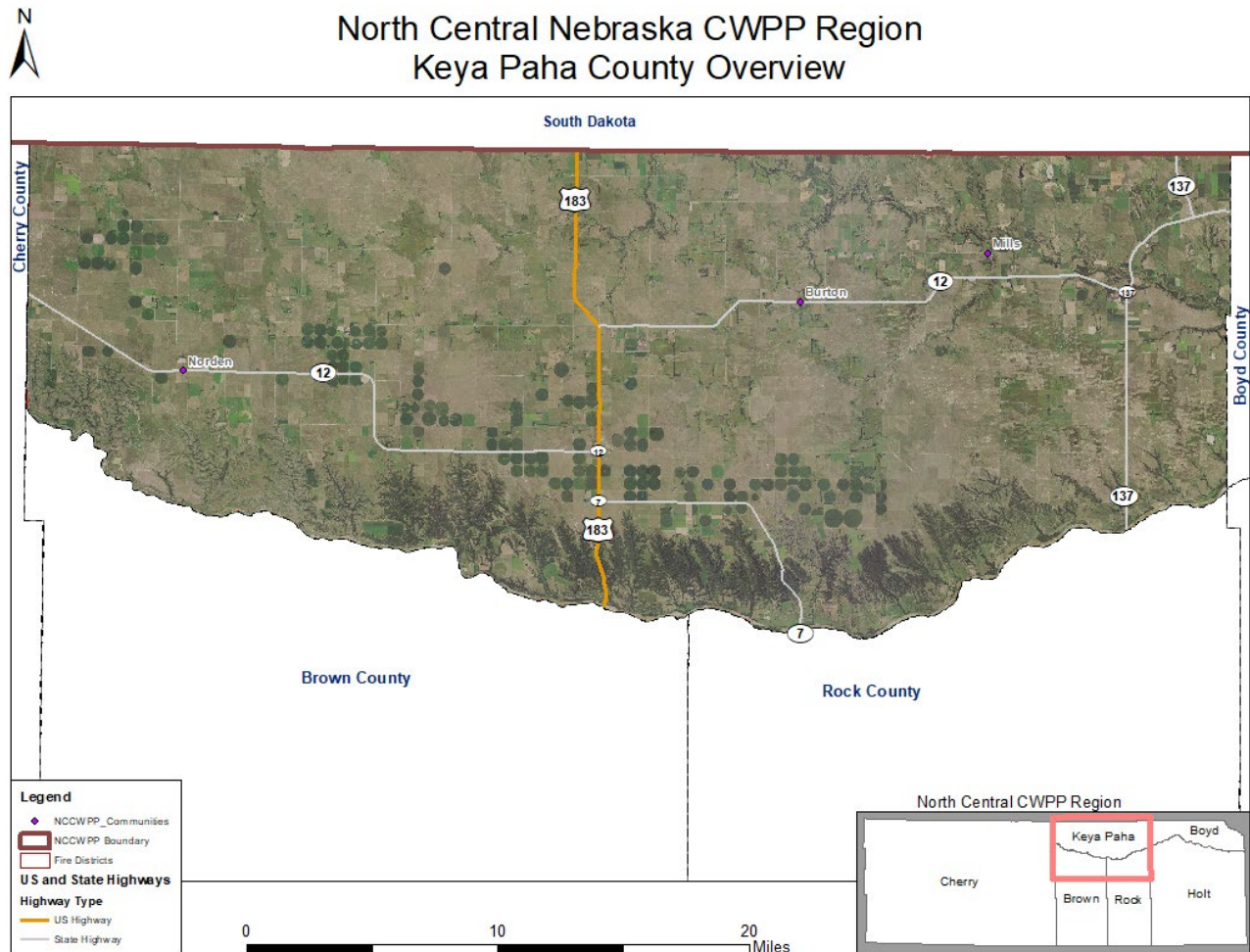
Department	Greatest Concerns
Atkinson	The ability to get to it and supply water to rigs fighting the fire
Chambers	(survey not returned)
Clearwater	None listed
Ewing	Heavy fuels along the river
Lynch	Obtaining access; rough terrain
O'Neill	Access
Orchard	Towns of Orchard and Royal
Page	Not enough personnel responding
Spencer	None listed
Stuart	Manpower, and getting to the scene in some areas

# North Central Nebraska Community Wildfire Protection Plan

## Keya Paha County

774 sq. miles

2018 population: 810



### Community Profile

Keya Paha County is located in the north central portion of the CWPP area. It is bounded on the west by Cherry County, on the south by the Niobrara River and Brown and Rock Counties, on the east by Boyd County, and on the north by South Dakota. Incorporated villages include the county seat of Springview (pop. 237) and Burton (pop. 10), and the unincorporated communities of Meadville, Mills, and Norden.

Besides municipal lands, public lands include two state wildlife management areas (1,295 acres), the MNNRD's 332-acre Cub Creek Recreation area, and 21,243 acres in school lands. The balance of the land within the county is privately owned, including most of the land abutting 52 miles of the Niobrara National Scenic River. Approximately 2,460 acres of The Nature Conservancy's Niobrara Valley Preserve are located adjacent to the Niobrara River in Keya Paha County. TNC is a non-profit, non-governmental conservation organization.

Although the primary land use is agriculture and livestock operations, recreation on both public and privately-owned property is growing. The state recreation and wildlife management areas and the Niobrara National Scenic River attract many recreational visitors annually.

## North Central Nebraska Community Wildfire Protection Plan

Vegetation zones include ponderosa pine forests and savannas along the bluffs of the Niobrara River and some of its tributaries, deciduous forests along the Niobrara and Keya Paha Rivers and their tributaries, and mixed-grass prairie in the uplands. Agriculture crop fields are concentrated in a wide band along and north of the western ¾ of State Highway 12 and scattered elsewhere throughout the county. In some areas, particularly south of State Highway 12, eastern redcedar has encroached sufficiently into grasslands and deciduous forests to become a distinct and highly flammable vegetation type.

Much of the ponderosa pine along the Niobrara River burned in 2012, when the Region 24 Complex wildfires successionaly set back large expanses of forest to forbs, grasses, and shrubs. These areas carry a high fuel load of both standing and downed heavy fuels, putting the burned area at risk of burning again in the future.

### *Fire History*

From the time this area was settled by Europeans until the 1970s, wildfire activity was limited to small fires which were rapidly and effectively controlled. This allowed woody vegetation to become more dense and widespread. Beginning in the last quarter of the 20<sup>th</sup> century, wildfire occurrence and intensity increased sharply in north central Nebraska.

The four largest fires reported in Keya Paha County all occurred in July, 2012:

- 28,546 acres of the Fairfield Creek Fire, Region 24 Complex
- 6,910 acres, Wentworth Fire, Region 24 Complex
- 2,875 acres, Hall Fire, Region 24 Complex
- 190-acre equipment fire

### *Fire Hazard*

The Region 24 Wildfire Complex wildfire of 2012 successionaly set back many acres of forest to grasses, forbs, and shrubs. Over time, fine fuels build up in burned woodlands because grazing animals are often unable to access areas where burned tree “skeletons” have fallen in jackstraw fashion across the landscape. These areas carry a high fuel load of both standing and downed heavy fuels, as well as fine fuels, putting them at high risk of extreme fire behavior once again when the next fire passes through, sometimes years later. The fallen trees also impede emergency access during subsequent wildfires.

The locations most at-risk from wildfire are located in the rough terrain of the Niobrara River’s breaks and canyons, and along the Keya Paha River. In these areas, dense stands of eastern redcedar have encroached into ponderosa pine and deciduous forests, creating high fire hazard. The fire chief identified these river corridors as having difficult access, rough terrain, heavy fuels, and some areas have only one way in and out. Additionally, he said that areas that burned in 2012 have left lots of very dry downed trees, which present a fuels hazard.

Eastern redcedar encroachment into grasslands, particularly near the canyon rims, is creating an increasing risk of extreme fire behavior. The Keya Paha County Commissioners identified homes along the Niobrara and Keya Paha Rivers and their tributaries as WUI areas of significant concern. The Carns Bridge is out of service, and there are numerous canyons without access. The commissioners desire a mitigation plan that includes application of the Fire Safe program and expands forest fuels reduction and cedar mitigation throughout the county.

The Middle Niobrara NRD specifically identified the area that burned in the 2012 Region 24 Complex as at high risk for burning again in a future wildfire, and the region surrounding the burned area as containing large quantities of dense woody fuels. This area encompasses the entire river valley and its tributaries from USFWS Fort Niobrara east to Highway 7 between Springview and Bassett, including the communities of Norden and Meadville. The MNNRD named high-risk ignition sources, including heavy fuels (burned trees) in the fire footprint, dry unburned expanses of eastern redcedar and ponderosa pine, and grasslands. They identified



## North Central Nebraska Community Wildfire Protection Plan

specific areas with inadequate access, including homes on canyon points and in canyon bottoms. Topics the MNNRD would like to see incorporated into mitigation plans include promoting and making available fire extinguisher checks and fire extinguisher operation training and promoting chipping and utilization of overstocked ponderosa pine and eastern redcedar trees.

Specific Areas of Concern are mapped in Appendix A, Map 7. Agricultural lands in those portions of the county which lie outside mapped Areas of Concern do have their own fire risk variables; however, irrigated croplands are not as fire-prone as the forests and grasslands near the Niobrara River and its tributaries. All of Keya Paha County's population centers and all of the forested areas along the rivers and streams lie within the boundaries of the WUI as defined by the NFS in the introduction to this CWPP.

### **Protection Capabilities and Infrastructure**

The Region 24 HMP includes a full geo-located critical infrastructure list (see link in Appendix B).

#### *Fire Districts and Emergency Operations*

Keya Paha County is part of the Region 24 Emergency Management jurisdiction. One volunteer fire department, Springview Fire and Rescue, serves the entire county. See Appendix F for their contact information, equipment list, and response to the VFD questionnaire. The fire department is responsible for fire protection and assisting with other emergencies. The Keya Paha County Sheriff's department provides assistance as needed. Keya Paha County is part of the KBRC mutual aid agreement.

#### *Water Sources*

The only developed water system (other than private wells) is in Springview. The Niobrara and Keya Paha Rivers and their larger tributaries, as well as Cub Creek Reservoir, are generally reliable water sources. Other reservoirs, ponds, irrigation wells, and stock tanks are located throughout the county. During drought conditions many of these are not dependable. Many smaller streams have only intermittent flows and are not reliable. Windmills are abundant in the county and can provide water when they are operational.

#### *Utilities/Phone Service*

Rural electric service is provided by KBR Rural Public Power District and, on the west end of the county, Cherry-Todd Rural Electric. There is both cellular and landline telephone service available in the county. Cell service is spotty in many locations, and not available at all in many of the canyons. The Keya Paha County Commissioners reported that there are large gaps in coverage along the river basins. Coverage diminishes north and south of State Highway 12, causing problems for the northern and southern extremities of the county. Communications continue to be a major deficit throughout the county.

#### *Roads and Bridges*

State Highway 12 bisects the county from west to east and US Highway 183 crosses the county from south to north in the central part of the county. These are augmented by a network of county-maintained roads. The fire chief noted that although bridges on the main and secondary roads are adequate, there are a few on minimum maintenance roads that are less than 20' that probably won't support their 50,000-lb. tender.

#### *Staging Areas*

The Keya Paha County Commissioners noted that, in the event of a large wildfire, the Norden fairgrounds and the village of Springview provide potential staging areas.

#### *Greatest Concerns*

The fire department identified the potential for extreme fire spread in the canyons and lack of manpower as their greatest concerns for their district.

# North Central Nebraska Community Wildfire Protection Plan

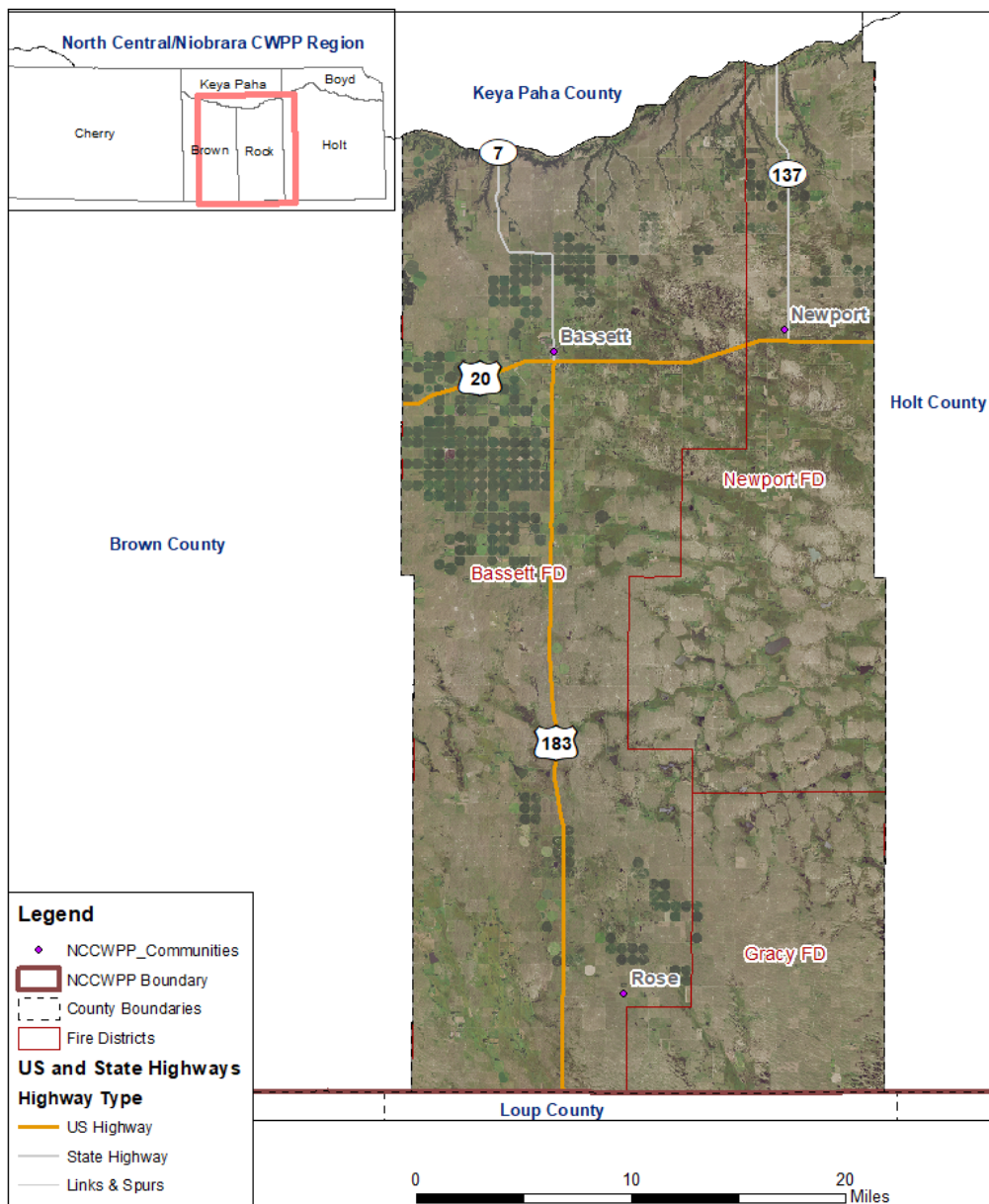
## Rock County

1,012 sq. miles

2018 population: 1,360



### North Central Nebraska CWPP Region Rock County Overview



### Community Profile

Rock County is located in the south central portion of the CWPP area. It is bounded on the west by Brown County, on the south by Loup County, on the east by Holt County, and on the north by the Niobrara River and Keya Paha County. Incorporated communities include the county seat of Bassett (pop. 543) and Newport (pop. 88). The unincorporated community of Rose is located south of Bassett.

## North Central Nebraska Community Wildfire Protection Plan

Besides municipal lands, public lands include 29,558 acres of state school lands, two state wildlife management areas (899 acres total), 2,657 acres of the University of Nebraska's Barta Brothers Ranch, the 2,403-acre John W. and Louise Seier National Wildlife Refuge, and a few scattered holdings administered by the federal BLM (161 acres total). The balance of the land within the county is privately owned, including most of the land abutting 22 miles of the Niobrara National Scenic River. Audubon of Kansas, a non-profit conservation organization, owns the 5,160-acre Hutton Niobrara Ranch Wildlife Sanctuary on the north central edge of the county.

Although the primary land use is agriculture and livestock operations, recreation use occurs on both public and privately-owned property. The state wildlife management areas and the Niobrara National Scenic River attract many recreational visitors annually.

Vegetation zones include riparian deciduous forest along the Niobrara and Elkhorn Rivers and their tributaries, as well as several Calamus River tributaries in the southern end of the county; mixed-grass prairie in the uplands in the northern part of the county; and Sandhills-mixed grass prairie south of the Elkhorn River. Agriculture crop fields are concentrated in the west central portion and scattered elsewhere throughout the county. In some areas eastern redcedar has encroached sufficiently into grasslands and deciduous forests to become a distinct and highly flammable vegetation type.

### *Fire History*

From the time this area was settled by Europeans until the 1970s, wildfire activity was limited to small fires which were rapidly and effectively controlled. This allowed woody vegetation to become more dense and widespread. Beginning in the last quarter of the 20<sup>th</sup> century, wildfire occurrence and intensity increased sharply in north central Nebraska.

Some of the larger fires reported in Rock County include:

- February, 1995: 3,145 acres north of Rose in the Bassett and Gracy Fire Districts
- July, 2002: 2,130 acres north of Rose in the Bassett Fire District
- July, 2002: 7,000-acres baler fire in the Newport Fire District
- July, 2002: 900-acre baler fire in the Bassett Fire District

### *Fire Hazard*

The area most at-risk from wildfire is located in the northern part of the county, in the rough terrain of the Niobrara River's breaks and canyons. Locations of special concern include the wooded bluffs along the Niobrara River and its tributaries, where dense stands of eastern redcedar have encroached under deciduous forests, creating high fire hazard. Eastern redcedar encroachment into range lands, particularly near the canyon rims, creates an increasing risk of extreme fire behavior. WUI areas of concern include homes along the Niobrara River and its tributaries.

The Bassett fire chief named the Niobrara River and Pine Creek corridors as at extremely high risk from wildfires, with multiple structures, difficult access, rough terrain, heavy fuels, and only one way in and out. The Newport fire chief identified the Niobrara River area as of particular concern due to difficult access, rough terrain, and heavy fuels. The Gracy VFD has concerns about areas with access issues, rough terrain, and heavy fuels.

The MNNRD identified the area that burned in the 2012 Region 24 Complex as at high risk for burning again in a future wildfire, and the region surrounding the burned area as containing large quantities of dense woody fuels. These locations encompass the entire river valley and its tributaries. The MNNRD named high-risk ignition sources, including heavy fuels (burned trees) in the fire footprint, dry unburned expanses of eastern redcedar and ponderosa pine, and grasslands. They identified specific areas with inadequate access, including homes on canyon points and in canyon bottoms. Topics the MNNRD would like to see incorporated into mitigation plans include promoting and making available fire extinguisher checks and fire extinguisher operation training and promoting chipping and utilization of overstocked ponderosa pine and eastern redcedar trees.

# North Central Nebraska Community Wildfire Protection Plan

Areas of Concern are mapped in Appendix A. Agricultural lands in those portions of the county which lie outside mapped Areas of Concern do have their own fire risk variables; however, irrigated croplands are not as fire-prone as forests and grasslands near the Niobrara River and its tributaries. All of Rock County's population centers and all of the forested areas along the rivers and streams lie within the boundaries of the WUI as defined in the introduction to this CWPP.

## Protection Capabilities and Infrastructure

The Region 24 HMP includes a full geo-located critical infrastructure list (see link in Appendix B).

### *Fire Districts and Emergency Operations*

Rock County is part of the Region 24 Emergency Management jurisdiction. Volunteer fire departments in Rock County include Bassett/Rock County Rural Fire Protection District, Newport, and Gracy. See Appendix F for their contact information, equipment lists, and responses to the VFD questionnaire. The fire departments are responsible for fire protection and assist with other emergencies in their fire districts. The Rock County Sheriff's department provides assistance as needed. Rock County is part of the KBRC mutual aid agreement.

### *Water Sources*

The only developed water systems (other than private wells) are in Bassett and Newport. The Niobrara River and its tributaries are generally reliable water sources. Reservoirs, ponds, and stock tanks are located throughout the county. During drought conditions many of the reservoirs and ponds are not dependable. Many smaller streams have only intermittent flows and are not reliable. Windmills are abundant in Rock County and can provide water when they are operational. The Bassett/Rock County Rural Fire Chief noted that the department relies solely on a tanker system for water supply.

### *Utilities/Phone Service*

Rock County is crossed by several high tension power lines. Rural electric service is provided by Nebraska Public Power District and KBR Rural Public Power District. There is both cellular and landline telephone service available in the county. County officials report that cell and radio service are spotty in many locations, and not available at all in many of the canyons.

### *Roads and Bridges*

US Highway 20 bisects the county from west to east and US Highway 183 and State Highway 7 cross the county from south to north in the western part of the county. State Highway 137 runs north from US Highway 20 at Newport into Keya Paha County. These are augmented by a network of county-maintained roads.

### *Staging Areas*

The Bassett/Rock County Rural Fire Chief noted that, in the event of a large wildfire, potential staging areas could be located on the Brown-Rock County Line Road, 2 miles north of US Highway 20 and on State Highway 7, 7½ miles north of Bassett at the Red Cedar Ranch junction.

### *Greatest Concerns*

The fire departments were asked to list their greatest concerns for their district, responses appear below:

Department	Greatest Concerns
Bassett	Air support; overabundant fuels in hard to reach areas
Gracy	Home/building sites, livestock locations, and winter feed stockpile areas
Newport	Getting to the fire

# North Central Nebraska Community Wildfire Protection Plan

## Action Plan

This section of the CWPP addresses risk assessment, fire risk rating, treatment of structural ignitability, prioritization, and risk reduction, and it recommends a plan of action for increasing emergency preparedness. The action plan includes wildfire risk reduction strategies, recommendations for increasing emergency preparedness, fuels mitigation practices, training, education, and maintenance. The final part of this section outlines a monitoring and evaluation process that can be used to track progress and periodically update the plan.

## Establish and Implement a Risk Assessment Procedure

Risk assessment is a systematic process for identifying and assessing the range of elements that could lead to undesirable outcomes for a specific situation. Quantitative risk assessment requires calculations of the two primary components of risk: the magnitude of the potential loss and the probability that the loss will occur. For the WUI, a risk assessment is a step that identifies any feature/element of the landscape and structures that could create potential harm to a homeowner or community.<sup>17</sup>

It is important to understand the meaning of risk and hazard in relation to wildfire as it pertains to this CWPP.

**Risk** is the chance or probability of occurrence of fire. **Hazard** is the exposure to risk; in a wildfire situation, those hazards can be related to either the natural or the human-made environment. Natural hazards include fuel type and amount of fuels, topography, and weather. Human-made hazards include the limited availability of water, limited access to structures, limited green space around structures, and the ignitability of structures. The capability of firefighting resources will be compromised by the severity of both natural and human-made hazards.<sup>18</sup>

An assessment includes a review of the area's fire history, fuels/vegetation rating, topographic hazard analysis, weather hazard potential, access, water availability, defensible space, and structural ignitability. The Overview section of this plan contains information about the area's fire history, climate, weather, fuels/vegetation, and topography. Individual county sections provide details on water sources and access issues. Local fire department equipment lists appear in Appendix F. Defensible space and structural ignitability are addressed in this section of the plan.

The Region 24 HMP identifies the planning area as being 100 percent at risk of wildfire. Some of these fires can be expected to exceed 100 acres in size. The following jurisdictions identified wildfire as a top hazard: Region 24; the Boyd County villages of Bristow, Butte, Lynch, and Spencer and the West Boyd School District; Brown County and its villages of Johnstown and Long Pine; Cherry County and its communities of Cody, Kilgore, and Valentine; Keya Paha County; and Rock County. The HMP includes a list of current and completed mitigation projects for these entities. The Tri-County HMP (Holt) refers the reader to this CWPP document for wildfire risk assessment.

Further information on risk assessment is available in a USFS Rocky Mountain Research Station technical report, which describes a specific risk assessment process premised on three modeling approaches to characterize wildfire likelihood and intensity, fire effects, and the relative importance of highly valued resources and assets that could be impacted by wildfire.<sup>19</sup>

### *Fire Risk Rating and Ignitability*

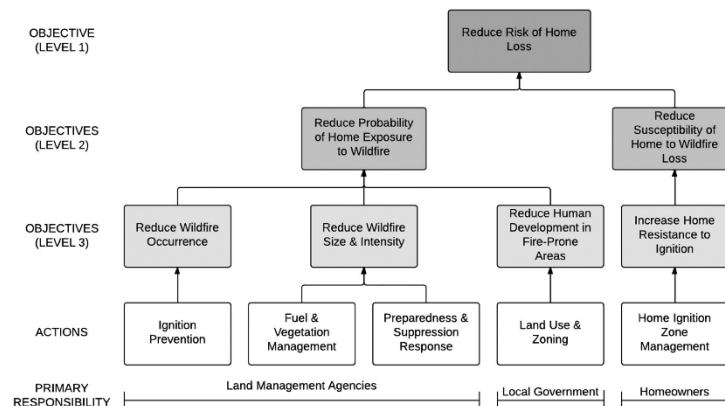
Homes in both forested and non-forested settings can be at risk from wildfires. Quantitative structure risk ratings can be handled under location-specific plans for incorporated communities. Major components of structural ignitability include roofing materials, walls, windows and wooden attachments. Most of the CWPP region is rural/agricultural with widely spaced home locations. There is an opportunity to perform structural risk and ignitability analysis and treatment activities at rural residential and recreational home sites at the same time fuels mitigation work is being conducted in these areas.

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Overcoming perceptions of WUI fire disasters as a wildfire control problem rather than a home ignition problem, determined by home ignition conditions, will reduce home loss. The following graphic illustrates the dual-pronged objectives of reducing the risk of home loss by both reducing the probability of exposure to wildfire AND reducing susceptibility to wildfire loss.<sup>20</sup>



Conceptual model highlighting the major fundamental objectives (level 1), means-based objectives (levels 2 and 3), and actions for reducing the risk of home loss as a result of wildfire.



David E. Calkin et al. PNAS 2014;111:2:746-751

PNAS

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## Prioritization

The community sections in this document describe the WUI focus areas within each county. These can be further prioritized based on data gathered during risk assessment for individual neighborhoods. The coniferous forests along the Niobrara and Snake Rivers and their tributaries and the eastern redcedar-encroached deciduous forests along the Missouri River (in Boyd County) have high priority for hazardous woody fuels reduction, as do areas with recreational and rural residential subdivisions, such as Hidden Paradise near Long Pine in Brown County and the Valentine area in Cherry County. Further assessments may identify additional priority areas.

Appendix A contains “Areas of Concern” maps depicting the parts of each county considered to be at the highest risk from wildfire. The locations were identified by local fire officials and the planning team. These include interface areas with neighborhoods directly adjacent to open spaces, intermix areas where homes are interspersed with natural fuels, and occluded interface areas where neighborhoods are isolated or surrounded by areas of natural fuels.<sup>21</sup>

All of the population centers, unincorporated residential developments, and dispersed recreational developments in the CWPP region have high priority for fuels treatment and Firewise® preparation. The communities of Valentine and Long Pine were Nebraska’s first two certified Firewise® Communities. In the 2015 Region 24 HMP, Boyd, Keya Paha, and Rock Counties stated that they would like to work with and encourage their communities to join the program. The villages of Cody and Spencer gave high priority to becoming a Firewise® Community.

The requirements and procedures to become recognized as a Firewise® Community require coordination among homeowners. However, when landowners implement fuels reduction treatments using NFS cost share programs, or if a landowner asks for suggestions, NFS adheres to accepted Firewise® standards. Many homeowners who do not reside within an officially designated Firewise® Community have utilized those

## North Central Nebraska Community Wildfire Protection Plan

standards. NFS staff is available to help homeowners in areas at-risk from wildfire to establish formal Firewise® Communities.

### Wildfire Risk Reduction

The goal of risk reduction is to reduce the potential loss to life and property. Understanding that wildfire is inevitable can help communities prepare for wildfires. Fire-adapted communities are knowledgeable, engaged communities where actions of residents and agencies in relation to infrastructure, buildings, landscaping, and the surrounding ecosystem lessen the need for extensive protection actions. This enables the community to safely accept fire as part of the surrounding landscape. A successful fire-adapted community approach has the potential to save lives, homes and communities, and millions of dollars in suppression costs annually.

There is a range of actions communities can undertake to become more fire-adapted. In general, the more elements that a community has addressed, the more fire-adapted the community will become. Major elements of a fire-adapted community include vegetation management, ignition-resistant homes, increasing local responders' understanding of wildfire, cooperation between jurisdictional authorities, and fuels treatments on both private and public lands to reduce hazardous fuels and create fuels buffers.

Homeowners can undertake mitigation measures that can decrease the potential destructive effects a wildfire might have on their property. Some measures are designed to modify the vegetative environment surrounding a structure to decrease potential ignition sources. Others focus on modifying a structure (or changing its location) to make the structure more resistant to ignition. To reduce the risk for the long term, actions need to be maintained over time.<sup>21</sup>

#### *Common Practices*

- Actively managing vegetation near the home by reducing density, conducting landscaping maintenance, and replacing flammable vegetation with ignition-resistant components. Greater efforts are needed within close proximity of the structure and gradually decreasing efforts beyond that.
- Maintaining structures free of needles, leaves, and other organic debris from decks, roofs, and near the base of exterior walls.
- Increasing ignition resistance of structures by actions such as using ignition-resistant roofing and covering exterior openings of structures, such as attic vents, eaves, soffits, and crawl spaces, with non-flammable wire mesh screening.
- Removing flammable materials from beneath structures and decks.
- Locating firewood, fuel tanks, and propane tanks at a safe distance from structures.

Refer to Appendix I for an expanded list of common practices and a listing of several programs, such as "Firewise®" and "Ready Set Go," available to help homeowners and communities reduce wildfire risks.

#### *Other Wildfire Mitigation Practices*

Additional wildfire-related mitigation practices are listed below. Some entities have implemented one or more of these. Planners may want to periodically review and implement or expand on them, as appropriate.

- Acquire training and equipment for local fire departments
- Implement woody fuels reduction and defensible space projects
- Establish or expand wildfire prevention and education programs
- Participate in the Firewise® program
- Adopt a wildfire hazard identification and mitigation system (see Appendix I)
- Conduct maintenance to reduce risk (tree care and public landscape maintenance programs)
- Reduce risk through land use planning (landscaping and building ordinances)
- Require or encourage fire-resistant construction (the use of non-combustible materials)
- Incorporate wildfire mitigation into comprehensive planning



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- Develop a wildland-urban interface code
- Expand water storage capacity/emergency water supplies/dry hydrants
- Upgrade rural water systems; improve well and water systems

Although funding limitations affect any jurisdiction's ability to implement some of these practices, identifying them as critical needs helps prioritize them for funding assistance opportunities such as the NFS fire equipment program described earlier in this plan.

### *Wildfire-Related Mitigation Practices Identified in HMP by Local Participants*

In the Region 24 HMP, participants listed wildfire mitigation measures for their communities and ranked them as high, medium, or low priority. The mitigations specific to wildfire are listed below with the participants that ranked them as high priority.

- **Expand Water Storage Capacity / Emergency Water Supplies / Dry Hydrants:** Evaluate the need to expand water storage capacity through a new water tower, stand pipe, etc., to provide a safe water supply for the community and additional water for fire protection. Establish emergency water supplies such as dry hydrants and individual or community cisterns for defending structures from wildland fires. This was ranked high priority by Region 24, Boyd County and its villages of Bristow and Butte; the village of Kilgore in Cherry County; and Rock County and its Village of Newport.
- **Source Water Contingency Plan:** Identify and develop water sources for fire protection. This was ranked high priority by Boyd County and its villages of Bristow, Butte, and Spencer; the village of Kilgore in Cherry County; and Rock County.
- **Civil Service Improvements:** Improve emergency rescue and response equipment and facilities by providing additional—or updating existing—emergency response equipment. This could include fire equipment, ATVs, water tanks/truck, pumps, etc. This would also include developing backup systems for emergency vehicles, identifying and training additional personnel for emergency response, or continuing educational opportunities for current personnel. This was ranked high priority by Region 24, Keya Paha County, Rock County, and the villages of Bristow, Spencer, Crookston, and Kilgore.
- **Hazardous Fuels Reduction:** . . . Fuels reduction creates strategically located corridors of thinned forests across the landscape, reduces fire intensity, improves fire suppression effectiveness, increases firefighter safety, and better protects lives and property. This was ranked high priority by Region 24, Keya Paha County, Rock County, and the municipalities of Spencer, Long Pine, and Bassett.
- **Emergency Communications:** Establish an action plan to improve communication between agencies to better assist residents and businesses during and following emergencies. This was ranked high priority by Region 24, Cherry County, Keya Paha County, Ainsworth, Bristow, and West Boyd Schools.
- **Public Awareness / Education:** Through activities such as outreach projects, distribution of maps and environmental education, increase public awareness of natural hazards to both public and private property owners, renters, businesses, and local officials about hazards and ways to protect people and property from these hazards. Also, educate citizens on water conservation methods, evacuation plans, etc. This was ranked high priority by Region 24, Boyd County, Lynch, Spencer, West Boyd Schools, and Keya Paha County. Rock County prioritized this as medium-high.

The Tri-County HMP (Holt) refers the reader to this CWPP document for wildfire-related mitigation practices.

## **Recommendations for Increasing Emergency Preparedness**

### *Communication*

Having and using a comprehensive communications plan is integral to maintaining smooth operations. Many jurisdictions in Nebraska have identified communications as a major issue when working under a mutual aid scenario. Various responders have different communications hardware, and often these are incompatible with one another. This is more than just a nuisance. Communication is vital to responder safety and to coordinating

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an effective response to wildfire. It is recommended that all entities in the region establish, review, and regularly update their local communications plans.

### *Coordination*

Coordination among responders is crucial in any emergency response situation. Local emergency managers must be able to tie in their responses with neighboring and outside assisting jurisdictions. VFD leaders and officials in the North Central Nebraska CWPP Region already do a great deal of coordinating and cooperating with county, state, and federal land and natural resource agencies. The following opportunities have been identified to address common issues and concerns:

- 1) To protect firefighters, property owners, and structures, consider developing county-level standards for buildings in WUI areas.
- 2) Continue encouraging communities to utilize the national Firewise® Communities program to decrease risk in areas of concern.
- 3) Continue to engage partners such as the USFS, NGPC, and the National Wild Turkey Federation to expand WUI fuels reduction and thinning on a landscape basis through the use of NFS and other cost share programs for private and state landowners.
- 4) Continue to work with the NFS and other partners to implement a CWPP region-wide public education and awareness program to improve wildfire hazard conditions within the WUI.
- 5) VFDs in the CWPP region should continue to participate with the other agencies to facilitate interagency wildland fire training.
- 6) Cooperate with other agencies and property owners to develop long-term multi-unit, multi-year fuel hazard reduction projects, including prescribed burning.
- 7) Facilitate VFD monitoring of the federal wildland fire weather system indices. Currently the NFS SEAT Manager sends lightning maps and fuel conditions reports to VFDs when conditions are conducive to rapid fire growth.
- 8) Create a statewide “Mutual Aid Guide” that can be carried in each engine, including the engines operated by the federal and state agencies. This document would show what equipment each department, county, or agency has. A fire chief could then consult the guide to see what each department has and could order it for their fire, if needed.
- 9) Ensure quick notification and involvement process for assessment and assistance on fires, when needed (i.e. Wildfire Incident Response Assistance Team, Type 3 Team, FEMA and Type 1 or 2 teams).

### *Aerial Support*

It is critical to maintain the SEAT program authorized through the Wildfire Control Act of 2013. Having a SEAT dedicated strictly to wildfire suppression during peak fire season provides quick initial attack on small fires, particularly those in difficult terrain, keeping them from growing into large catastrophic wildfires. The NFS Seat Manager at Valentine has made the following recommendations:

- 1) Additional SEAT Managers throughout the state would increase response times. Currently there are four qualified managers; more would increase program capabilities.
- 2) Increase the number of aerial applicators within the CWPP region who cooperate with NFS and NEMA to provide aerial fire suppression to requesting fire departments. Currently there is only one applicator signed up in the North Central Nebraska CWPP region. This limits available options during wildfires.
- 3) Sustain or increase the current level of cooperation with adjacent states and their aviation resources. Maintain clear paths of communication to ensure that neighboring jurisdictions are aware of available resources, times of planned contracted aviation availability, and enable the sharing of resources across state borders, when needed. Facilitate sharing managers and help trainees become qualified. Cooperation in sharing information, personnel, and resources will benefit all in creating effective operations.

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## *Maps and Data*

Restricted Roads and Bridges: Some county roads and bridges have weight or width limitations, or both, that may inhibit use by emergency vehicles. In some locations bridges have been removed, requiring detours to access these areas. Planners are urged to work with counties and fire departments to identify and map all roads and bridges, specifically identifying those that are restricted. Making this information available to fire departments and other emergency responders would facilitate route planning. This information could also be used to help prioritize fuel treatment areas. Since road conditions constantly change, this information should be monitored locally and updated as needed.

Incident Command Staging Areas: These have been identified as an issue in some parts of Nebraska. Local planners can address this by pre-identifying potential staging locations near areas of wildfire concern such as recreation areas and rural subdivisions. Staging areas must be far enough away from a fire to reduce congestion and confusion for incident managers, yet close enough to efficiently provide resources. When a resource is needed, it is deployed from the staging area, with a controlled entry into the hazard zone. Staging areas need to be of sufficient size to accommodate multiple fire crews, engines, tankers, support vehicles, and equipment storage. Sites should have good access, water and power availability, and be able to accommodate communications needs. The information gathered for potential staging areas in the most at-risk locations can be provided to emergency managers, fire chiefs, and others to help them decide where to establish the staging area for a particular incident.

Equipment: Machinery (other than fire equipment) has proven useful in many wildfire situations. Counties may want to consider adding an inventory of non-fire department resources (such as county road graders) to a centralized document.

Geographic Information Systems (GIS): During the 2015 update process, Cherry County officials recommended incorporating technology into the action plan. The county's emergency manager noted that the US Fish and Wildlife Service has used a Global Positioning System (GPS) to provide locations of tanks, water supplies, and other useful information for both wildlife refuges in Cherry County and it would be helpful to have that done in each of the fire districts and made available for hand-held devices. This has not yet been done.

The water hydrant system at the Prairie Hills Golf Course and other water sources could be mapped and added to this database. Other map data that would be useful, especially in a format that could be easily accessed by hand-held devices, include types and locations of pipelines and pumping stations, power substations, power lines, towers and antennas for air resources to avoid, flammable material storage areas, and overhead water refill access points. This has not been done.

The USFS Bessey District Ranger in charge of McKelvie National Forest operations noted that in the past there have been issues with sharing map layers between different programs and applications. Both the USFS and the NFS now use Avenza, a mobile map app that allows users to download geospatial-enabled pdf maps for offline use on a smart phone or tablet, using the device's built-in GPS to track their location, plot and record location information, measure distance and area, and more. Some VFDs may also use this app, but there currently is no standardized protocol. Creating such standardization over time would likely prove useful.

Counties and communities may want to look into acquiring GIS layers for hydrants, well points, water mains, sewer, housing, infrastructure, and bridge limits. Other map data that can be useful include types and locations of pipelines and pumping stations; power substations; power lines, towers and antennas for air resources to avoid; flammable material storage areas; and overhead water refill access points. GPS locations of stock tanks and other water sources on public lands could also be provided to emergency responders.

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### *Increase Fire Response Reporting for Increased Equipment Availability*

Comprehensive fire reporting helps VFDs demonstrate a need for fire equipment such as provided by the FEPP, Fire Fighter Property/State Fire Assistance, and Volunteer Firefighter Assistance programs described earlier in this document. Since reporting is voluntary for fire districts, not all fire districts consistently report their wildfire responses to the NFS. Because of this, limited information is available about the locations and sizes of historic wildfires within the CWPP counties. There is a risk that incomplete reporting might imply that there is no pressing need for this type of equipment. This could potentially put the status of the program in jeopardy. During the previous CWPP update, stakeholders suggested exploring incentives for VFDs to increase levels of reporting. In response to this, NFS now offers an incentive for participation. Only fire departments that report their responses are eligible to apply for this equipment.

Although reporting has increased recently, VFDs are urged to continue stepping up this effort. The information provides data to geographically focus grant assistance on those areas most prone to wildfire. The NFS has a database already in place to facilitate this. Planners and fire departments are urged to work together to gather and report wildfire data to assist fuels mitigation efforts and increase funding opportunities for fire equipment. Departments can report their wildfire responses online. From the NFS home page, [www.nfs.unl.edu](http://www.nfs.unl.edu), go to Programs, Wildland Fire, and navigate to the fire reporting tab. Follow the login instructions the NFS provided to your department (or email [trees@unl.edu](mailto:trees@unl.edu)), then follow the prompts to create the report.

### *WUI Protection*

Prepared communities reduce hazards, protect homes, and increase firefighter safety. Homeowners in WUI areas should be encouraged to establish and expand Firewise® Communities, Fire-Adapted Communities, and “Ready, Set, Go!” programs across the region. In a wildfire situation, responders often must quickly decide which homes have the best chance of being saved so they can focus their efforts on them. Some Nebraska fire departments have developed “triage” documents to help firefighters quickly assess these homes and neighborhoods. Consider implementing this practice in the CWPP Areas of Concern. Preparation by property owners prior to a wildfire can contribute to firefighter safety and help them protect structures. See Appendix I.

Work with counties and municipalities to evaluate one-way-in/one-way-out subdivisions for potential addition of alternate ingress/egress routes. Estimate costs and identify potential grants or other financial assistance to address these issues.

County zoning plans can be strengthened to include provisions to limit new construction in areas such as canyon rims that are at high risk from wildfire. Counties may want to consider both the monetary costs to taxpayers and the danger to fire department personnel responding to wildfires in these areas. At the very least, setbacks from the canyon rims, adequate emergency access, and specific Firewise® practices should be considered for implementation in the areas at highest risk. Communities across the planning area can adopt more stringent building codes which may include regulations and requirements to reduce wildfire risk for residents and community buildings.

### *Firebreaks and Fuelbreaks*

Strategically placed firebreaks and fuelbreaks in the areas most at-risk from wildfire can give firefighters an edge when protecting WUI areas. These two terms are often confused, but it is important to understand the difference.

Generally narrower than a fuelbreak, a firebreak is a strip of land, 20 to 30 feet wide (or more), in which all vegetation is removed down to bare, mineral soil each year prior to fire season.<sup>22</sup> A firebreak is a discontinuity in vegetation. It may be a gravel road, a river, or a dozer line. A “green” firebreak uses grasses with high moisture content, such as winter rye or winter wheat to provide a break in the continuity of the fuel. A firebreak, if it is wide enough, will stop the spread of direct flame. However, embers can still be lofted into the air and travel across the line.<sup>23</sup>

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A fuelbreak (or shaded fuelbreak) is an easily accessible strip of land of varying width (depending on fuel and terrain), in which fuel density is reduced, thus improving fire control opportunities. The forest is thinned, and remaining trees are pruned to remove ladder fuels. Brush, heavy ground fuels, snags, and dead trees are disposed of, leaving an open, park-like appearance.<sup>22</sup> Fuelbreaks are commonly used to surround a community and slow the spread of a wildfire. Decreasing the fuel load significantly reduces the risk of extreme fire behavior.<sup>23</sup>

Fuelbreaks provide quick access for wildfire suppression. Control activities can be conducted more safely due to low fuel volumes. Strategically located, they break up large, continuous tracts of dense timber, thus limiting uncontrolled spread of wildfire. This can aid firefighters greatly by slowing fire spread under normal burning conditions. However, under extreme conditions, even the best fuelbreaks stand little chance of arresting a large fire, regardless of firefighting efforts. Such fires, in a phenomenon called “spotting,” can drop firebrands ½ mile or more ahead of the main fire, causing very rapid fire spread. These types of large fires may continue until there is a major change in weather conditions, topography, or fuel type.<sup>22</sup>

It is critical to understand that both firebreaks and fuelbreaks are lines of defense. Homes and developments between the break and the fire may remain vulnerable.<sup>23</sup>

Communities are encouraged to identify the best locations for vegetation breaks to protect the WUI. Fuelbreaks are most effective when placed along a natural firebreak such as a road. Choosing a site along a road also allows easy access for equipment.

There are multiple methods of creating breaks, including mechanical, mulching, herbicide, grazing, prescribed fire, and dozer lines. Each treatment has pros and cons, and some may be better suited to a particular site than others. When choosing a method, consider topography, potential for erosion and other environmental effects, access, aesthetics, and costs.

Fuelbreaks and firebreaks are most effective when they are regularly maintained. Dead vegetation and re-sprouting trees should be removed during maintenance.

### Training and Education

#### *Firefighter Training*

All VFDs are encouraged to participate fully in wildland training opportunities provided through the NFS, the State Fire Marshal’s office, and NEMA. Some of the fire departments in the CWPP region are annual participants in the Nebraska Wildland Fire Academy held at Fort Robinson State Park near Crawford. A complete description of this is in the training overview earlier in this document. Those departments that do not currently participate can be encouraged to do so.

Although not all VFDs have mandatory fitness requirements, local departments can be encouraged to participate, both for safety and to lower insurance costs.

#### *Educational Opportunities for Property Owners and the Public*

The Firewise® and “Ready Set Go!” programs offer excellent guidelines for reducing the loss from wildfire for both in-town and rural structures. The NFS “Living with Fire” publications, for both prairie and woodland areas, are also valuable educational tools for property owners. Fire extinguisher inspections and operation training can be offered as part of Firewise® events that participating communities hold annually. Involving local communities in these voluntary programs increases public awareness regarding structure risk mitigation (see Appendix I).

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When issuing building permits, county and municipal offices can distribute literature that includes recommended or required setbacks from canyon rims, lists of fire-resistant building materials, and fire-savvy landscaping suggestions. Service groups such as Rotary and Lions, and youth groups such as FFA, also may present opportunities for getting out wildfire planning information.

### Fuels Mitigation Strategies

There are several approaches to reducing wildfire hazard through fuels management. In addition to active participation by property owners in the structural protection programs described above, practices such as prescribed grazing, prescribed fire, and mechanical fuels reduction can work together to provide protection over large areas containing a diversity of terrain and vegetative cover.

#### *Prescribed Grazing*

Grazing keeps fine fuels such as grasses in check. But overgrazed pastures are problematic for range and livestock health, as well as for wildlife. Landowners can work with range and wildlife management professionals to develop grazing plans that will benefit livestock while protecting grasslands and wildlife and managing fine fuels to reduce wildfire hazard.

The University of Nebraska's Institute of Agriculture and Natural Resources and the Natural Resources Conservation Service have specialists available to help landowners develop grazing systems that will address these concerns.

#### *Prescribed Fire*

Several federal and state agencies, non-profit organizations, and private landowners use prescribed fire as a land management tool. Prescribed fire can be extremely efficient for keeping eastern redcedar encroachment in check on grasslands. In forested settings, prescribed fire is more effective and safer when used to maintain dense woodlands after they have been mechanically thinned. When tree densities are reduced prior to burning, it is easier to keep the fire on the ground, where it cleans up downed woody fuels without killing live trees. Crown fires are difficult to control, and they kill healthy trees.

One objective for many of these burns is to reduce heavy fuel loads. Land managers in the CWPP region plan multiple prescribed fires of varying size each year, but weather and resources to conduct the burns impact how many they complete. Some VFDs have assisted with these efforts by sharing people and equipment to help with the burns, when agency or organizational regulations permit. It is recommended that VFDs continue with these cooperative efforts, as well as continuing to participate in the training available to help them do this safely and effectively.

#### *Mechanical Fuels Reduction in High-Risk Wooded Settings*

Many high-risk forested settings within the CWPP boundary are found in wooded recreation sites, rural residential neighborhoods, and forested and shrubby areas adjacent to population centers. In recreational and "second home" residential areas there are added hazards of seasonal congestion, sometimes-limited or difficult access, and structures adjacent to highly-flammable conifers. Mechanical thinning will decrease tree density to healthy levels while reducing wildfire hazard.

There are two major types of high-risk wooded settings: dense, overgrown forests and areas with high tree mortality from wildfire, insects, and/or disease. This high mortality is nearly always a result of the dense, overgrown conditions that make woodlands more susceptible to pests and wildfire.

In unburned forests, mechanical thinning will decrease ponderosa pine density to healthy levels and reduce eastern redcedar encroachment in both pine and deciduous forests. Density in pure eastern redcedar forests on quality sites can be reduced to levels that provide increased protection from wildfire.

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Within unburned areas there are many decaying slash piles remaining from timber harvest conducted in the region during the 1990s and early 2000s. These piles are still a fire hazard. Disposing of them by either burning during appropriate winter conditions or chipping on-site are acceptable means to mitigate this threat. Chips can help reduce soil erosion in disturbed areas. The chips should be spread, not piled, to allow vegetation to become established in these areas. Piles of chips not only prevent or delay revegetation, they also can be a source of spontaneous combustion.

Over the past several decades, many of the forests within the CWPP region have experienced some level of fire, much of it extreme. The severely burned areas still contain many fire-killed trees that potentially can provide large-diameter fuels for a return fire in that area. Old burn scars are sometimes used as fire boundaries; responders should remain alert to the presence of these fuels.

Where economically feasible, these burned areas should also receive fuels mitigation treatment. The NFS has developed prescription parameters (link in Appendix B2) for addressing both burned and unburned forests. It is extremely important to protect unburned and lightly burned “green islands” within burned areas from future high-intensity fires because these islands are seed sources for forest regeneration.

Mechanical fuels reduction can be expensive, depending on access, terrain, and tree density. The NFS administers several federal and state grants that provide cost share to landowners to defray the cost of fuels reduction. Information about these programs can be found online at <https://nfs.unl.edu/fuels-assistance>. Landowners in counties that have a CWPP in place are eligible for these programs.

Utilization of wood products generated by these treatments has the potential to offset fuels treatment costs. However, presently there is little local commercial market for this material. Researchers are currently working with the NFS and others to encourage markets for biomass and other wood products.

### *Fuels Reduction in High-Risk Non-Forested Settings*

Fuels management works best when it is conducted on a landscape basis. In addition to reducing woody fuels in forests, it is also important to manage the grass component on both wooded areas and grasslands. Well-planned grazing and prescribed fire can significantly reduce wildfire risk. Fuels treatments are only as effective as their weakest link. Unmanaged “islands” of grass within managed areas pose a significant risk to the managed lands. Cost-share programs can encourage landowners to manage their non-forested lands. Property managers can check with the NRCS for cost share program information.

Another threat in grassland environments is the presence of unmanaged windbreaks intended to protect nearby structures. If those shelterbelts lie within the structures’ Firewise® zones, they are a direct threat to the buildings and they must be managed. NFS foresters can provide windbreak management recommendations.

Some communities have expressed concerns about fires jumping over highways that are not properly mowed or managed, and areas along railroad right-of-ways. Regular maintenance of these areas, especially during dry conditions, could help address these concerns.

Much of the fuels reduction activity outside forested areas will involve creating defensible space around rural homes and other structures. The same Firewise® guidelines that apply in forested settings also apply in non-forested settings.

## **Maintenance**

Reducing hazardous fuels is not a one-time event. Areas that have been treated by any method to reduce fuels must be maintained on a regular basis because the vegetation continues to grow. NFS fuels treatment agreements include a requirement that the work be maintained for a minimum of ten years after the project is



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completed. Treatment, particularly mechanical fuels reduction, can be costly, so continued maintenance by keeping regrowth in check not only prolongs the period of hazard protection, it also protects the monetary investment made by landowners and the cost-share program.

### Monitoring and Evaluation

Monitoring and evaluation are important components of any planning document because they provide information on how well the plan is performing and whether it is achieving its stated goals and objectives. This provides guidance for planning future activities, and is an important part of accountability to stakeholders and funding organizations. This section of the CWPP provides a recap of lessons learned from earlier practices, which helped shape this update; a proposed plan maintenance schedule; discussion of monitoring considerations; review of evaluation elements including suggested units of measure for assessing activities and projects; and a table summarizing the five-year action plan.

#### *Lessons Learned*

Fuels Mitigation Practices. The objective of fuels mitigation treatments in forested settings is to reduce the stand density to levels which will remain effective for 20 to 30 years. The NFS maintains a database that quantifies the time and level of treatment performed under NFS agreements on forested properties statewide. This helps resource managers to evaluate when and where resources for future fuel treatments should be directed.

The extreme fire behavior in Nebraska during 2012 tested many of the fuels reduction treatments that were previously implemented. Wildfires provided an opportunity to observe the effectiveness of various types and intensities of treatments. Lessons learned from the 2012 fire season strengthened resource managers' abilities to plan suitable fuels mitigation treatments for Nebraska's landscapes. These mitigations are continually reviewed and adjusted as needed to reflect new information and changing conditions.

State Wildfire Support to Volunteer Fire Departments. During the 2012 wildfires, the NFS learned that the state needed to provide additional wildfire support to VFDs. LB 634, the Wildfire Control Act of 2013, was enacted to create more wildfire training opportunities for VFDs and establish the SEAT program to assist VFDs in keeping small fires small. State officials continue to focus efforts on increasing support and training.

Volunteer Fire Departments. The VFDs most likely also learned lessons from the 2012 wildfires, particularly concerning successful tactics, communications, and interagency cooperation. Because of these wildfire events, departments had to make adjustments on the fly, but then were able to review and fine-tune protocols after the fact.

#### *Schedule*

The maintenance for this plan will be directed by the county boards in the CWPP region and coordinated with local fire officials, resource managers, and the Central Niobrara Watershed Fire Advisory Council. Counties or their representatives will annually review the plan to evaluate progress, re-evaluate priorities for action items, and recommend updates as needed.

Review of the recommendations will be necessary as various projects or tasks are accomplished and the at-risk areas decline in hazard rating. Review will also be needed as infrastructure needs change or are met and should include representation of stakeholders who participated in the development of this plan.

A complete update of the plan every five years is recommended because infrastructure needs, population, and land use can change, fuels reduction projects may be completed, emergency services in outlying areas may expand, data are updated, and areas of extreme wildfire hazard decline or increase. Counties are urged, when possible, to coordinate this process with their HMP updates. By aligning the update schedules of various planning mechanisms the goals, priorities, and actions identified can more easily be integrated into other plans.

# North Central Nebraska Community Wildfire Protection Plan

## Monitoring and Evaluation

Continued public involvement is needed to accomplish many of these recommendations. It is important that the process allows for continued collaboration with stakeholders on how best to meet their needs, while at the same time achieving the objectives of this plan. Agency stakeholders will monitor their efforts according to their internal protocol, documenting accomplishments and redesigning strategies as needed.

Annual assessment of the identified tasks is very important to determine the degree of progress being made. Each agency is encouraged to prepare an after-action report, either per event or annually, to assist in plan maintenance and updates. Units of measure to be considered when updating the plan in the future for the purpose of reporting accomplishments can include the following:

1. Number of projects or activities accomplished which aid fire agency/emergency service response time
2. Number of transportation issues resolved that improve road systems for access, ingress/egress
3. Number of water sources added or upgraded to improve firefighting response
4. Number of pieces/types of fire equipment obtained; number of departments that received them
5. Number of firefighters and fire departments receiving training courses
6. Number of properties/acres treated for fuels reduction and type(s) of treatment used
7. Number of new or retrofitted ignition-resistant structures
8. Number of events with prevention message delivery, number of prevention courses attended/ conducted, number of news releases or prevention campaigns conducted, and number of prevention team meetings held
9. Number of partners/agencies/groups cooperating on projects and activities
10. Number of people contacted (meetings, courses, etc.) and number of educational items distributed (brochures, etc.)

Each participating agency/organization can assess their activities and projects using the units of measure listed above to determine progress. This plan does not function as a means of bypassing the individual processes and regulations of the participating entities. Each project must adhere to any pertinent local, state and federal rules. The CWPP is a coordinating document for activities related to education and outreach, information development, wildfire protection, and fuels treatment.

## Five-Year Action Plan

The following Action Plan summary table is intended to assist planners implement, evaluate, and keep the CWPP up-to-date. It lists the CWPP objectives and the associated tasks needed to achieve each, suggests who might perform the tasks and when, provides benchmarks for evaluation, and identifies opportunities and limitations. When the CWPP is updated at the end of five years, a new action plan can be developed to accommodate new or expanded objectives for the ensuing five-years.

Five-Year Action Plan for the North Central Nebraska CWPP by Objective 2021-2025				
Task(s)	Who	When	Benchmark(s)	Opportunities/Limits
Risk Assessment				
Identify/analyze Risk Assessment elements	Local officials, NFS	Done: reviewed/edited during CWPP update	Updated CWPP	n/a
Prioritize Areas of Concern				
Assess/prioritize areas based on vulnerability	Local officials & fire departments	2021-2022	Maps, checklist, report	Opportunity to further prioritize based on risk assessment

## North Central Nebraska Community Wildfire Protection Plan

Task(s)	Who	When	Benchmark(s)	Opportunities/Limits
<b>Structural Risk &amp; Ignitability Analysis</b>				
Perform individual structure or neighborhood analyses	Fire depts., agencies, contractors, others	Ongoing	Checklist/report	Opportunity: do during fuel reduction or other site visits. Limits: funding and staff availability.
<b>Risk Reduction/Increase Emergency Preparedness</b>				
Review county zoning plans for treatment of high fire risk areas	Local planning staffs	2021-2022	# of recommendations to county officials; # implemented	Consider access, building materials, building setbacks from canyon rims
Identify mitigation practices	Local officials, NFS	Done: reviewed/edited during CWPP update	Updated CWPP	n/a
<b>Increase WUI Protection</b>				
Expand WUI fuels reduction, including mechanical & RxB	Agencies, landowners; local officials (for public property)	Ongoing	# projects, # acres	Utilize existing & seek new cost share grants
Implement Firewise® & other community protection programs	Local officials, homeowner groups	Ongoing	# of programs established or expanded	NFS has staff available to help communities with this
Evaluate subdivision in/out access	Local officials, VFDs, developers	Ongoing	Report, cost estimates	Explore grant funding to address costs
Increase # of ignition-resistant buildings	Homeowners, planning officials	Ongoing	# New buildings to code; # bldgs. retrofitted	Retrofits can be costly; best opportunity is for new construction
Plan and implement fire & fuel breaks	Land managers, planning officials	Ongoing	# of vegetative breaks sited or established	Utilize federal, state, and local cost share programs
Expand water resources	Refer to R24 HMP	Ongoing	# water sources added or upgraded	Explore grant funding to address costs
<b>Increase Communications Effectiveness</b>				
Review local communications plans	Local and state officials	Annually	Document changes/updates	n/a
Ensure VFDs can communicate on the same radio band during mutual aid	Local and state officials	Ongoing	# VFD's using a common radio band during mutual aid operations	Limited by funding availability. Explore grant funding to address costs.
Ensure prompt notification and involvement process for assessment and assistance on fires	Local and state officials	Ongoing	Checklist/report	Opportunity to expedite response
<b>Increase Coordination Among Partners</b>				
Develop & adopt regional WUI standards	Local officials, VFDs; NFS can assist with WUI info	2021-2023	Creation of regional standards document; # of counties adopting it	Opportunity: HOAs can also adopt standards
Expand inter-jurisdictional cooperation	Local, state, federal officials	Ongoing	# of mutual aid agreements, # MOUs	Explore MOUs with non-traditional partners, NGOs
Facilitate VFD monitoring of fire weather system indices	VFDs, NFS	Ongoing	# of departments able to monitor indices	Limit: # of weather stations. Opportunity: Weather apps and spot weather forecasts can be used on the fireline.
Create a statewide "Mutual Aid Guide"	NFS, emergency managers, VFDs	2021-2022	Creation of document, # distributed	Having a guide in each engine enhances access to resources
Establish a region-wide public awareness program	Agencies, VFDs	2021-2023	# of participating entities; # of outreach activities	NFS can provide assistance
Engage partners to expand WUI fuels reduction and thinning	NFS, other agencies	Ongoing	# of participating entities, # of projects, # of acres treated	Leverage program effectiveness with multiple agencies, adjacent projects
Develop long-term multi-unit, multi-year fuel hazard reduction projects	Agencies	Ongoing	# of participating entities, # of projects, # of acres treated	Partners can co-locate projects to expand treated area on a landscape scale

## North Central Nebraska Community Wildfire Protection Plan

Task(s)	Who	When	Benchmark(s)	Opportunities/Limits
<b>Increase Data Availability</b>				
Identify and map restricted roads/ bridges	Local officials, contractors, others?	Ongoing	# of jurisdictions with restricted road/bridge maps	May be able to piggy back data collection with other tasks
Pre-identify potential staging locations	Local officials, VFDs, emergency managers	2021-2022	# of locations identified	Will expedite staging area placement decisions
Standardize map apps for use by VFDs	VFDs, emergency managers	Ongoing	# of VFD using a standard map app	Cost depends on software and version.
Establish lists of non-fire equipment such as road graders	Local officials, VFDs	Ongoing	# of jurisdictions with equipment lists created	Can be included in regional mutual aid guide
Acquire GIS layers for locating critical infrastructure, water sources, etc.	Local officials and planners	Ongoing	# of new layers created	Opportunity: Provide in a format that can be easily accessed by hand-held devices
<b>Enhance VFD Effectiveness and Safety</b>				
Increase fire response reporting	Fire chiefs	Ongoing	# of departments reporting	Opportunity for VFDs to acquire additional equipment
Increase/update fire equipment	VFDs, NFS	Ongoing	# of departments assisted, # of pieces/types of fire equipment obtained	VFDs can utilize NFS FEPP & FFP programs
Increase participation in firefighter training	VFDs, agencies	Ongoing	# of departments and firefighters receiving training	Many training options available through NFS & NEMA
Develop “triage” guidelines	VFDs, agencies	2021-2022	# documents created, # of VFDs using them	Increases firefighter safety by enabling quick property assessments during wildfires
<b>Increase Aerial Support Effectiveness</b>				
Train additional SEAT Base Managers	NFS, NEMA	Ongoing	# of new certified managers	Limitation: available personnel
Facilitate sharing managers with other states	NFS, NEMA	Ongoing	# of shared SEAT base managers	Helps trainees become qualified
Increase the number of aerial applicators within the region	NFS, NEMA	Ongoing	# of new applicators	Increases options for fires on non-federal lands
Sustain/increase cooperation & communication with adjacent states’ aviation resources	NFS, NEMA, neighboring state officials	Ongoing	# of new & renewed agreements; # of interstate assists	Will help ensure that neighboring jurisdictions are aware of available resources, times of planned contracted aviation availability, and enable sharing of resources across state borders
<b>Increase Public Awareness</b>				
News releases, workshops, seminars, etc.	Local officials, planners, VFDs	Ongoing	# of people reached, # of events	NFS has info & materials, can help with planning
Provide literature to homeowners, developers, others	Local officials, planners, VFDs	Ongoing	# of people reached	NFS has brochures & handouts for general use

# North Central Nebraska Community Wildfire Protection Plan

## Endnotes

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# North Central Nebraska Community Wildfire Protection Plan

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2. 2015 North Central Nebraska CWPP Update	
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1. Yellow Book: Emergency Assistance for Wildfire Control (link)	
2. Emergency Radio Frequencies and phone numbers for the North Central CWPP Region	



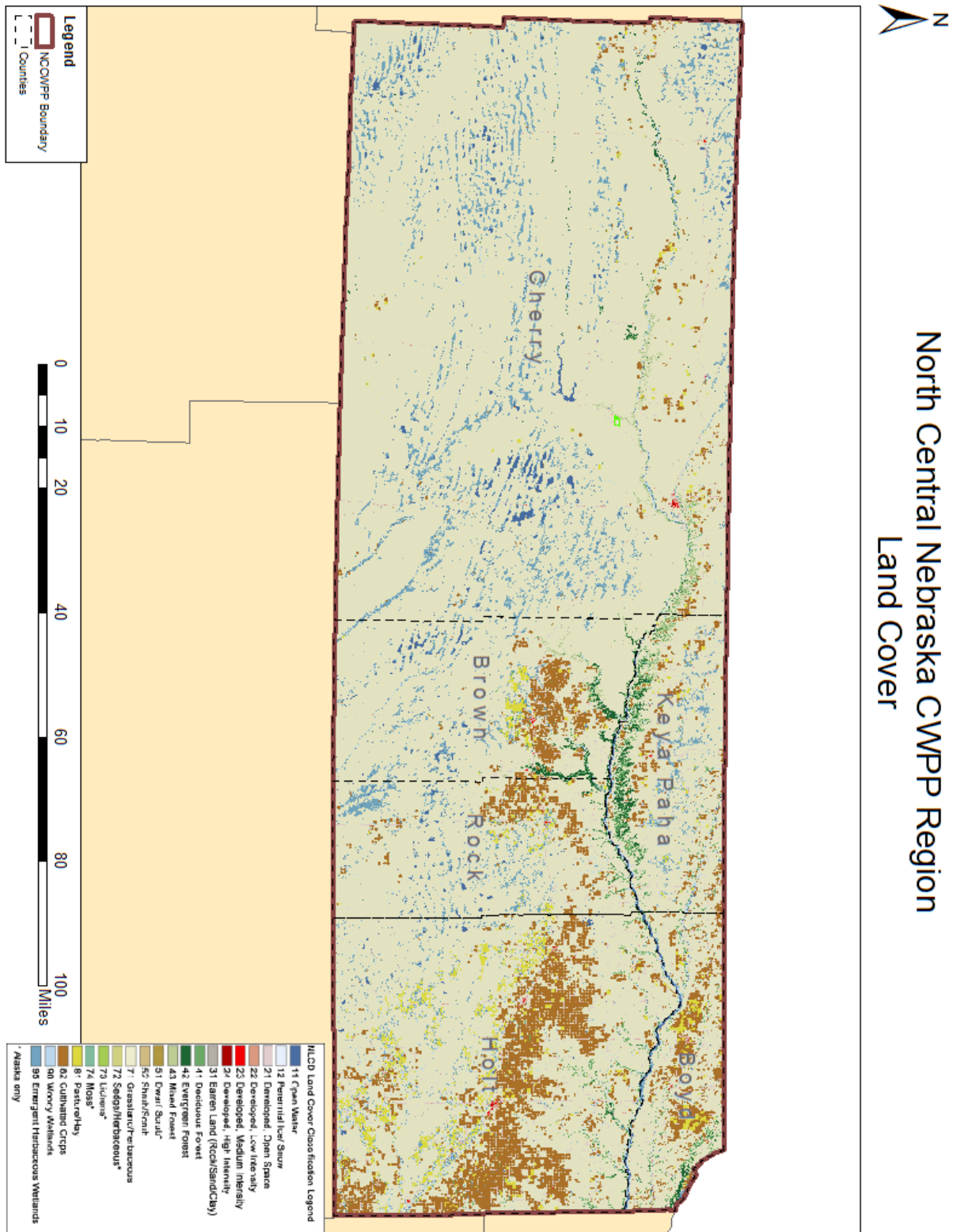
## Appendix A

### Maps

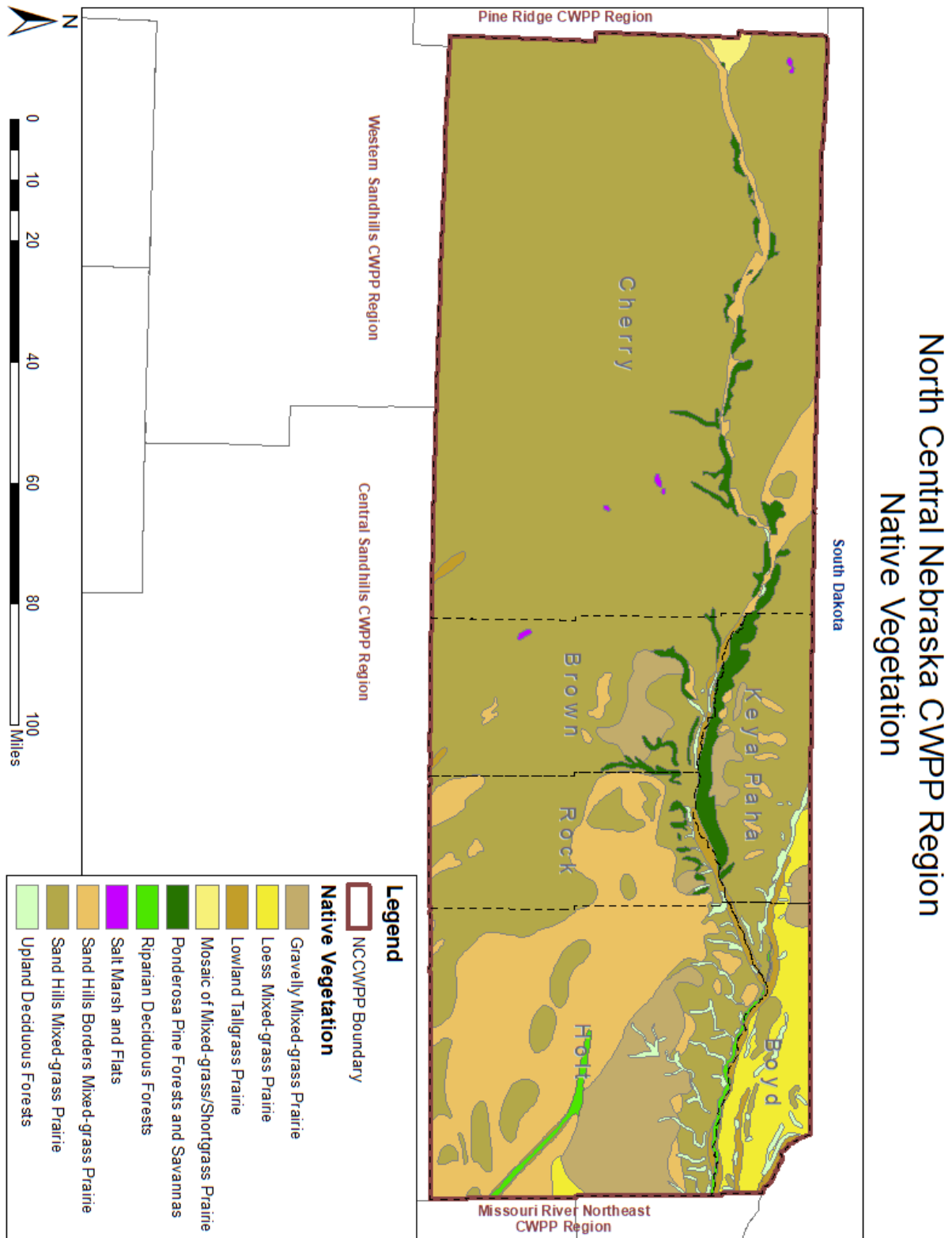
1. Nebraska CWPP Regions
2. North Central Nebraska Land Cover and Native Vegetation
3. Nebraska Natural Legacy Project: Biologically Unique Landscapes
4. Nebraska Local Emergency Management Areas
5. Nebraska Local Mitigation Planning Areas
6. North Central Nebraska CWPP Areas of Concern—West
7. North Central Nebraska CWPP Areas of Concern—East



Map 2a: North Central Nebraska CWPP Region Land Cover



Map 2b: North Central Nebraska CWPP Region Native Vegetation



## Map 3: Nebraska Natural Legacy Project: Biologically Unique Landscapes



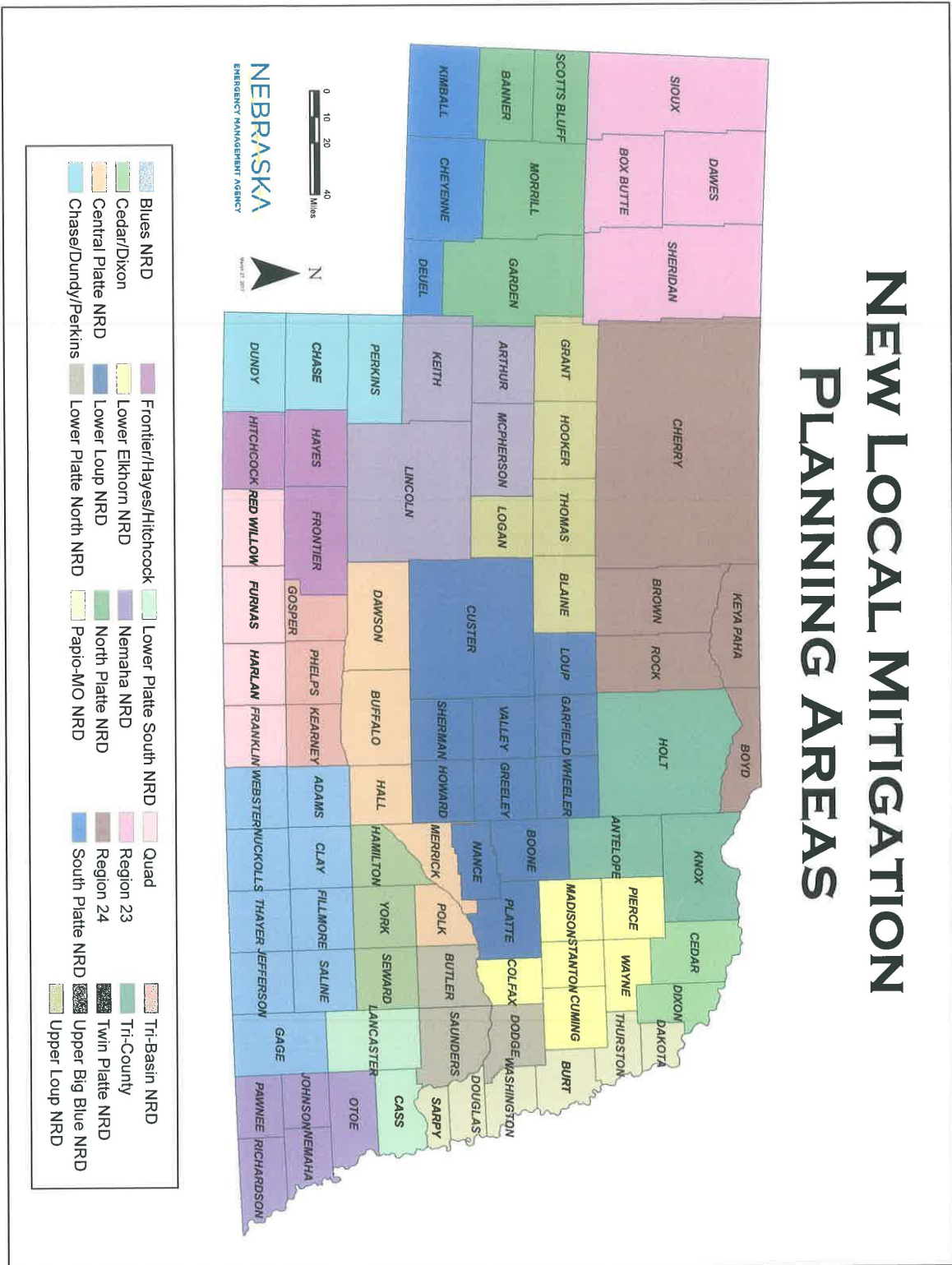
The full document is available at:

<http://outdoornebraska.gov/wp-content/uploads/2015/09/NebraskaNaturalLegacyProject2ndEdition.pdf>



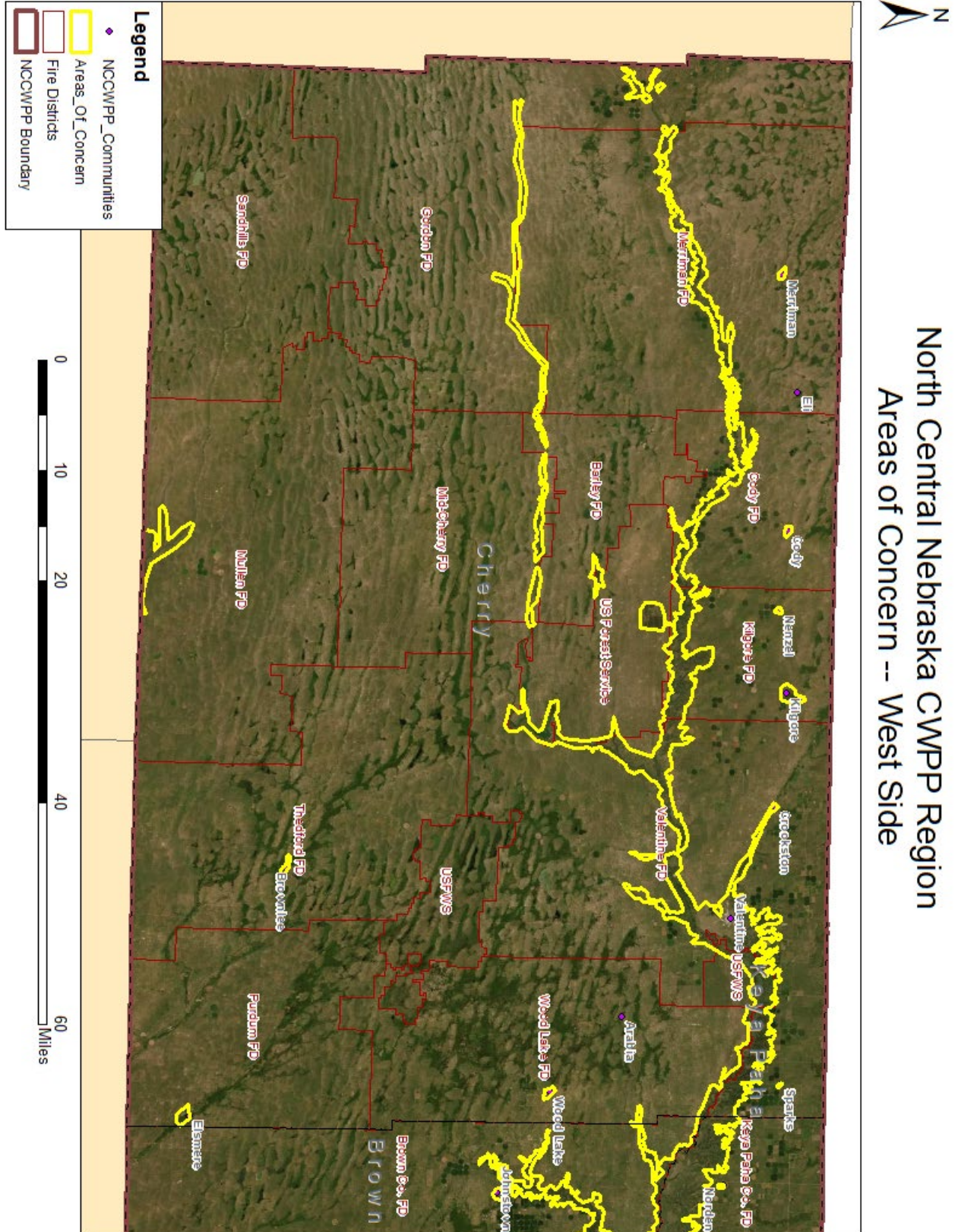


Map 5: Nebraska Local Mitigation Planning Areas



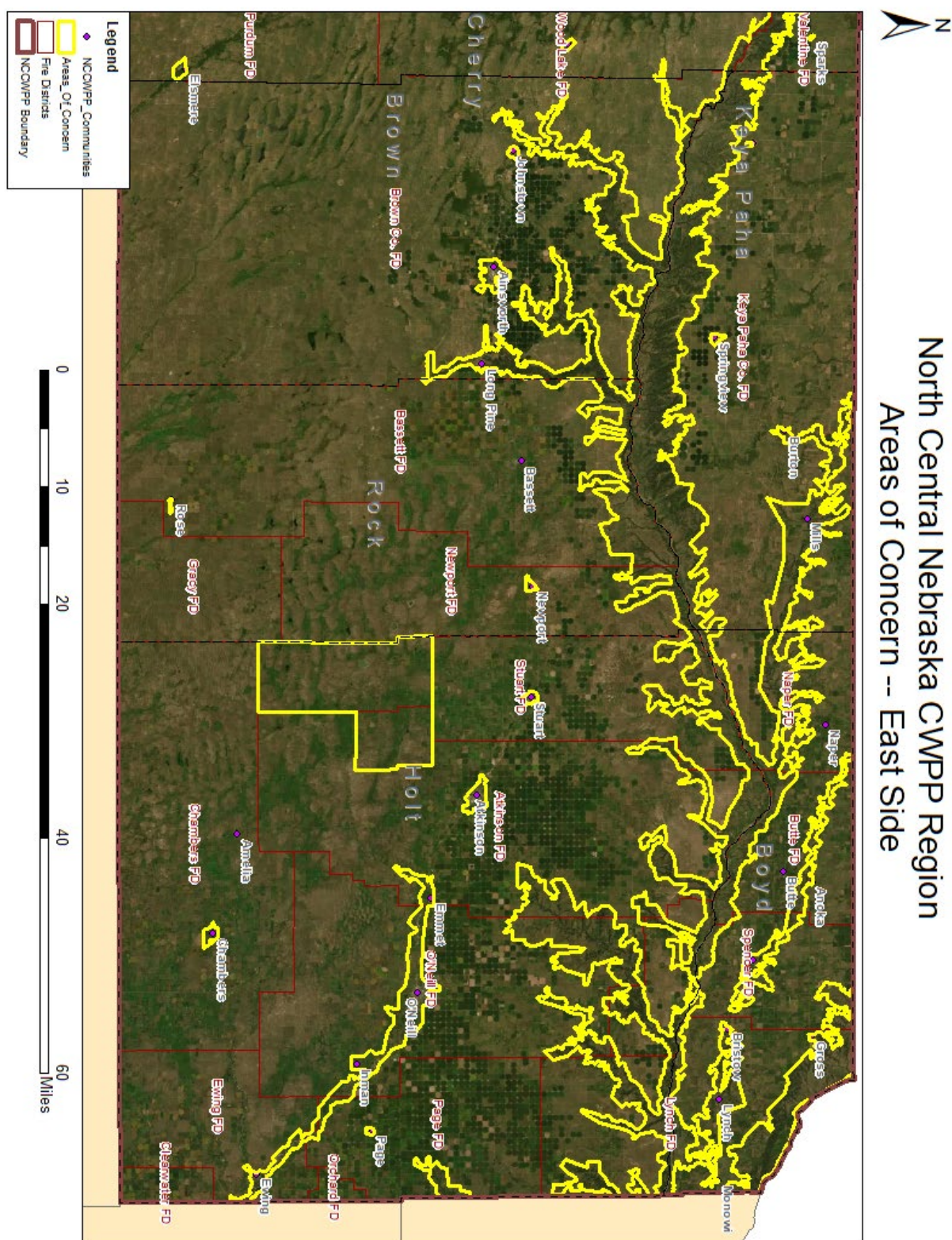


Map 6: North Central Nebraska CWPP Areas of Concern: West





## Map 7: North Central Nebraska CWPP Areas of Concern: East



## Appendix B

### Links to Other Planning Documents

*Due to their large file sizes, these documents are available only online*

#### 2009 Central Niobrara Watershed Fire Management Plan

(This plan is included in its entirety as Appendix A of the [2015 CWPP update](#), beginning on page 32)

#### 2015 North Central Nebraska CWPP Update

<https://nfs.unl.edu/documents/CWPP/NorthCentral.pdf>

(NFS Fuels Reduction prescription is in Appendix F, beginning on page 167)

#### Region 24 Multi-Jurisdictional Hazard Mitigation Plan

<https://jeo.com/sites/default/files/inline-files/Region-24-Final-Plan%28reduced%29.pdf>

#### Tri-County Multi-Jurisdictional Hazard Mitigation Plan (Holt)

[https://nfs.unl.edu/documents/CWPP/tricounty-HMP\\_Holt\\_Knox\\_Antelope.pdf](https://nfs.unl.edu/documents/CWPP/tricounty-HMP_Holt_Knox_Antelope.pdf)

#### Nebraska Forest Action Plan

<https://nfs.unl.edu/statewide-forest-action-plan>

#### Nebraska Natural Legacy Project

<http://outdoornebraska.gov/wp-content/uploads/2015/09/NebraskaNaturalLegacyProject2ndEdition.pdf>

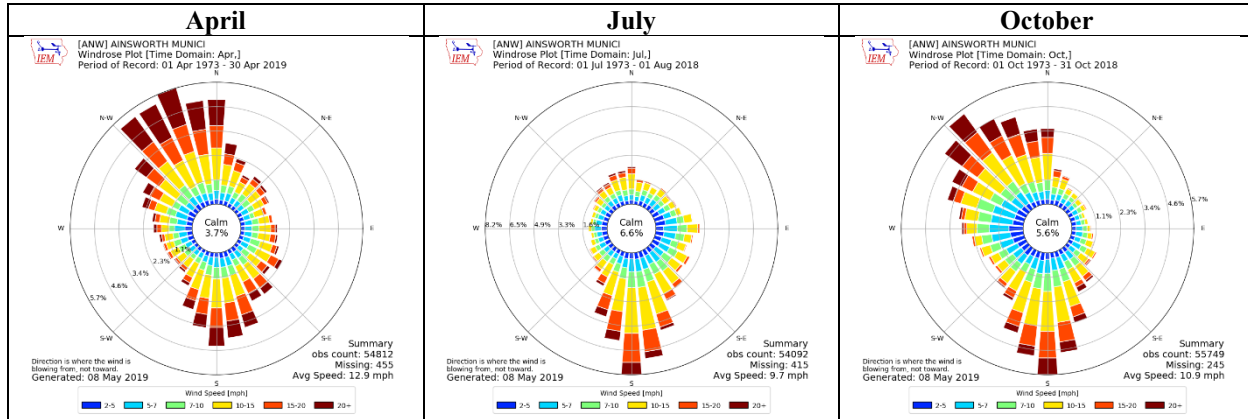
## Appendix C

### Wind Rosettes For Selected Stations in the North Central Nebraska CWPP Region

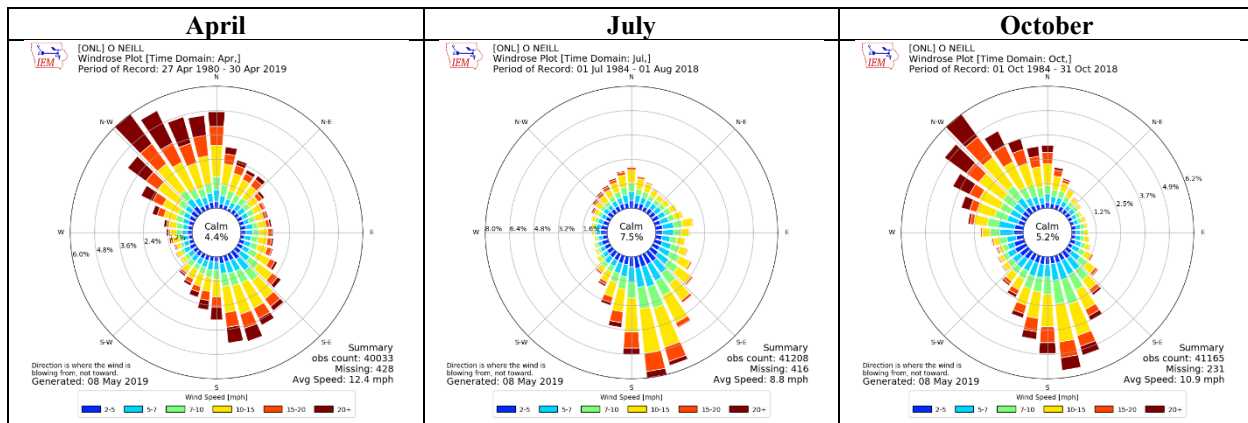
- a. Ainsworth
- b. O'Neill
- c. Valentine

# North Central Nebraska Community Wildfire Protection Plan

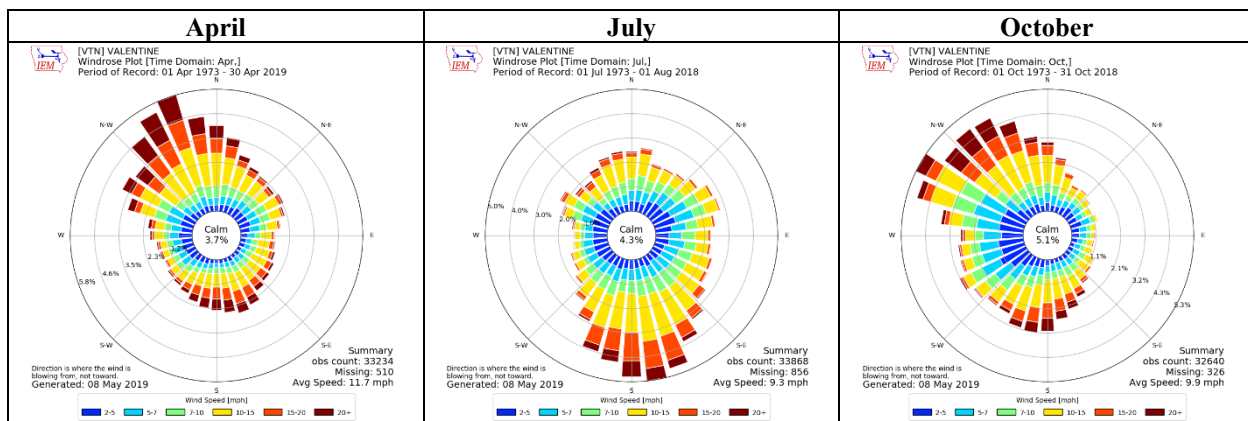
## Ainsworth, Nebraska Wind Direction and Speed 1973-2018



## O'Neill, Nebraska Wind Direction and Speed 1984-2018



## Valentine, Nebraska Wind Direction and Speed 1973-2018





## Appendix D

### Fuel Models for the North Central Nebraska CWPP Region

*Due to its length, the full Appendix D appears only in the online version of this document:*

<https://nfs.unl.edu/documents/CWPP/NCCWPP.pdf>



United States  
Department  
of Agriculture

Forest Service

Rocky Mountain  
Research Station

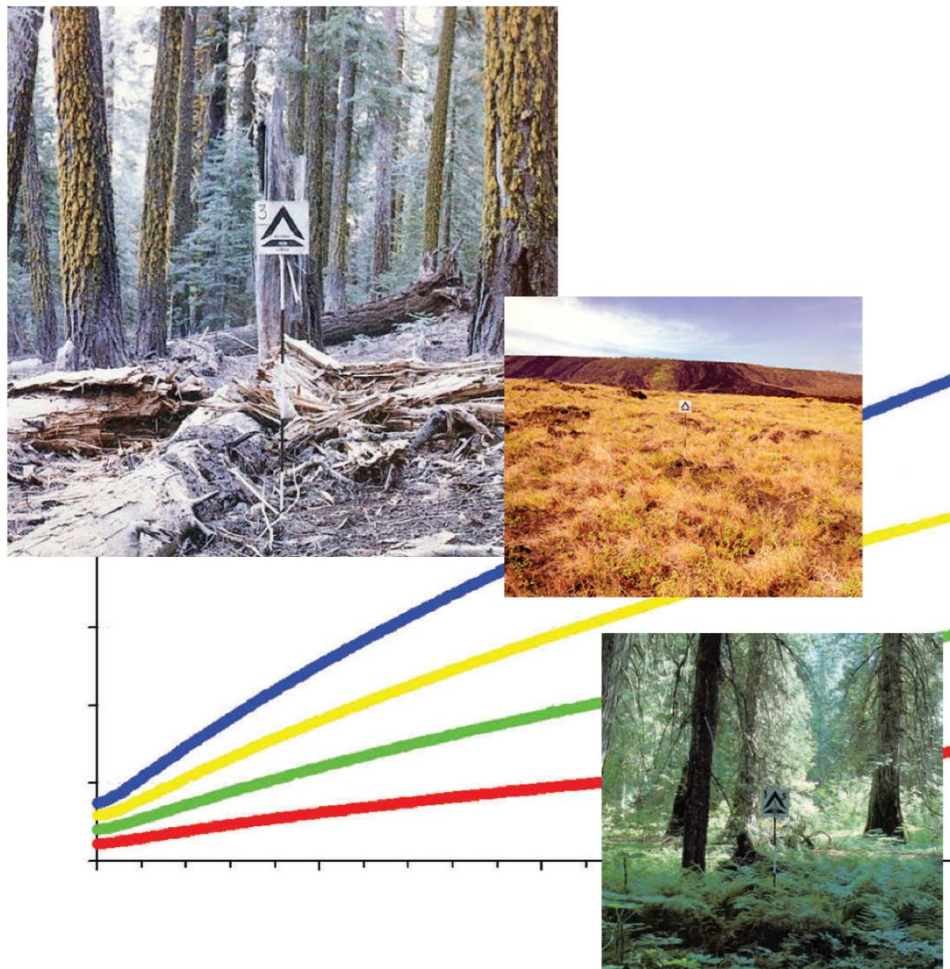
General Technical  
Report RMRS-GTR-153

June 2005



## Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model

Joe H. Scott  
Robert E. Burgan



# North Central Nebraska Community Wildfire Protection Plan

## Fuel Models

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In this section we list the fuel model parameters and describe each fuel model and fuel type.

### Fuel Model Parameters

Parameters of the new fuel models include load by class and component, surface-area-to-volume (SAV) ratio by class and component, fuel model type (static or dynamic), fuelbed depth, extinction moisture content, and fuel particle heat content (table 7). Fuel inputs not listed are constant for the entire set: 10-hr dead fuel SAV ratio is 109 l/ft, and 100-hr SAV ratio is 30 l/ft. Total fuel particle mineral content is 5.55 percent; effective (silica-free) mineral content is 1.00 percent. Oven-dry fuel particle density is 32 lb/ft<sup>3</sup>.

### Fuel Type Page

A fuel type page consists of a brief description of the fuel type followed by a pair of charts depicting predicted fire behavior over a range of midflame wind speeds, one for headfire spread rate and one for headfire flame length. These charts are for moisture scenario D2L2 (low dead fuel moisture, two-thirds cured live herbaceous, low live woody fuel moisture). The moisture contents by class and category are:

Dead 1-hr	6 percent
Dead 10-hr	7
Dead 100-hr	8
Live herbaceous	60 (2/3 cured)
Live woody	90

Use the charts to compare the relative behavior of the various models within a fuel type, but be aware that the relative behavior may be different at other moisture contents.

Fuel models with herbaceous load are sensitive to live herbaceous moisture content. The herbaceous fuel in moisture scenario D2L2 is two-thirds cured, which means that 67 percent of the herbaceous load is actually at the dead 1-hr moisture content, while the remaining 33 percent retains the 60 percent moisture content.



# North Central Nebraska Community Wildfire Protection Plan

**Table 7**—Fuel model parameters.

Fuel model code	Fuel load (t/ac)					Fuel model type <sup>a</sup>	SAV ratio (1/ft) <sup>b</sup>			Fuel bed depth (ft)	Dead fuel extinction moisture (percent)	Heat content BTU/lb) <sup>c</sup>
	1-hr	10-hr	100-hr	Live herb	Live woody		Dead 1-hr	Live herb	Live woody			
GR1	0.10	0.00	0.00	0.30	0.00	dynamic	2200	2000	9999	0.4	15	8000
GR2	0.10	0.00	0.00	1.00	0.00	dynamic	2000	1800	9999	1.0	15	8000
GR3	0.10	0.40	0.00	1.50	0.00	dynamic	1500	1300	9999	2.0	30	8000
GR4	0.25	0.00	0.00	1.90	0.00	dynamic	2000	1800	9999	2.0	15	8000
GR5	0.40	0.00	0.00	2.50	0.00	dynamic	1800	1600	9999	1.5	40	8000
GR6	0.10	0.00	0.00	3.40	0.00	dynamic	2200	2000	9999	1.5	40	9000
GR7	1.00	0.00	0.00	5.40	0.00	dynamic	2000	1800	9999	3.0	15	8000
GR8	0.50	1.00	0.00	7.30	0.00	dynamic	1500	1300	9999	4.0	30	8000
GR9	1.00	1.00	0.00	9.00	0.00	dynamic	1800	1600	9999	5.0	40	8000
GS1	0.20	0.00	0.00	0.50	0.65	dynamic	2000	1800	1800	0.9	15	8000
GS2	0.50	0.50	0.00	0.60	1.00	dynamic	2000	1800	1800	1.5	15	8000
GS3	0.30	0.25	0.00	1.45	1.25	dynamic	1800	1600	1600	1.8	40	8000
GS4	1.90	0.30	0.10	3.40	7.10	dynamic	1900	1600	1600	2.1	40	8000
SH1	0.25	0.25	0.00	0.15	1.30	dynamic	2000	1800	1600	1.0	15	8000
SH2	1.35	2.40	0.75	0.00	3.85	N/A	2000	9999	1600	1.0	15	8000
SH3	0.45	3.00	0.00	0.00	6.20	N/A	1600	9999	1400	2.4	40	8000
SH4	0.85	1.15	0.20	0.00	2.55	N/A	2000	1800	1600	3.0	30	8000
SH5	3.60	2.10	0.00	0.00	2.90	N/A	750	9999	1600	6.0	15	8000
SH6	2.90	1.45	0.00	0.00	1.40	N/A	750	9999	1600	2.0	30	8000
SH7	3.50	5.30	2.20	0.00	3.40	N/A	750	9999	1600	6.0	15	8000
SH8	2.05	3.40	0.85	0.00	4.35	N/A	750	9999	1600	3.0	40	8000
SH9	4.50	2.45	0.00	1.55	7.00	dynamic	750	1800	1500	4.4	40	8000
TU1	0.20	0.90	1.50	0.20	0.90	dynamic	2000	1800	1600	0.6	20	8000
TU2	0.95	1.80	1.25	0.00	0.20	N/A	2000	9999	1600	1.0	30	8000
TU3	1.10	0.15	0.25	0.65	1.10	dynamic	1800	1600	1400	1.3	30	8000
TU4	4.50	0.00	0.00	0.00	2.00	N/A	2300	9999	2000	0.5	12	8000
TU5	4.00	4.00	3.00	0.00	3.00	N/A	1500	9999	750	1.0	25	8000
TL1	1.00	2.20	3.60	0.00	0.00	N/A	2000	9999	9999	0.2	30	8000
TL2	1.40	2.30	2.20	0.00	0.00	N/A	2000	9999	9999	0.2	25	8000
TL3	0.50	2.20	2.80	0.00	0.00	N/A	2000	9999	9999	0.3	20	8000
TL4	0.50	1.50	4.20	0.00	0.00	N/A	2000	9999	9999	0.4	25	8000
TL5	1.15	2.50	4.40	0.00	0.00	N/A	2000	9999	1600	0.6	25	8000
TL6	2.40	1.20	1.20	0.00	0.00	N/A	2000	9999	9999	0.3	25	8000
TL7	0.30	1.40	8.10	0.00	0.00	N/A	2000	9999	9999	0.4	25	8000
TL8	5.80	1.40	1.10	0.00	0.00	N/A	1800	9999	9999	0.3	35	8000
TL9	6.65	3.30	4.15	0.00	0.00	N/A	1800	9999	1600	0.6	35	8000
SB1	1.50	3.00	11.00	0.00	0.00	N/A	2000	9999	9999	1.0	25	8000
SB2	4.50	4.25	4.00	0.00	0.00	N/A	2000	9999	9999	1.0	25	8000
SB3	5.50	2.75	3.00	0.00	0.00	N/A	2000	9999	9999	1.2	25	8000
SB4	5.25	3.50	5.25	0.00	0.00	N/A	2000	9999	9999	2.7	25	8000

<sup>a</sup> Fuel model type does not apply to fuel models without live herbaceous load.

<sup>b</sup> The value 9999 was assigned in cases where there is no load in a particular fuel class or category.

<sup>c</sup> The same heat content value was applied to both live and dead fuel categories.

# North Central Nebraska Community Wildfire Protection Plan

## Fuel Model Page

A fuel model page consists of:

- The three-part fuel model naming
- A set of three photos
- A brief description of the fuel model
- A summary of computed fuel model characteristics
- A pair of charts depicting fire behavior over a range of midflame wind speeds

Further details follow.

**Naming**—The fuel model code and number (in parentheses) are displayed on the first line, followed on the next line by the full fuel model name. The fuel model code is used for oral and written communication and for input to fire behavior models. The fuel model number is used internally by some fire behavior models and for mapping applications. The fuel model name is a brief description of the fuel model.

**Photos**—Up to three representative photos were selected to illustrate each fuel model. Conditions other than those illustrated may still be appropriate for the fuel model; use the photos as a general guide only.

**Description**—Main characteristics of each fuel model are briefly described.

**Summary characteristics**—Summary characteristics of each fuel model include fine fuel load, characteristic surface-area-to-volume ratio (SAV), packing ratio, and extinction moisture content.

Fine fuel load is defined as the dead 1-hr load plus the live herbaceous and live woody loads. Across the new set of 40 fuel models, fine fuel load ranges from 0.30 to 13.05 tons/acre.

Characteristic SAV is the average SAV across all fuel classes and categories, weighted by the surface area within each class and category. Characteristic SAV ranges from 1,144 to 2,216 1/ft in this new set of fuel models.

Packing ratio is the fraction of fuelbed volume that is occupied by fuel particles, a function of fuel load, fuelbed depth, and fuel particle density. In this fuel model set, packing ratio varies from 0.00143 to 0.04878 (dimensionless).

Extinction moisture content is the weighted average dead fuel moisture content at which the fire spread model predicts spread will not take place. More important, the amount by which the extinction moisture content exceeds the actual determines (in part) fire behavior. Thus, for a given dead fuel moisture content, predicted fire spread increases with increasing extinction moisture content.

**Fire behavior charts**—A pair of charts depicts predicted fire behavior (spread rate and flame length) for each fuel model over a range of midflame wind speeds. All predictions use live moisture scenario L2 (60 percent live herbaceous moisture content, 90 percent live woody), which corresponds to a two-thirds cured herbaceous fuelbed. The four lines on each chart refer to dead fuel moisture scenarios (table 3).

## Nonburnable Fuel Type Models (NB)

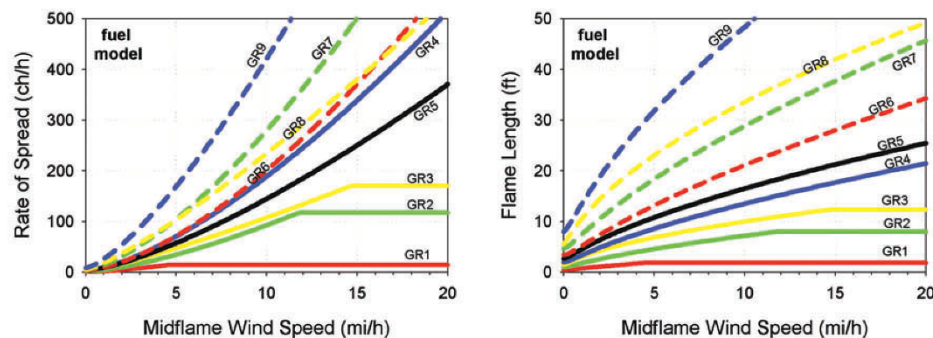
The nonburnable “fuel models” are included on the next five pages to provide consistency in how the nonburnable portions of the landscape are displayed on a fuel model map. In all NB fuel models there is no fuel load—wildland fire will not spread.

# North Central Nebraska Community Wildfire Protection Plan

## Grass Fuel Type Models (GR)

The primary carrier of fire in the GR fuel models is grass. Grass fuels can vary from heavily grazed grass stubble or sparse natural grass to dense grass more than 6 feet tall. Fire behavior varies from moderate spread rate and low flame length in the sparse grass to extreme spread rate and flame length in the tall grass models.

All GR fuel models are dynamic, meaning that their live herbaceous fuel load shifts from live to dead as a function of live herbaceous moisture content. The effect of live herbaceous moisture content on spread rate and intensity is strong.



# North Central Nebraska Community Wildfire Protection Plan

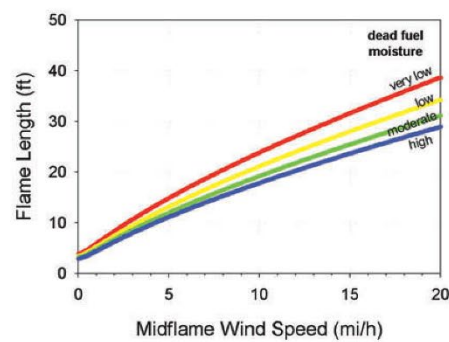
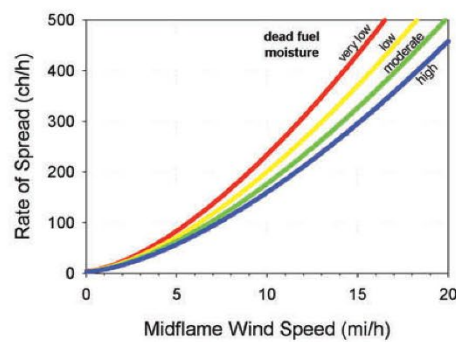
## GR6 (106)

### Moderate Load, Humid Climate Grass (Dynamic)



**Description:** The primary carrier of fire in GR6 is continuous humid-climate grass. Load is greater than GR5 but depth is about the same. Grass is less coarse than GR5.

Fine fuel load (t/ac)	3.5
Characteristic SAV (ft-1)	2006
Packing ratio (dimensionless)	0.00335
Extinction moisture content (percent)	40



# North Central Nebraska Community Wildfire Protection Plan

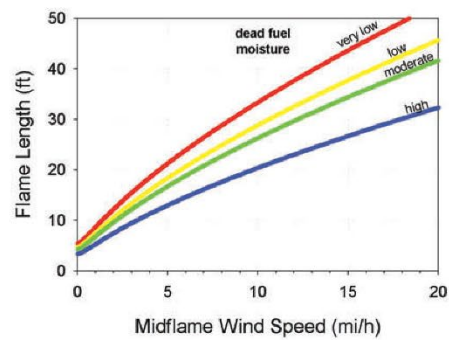
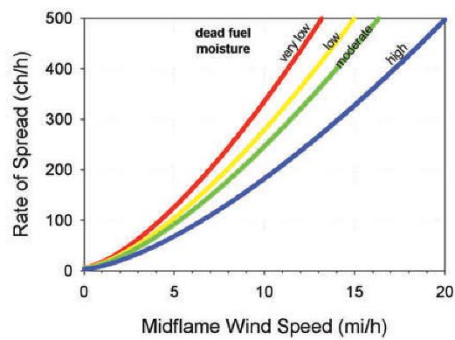
## GR7 (107)

### High Load, Dry Climate Grass (Dynamic)



**Description:** The primary carrier of fire in GR7 is continuous dry-climate grass. Load and depth are greater than GR4. Grass is about 3 feet tall.

Fine fuel load (t/ac)	6.4
Characteristic SAV (ft-1)	1834
Packing ratio (dimensionless)	0.00306
Extinction moisture content (percent)	15

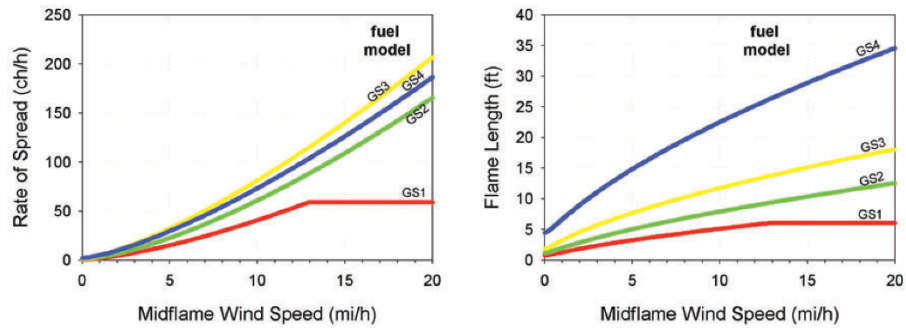


# North Central Nebraska Community Wildfire Protection Plan

## Grass-Shrub Fuel Type Models (GS)

The primary carrier of fire in the GS fuel models is grass and shrubs combined; both components are important in determining fire behavior.

All GS fuel models are dynamic, meaning that their live herbaceous fuel load shifts from live to dead as a function of live herbaceous moisture content. The effect of live herbaceous moisture content on spread rate and intensity is strong and depends on the relative amount of grass and shrub load in the fuel model.



# North Central Nebraska Community Wildfire Protection Plan

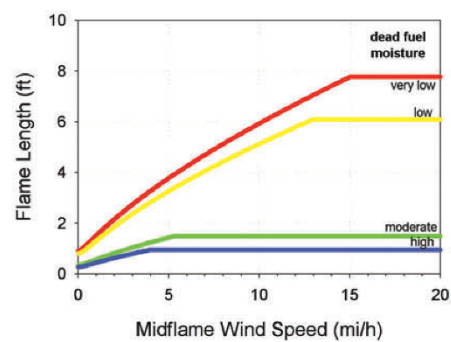
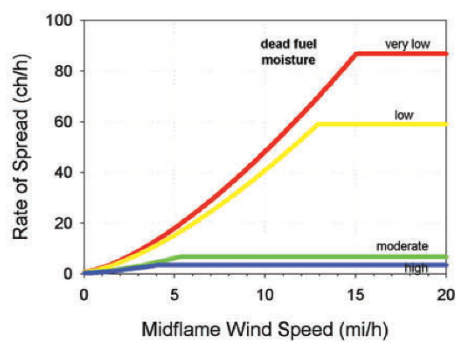
## GS1 (121)

### Low Load, Dry Climate Grass-Shrub (Dynamic)



**Description:** The primary carrier of fire in GS1 is grass and shrubs combined. Shrubs are about 1 foot high, grass load is low. Spread rate is moderate; flame length low. Moisture of extinction is low.

Fine fuel load (t/ac)	1.35
Characteristic SAV (ft-1)	1832
Packing ratio (dimensionless)	0.00215
Extinction moisture content (percent)	15





# North Central Nebraska Community Wildfire Protection Plan

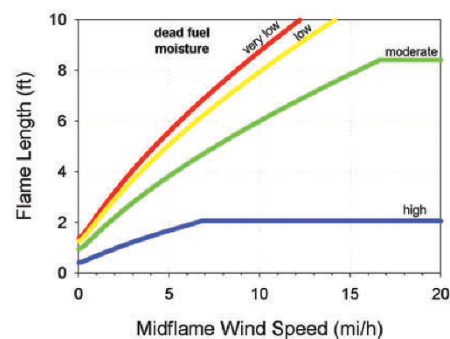
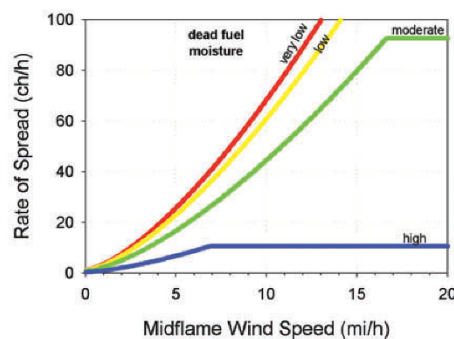
## GS2 (122)

### *Moderate Load, Dry Climate Grass-Shrub (Dynamic)*



**Description:** The primary carrier of fire in GS2 is grass and shrubs combined. Shrubs are 1 to 3 feet high, grass load is moderate. Spread rate is high; flame length moderate. Moisture of extinction is low.

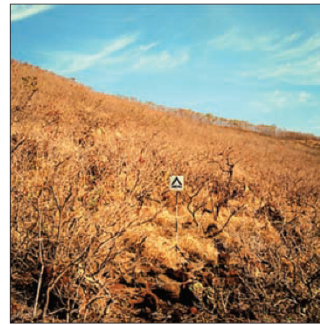
Fine fuel load (t/ac)	2.1
Characteristic SAV (ft-1)	1827
Packing ratio (dimensionless)	0.00249
Extinction moisture content (percent)	15



# North Central Nebraska Community Wildfire Protection Plan

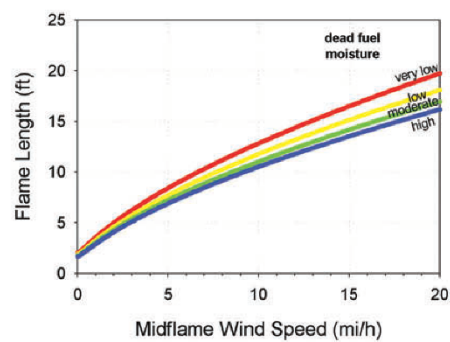
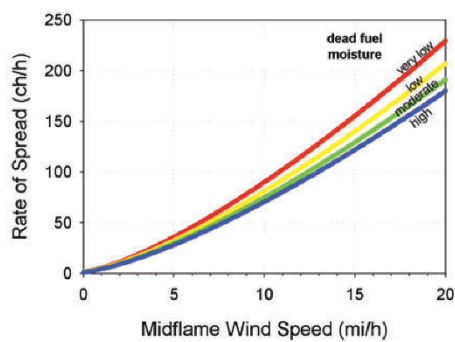
## GS3 (123)

### *Moderate Load, Humid Climate Grass-Shrub (Dynamic)*



**Description:** The primary carrier of fire in GS3 is grass and shrubs combined. Moderate grass/shrub load, average grass/shrub depth less than 2 feet. Spread rate is high; flame length moderate. Moisture of extinction is high.

Fine fuel load (t/ac)	3.0
Characteristic SAV (ft-1)	1614
Packing ratio (dimensionless)	0.00259
Extinction moisture content (percent)	40



# North Central Nebraska Community Wildfire Protection Plan

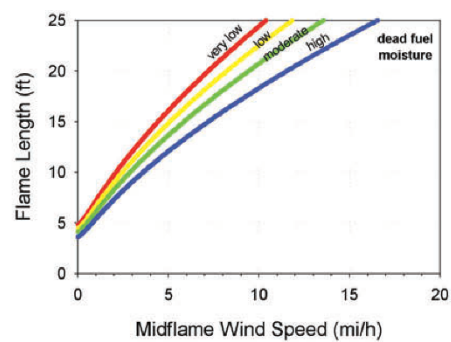
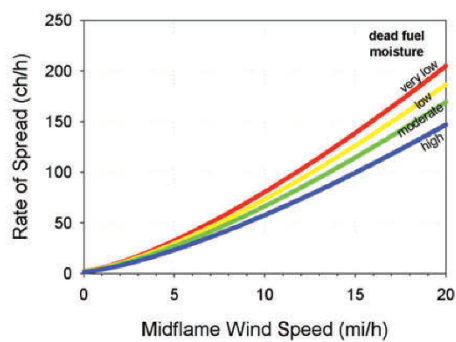
## GS4 (124)

### High Load, Humid Climate Grass-Shrub (Dynamic)



**Description:** The primary carrier of fire in GS4 is grass and shrubs combined. Heavy grass/shrub load, depth greater than 2 feet. Spread rate high; flame length very high. Moisture of extinction is high.

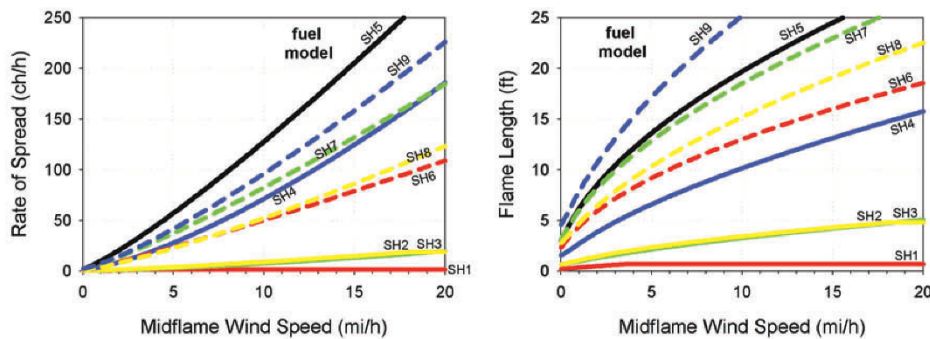
Fine fuel load (t/ac)	12.4
Characteristic SAV (ft-1)	1674
Packing ratio (dimensionless)	0.00874
Extinction moisture content (percent)	40



# North Central Nebraska Community Wildfire Protection Plan

## Shrub Fuel Type Models (SH)

The primary carrier of fire in the SH fuel models is live and dead shrub twigs and foliage in combination with dead and down shrub litter. A small amount of herbaceous fuel may be present, especially in SH1 and SH9, which are dynamic models (their live herbaceous fuel load shifts from live to dead as a function of live herbaceous moisture content). The effect of live herbaceous moisture content on spread rate and flame length can be strong in those dynamic SH models.



# North Central Nebraska Community Wildfire Protection Plan

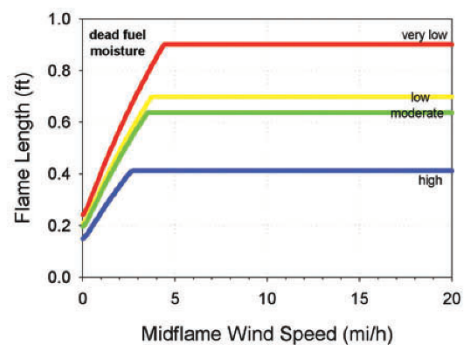
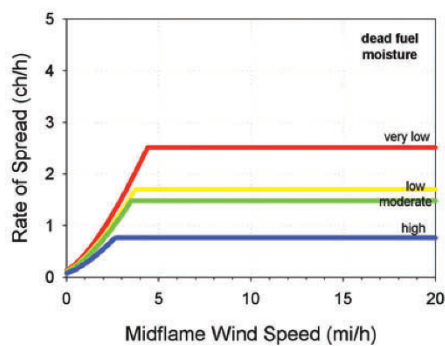
## SH1 (141)

### Low Load Dry Climate Shrub (Dynamic)



**Description:** The primary carrier of fire in SH1 is woody shrubs and shrub litter. Low shrub fuel load, fuelbed depth about 1 foot; some grass may be present. Spread rate is very low; flame length very low.

Fine fuel load (t/ac)	1.7
Characteristic SAV (ft-1)	1674
Packing ratio (dimensionless)	0.00280
Extinction moisture content (percent)	15



# North Central Nebraska Community Wildfire Protection Plan

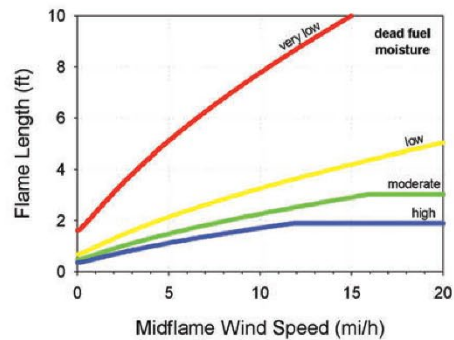
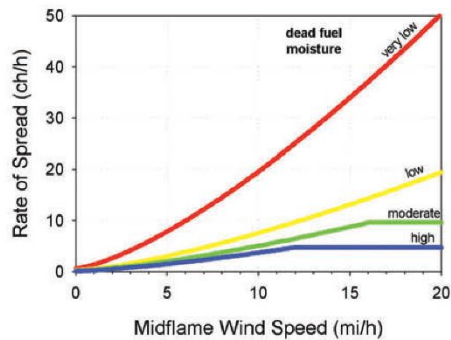
## SH2 (142)

### Moderate Load Dry Climate Shrub



**Description:** The primary carrier of fire in SH2 is woody shrubs and shrub litter. Moderate fuel load (higher than SH1), depth about 1 foot, no grass fuel present. Spread rate is low; flame length low.

Fine fuel load (t/ac)	5.2
Characteristic SAV (ft-1)	1672
Packing ratio (dimensionless)	0.01198
Extinction moisture content (percent)	15





# North Central Nebraska Community Wildfire Protection Plan

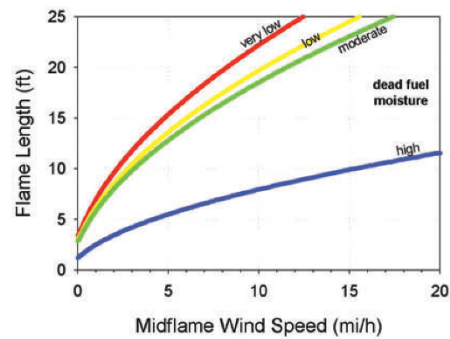
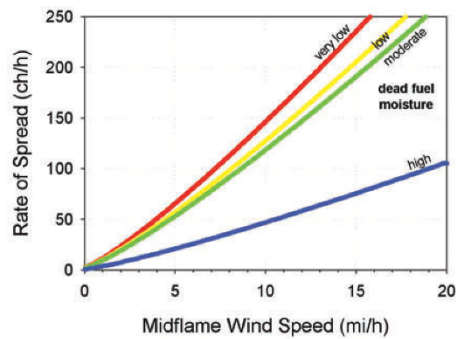
## SH5 (145)

### High Load, Dry Climate Shrub



**Description:** The primary carrier of fire in SH5 is woody shrubs and shrub litter. Heavy shrub load, depth 4-6 feet. Spread rate very high; flame length very high. Moisture of extinction is high.

Fine fuel load (t/ac)	6.5
Characteristic SAV (ft-1)	1252
Packing ratio (dimensionless)	0.00206
Extinction moisture content (percent)	15

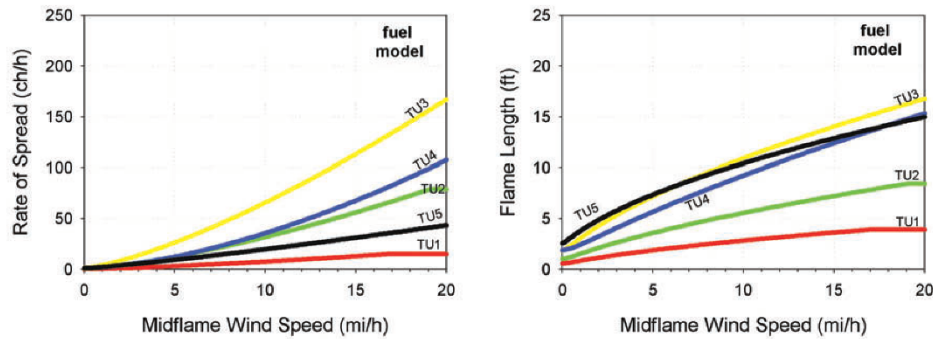




# North Central Nebraska Community Wildfire Protection Plan

## Timber-Understory Fuel Type Models (TU)

The primary carrier of fire in the TU fuel models is forest litter in combination with herbaceous or shrub fuels. TU1 and TU3 contain live herbaceous load and are dynamic, meaning that their live herbaceous fuel load is allocated between live and dead as a function of live herbaceous moisture content. The effect of live herbaceous moisture content on spread rate and intensity is strong and depends on the relative amount of grass and shrub load in the fuel model.



# North Central Nebraska Community Wildfire Protection Plan

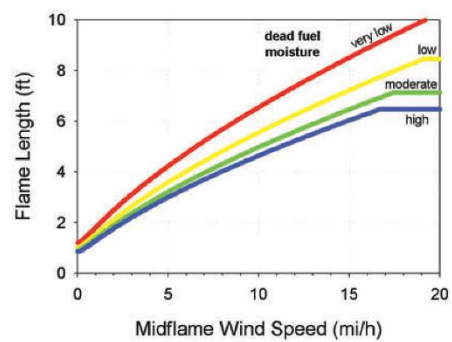
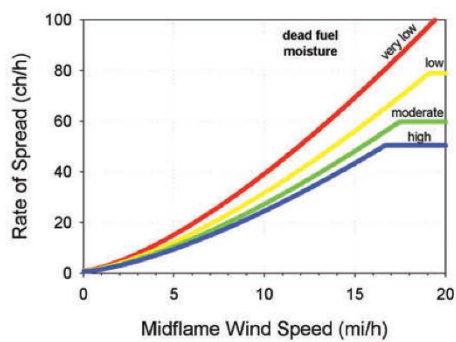
## TU2 (162)

### Moderate Load, Humid Climate Timber-Shrub



**Description:** The primary carrier of fire in TU2 is moderate litter load with shrub component. High extinction moisture. Spread rate is moderate; flame length low.

Fine fuel load (t/ac)	1.15
Characteristic SAV (ft-1)	1767
Packing ratio (dimensionless)	0.00603
Extinction moisture content (percent)	30



# North Central Nebraska Community Wildfire Protection Plan

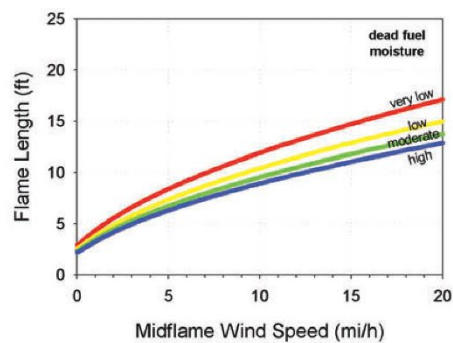
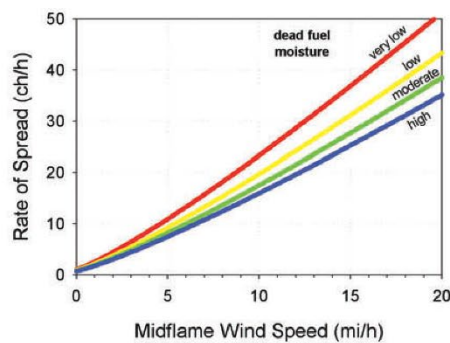
## TU5 (165)

### Very High Load, Dry Climate Timber-Shrub



**Description:** The primary carrier of fire in TU5 is heavy forest litter with a shrub or small tree understory. Spread rate is moderate; flame length moderate.

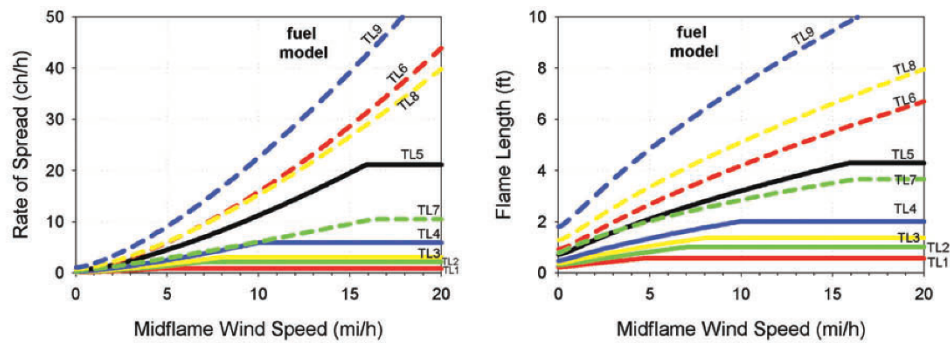
Fine fuel load (t/ac)	7.0
Characteristic SAV (ft-1)	1224
Packing ratio (dimensionless)	0.02009
Extinction moisture content (percent)	25



# North Central Nebraska Community Wildfire Protection Plan

## Timber Litter Fuel Type Models (TL)

The primary carrier of fire in the TL fuel models is dead and down woody fuel. Live fuel, if present, has little effect on fire behavior.



# North Central Nebraska Community Wildfire Protection Plan

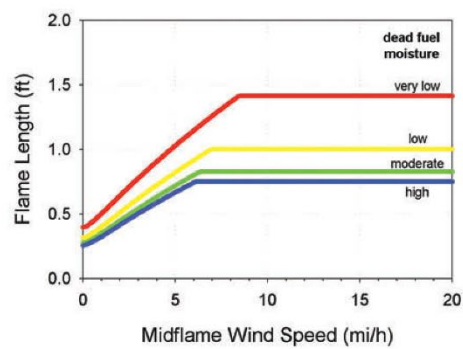
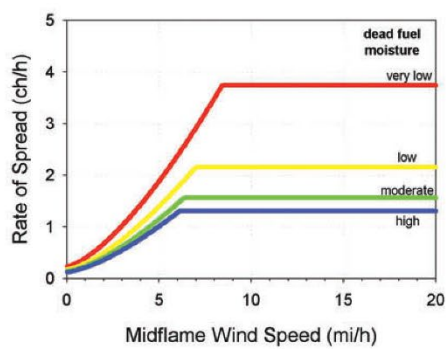
## TL2 (182)

### Low Load Broadleaf Litter



**Description:** The primary carrier of fire in TL2 is broadleaf (hardwood) litter. Low load, compact broadleaf litter. Spread rate is very low; flame length very low.

Fine fuel load (t/ac)	1.4
Characteristic SAV (ft-1)	1806
Packing ratio (dimensionless)	0.04232
Extinction moisture content (percent)	25





# North Central Nebraska Community Wildfire Protection Plan

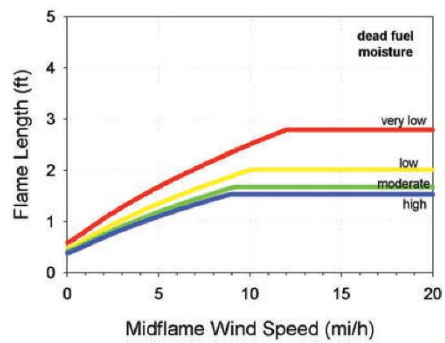
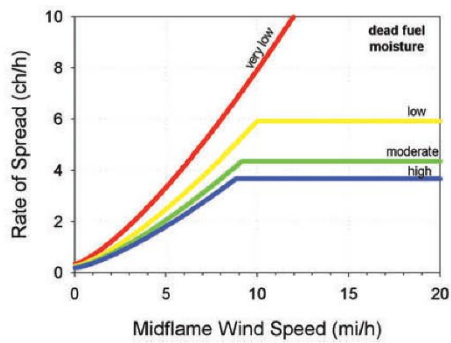
## TL4 (184)

### Small downed logs



**Description:** The primary carrier of fire in TL4 is moderate load of fine litter and coarse fuels. Includes small diameter downed logs. Spread rate is low; flame length low.

Fine fuel load (t/ac)	0.50
Characteristic SAV (ft-1)	1568
Packing ratio (dimensionless)	0.02224
Extinction moisture content (percent)	25



# North Central Nebraska Community Wildfire Protection Plan

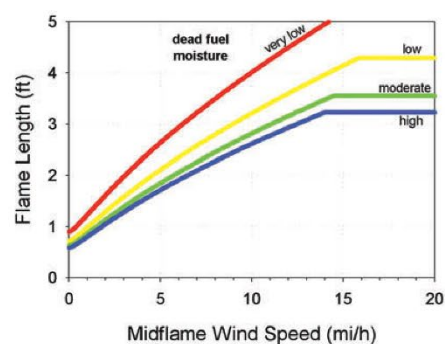
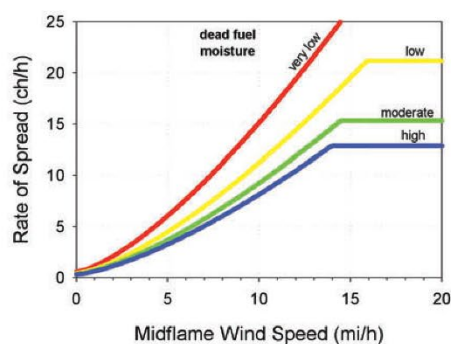
## TL5 (185)

### High Load Conifer Litter



**Description:** The primary carrier of fire in TL5 is high load conifer litter; light slash or mortality fuel. Spread rate is low; flame length low.

Fine fuel load (t/ac)	1.15
Characteristic SAV (ft-1)	1713
Packing ratio (dimensionless)	0.01925
Extinction moisture content (percent)	25





# North Central Nebraska Community Wildfire Protection Plan

## Appendix E

### Nebraska Mutual Aid Associations

Updated 7/8/2020

#### **3 & 33 MA**

Adams, Barneston, Beatrice, Beatrice RFD, Blue Springs, Clatonia, Cortland, Dewitt, Diller, Fairbury RFD, Filley, Jansen, Odell, Pickrell, Plymouth, Swanton, Wymore

#### **40 - 12 MA**

Bloomfield, Brunswick, Creighton, Crofton, Magnet, Neligh, Niobrara, Orchard, Osmond, Page, Pierce, Plainview, Santee, Verdigre, Wausa

#### **Big 8 MA**

Bellwood, Columbus, David City, Duncan, Osceola, Rising City, Shelby, Stromsburg

#### **Big 9 MA**

Belden, Carroll, Coleridge, Concord, Crofton, Dixon, Fordyce, Hartington, Laurel, Magnet, Newcastle, Randolph, Wynot, Wausa

#### **Boyd/Holt Counties MA**

Atkinson, Bartlett, Bristow, Butte, Chambers, Ewing, Lynch, Naper, O'Neill, Page, Spencer, Stuart

#### **Buffalo County MA**

Amherst, Elm Creek, Gibbon, Kearney, Miller, Pleasanton, Ravenna, Shelton, Buffalo Co. Sheriff's Dept., Kearney Police Dept., Buffalo County EM, Good Samaritan Hospital EMS

#### **Burt County MA**

Craig, Decatur, Lyons, Oakland, Tekamah

#### **Butler Co. MA**

Abie, Bellwood, Brainerd, Bruno, David City, Dwight, Linwood, Rising City, Ulysses

#### **Cass Co. MA**

Alvo, Ashland, Avoca, Cedar Creek, Eagle, Elmwood, Greenwood, Louisville, Murdock, Murray, Nehawka, Plattsmouth, Union, Weeping Water

#### **Central Nebraska MA**

Ansley, Eddyville, Mason City, Miller, Oconto, Sumner

#### **Central Nebraska Volunteer Fire Association MA**

Alma, Amherst, Arapahoe, Axtell, Bertrand, Elm Creek, Franklin, Funk, Gibbon, Hildreth, Holdrege, Kearney, Loomis, Miller, Minden, Naponee, Orleans, Overton, Oxford, Red Cloud, Republican City, Stamford, Upland, Wilcox

#### **Central Panhandle MA**

Alliance, Banner Co., Bayard, Bridgeport, Broadwater, Dalton, Gurley, Heart of the Hills, Lisco/Garden Co., Oshkosh/Garden Co., Rackett, USFWS NP Refuge

#### **Cherry County MA**

Ainsworth, Barley RFD, Cody, Colome SD, Kilgore, Merriman, Mid-Cherry RFD, Mission SD, Mullen, St. Francis SD, Thedford, US Fish and Wildlife, US Forest Service, Valentine, White River SD, Wood Lake

#### **Colfax County MA**

Clarkson, Howells, Leigh, Schuyler

#### **Cuming County MA**

Bancroft, Beemer, Pilger, West Point, Wisner

#### **Custer County MA**

Anselmo, Ansley, Arnold, Broken Bow, Callaway, Comstock, Mason City, Merna, Oconto, Sargent

#### **Dodge County MA**

Dodge, Fremont, Fremont Rural, Hooper, Nickerson, North Bend, Scribner, Snyder, Uehling

# North Central Nebraska Community Wildfire Protection Plan

## **Elkhorn Valley MA**

Battle Creek, Carroll, Hadar, Hoskins, Madison, Meadow Grove, Norfolk, Pierce, Stanton, Wayne, Winside

## **Fillmore County MA**

Bruning, Exeter, Fairmont, Geneva, Grafton, McCool Junction, Milligan, Ohioa, Shickley, Sutton

## **Frenchman Valley MA**

Bartley, Beaver Valley (Danbury & Lebanon), Benkelman, Culbertson, Curtis, Haigler, Hayes Center, Imperial, Indianola, Lamar, Maywood/Wellfleet, McCook, Palisade, Red Willow Western, Stratton, Trenton, Wallace, Wauneta

## **Hamilton County MA**

Aurora, Giltner, Hampton, Hordville, Marquette, Phillips, Hamilton County EMS

## **Hastings Area MA**

Ayr (Hastings RFD), Bladen, Blue Hill, Campbell, Central Community College, Edgar, Fairfield, Glenville, Harvard, Hastings, Hastings CD, Holstein, Juniata, Kenesaw, Lawrence, Hruska MARC, Roseland, Trumbull

## **KBR&C MA**

Ainsworth, Bassett, Calamus, Johnstown, Long Pine, Newport, Raven, Springview, Wood Lake

## **Lancaster County MA**

Alvo, Ashland, Bennet, Ceresco, Clatonia, Cortland, Crete, Douglas, Eagle, Firth, Greenwood, Hallam, Hickman, Lincoln, Malcolm, NE Air Guard, Palmyra, Pleasant Dale, Raymond, Rural Metro, Southeast RFD, Southwest RFD, Valparaiso, Waverly

## **Loup Platte MA**

Arcadia, Ashton, Litchfield, Loup City, Ravenna, Rockville

## **Loup Platte #2 MA**

Central City, Chapman, Clarks, Fullerton, Hordville, Marquette, Osceola, Palmer, Polk, Shelby, Silver Creek, Stromsburg

## **Loup Valley MA**

Arcadia, Bartlett, Burwell, Elba, Ericson, Greeley, North Loup, Ord, Primrose, Scotia, Spalding, Wolbach

## **Mid-Nebraska MA**

Albion, Belgrade, Cedar Rapids, Columbus, Columbus RFD, Creston, Duncan, Fullerton, Genoa, Humphrey, Leigh, Lindsay, Madison, Monroe, Newman Grove, Platte Center, Silver Creek, St. Edward

## **Mid Plains MA**

Arnold, Brady, Curtis, Hershey, Maywood, Maxwell, North Platte, Stapleton, Sutherland, Tyron, Wallace, Wellfleet

## **Nemaha County MA**

Brock FD, Brownville FD / Rescue, Johnson FD, Julian FD, Nemaha FD / Rescue, Peru FD / Rescue, Nemaha County Emergency Management, Cooper Nuclear Station, Auburn Police Dept., Nemaha County Sheriff's Office

## **Northeast MA**

Allen, Bancroft, Concord, Dakota City, Dixon, Emerson, Homer, Martinsburg, Newcastle, Pender, Ponca, Rosalie, South Sioux City, Thurston, Wakefield, Walthill, Wayne, Winnebago

## **Northeast Fireman's Association**

Antelope Co., Burt Co., Butler Co., Cedar Co., Colfax Co., Cuming Co., Dakota Co., Dixon Co., Dodge Co., Douglas Co., Knox Co., Madison Co., Pierce Co., Platte Co., Stanton Co., Sarpy Co., Thurston Co., Washington Co., Wayne Co., Saunders Co.

## **Otoe County MA**

Burr, Cook, Douglas, Dunbar, Nebraska City, Otoe, Palmyra, Syracuse, Talmage, Unadilla

## **Phelps County MA:** Bertrand, Funk, Holdrege, Holdrege RFD, Loomis

## **Pine Ridge MA**

Alliance, Ardmore SD, Chadron, Crawford, Gordon, Harrison, Hay Springs, Hemingford, Merriman, Rushville, US Forest Service

# North Central Nebraska Community Wildfire Protection Plan

## **Platte Valley MA (was GI Area MA)**

Alda, Cairo, Chapman, Doniphan, Grand Island, Grand Island SFD, Phillips, Wood River

## **Quad Cities MA**

Alma, Axtell, Bloomington, Campbell, Franklin, Hildreth, Minden, Naponee, Republican City, Riverton, Upland, Wilcox, Kearney County EMA

## **Richardson County MA**

Dawson, Falls City, Falls City RFD, Humboldt, Rulo, Salem, Shubert, Stella, Verdon

## **Saline County MA**

Crete, DeWitt, Dorchester, Friend, Swanton, Tobias, Western, Wilbur, Saline County Sheriff, Saline County Emergency Management

## **Sandhills MA**

Anselmo, Arnold, Arthur, Brewster, Dunning, Halsey, Hyannis, Keystone-Lemoyne, McPherson Co., Mid-Cherry, Mullen, Purdum, Stapleton, Thedford, US Fish & Wildlife, US Forest Service

## **Saunders County MA**

Ashland, Cedar Bluffs, Ceresco, Colon, Ithaca, Malmo, Mead, Morse Bluff, Prague, Valparaiso, Wahoo, Weston, Yutan

## **Scottsbluff County MA**

Banner Co., Gering, Henry, Lyman, McGrew, Minatare-Melbeta, Mitchell, Morrill, Scottsbluff, Scottsbluff RFD, Scottsbluff Co. Airport, Torrington WY, US Fish & Wildlife Service

## **Seward County MA**

Beaver Crossing, Bee, Cordova, Garland, Goehner, Milford, Pleasant Dale, Seward, Staplehurst, Tamora, Utica

## **South Central Nebraska MA**

Brady, Cozad, Curtis, Elwood, Eustis, Farnam, Gothenburg, Johnson Lake EMS, Lexington, Overton

## **South Central #2 MA**

Clay Center, Davenport, Edgar, Fairfield, Glenvil, Hardy, Lawrence, Nelson, Ong, Ruskin, Shickley, Superior, Sutton, Clay County EM

## **Southeast MA**

Adams, Burchard, Cook, Du Bois, Elk Creek, Johnson, Pawnee City, Steinauer, Sterling, Summerfield (KS), Table Rock, Tecumseh

## **Southwest MA**

Arthur, Big Springs, Blue Creek, Brule, Chappell, Elsie, Grant, Imperial, Keystone-Lemoyne, Lamar, Lisco, Madrid, Ogallala, Oshkosh, Paxton, Sutherland, Venango, Wallace

## **Stateline MA**

Bladen, Blue Hill, Campbell, Guide Rock, Lawrence, Red Cloud, Riverton, Superior

## **Thayer County MA**

Alexandria, Belvidere, Bruning, Byron, Carlton, Chester, Davenport, Deshler, Eustis, Gilead, Hebron, Hubbell

## **Tri-Mutual Aid**

Arlington, Bellevue, Bennington, Blair, Boys Town, Carter Lake, Cedar Bluffs, Elkhorn, Eppler Airport, Fremont, Ft. Calhoun, Gretna, Irvington, Kennard, LaVista, Louisville, Millard, Offutt AFB, Omaha FD, Papillion, Plattsmouth, Ponca Hills, Ralston, Springfield, Valley, Waterloo, Yutan

## **Tri-Valley MA**

Arapahoe, Bartley, Beaver City, Cambridge, Edison, Holbrook, Oxford, Stamford, Wilsonville

## **Twin Loups MA**

Ashton, Boelus, Dannebrog, Elba, Farwell, Rockville, St. Libory, St. Paul

## **Washington County MA**

Arlington, Blair, Ft. Calhoun, Herman, Kennard

## **York County MA**

Benedict, Bradshaw, Gresham, Henderson, McCool Junction, Waco, York

## Appendix F

### Fire Department Equipment and Contact Information for the North Central Nebraska CWPP Region

*This section includes Annex F from county Local Emergency Operations Plans plus additional information from the departments that responded to the CWPP questionnaire. Due to its length, the full Appendix F appears only in the online version of this document, which may be accessed at:*

<https://nfs.unl.edu/documents/CWPP/NCCWPP.pdf>

# North Central Nebraska Community Wildfire Protection Plan

## Boyd County

Information from Boyd Co. LEOP, Annex F:

BOYD COUNTY LEOP

ANNEX F

### FIRE SERVICES

BRISTOW FIRE DEPARTMENT

BUTTE FIRE DEPARTMENT

LYNCH FIRE DEPARTMENT

NAPER FIRE DEPARTMENT

SPENCER FIRE DEPARTMENT

BOYD/HOLT  
MUTUAL  
AID  
ASSOCIATION

STATE SUPPORT:  
Emergency Support Functions  
# 4, 5, 10,  
Fire Suppression,  
Emergency Management,  
Environmental Quality

Lead Agencies:  
State Fire Marshal  
Nebraska Emergency Management Agency,

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### BOYD COUNTY FIRE RESOURCES

(List numbers of equipment)

FIRE DEPARTMENT	PHONE	AERIAL	PUMPER	TANKER	PUMPER TANKER	GRASS-WEED TRUCK	UTILITY TRUCK	RESCUE UNITS	KINDS/TYPES/SPECIAL TEAMS	KINDS/TYPES SPECIAL EQUIPMENT	RADIO-LOGICAL EQUIPMENT Yes / No
Bristow	402-583-9933		1								
Butte	402-775-2222		2	2		1		1			
Lynch	402-776-2222		3		2	1					
Naper	402-832-5856			1	1	2		1			
Spencer	402-589-1212		2	2		1		2			
Nearest HAZMAT Response Team											

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BOYD COUNTY LEOP

ANNEX F  
ATTACHMENT 1

# North Central Nebraska Community Wildfire Protection Plan

## Survey Responses from Boyd County Fire Departments

### Butte Volunteer Fire Department

**Counties:** Boyd

**Street Address:** 611 Wilson St. **Mailing Address:** PO Box 317, Butte, NE 68722; **Dept. Phone:** 402-340-5711 **Dept. Email:** sbernt@nntc.net

**Chief:** Scott Bernt; 402-340-5711; 402-775-2638; sbernt@nntc.net

**Ass't. Chief:** Loren Nicolaus; 402-775-2467; **Sec./Treas.:** Steve Liewer; 402-340-6636, 402-775-2618

### Personnel

19 **Vol.:**

**MAD(s):** Holt-Boyd

### Equipment

#### *Engines*

2 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members

2 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members

*Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

2 T-1 (tactical): 250 GPM pump, 2,000 gallon capacity, 2 crew members

#### *Other*

1 Equipment trucks

**Equipment housed away from main barn?** No

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** Yes

**Location:** Rural Anoka area

#### **Issues:**

- x Difficult access
- x Rough terrain
- x Lack of water within effective distance

**Bridges that won't support equipment weight:** No

**GIS layer & contact info:** No

#### **Rank:**

- 2 **Housing**
- 3 **Infrastructure**
- 4 **Bridge limits**
- 5 **Hydrants**
- 1 **Other water sources**

### Lynch Volunteer Fire Department

**Counties:** Boyd, Holt **Street Address:** 422 Hoffman St., Lynch, NE 68746; **Dept. Phone:** 402-569-2222

**Chief:** Jim McBride; 402-340-4913; midwayelectric@yahoo.com **Ass't. Chief:** Larry Eilers; 402-569-2645, 402-419-0867

**Secretary:** Jared Finnegan; 402-340-6882 **Treasurer:** Kelly Kalkowski; 402-925-8421, 402-569-2181; nuhadmin@threeriver.net

### Personnel

21 **Vol.**

**MAD(s):** Boyd/Holt **Other MA agreements:** Niobrara, Nebraska in Knox County

### Equipment

#### *Engines*

1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members

1 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members

4 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members

*Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

2 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member

*Other (None)*

**Equipment housed away from main barn?** No

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** No

**Location:** No location specified, but the following issues were checked

#### **Issues:**

- x Difficult access
- x Rough terrain
- x Heavy fuels



## North Central Nebraska Community Wildfire Protection Plan

**Bridges that won't support equipment weight:** No    **GIS layer & contact info:** No

**Greatest concerns:** Obtaining access; rough terrain

**Rank:**

- 1        **Housing**
- 2        **Infrastructure**
- 5        **Bridge limits**
- 3        **Hydrants**
- 4        **Other water sources**

Naper Volunteer Fire Department

**Counties:** Boyd    **Mailing Address:** PO Box 242, Naper, NE 68755

**Chief:** Bryon Vogt; 402-340-6451 **Ass't. Chief:** Dan Ahlers; 402-340-9965 **Sec/Treas.:** Lee Cadwallader; 402-340-1402

Personnel

20        **Vol.**

**MAD(s):** Boyd/Holt

Equipment

(none listed)

**Equipment housed away from main barn?** No

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** No

**Location:** No location specified, but the following issues were checked

**Issues:**

- x        Difficult access
- x        Rough terrain
- x        Heavy fuels
- x        Lack of water within effective distance

**Bridges that won't support equipment weight:** No

**GIS layer & contact info:** No

**Rank:**

- 1        **Housing**
- 1        **Hydrants**

Spencer VFD

**Counties:** Boyd-Holt

**Mailing Address:** PO Box 34, Spencer, NE 68777

**Chief:** Shawn Davis; 402-340-9563, 402-961-9376; SJDavis@live.com

**Ass't. Chief:** Max Maywire; 402-336-7682, 402-589-1133; max.maywire@krotters.com

**Secretary:** Corey Finnegan; 402-340-7064 **Treasurer:** Paul Filips; 605-661-5080, 402-589-0101

Personnel

23        **Vol.:**

**MAD(s):** Holt-Boyd

Equipment

Engines

- 2        Type 2    Structural: 500 GPM, 300 gal. capacity, three crew members
- 2        Type 6:    Wildland: 50 GPM, 150 gal. capacity, two crew members
- Tenders*        *(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*
- 1 6x6    T-2 (tactical):        250 GPM pump, 1,000 gallon capacity, 2 crew members
- 1 tanker S-1 (support):        300 GPM pump, 4,000 gallon capacity, 1 crew member
- 1 Oshkosh        S-3 (support):        200 GPM pump, 1,000 gallon capacity, 1 crew member

**Equipment housed away from main barn?** No

(The rest of the survey was left blank)

# North Central Nebraska Community Wildfire Protection Plan

## Brown County

Information from Brown Co. LEOP, Annex F:

BROWN COUNTY LEOP

ANNEX F

### FIRE SERVICES

AINSWORTH FIRE DEPARTMENT

JOHNSTOWN FIRE DEPARTMENT

LONG PINE FIRE DEPARTMENT

BROWN COUNTY RURAL FIRE DEPARTMENT

KBRC  
MUTUAL  
AID  
ASSOCIATION

STATE SUPPORT:  
Emergency Support Functions  
# 4, 5, 10,  
Fire Suppression,  
Emergency Management,  
Environmental Quality

Lead Agencies:  
State Fire Marshal

Nebraska Emergency Management Agency.

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### BROWN COUNTY FIRE RESOURCES (List numbers of equipment)

FIRE DEPARTMENT	PHONE	AERIAL	PUMPER	TANKER	PUMPER/TANKER	GRASS-MOWED TRUCK	UTILITY TRUCK	RESCUE UNITS	KINDS/TYPES/SPECIAL TEAMS	KINDS/TYPES/SPECIAL EQUIPMENT	RADIO-LOGICAL EQUIPMENT Yes / No
Ainsworth	911 or 402-387-1440		3	3		2	2	2			
Johnstown						4					
Calamus				1		1					
Long Pine			1	1	1	3		1			
Brown Co Rural			1			5					
South Pine						2					
Raven Fire						2					
Nearest HAZMAT Response Team											

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BROWN COUNTY LEOP

ANNEX F  
ATTACHMENT 1

# North Central Nebraska Community Wildfire Protection Plan

## Survey Responses from Brown County Fire Departments:

### Ainsworth Fire and Rescue

**Counties:** Brown

**Street Address:** 122 E. 3<sup>rd</sup> St. **Mailing Address:** PO Box 425, Ainsworth, NE 69210

**Dept. Phone:** 402-762-1512 **Dept. Email:** bfiala83@yahoo.com

**Chief:** Brad Fiala; 402-760-1512; bfiala83@yahoo.com

**Ass't. Chief:** Randy Johnson; 402-760-0938, 402-387-1599; rjsbodyshop@hotmail.com

**Ass't. Chief:** Justin Nickless; 402-760-1930; jnickless2@unl.edu

**Secretary:** Ann Fiala; 402-760-2580; fialaann@gmail.com

**Treasurer:** Lee Conroy; 402-760-2052; ljconro@nppd.com

### Personnel

30 **Vol.:** Full 36

**MAD(s):** BKRC Mutual Aid

### Equipment

#### *Engines*

1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members

1 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members

4 Type 4: Wildland: 50 GPM, 750 gal. capacity, two crew members

1 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members

1 Type 7: Wildland: 10 GPM, 50 gal. capacity, two crew members – UTV

*Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

1 T-1 (tactical): 250 GPM pump, ~~2,000~~ 3,000 gallon capacity, 2 crew members

#### *Other*

1 Equipment trucks: Rescue truck with tools

**Equipment housed away from main barn?** No

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** Yes

**Location:** Long Pine area WUI and Hidden Paradise; share this area

#### **Issues:**

x Multiple structures

x Difficult access

x Rough terrain

x Heavy fuels

**Bridges that won't support equipment weight:** Yes, some old county bridges are of concern

**GIS layer & contact info:** No

**Greatest concerns:** Manpower

#### **Rank:**

1 **Housing**

2 **Infrastructure**

4 **Bridge limits**

3 **Hydrants**

5 **Other water sources**

**Comments:** Ainsworth shares all of Brown County responsibility with other rural departments, so all of Brown County is our shared concern.

### Long Pine Rural Fire Department

**Counties:** Brown

**Mailing Address:** PO Box 150, Long Pine, NE 69217

**Dept. Email:** pozehlconstruction@hotmail.com

**Chief:** Matt Pozehl; 402-760-1531; pozehlconstruction@hotmail.com

**Ass't. Chief:** Dan Dailey; 402-376-6071

**Sec/Treas.:** Chayse Gulzaw; 308-390-7819

# North Central Nebraska Community Wildfire Protection Plan

## Personnel

15 Vol.:

**MAD(s):** KBRC MA

## Equipment

### *Engines*

2 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members  
1 Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members  
1 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members  
2 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members

*Tenders* (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive) none

*Other* none

**Equipment housed away from main barn?** No

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** Yes

**Location:** Hidden Paradise, city limits Long Pine

### **Issues:**

x Multiple structures  
x Difficult access  
x Rough terrain  
x Heavy fuels  
x Other: High traffic on weekends

**Bridges that won't support equipment weight:** No

**GIS layer & contact info:** No

### **Rank:**

x Housing  
x Hydrants

# North Central Nebraska Community Wildfire Protection Plan

## Cherry County

Information from Cherry Co. LEOP, Annex F:

CHERRY COUNTY LEOP

ANNEX F

FIRE SERVICES

VALENTINE FIRE DEPARTMENT

CODY FIRE DEPARTMENT

KILGORE FIRE DEPARTMENT

MERRIMAN FIRE DEPARTMENT

WOOD LAKE FIRE DEPARTMENT

KBR & C  
MUTUAL  
AID  
ASSOCIATION

CHERRY COUNTY  
MUTUAL  
AID  
ASSOCIATION

STATE SUPPORT:  
Emergency Support Functions  
# 4, 5, 10,  
Fire Suppression,  
Emergency Management,  
Environmental Quality  
  
Lead Agencies:  
State Fire Marshal,  
Nebraska Emergency Management Agency,  
Dept. of Environmental Quality

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### CHERRY COUNTY FIRE RESOURCES

FIRE DEPARTMENT	PHONE	AERIAL	PUMPER	TANKER	PUMPER/ TANKER	GRASS-WEED TRUCK	UTILITY TRUCK	RESCUE UNITS	KINDS/TYPES/ SPECIAL- TEAMS	KINDS/TYPES SPECIAL EQUIPMENT	RADIO- LOGICAL EQUIPMENT Yes / No
Valentine Rural	402-376-1700			4		9		1			
Valentine City	402-376-1700	1	4					1			
Barley	Call Valentine					2					
Crookston	Call Valentine										
Cody	402-823-4125			5		5					
Kilgore	402-966-2048			2		3					
Merriman	308-684-3505		1	1		3					
Mid-Cherry	402-823-4070					6					
Wood Lake	402-667-3400			1		7					
U.S. Fish & Wildlife	402-376-3789										
HAZMAT Response Team North Platte	308-535-6762										

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CHERRY COUNTY LEOP

ANNEX F  
ATTACHMENT 1

# North Central Nebraska Community Wildfire Protection Plan

## Survey Responses from Cherry County Fire Departments:

### Barley Fire District

**Counties:** Cherry

**Street/Mailing Address:** 34979 Medicine Creek Dr., Cody, NE 69211; **Dept. Phone:** 402-823-4334

**Chief:** Rex Adamson; 402-823-4334, 402-389-0418c ; **Ass't. Chief:** n/a

**Sec/Treas.:** Angel Davis; 402-823-4056, 402-389-0817c; gadavis@gpcom.net

### Personnel

6 **Vol.:**

**MAD(s):** Cherry County

### Equipment

#### *Engines*

2 Type 4: Wildland: 50 GPM, 750 gal. capacity, two crew members

#### *Other*

2 Equipment trucks: 6x6 trucks with 700 gal. tanks

Other (Describe): Adamson Ranch has a 5 ton 6x6 with a 1600 gal. tank

Neighboring ranches have 4x4 with 200 gal. tank

### **Equipment housed away from main barn?**

Barley Fire District doesn't have a fire barn. Equipment is kept on neighboring ranches.

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** No

**Bridges that won't support equipment weight:** Yes; bridge on the Snake River south of the Gale Ranch

**GIS layer & contact info:** No

**Greatest concerns:** Wintertime, when trucks are drained

### **Rank:**

1 **Housing**

2 **Bridge limits**

### Cody Rural Fire District

**Counties:** Cherry

**Street Address:** 109 Walnut **Mailing Address:** 35878 Boiling Springs Rd., Cody, NE 69211

**Chief:** Jordan Pitkin; 605-220-0409, 605-822-4100; jcpitkin@gmail.com

**Ass't. Chief:** Mark Burchfield; 303-358-1756, 402-823-4336; mbur456@gpcom.net

**Sec/Treas.:** Jeff Vackiner; 402-376-4500; 402-823-4048

### Personnel

24 **Vol.**

**MAD(s):** Region 24

**Other MA agreements:** USDA Forest Service; US Dept. of the Interior Bureau of Indian Affairs

### Equipment

#### *Engines*

1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members-C10

1 Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members-C6

6 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members-C1, 2, 4, 5, 7, 9

1 Type 7: Wildland: 10 GPM, 50 gal. capacity, two crew members-C3

*Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

3 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members-C22, 44, 46

### **Equipment housed away from main barn?** Yes

C2, C3, C4, MC5, C6, C7, C46 are stationed throughout the district at members' ranches for quicker response time.



# North Central Nebraska Community Wildfire Protection Plan

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** Yes

**Location:** Anywhere along the Niobrara River

**Issues:**

- x Difficult access
- x Rough terrain
- x 1 way in/out
- x Heavy fuels
- x Lack of water within effective distance

**GIS layer & contact info:** Don't know

**Greatest concerns:** Being able to get to the head of the fire and stop it.

**Rank:**

- 2 **Housing**
- 3 **Infrastructure**
- 4 **Bridge limits**
- 5 **Hydrants**
- 1 **Other water sources**

Gordon VFD

**Counties:** Sheridan, Cherry

**Street Address:** 208 N Elm **Mailing Address:** PO Box 777, Gordon, NE 69343; **Dept. Phone:** 308-282-1770

**Chief:** Richard Haller; 308-360-1652, 308-282-2762; rich.haller@farmcoop.com

**Ass't. Chief:** Leonard Haller; 308-360-8566

**Ass't. Chief:** Chad Allison; 308-360-3853

**Sec/Treas.:** Suesie Content; 308-360-1247

Personnel

35 **Vol.**

**MAD(s):** Pine Ridge MA

**Other MA agreements:** Northern Great Plains

Equipment

*Engines*

2 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members

4 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members

4 Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members

*Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

1 T-1 (tactical): 250 GPM pump, 2,000 gallon capacity, 2 crew members

1 S-2 (support): 200 GPM pump, 2,500 gallon capacity, 1 crew member

*Other*

1 Equipment trucks: Crash

1 Other (Describe): Chief G-61 ¾ ton 4x4 crew

**Equipment housed away from main barn?** Yes

Wildland trucks 14?

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** No

**Location:** Location was left blank, but the following issues were checked:

**Issues:**

- x Multiple structures
- x Difficult access
- x Rough terrain
- x Heavy fuels
- x Other: Manpower

**Bridges that won't support equipment weight:** Yes, bridges over small creeks

# North Central Nebraska Community Wildfire Protection Plan

**GIS layer & contact info:** No

**Greatest concerns:** Getting to it with roads under water

**Rank:**

- 2      **Housing**
- 1      **Infrastructure**
- 3      **Bridge limits**
- 5      **Hydrants**
- 4      **Other water sources**

Kilgore VFD

**Counties:** Cherry

**Street Address:** 219 Steinbrecher Ave. **Mailing Address:** PO Box 166, Kilgore, NE 69216

**Dept. Phone:** none; **Dept. Email:** twrothleutner@hotmail.com

**Chief:** Todd Rothleutner; 402-389-0614c, 402-966-2111h; twrothleutner@hotmail.com

**Ass't. Chief #1:** Mark Johnson; 402-322-1991c, 402-966-2163h; johnson69219@yahoo.com

**Ass't. Chief #2:** Casey Lancaster; 402-389-1546c, 402-966-2031h; casey.lancaster@usda.gov

**Sec/Treas.:** Sam Day; 402-322-1400; sam.day@nebraska.gov

Personnel

30      **Vol.:**

**MAD(s):** Cherry Co. MA

Equipment

*Engines*

4      Type 3      Wildland: ~~150~~ 120 GPM, 500 300 gal. capacity, three crew members

*Tenders*      (*Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive*)

2      T-1 (tactical):      250 GPM pump, 2,000 gallon capacity, 2 crew members

*Other*

1      Other (Describe): Command vehicle, Ford F150 4x4, 4-dr.

**Equipment housed away from main barn?** Yes

1 Type 3 and 1 T-1 in Nenzel; 3 Type 3 and 1 T-1 in Kilgore

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** Yes

**Location:** Niobrara River Canyon – runs through the southern end of Kilgore District

**Issues:**

- x      Difficult access
- x      Rough terrain
- x      Heavy fuels

**Bridges that won't support equipment weight:** Yes.

Anderson Bridge (south of Kilgore) max. cap. 10,000 lbs.

**GIS layer & contact info:** Don't know

**Greatest concerns:** River canyon

Merriman Fire

**Counties:** Cherry

**Mailing Address:** 90253 State Hwy. 61, Merriman, NE 69218

**Chief:** Clifford Cady; 605-890-7616, 308-684-3397; clifford99@hotmail.com

**Ass't. Chief:** Mark Roseberry; 308-458-7000, 308-684-3310; rafterupsidedownt@gmail.com

**Sec/Treas.:** Mike McConaughy; 402-322-1476, 308-684-3393

Personnel

18      **Vol.:**

**MAD(s):** Cherry County MA and Pine Ridge MA

# North Central Nebraska Community Wildfire Protection Plan

## Equipment

### Engines

1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members

7 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members

*Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

2 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members

2 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member

### Other

1 Other (Describe): Suburban

### **Equipment housed away from main barn? Yes**

5 Type 6 Engines: 1 Ton 80 gpm, 250 gallon capacity

1 T-2 Tender: 200 gpm, 1,000 gallon capacity

### **Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? Yes**

**Location:** South of Merriman along Niobrara River

### **Issues:**

x Difficult access

x Heavy fuels

**Bridges that won't support equipment weight:** No; **GIS layer & contact info:** No

**Greatest concerns:** Depending on the size of river fire, being able to gain control.

### **Rank:**

5 **Housing**

3 **Infrastructure**

2 **Bridge limits**

4 **Hydrants**

1 **Other water sources**

## Mid-Cherry Volunteer Fire Department

**Counties:** Cherry

**Street/Mailing Address:** 87313 Wolfenden Rd., Mullen, NE 69152

**Dept. Phone:** 402-376-1166 **Dept. Email:** rjwolfenden@wildblue.net

**Chief:** Kevin Ravenscroft; 402-823-4139

**Ass't. Chief:** Wade Andrews; 402-823-4026

**Sec/Treas.:** Liz Ravenscroft; 402-823-4026

## Personnel

12 **Vol.:** (+/-)

**MAD(s):** Cherry County MA, Sandhills MA

## Equipment

### Engines

6 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members

6 Type 7: Wildland: 10 GPM, 50 gal. capacity, two crew members

*Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

10 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members

### **Equipment housed away from main barn? Yes**

All of our trucks are dispersed amongst the various ranches in our district.

### **Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? No**

**Location:** No locations were provided, but the following issues were checked

### **Issues:**

x Multiple structures

x Difficult access

x Rough terrain

**Bridges that won't support equipment weight:** No

# North Central Nebraska Community Wildfire Protection Plan

**GIS layer & contact info:** No

**Greatest concerns:** That everyone stays safe

**Rank:**

- 1      **Housing**
- 2      **Infrastructure**  
         **Bridge limits**  
         **Hydrants**  
         **Other water sources**

Mullen VFD

**Counties:** Hooker, Cherry

**Street Address:** 501 SW 1<sup>st</sup> St., Mullen 69152      **Mailing Address:** PO Box

**Dept. Phone:** 308-546-2400      **Dept. Email:** mechanics\_1999@yahoo.com

**Chief:** Josh Barnes, 308-546-0569, mechanics\_1999@yahoo.com

**Asst: Chief:** Dan Daly, 308-546-9391, 308-546-2651, dddaly@nebnet.net

**Sec/Treas.:** Don Earl, 308-546-7401, earlfam@nebnet.net

Personnel

14      **Vol.**

**MAD(s):** Sandhills MA, Cherry County MA

Equipment

*Engines*

2      Type 1      Structural: 1,000 GPM, 300 gal. capacity, four crew members

5      Type 6:      Wildland: 50 GPM, 150 gal. capacity, two crew members

1      Type 7:      Wildland: 10 GPM, 50 gal. capacity, two crew members

*Tenders*      (*Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive*)

2      T-2 (tactical):      250 GPM pump, 1,000 gallon capacity, 2 crew members

*Other*

1      Equipment trucks: Rescue

1      Other (Describe): Light trailer with generator

**Equipment housed away from main barn?** Yes, 2 Type 6 engines stationed in rural locations

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** Yes

**Location #s 1&2:** Dismal River Valley, Middle Loup Valley. The Dismal River is very steep and heavily timbered with very little or no access. The Middle Loup River is also rugged and has limited access.

**Issues:** Multiple structures, Difficult access, Rough terrain, Heavy fuels

**Location #s 3&4:** Sandhills Golf Club clubhouse and cabins sit on the north fork of the Dismal River with only golf cart paths for access. Heavily timbered around cabins and clubhouse. The Dismal River Golf Club is in a remote area with a large fuel load surrounding the premises and clubhouse.

**Issues:**

Multiple structures

Difficult access

Rough terrain

1 way in/out

Heavy fuels

Lack of water within effective distance

**Other areas with high home density, infrastructure or other resources at high risk, or populated areas with one way in/out:** Village of Mullen

**Bridges that won't support equipment weight:** Yes. There are some untested, private bridges with unknown weight limits, crucial to river crossings. Other culverts that also have unknown weight limits.

**GIS layer & contact info:** Deb Daly, 308-546-2625, [mullenclerk@nebnet.net](mailto:mullenclerk@nebnet.net)

# North Central Nebraska Community Wildfire Protection Plan

**Greatest concerns:** Structure protection for wildland fires. Grass for grazing causing economic impacts.

**Rank:**

- |   |                            |
|---|----------------------------|
| 2 | <b>Housing</b>             |
| 4 | <b>Infrastructure</b>      |
| 5 | <b>Bridge limits</b>       |
| 3 | <b>Hydrants</b>            |
| 1 | <b>Other water sources</b> |

**Comments:** Mullen has the largest fire district in the state in area. Many types of topography, much of which is difficult to access. Many fires require hours of response time to scene; especially at night in unfamiliar locations. There are limited roads for access in most parts of the district.

Purdum Rural Fire Department

**Counties:** Blaine, Cherry, Thomas

**Street Address:** 84363 Harvest Ave., Purdum, NE 69157

**Dept. Phone:** 308-834-3267

**Dept. Email:** kcox@neb-sandhills.net

**Chief:** Shane L. Keller; 402-376-5831; slkeller88@gmail.com

**Ass't. Chief/Secretary:** Chris M. Higgins; 402-376-1557, 402-389-1235; chrishiggins8392@yahoo.com

**Treasurer:** Ronald K. Cox; 308-834-3267; 308-872-1046cell; kcox@neb-sandhills.net

Personnel

43 Vol.

**MAD(s):** Sandhills MA; Cherry Co. MA

**Other MA agreements:** Anselmo, Arnold, Arthur, Brewster, Dunning, Halsey, Sandhills, Mid-Cherry, Mullen, Stapleton, Thedford, McPherson Co., USFS, USFWS, Valentine (Sandhills MA) and Barley, Merriman, Rosebud SD, Colome SD, Mission SD, Ainsworth, Cody, Whiteriver SD, Kilgore, Wood SD, Wood Lake (Cherry Co. MA)

Equipment

*Engines*

- |   |         |                                                            |
|---|---------|------------------------------------------------------------|
| 2 | Type 2  | Structural: 500 GPM, 300 gal. capacity, three crew members |
| 1 | Type 3  | Wildland: 150 GPM, 500 gal. capacity, three crew members   |
| 4 | Type 6: | Wildland: 50 GPM, 150 gal. capacity, two crew members      |

*Other*

- |    |                                                                    |
|----|--------------------------------------------------------------------|
| 2  | Other (Describe): 1 6x6 tanker, 1,500 gal. & 1-6x6 grass, 700 gal. |
| 1+ | Road Dept. Equip. (describe): They have heavy equipment, if needed |

**Equipment housed away from main barn?** Yes

**GIS layer & contact info:** No

Sandhills Fire Protection District

**Counties:** Grant, Cherry

**Street Address:** 102 S. Grant

**Mailing Address:** POB 330, Hyannis NE 69350

**Dept. Phone:** 308-458-2763

**Chief:** Darrel Seidler; 308-458-8200, 308-458-2424; drrepairinc@gmail.com

**Ass't. Chief:** Jeremy Holthus; 308-458-8349, 308-458-2356

**Secretary:** Delores Brennemann; 308-458-2739, 308-458-8071; dbrenne@nebnet.net

**Treasurer:** Jerry Merrihew; 308-577-6350, 308-458-9913

Personnel

40 Vol.

**MAD(s):** Sandhills MA

Equipment

*Engines*

## North Central Nebraska Community Wildfire Protection Plan

- 1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members  
9 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members  
*Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*  
1 S-2 (support): 200 GPM pump, 2,500 gallon capacity, 1 crew member  
3 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member  
*Other*  
1 Other (Describe): Command vehicle

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** Yes

**Location:** Hyannis, Ashby, Whitman (villages in the district)

**Issues:** Multiple structures

**Bridges that won't support equipment weight:** No; **GIS layer & contact info:** No

**Greatest concerns:** Distance for mutual aid and water supply

**Rank:**

- 3 **Housing**  
4 **Infrastructure**  
5 **Bridge limits**  
1 **Hydrants**  
2 **Other water sources**

### Thedford VFD

**Counties:** Thomas and Cherry

**Street Address:** 39253 Hwy. 2

**Mailing Address:** PO Box 302, Thedford, NE 69166

**Chief:** Russ A. Reiser; 402-322-0760; russ@pearsonlivestockeq.com

**Ass't. Chief:** Dan DeNaeyer; 308-539-0744

**Sec/Treas.:** Kevin Hood; 308-645-9597; Kevin.Hood@ne.usda.gov

### Personnel

50 **Vol.:**

**MAD(s):** Sandhills MAD

**Other MA agreements:** Anselmo, Merna, Dunning, Brewster, Halsey, Purdum, Mullen, Stapleton, Mid-Cherry, Tryon, Arthur, Hyannis, Arnold

### Equipment

#### *Engines*

- 1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members  
6 Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members  
*Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*  
2 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members  
*Other*  
1 Equipment trucks  
1 Other (Describe): Extrication/Command

**Equipment housed away from main barn?** Yes

2 Grass rigs housed at Seneca; 2 Grass rigs housed at Brownlee

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** Yes

**Location:** Dismal River Valley (grass resource is at risk)

**Issues:**

x Rough terrain

**GIS layer & contact info:** No, just the county GIS workshop layer publicly available

### Valentine Fire Department

**Counties:** Cherry



# North Central Nebraska Community Wildfire Protection Plan

**Street/Mailing Address:** 224 S Hall St., Valentine, NE 69201

**Dept. Phone:** 402-376-1700 **Dept. Email:** valentinevfd@threeriver.net

**Chief:** Terry Engles; 402-322-1843, 402-376-3100; chiefterrybob@yahoo.com

**Ass't. Chief:** William Beel; 402-376-4135, 402-376-1069; wcbel@q.com

**Sec/Treas.:** Guy Tielke; 402-376-4111, 402-376-1661; tielkeguy@gmail.com

## Personnel

45 Vol.:

**MAD(s):** KBRC and Cherry County

## Equipment

### *Engines*

2 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members

2 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members

2 Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members

2 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members

4 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members

1 Type 7: Wildland: 10 GPM, 50 gal. capacity, two crew members

*Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

1 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members

2 S-2 (support): 200 GPM pump, 2,500 gallon capacity, 1 crew member

1 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member

### *Other*

1 Equipment trucks

2 Other (Describe): Suburbans

**Equipment housed away from main barn?** Yes

1 Type 6

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** Yes

**Location:** The area around Valentine is all Wildland Urban Interface, heavily wooded area with buildings built into it.

### **Issues:**

x Multiple structures

x Difficult access

x Rough terrain

x 1 way in/out

x Heavy fuels

x Lack of water within effective distance

x Other: Niobrara and Snake River Canyons, Minnechadusa Creek Canyon, Government Canyon

**Bridges that won't support equipment weight:** Yes

**GIS layer & contact info:** No

**Greatest concerns:** Keeping the fire out of the canyons

### **Rank:**

1 Housing

4 Infrastructure

5 Bridge limits

3 Hydrants

2 Other water sources

## Wood Lake Fire Department

**Counties:** Cherry

**Street Address:** 303 N. Main, Wood Lake, NE 69221; **Mailing Address:** PO Box 663, Wood Lake, NE 69221

**Dept. Phone:** 402-967-3400

**Chief:** Craig O'Kief; 402-376-4133; katieokief@gmail.com

**Ass't. Chief:** Dan Cozad; 402-322-1326

**Secretary:** John Wheeler; 402-376-5364

**Treasurer:** Teddy Buechel; 402-376-5449

# North Central Nebraska Community Wildfire Protection Plan

## Personnel

37 Vol.:

**MAD(s):** Cherry County Mutual Aid/KBRC Mutual Aid

## Equipment

### Engines

1 Type 4: Wildland: 50 GPM, ~~750~~ 900 gal. capacity, ~~two~~ three crew members

5 Type 5: Wildland: 50 GPM, ~~400~~ 300 gal. capacity, ~~two~~ three members

*Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

S-2 (support): 200 GPM pump, ~~2,500~~ 1,600 gallon capacity, 1 crew member; Tanker 4x4

S-3 (support): ~~200~~ 50 GPM pump, ~~1,000~~ 1,200 gallon capacity, ~~±~~ 3 crew members, 6x6

### **Equipment housed away from main barn? Yes**

\*W6 (Type 5 Wildland): 50 GPM, 300 gal. capacity, three crew members) is housed south of Wood Lake 12 miles at the Jim Morris Ranch

\*W8 (S-3 (support) 50 GPM pump, 1200 gallon capacity, 1 crew member, 6x6) is housed North of Wood Lake 12 miles at the John Wheeler Ranch

### **Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? Yes**

**Location:** Wood Lake Village, T31N R25W Section 22

### **Issues:**

x Multiple structures

x Heavy fuels

**Bridges that won't support equipment weight:** No

**GIS layer & contact info:** No

**Greatest concerns:** My concern would be not able to get mutual aid if there were multiple fires

### **Rank:**

- 1 **Housing**
- 2 **Infrastructure**
- 5 **Bridge limits**
- 3 **Hydrants**
- 4 **Other water sources**

*The US Fish and Wildlife Service, Fort Niobrara Valentine and Seier NWRs also returned a survey:*

**Counties:** Cherry, Brown, Rock

**Street/Mailing Address:** 39983 Refuge Rd., Valentine, NE 69201

**Dept. Phone:** 402-376-3789x225, 402-322-0252 cell; **Dept. Email:** billy\_cumbow@fws.gov

**Chief:** Billy Cumbow; 402-376-3789x225, 402-322-0252cell; billy\_cumbow@fws.gov

**Ass't. Chief:** Colby Crawford, FMO-Aberdeen, SD; 605-885-6273, 605-951-8690; Colby\_crawford@fws.gov

**Secretary:** Jeff Meadows, AFMO-Madison, SD; 605-636-3881, 605-480-1857; jeff\_meadows@fws.gov

**Treasurer:** Sonya Feaster, Rx Fire Specialist; 605-352-5894, 520-349-6550; sonya\_feaster@fws.gov

**MAD(s):** Cherry Co., Sandhills, and KBRC

**Other MA agreements:** with all federal agencies and Nebraska Forest Service

## Equipment

### Engines

4 Type 6: Wildland: 50 GPM, ~~150~~ 300 gal. capacity, 4x4, two crew members: E-6315, E-6318, E-6319, E-17

*Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

1 T-2 (tactical): 250 GPM pump, ~~1,000~~ 1,200 gallon capacity, 4x4, 2 crew members

### **Equipment housed away from main barn?**

E-6315, E-6318, and E-6319 housed at Fort Niobrara; E-17 is at Pony Lake HQ on the Valentine NWR

Tender is stationed on the Valentine NWR

# North Central Nebraska Community Wildfire Protection Plan

## Holt County

Information from Holt Co. LEOP, Annex F:

HOLT COUNTY LEOP

ANNEX F

### FIRE SERVICES

O'NEILL FIRE DEPARTMENT

ATKINSON FIRE DEPARTMENT

CHAMBERS FIRE DEPARTMENT

EWING FIRE DEPARTMENT

STUART FIRE DEPARTMENT

PAGE FIRE DEPARTMENT

HOLT-BOYD  
MUTUAL  
AID  
ASSOCIATION

STATE SUPPORT:  
Emergency Support Functions  
# 4, 5, 10,  
Fire Suppression,  
Emergency Management,  
Environmental Quality

Lead Agencies:  
State Fire Marshal  
Nebraska Emergency Management Agency.

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### HOLT COUNTY FIRE RESOURCES (List numbers of equipment)

FIRE DEPARTMENT	PHONE	AERIAL	PUMPER	TANKER	PUMPER/TANKER	GRASS-MEED TRUCK	UTILITY TRUCK	RESCUE UNITS	KINDS/TYPES/SPECIAL-TEAMS	KINDS/TYPES/SPECIAL-EQUIPMENT	RADIO-LOCAL-EQUIPMENT Yes / No
ATKINSON	CALL 911		2	1	2	4	1	3			NO
CHAMBERS	CALL 911		1		2	4	1	2			NO
EWING	CALL 911		1	1		3	1	2			NO
O'NEILL	CALL 911	1						3			NO
PAGE	CALL 911							1			NO
STUART	CALL 911		2	1		3	1	2			NO
Nearest HAZMAT Response Team											
Norfolk Fire Dept. (402) 844-2050											

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HOLT COUNTY LEOP

ANNEX F  
ATTACHMENT 1

# North Central Nebraska Community Wildfire Protection Plan

## Survey Responses from Holt County Fire Departments

(Chambers VFD did not return the survey)

### Atkinson Fire and Rescue

**Counties:** Holt

**Street Address:** 512 E Pearl St.

**Mailing Address:** PO Box 117, Atkinson, NE 68713

**Dept. Phone:** 402-925-5150

**Dept. Email:** atkinsonfiredepartment@gmail.com

**Chief:** Randy Bilstein; 402-340-4606; randy.bilstein@gmail.com

**Ass't. Chief:** Jeremy Troidl; 402-340-1463; Jeremy.troidl@mitchellequip.com

**Secretary:** Megan Gotschall; 402-340-0162; gotschallultrasound@hotmail.com

**Treasurer:** Parker Theisen; 402-340-0769; p\_theisen\_8@hotmail.com

### Personnel

35 Vol.:

**MAD(s):** Holt-Boyd Mutual Aid

### Equipment

#### Engines

2 Type 1 Structural: 1,000 1,200 GPM, 300 1,000 gal. capacity, four 3 crew members

3 Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members

*Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

1 T-2 (tactical) 6x6: 250 GPM pump, 1,000 gallon capacity, 2 crew members

#### Other

1 Equipment trucks

2 Other: 1 Tanker-2,000 gal., 2 WD, 2 personnel; and 1 command vehicle-4WD, 2 personnel

**Equipment housed away from main barn?** No

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** Yes.

**Location:** Brush Creek, Sandy Creek area approx. 20 miles north of Atkinson. Both are Niobrara River tributaries. Rough terrain, difficult access, and heavy fuel load.

### Issues:

x Difficult access

x Rough terrain

x Heavy fuels

**Bridges that won't support equipment weight:** Yes, older bridges on the back roads

**GIS layer & contact info:** No

**Greatest concerns:** The ability to get to it and supply water to rigs fighting the fire.

### Rank:

x Other water sources

### Clearwater Volunteer Fire Department

**Counties:** Antelope, Holt

**Mailing Address:** PO Box N, Clearwater, NE 68726

**Chief:** Steve Hankla; 402-750-4602, 402-485-2582; hanks11@hotmail.com

**Ass't. Chief:** Mark Allemang; 402-340-5042

**Secretary:** Aaron Kruger; 402-750-1691

**Treasurer:** Dee Ann Sanne; 402-485-2216

### Personnel

15 Vol.

# North Central Nebraska Community Wildfire Protection Plan

**MAD(s):** "ABW"

**Other MA agreements:** Ewing

## Equipment

### Engines

- 1 Type 1 Structural: ~~1,000~~ 1,250 GPM, ~~300~~ 1,000 gal. capacity, four crew members
- 2 Type 6: Wildland: 50 GPM, ~~150~~ 300 gal. capacity, two crew members
- 1 Type 7: Wildland: 10 GPM, 50 gal. capacity, two crew members

### Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)

- 1 T-1 (tactical): 6x6, 250 GPM pump, ~~2,000~~ 1,250 gallon capacity, 2 crew members
- 1 S-3 (support): 200 GPM pump, ~~1,000~~ 1,625 gallon capacity, ~~1~~ 2 crew members

### Other

- 1 Equipment trucks

Sent this equipment list:

- C-41 1,625 gal. 3x1½ 18hp
- C-40 6x6 1,250 gal.
- C-42 1,800 gal.
- C-21 300 gal. 11 hp 3x2 pump
- C-20 300 gal.
- C-30 1,250 gal. pump
- Side x side 50 gal. high pressure pump

**Equipment housed away from main barn?** No

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** Yes

**Location:** (Location not specified)

### Issues:

- x Difficult access
- x Rough terrain
- x 1 way in/out
- x Lack of water within effective distance

**Bridges that won't support equipment weight:** No

**GIS layer & contact info:** No

**Greatest concerns:** (none listed)

### Rank:

- x Other water sources

## Ewing Fire and Rescue

**Counties:** Holt

**Mailing Address:** PO Box 367, Ewing, NE 68735

**Dept. Phone:** 402-336-6210 **Dept. Email:** cknapes2002@yahoo.com

**Chief:** Chad Napier; 402-336-6210; cknapes2002@yahoo.com

**Ass't. Chief:** Ed Rotherham; 402-988-8451

**Secretary:** Jen Ramold; 402-340-9232

**Treasurer:** Karen Napier; 402-336-7292; cknapes2002@yahoo.com

## Personnel

22 Vol.:

**MAD(s):** Boyd/Holt

**Other MA agreements:** Chambers, Clearwater, Orchard, O'Neill, Atkinson, Page, Stuart, Butte, Naper, Bartlett, Lynch

# North Central Nebraska Community Wildfire Protection Plan

## **Equipment**

### **Engines**

- 1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
- 1 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
- 1 Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members
- 1 Type 4: Wildland: 50 GPM, 750 gal. capacity, two crew members
- 3 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members

### **Tenders** (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)

- 1 S-2 (support): 200 GPM pump, 2,500 gallon capacity, 1 crew member

### **Other**

- 1 Equipment trucks
- Other (Describe): Ranger 6x6 Polaris

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** No

**Location:** Ewing

### **Issues:**

- x Multiple structures
- x Difficult access
- x Rough terrain
- x 1 way in/out
- x Heavy fuels
- x Lack of water within effective distance

**Bridges that won't support equipment weight:** Yes; weight limits on old bridges.

**GIS layer & contact info:** No

**Greatest concerns:** Heavy fuels along river

### **Rank:**

- 5 **Housing**
- 4 **Infrastructure**
- 3 **Bridge limits**
- 2 **Hydrants**
- 1 **Other water sources**

### **Lynch Volunteer Fire Department**

(See listing under Boyd County)

### **O'Neill Rural Fire District #7**

**Counties:** Holt

**Street/Mailing Address:** 401 E. Fremont, O'Neill, NE 68763

**Dept. Phone:** 402-336-3034

**Dept. Email:** ovfd68763@gmail.com

**Chief:** Roger Miller; 402-340-4780c; 402-336-1700w; oneillelectric@telebeep.com

**Ass't. Chief:** Scott Menish; 402-961-0087, 402-336-4317

**Sec/Treas.:** Tony Hamik; 402-340-1586; tonihamik@gmail.com

### **Personnel**

38 **Vol.**

**MAD(s):** Boyd-Holt

**Other MA agreements:** None

# North Central Nebraska Community Wildfire Protection Plan

## **Equipment**

### *Engines*

- 3 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
- 1 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
- 3 Type 3 Wildland: 150 GPM, 500 gal. capacity, three crew members
- 2 Type 4: Wildland: 50 GPM, 750 gal. capacity, two crew members
- 2 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members, Gator
- 1 Type 7: Wildland: 10 GPM, 50 gal. capacity, two crew members

### *Tenders*

*(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

- 1 T-1 (tactical): 250 GPM pump, 2,000 gallon capacity, 2 crew members
- 1 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members
- 1 S-2 (support): 200 GPM pump, 2,500 gallon capacity, 1 crew member
- 1 Other: Military Razer, 30 gal. CAFS

### *Other*

- 2 Other (Describe): (1) 6KW 30' light tower; (1) mobile 3 station command trailer

**Equipment housed away from main barn? No**

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? Yes**

**Location1:** T31-32, Range 11-12. Eagle Creek Canyons; Redbird; Blackbird. Oak and cedar-filled waterways.

### **Issues:**

- x Difficult access
- x Rough terrain
- x 1 way in/out
- x Heavy fuels
- x Other: Niobrara River tributary

**Location2:** T27-28, Range 11-12: Elkhorn River meadows; Sandhills

### **Issues:**

- x Difficult access
- x Rough terrain
- x 1 way in/out
- x Lack of water within effective distance
- x Other: Lowland meadows, swamp, Sandhills

**Bridges that won't support equipment weight:** Yes, still some wooden bridges.

**GIS layer & contact info:** No

**Greatest concerns:** Access

### **Rank:**

- 5 **Housing**
- 2 **Infrastructure**
- 3 **Bridge limits**
- 1 **Hydrants**
- 4 **Other water sources**

**Department Name:** Orchard Fire & Rescue

**Counties:** Holt, Antelope, Knox

**Street Address:** 240 Windom; **Mailing Address:** PO Box 141, Orchard, NE 68764

**Chief:** Duane Risinger; 402-893-4355, 402-893-2085

**Ass't. Chief:** Kyle Maxwell

**Secretary:** Irene Risinger; 402-893-4355, 402-750-0023

**Treasurer:** Kathy Belik; 402-929-0707

## **Personnel**

32 **Vol.:** Firefighters/EMTs

**MAD(s):** 40-12



# North Central Nebraska Community Wildfire Protection Plan

**Other MA agreements:** Bloomfield, Brunswick, Creighton, Crofton, Hartington, Magnet, Neligh, Niobrara, Orchard, Osmond, Plainview, Pierce, Randolph, Royal, Santee, Verdigre, Wausa, Page

## Equipment

### *Engines*

- 1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members
- 1 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
- 1 Type 5: Wildland: 50 GPM, 400 gal. capacity, two crew members

### *Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

- 1 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members

### *Other*

- 1 Equipment trucks: Jaws equipment

**Equipment housed away from main barn? No**

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? Yes**

**Location1:** Grove Lake Wildlife area. 1-2 miles north of Royal, east side of road.

### **Issues:**

- Multiple structures
- Difficult access
- Rough terrain
- 1 way in/out
- Heavy fuels
- Lack of water within effective distance

**Location2:** Royal Hub CUA. 3 miles east of Orchard.

### **Issues:**

- Multiple structures
- 1 way in/out
- Heavy fuels
- Lack of water within effective distance

**Greatest concerns:** Towns of Orchard and Royal

### **Rank:**

- 1 **Housing**
- 2 **Infrastructure**
- 5 **Bridge limits**
- 3 **Hydrants**
- 4 **Other water sources**

## Spencer Rural Fire

(See listing under Boyd County)

## Stuart Fire Department

**Counties:** Holt

**Street Address:** 216 W 2<sup>nd</sup> St.

**Mailing Address:** PO Box 313, Stuart, NE 68780

**Dept. Phone:** 402-924-3108 **Dept. Email:** sfd@elkhorn.net

**Chief:** Dan Malone; 402-340-1487, 402-924-3469; danofire3469@gmail.com

**Ass't. Chief:** Neal Shald; 402-340-1172

**Secretary:** Kayli Dobias; 402-340-6449

**Treasurer:** Louise Cadwallader; 402-340-4442

## Personnel

25 **Vol.:**

**MAD(s):** Holt/Boyd MA

**Other MA agreements:** Stuart, Atkinson, O'Neill, Chambers, Bartlett, Page, Ewing, Naper, Butte, Spencer, Bristow, Lynch

# North Central Nebraska Community Wildfire Protection Plan

## **Equipment**

### *Engines*

3 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members

*Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

1 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member

**Equipment housed away from main barn?** No

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** Yes

**Location1:** The northern parts of Cleveland and Dustin Townships, next to the Niobrara River

### **Issues:**

- x Multiple structures
- x Difficult access
- x Rough terrain
- x 1 way in/out
- x Heavy fuels

**Location2:** Areas in Holt Creek and Green Valley Townships with heavy grass fuels

### **Issues:**

- x Heavy fuels

**Bridges that won't support equipment weight:** Most likely. Not every bridge in our district will be adequate for some equipment.

**GIS layer & contact info:** No

**Greatest concerns:** Manpower, and getting to the scene in some areas

### **Rank:**

- 2 **Housing**
- 2 **Infrastructure**
- 3 **Bridge limits**
- 2 **Hydrants**
- 2 **Other water sources**

# North Central Nebraska Community Wildfire Protection Plan

## Keya Paha County

Information from Keya Paha Co. LEOP, Annex F:

KEYA PAHA COUNTY LEOP

ANNEX F

### FIRE SERVICES

SPRINGVIEW FIRE DEPARTMENT

KBRC  
MUTUAL  
AID  
ASSOCIATION

STATE SUPPORT:  
Emergency Support Functions  
# 4, 5, 10,  
Fire Suppression,  
Emergency Management,  
Environmental Quality

Lead Agencies:  
State Fire Marshal  
Nebraska Emergency Management Agency,  
Dept. of Environmental Quality

F-1

2018

KEYA PAHA COUNTY LEOP

(List numbers of equipment)

[illegible]

F-14

2011

**ANNEX I**  
**ATTACHMENT**

## Springview Fire and Rescue

**Street Address:** 126 S. Ash St. **Mailing Address:** PO Box 204, Springview, NE 68778

**Chief:** Scott Hallock; 402-760-1391; scohallock@gmail.com

**Ass't. Chief:** Randy Painter; 402-322-0290; randyrpainter@gmail.com

**Secretary:** Suzy Wentworth; 402-322-0332; suzywent@threeriver.net

**Treasurer:** Bradee Caulfield; 402-382-5818

## 18 Vol.

**MAD(s): KBRC**

## Equipment

## Engines

- 1 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members  
1 Type 4: Wildland: 50 GPM, 750 gal. capacity, two crew members  
7 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members  
1 Type 7: Wildland: 10 GPM, 50 gal. capacity, two crew members

## Tenders

(Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)

- |   |                 |                                                     |
|---|-----------------|-----------------------------------------------------|
| 1 | T-1 (tactical): | 250 GPM pump, 2,000 gallon capacity, 2 crew members |
| 1 | S-2 (support):  | 200 GPM pump, 2,500 gallon capacity, 1 crew member  |

Other

- 1 Other (Describe): Suburban – Command rig

**Equipment housed away from main barn?** Yes. 1-Type 6 on east end of county and 1-Type 6 on west end of county

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? Yes**

**Location1:** All of the Niobrara River canyons in Keya Paha County

**Issues:**

- x Difficult access
- x Rough terrain
- x 1 way in/out

## North Central Nebraska Community Wildfire Protection Plan

- x Heavy fuels
- x Other: Areas that burned in 2012 have left lots of very dry downed trees

**Location2:** All of the Keya Paha River corridor

**Issues:**

- x Difficult access
- x Rough terrain
- x 1 way in/out
- x Heavy fuels

**Bridges that won't support equipment weight:** Yes. Not on any main or secondary roads, but there are a few on minimum maintenance roads that are less than 20' that probably won't take our 50,000 lb. tender

**GIS layer & contact info:** No

**Greatest concerns:** Potential for extreme spread in the canyons; lack of manpower

**Rank:**

- 3 **Housing**
- 1 **Infrastructure**
- 5 **Bridge limits**
- 4 **Hydrants**
- 2 **Other water sources**

# North Central Nebraska Community Wildfire Protection Plan

## Rock County

Information from Rock Co. LEOP, Annex F:

ROCK COUNTY LEOP

ANNEX F

### FIRE SERVICES

ROCK COUNTY FIRE  
DEPARTMENT

NEWPORT FIRE DEPARTMENT

GRACY FIRE DEPARTMENT

KBRC  
MUTUAL  
AID  
ASSOCIATION

STATE SUPPORT:  
Emergency Support Functions  
#4, 5, 10,  
Fire Suppression,  
Emergency Management,  
Environmental Quality  
  
Lead Agencies:  
State Fire Marshal  
  
Nebraska Emergency Management Agency,

F-1

2017

### ROCK COUNTY FIRE RESOURCES

(List numbers of equipment)

FIRE DEPARTMENT	PHONE	AERIAL	PUMPER	TANKER	PUMPER/ TANKER	GRASS-WEED TRUCK	UTILITY TRUCK	RESCUE UNITS	KINDS/TYPES/ SPECIAL- TEAMS	KINDS/TYPES SPECIAL EQUIPMENT	RADIO, LOGICAL EQUIPMENT Yes / No
Bassett / Rock County	911		2	3		7		1		1	Yes
Newport	911		1	2		7					Yes
Gracy	911			1		5					No
Nearest HAZMAT Response Team	308-942- 3435										

ROCK COUNTY LEOP

ANNEX F  
ATTACHMENT 1

F-11

2017

# North Central Nebraska Community Wildfire Protection Plan

## Survey Responses from Rock County Fire Departments:

### Bassett/Rock County VFD

**Counties:** Rock

**Street Address:** 103 E. Buchanan; **Mailing Address:** PO Box 603, Bassett, NE 68714; **Dept. Phone:** 402-684-3333

**Chief:** Jim Stout; 402-760-1330, 402-684-2906; [cheifstout@gmail.com](mailto:cheifstout@gmail.com) (use this spelling!)

**Ass't. Chief:** Reno Gordon; 402-760-0047

**Sec/Treas.:** Mitch Dean; 402-925-8255

### Personnel

30 **Vol.:**

**MAD(s):** KBRC

### Equipment

#### *Engines*

2 Type 1 Structural: 1,000 GPM, 300 gal. capacity, four crew members

2 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members

6 town Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members 3 in country

1 Type 7: Wildland: 10 GPM, 50 gal. capacity, two crew members

*Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

1 T-1 (tactical): 250 GPM pump, 2,000 gallon capacity, 2 crew members

1 S-2 (support): 200 GPM pump, 2,500 gallon capacity, 1 crew member

1 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member

#### *Other*

2 Equipment trucks

9 Road Dept. Equip. (describe): 3 payloaders; 6 maintainers

**Equipment housed away from main barn?** Yes. 3 Type 6 grass rigs spread through area.

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** Yes

**Location:** Pine Creek corridor and Niobrara River Corridor

#### **Issues:**

x Multiple structures

x Difficult access

x Rough terrain

x 1 way in/out

x Heavy fuels

x Lack of water within effective distance

**Bridges that won't support equipment weight:** No

**GIS layer & contact info:** No

**Greatest concerns:** Air support

#### **Rank:**

2 **Housing**

3 **Infrastructure**

4 **Bridge limits**

5 **Hydrants**

1 **Other water sources**

**Comments:** Overabundant fuels in these hard to reach areas.

### Newport Rural Fire

**Counties:** Rock

**Street Address:** 924 2<sup>nd</sup> St., Newport; **Dept. Phone:** 402-244-5211

**Chief:** Colby Sybrant; 402-760-2132; [colbysybrant@abbnebraska.com](mailto:colbysybrant@abbnebraska.com)

**Ass't. Chief:** Kurt Ammon; 402-760-1409

**Sec/Treas.:** Rich Munk; 402-760-2148

### Personnel

28 **Vol.:**



# North Central Nebraska Community Wildfire Protection Plan

**MAD(s):** Region 24

## Equipment

### *Engines*

- 1 Type 2 Structural: 500 GPM, 300 gal. capacity, three crew members
- 2 Type 4: Wildland: 50 GPM, 750 gal. capacity, two crew members
- 6 Type 6: Wildland: 50 GPM, 150 gal. capacity, two crew members

*Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

- 1 S-3 (support): 200 GPM pump, 1,000 gallon capacity, 1 crew member

**Equipment housed away from main barn?** Yes, 4 trucks are housed at places around the southern part of the district.

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** Yes

**Location:** Niobrara Valley

### **Issues:**

- x Difficult access
- x Rough terrain
- x Heavy fuels

**Bridges that won't support equipment weight:** No

**GIS layer & contact info:** No

**Greatest concerns:** Getting to the fire

### **Rank:**

- 1 **Housing**
- 2 **Infrastructure**
- 4 **Bridge limits**
- 5 **Hydrants**
- 3 **Other water sources**

## Gracy VFD

**Counties:** Rock

**Mailing Address:** 84801 Falcon Ave., Burwell NE 68823

**Chief:** Brian Jordan; 308-750-2281, 308-348-2007

**Secretary:** Clayton Gurney; 308-348-2036

**Treasurer:** Rick Stout; 308-348-2009

## Personnel

17 **Vol.:**

**MAD(s):** KBRC, Loup County Rural

## Equipment

### *Engines*

- 3 Type 5: Wildland: 50 GPM, ~~400~~ 300 gal. capacity, two crew members

*Tenders (Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive)*

- 2 T-2 (tactical): 250 GPM pump, 1,000 gallon capacity, 2 crew members

**Equipment housed away from main barn?** Yes. 3 Type 5 engines scattered throughout district; 1 T-2 tender in SE corner of district and 1 T-2 at the main fire barn.

**Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby?** No

**Location:** No specific location was identified, but the following issues were checked:

- x Difficult access
- x Rough terrain
- x Heavy fuels

**Bridges that won't support equipment weight:** No

**GIS layer & contact info:** No

**Greatest concerns:** 1) Home/building sites 2) Where livestock is located 3) Where winter feed is stockpiled

## Appendix G: Fire Department Survey and Distribution List

### Fire Department Survey

Distributed 1/22/2020 to all departments all or partly in the CWPP Region

#### Nebraska Fire Department Survey

**Contact Information:**

Department Name	County(s)
Street Address	Mailing Address
Dept. Phone	Dept. Email
Chief Name:	Best Phone
Email:	Alt. Phone
Assistant Chief Name:	Best Phone
Email:	Alt. Phone
Secretary Name:	Best Phone
Email:	Alt. Phone
Treasurer Name:	Best Phone
Email:	Alt. Phone

**Personnel:**

Number	Type
	Volunteer
	Part-time
	Full-time

What Mutual Aid District(s) is your department in? \_\_\_\_\_

If you have mutual aid agreements outside of formal MA districts please name the departments:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## North Central Nebraska Community Wildfire Protection Plan

Equipment:

Engines		
(Fill in number of each type of equipment below)		
Number	Type	Description
	Type 1	Structural: 1,000 GPM, 300 gal. capacity, four crew members
	Type 2	Structural: 500 GPM, 300 gal. capacity, three crew members
	Type 3	Wildland: 150 GPM, 500 gal. capacity, three crew members
	Type 4	Wildland: 50 GPM, 750 gal. capacity, two crew members
	Type 5	Wildland: 50 GPM, 400 gal. capacity, two crew members
	Type 6	Wildland: 50 GPM, 150 gal. capacity, two crew members
	Type 7	Wildland: 10 GPM, 50 gal. capacity, two crew members
Tenders (see below) Definition: Tactical Tenders: 4x4, 6x6, 8x8 all-wheel drive		
Number	Type	Description
	T-1 (tactical)	250 GPM pump, 2,000 gallon capacity, 2 crew members
	T-2 (tactical)	250 GPM pump, 1,000 gallon capacity, 2 crew members
	S-1 (support)	300 GPM pump, 4,000 gallon capacity, 1 crew member
	S-2 (support)	200 GPM pump, 2,500 gallon capacity, 1 crew member
	S-3 (support)	200 GPM pump, 1,000 gallon capacity, 1 crew member
Other		
Number	Type	
	Equipment trucks	
	Other (Describe):	
	Road Dept. Equipment (describe)	
Yes/No (Circle)	Is any equipment housed away from the main fire barn?	Describe:

## North Central Nebraska Community Wildfire Protection Plan

Have you identified any areas in your district that you are more concerned about than others if a wildfire starts nearby? ☐ Yes ☐ No

If yes, please describe where and why:

Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_ Local Name: \_\_\_\_\_

Location Description:

Issues (check all that apply):

- ☐ Multiple Structures
- ☐ Difficult Access
- ☐ Rough Terrain
- ☐ One way in and out
- ☐ Heavy fuels
- ☐ Lack of water within effective distance
- ☐ Other (specify): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Additional areas:

Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_ Local Name: \_\_\_\_\_

Location Description:

Issues (check all that apply):

- ☐ Multiple Structures
- ☐ Difficult Access
- ☐ Rough Terrain
- ☐ One way in and out
- ☐ Heavy fuels
- ☐ Lack of water within effective distance
- ☐ Other (specify): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## North Central Nebraska Community Wildfire Protection Plan

Are there bridges in your jurisdiction that won't support equipment weight?

☐ Yes ☐ No

If yes, please describe:

Are there other areas in your jurisdiction with high home density, infrastructure or other resources at high risk, or populated areas with one way in/out? ☐ Yes ☐ No

If yes, please describe:

What are your greatest concerns if a wildfire were to start in or enter your jurisdiction?

Does your jurisdiction have GIS layer(s) that show housing, infrastructure, bridge limits, hydrants and other water sources (other than the county assessor's GIS information)? ☐ Yes ☐ No

If yes, please provide contact information:

Name: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Which of these is of greatest concern in your jurisdiction?  
(Please rank 1 to 5 with 1 being most important)

- \_\_\_\_\_ Housing
- \_\_\_\_\_ Infrastructure
- \_\_\_\_\_ Bridge limits
- \_\_\_\_\_ Hydrants
- \_\_\_\_\_ Other water sources

Is there anything else you think we should know? \_\_\_\_\_

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Thank you for providing this information.

Please email a scan of the completed form to [sbenson4@unl.edu](mailto:sbenson4@unl.edu) or mail a hard copy to:

Nebraska Forest Service (Attn: Sandy Benson)  
PO Box 830815  
Lincoln, NE 68583-0815

## **Fire Department Survey Distribution List**

### ***Fire Departments***

Ainsworth Fire and Rescue  
Atkinson Fire and Rescue  
Barley Fire District  
Bassett Vol. Fire  
Butte VFD  
Chambers Fire and Rescue  
Clearwater VFD  
Cody Rural Fire District  
Ewing Fire & Rescue  
Gordon VFD  
Gracy VFD  
Kilgore VFD  
Lynch VFD  
Merriman Fire  
Mid-Cherry VFD  
Mullen VFD  
Naper VFD  
Newport VFD  
O'Neill Rural Fire District #7  
Page Fire and Rescue  
Purdum Rural Fire Department  
Sandhills Fire Protection District  
Spencer Rural Fire  
Springview Fire and Rescue  
Stuart Fire Department  
Thedford VFD  
Valentine Fire Department  
Wood Lake VFD

### ***Also returned survey:***

US Fish and Wildlife Service/Fort Niobrara, Valentine and Seier NWRs

## Appendix H

### Public Engagement

*This section includes outreach documents, media releases, and stakeholders list*

#### Steering Committee

Name	Title/Affiliation
Arens, Beth	Forest Fuels Management Specialist/NFS
Bauer, Denny	Commissioner, Region 24 Representative/ Brown Co.
Bergstrom, Pam	Forest Management and Rural Forestry Forester/NFS
Bladow, Chad	Prescribed Fire Coordinator/TNC/Niobrara Valley Preserve
Corman, Kelly	Wildlife Biologist/NGPC-Bassett Office
Cumbow, Billy	Supervisory Range Technician/USFWS, Valentine
Fiala, Brad	Fire Chief/Ainsworth Fire & Rescue
Fox, Doug	Emergency Manager/Region 24
Hilker, Deb	Emergency Manager/Holt County
Lancaster, Casey	Rangeland Management Specialist/NRCS Valentine
Nickless, Justin	Fire Management Specialist/NFS
Reisen, Dave	State Training-Exercise Officer/NEMA
Severe, Jason	Forest Management and Rural Forester/NFS
Small, Buddy	Commissioner & Niobrara Council Representative/Brown Co.
Thomason, Carmen	Fire Mitigation Specialist/BLM
Warrick, Gordon	Chief of Resource Management/NPS, Niobrara NSR
Weaver, Gary	Assistant Emergency Manager/Cherry Co.
Wienk, Cody	Fire Ecologist/NPS, MWR
Woollen, Rich	District Forester/NFS, Ord
Wyrick, Tim	Assistant Emergency Manager/Keya Paha Co.
Benson, Sandy	CWPP Coordinator/NFS

# North Central Nebraska Community Wildfire Protection Plan

## Outreach Documents

*This document was shared with county boards and emergency managers during June, 2020*

### Updating Your Community Wildfire Protection Plan

The Nebraska Forest Service (NFS) is beginning the process of updating the **Community Wildfire Protection Plan (CWPP)** for North Central Nebraska, adopted by Boyd, Brown, Cherry, Holt, Keya Paha, and Rock Counties in 2014. This plan is a wildfire-specific resource that coordinates with the county emergency and hazard mitigation plans, allowing local landowners and others to apply for federal and state cost-share funds for vegetative fuels reduction and other hazard mitigation efforts within the CWPP region. CWPPs are updated every five years. This update covers 2020-2025.

#### **What is A CWPP and why do we have them in Nebraska?**

A CWPP is one of the most successful tools for addressing the challenges and responsibilities that arise from living in a wildfire-prone environment. CWPPs specifically define wildfire risk areas within and adjacent to communities, the measures necessary to mitigate those risks, and a plan of action to implement these measures.

The collaborative CWPP process maximizes coordination and communication between emergency response agencies and the community. The CWPP helps clarify priorities to protect life, property, infrastructure, and valued resources. Protecting communities and resources from wildfire is a team effort that cannot be accomplished by any one person or entity.

The CWPP works in conjunction with local emergency operations and hazard mitigation plans. It specifically addresses wildfire concerns including risk assessment, critical infrastructure, and preparedness. It also recommends an action plan to increase the overall safety and effectiveness of wildfire protection planning within your community. Local officials collaborate with planners to guide the process and ensure the document is periodically updated.

After the large wildfires in 2012, the state legislature passed the Wildfire Control Act of 2013, which provided funding for single-engine air tanker bases, cost share for hazardous fuels reduction, and expansion of programs to provide volunteer fire districts with more fire suppression equipment. As these programs were implemented, the NFS realized there were very few CWPPs in place across the state. CWPPs are needed for an area to qualify for many wildfire-related grants and cost-share programs. The NFS prepared CWPPs for most areas of the state to ensure they are eligible to apply.

#### **How does it work?**

The planning team guides the process to ensure that pertinent changes and updates are included in the plan and that local issues remain front and center. The team reviews priorities and issues important to local emergency responders, and requests specific input from them. Your ideas are always welcome.

Once we have gathered the information, we will prepare a draft update for public review, incorporate edits and changes, then finalize the plan for county board signature.

Please address questions to [jnickless2@unl.edu](mailto:jnickless2@unl.edu) or call Justin Nickless at 402-760-1930.



# North Central Nebraska Community Wildfire Protection Plan

## Media Releases

### Print Media and Radio

*A public invitation to participate was sent via news release to local newspapers and radio stations June 25, 2020:*

## Community Wildfire Protection Plan update underway

Local counties and emergency managers are working with the Nebraska Forest Service to update the Community Wildfire Protection Plan (CWPP) adopted in 2015 by six north central Nebraska counties. This plan is a wildfire-specific resource that coordinates with area emergency and hazard mitigation plans.

Landowners and others in counties with a CWPP can apply for federal and state cost-share funds for local woody fuels reduction and other hazard mitigation efforts within the CWPP region. There is no cost to counties.

The North Central Nebraska CWPP, part of a statewide network of CWPPs, assists communities in gathering resources, evaluating wildfire risk, and identifying strategies and mitigation actions to reduce overall vulnerability to wildfire events. This CWPP encompasses the entirety of Boyd, Brown, Cherry, Holt, Keya Paha, and Rock counties and the fire districts located within them.

Over the next several months, planners will review the 2015 plan, update outdated information, add any new topics that have emerged, and delete material that is no longer pertinent.

Community participation is welcome throughout the update process. Everyone who works with land management, fire, and community preparedness—particularly counties, local fire districts, natural resources agencies, as well as the general public—is encouraged to provide input on wildfire concerns.

The 2015 CWPP can be viewed or downloaded at <https://nfs.unl.edu/documents/CWPP/NorthCentral.pdf>. For further information or to provide comments, email [sbenson4@unl.edu](mailto:sbenson4@unl.edu) or call 402-684-2290.

\* \* \*

### Public Meetings

Steering Committee members participated in the Region 24 Hazard Mitigation Plan update stakeholder meetings September 23, 24, and October 1, 2020 to provide information on the CWPP update, solicit input, and answer questions.

### Follow-up News Releases

Media releases for draft review and publication of final plan were distributed in October and November, 2020.

### Online Outreach

Information about the North Central Nebraska CWPP update process was placed on the Nebraska Forest Service website's CWPP page: <https://nfs.unl.edu/community-wildfire-protection-plan> and the Nebraska CWPP Facebook page: <https://www.facebook.com/groups/451134565293952/> on June 9, 2020. During the planning process, links to periodic updates and the draft and final documents were also posted to these locations.

## Stakeholders List

County Boards, Emergency Management, and Municipalities in: Boyd, Brown, Cherry, Holt, Keya Paha, and Rock Counties

Fire Departments: See Appendix G

Natural Resources Districts: Lower Niobrara, Middle Niobrara, Upper Elkhorn, Upper Loup

State Agencies: Nebraska Forest Service, Nebraska Game and Parks Commission, Nebraska State Fire Marshal's Office, Board of Educational Lands and Funds, Nebraska Emergency Management Agency

Federal Agencies: National Park Service, Natural Resources Conservation Service, US Fish and Wildlife Service, US Forest Service, Bureau of Land Management

Non-Government Conservation Organizations: The Nature Conservancy, Audubon of Kansas, Niobrara Council, Pheasants Forever

Prescribed Fire Associations: Niobrara Valley Rx Fire Assoc.

Interested Individuals

## Appendix I

- Wildland Urban Interface Mitigation Strategies
- Structural Ignitability Reduction Practices
- Firewise® Landscaping
- Nebraska Fire-Resistant Plant List

# North Central Nebraska Community Wildfire Protection Plan

## Wildland Urban Interface Mitigation Strategies and Structural Ignitability Reduction Practices

- 1) Develop a program to increase awareness of Firewise® standards for community defensibility and designate, for firefighter safety, which homes and/or parts of communities are not defensible
- 2) Introduce and expand the understanding of the “Home Ignition Zone” and emphasize how survivability depends on maintenance necessary to reduce and manage home ignition potential
- 3) Create guidelines for developers and property owners who intend to construct roads, driveways and dwellings to provide the following:
  - a. Name, address, and GPS location for each road, driveway, and building site
  - b. Fuel treatment standards for the areas between building sites
  - c. Evidence that Firewise® building standards and defensible space information has been provided to every lot and homebuyer or develop Firewise® based requirements for new building construction standards
  - d. Road construction and maintenance standards that accommodate emergency equipment
  - e. Require at least two access routes for developed areas and subdivisions
  - f. Designate locations for maintained safety zones and water facilities
- 4) Subdivision residents can work together to improve defensibility of their whole subdivision; this could include connecting home site defensible space areas and/or fuel hazard reduction and thinning 150 to 200 feet from buildings
- 5) Develop accurate maps for subdivisions and access roads
- 6) Treat fuels along strategic roads
- 7) Long driveways in wooded areas should be graveled and provided with terminus turnaround that has at least a 45-foot radius or a pull-in and pull-out facility
- 8) Mark driveways without turnaround or with steep slopes with a sign indicating limitations
- 9) Mark safety zones and helispots where fuel continuity is dense and zones are not obvious
- 10) Develop and implement a standard for signing roads and addressing and marking homes for more efficient emergency access

## Web Sources: Wildfire Preparedness

FEMA: Local Mitigation Planning: <https://www.fema.gov/local-mitigation-planning-resources>

Fire-Adapted Communities®: <http://www.fireadapted.org/>

Firewise® Communities: <http://www.firewise.org/>

Firewise Guide to Landscaping and Construction: <https://www.nfpa.org/-/media/Files/Firewise/Brochures-and-Guides/FirewiseGuideToLandscapeandConstruction.ashx>

I Am Responding (Emergency responder supplemental dispatch notification system): <https://iamresponding.com/v3/Pages/Default.aspx>

Nebraska Forest Service Wildland Fire Protection Program: <https://nfs.unl.edu/fires-nebraska>

Ready, Set, Go! <http://www.wildlandfirersg.org/>

USFS Wildfire Risk to Communities interactive website: <https://wildfirerisk.org/>

# North Central Nebraska Community Wildfire Protection Plan

## Firewise® Landscaping and Nebraska Fire-Resistant Plant List

### Firewise® Landscapes

Homeowners value landscapes for the natural beauty, privacy, shade and recreation they offer and frequently select properties that include or are near woodlands or other natural areas to visually expand the landscape. One of the risks of properties adjoined to natural areas, however, is that they can be more vulnerable to wildfires.

#### Creating Defensible Space

In fire-prone areas, property owners can take measures to minimize the risk of wildfire damage by creating a “defensible space” around the home or other buildings. Some of the ways to create more Firewise® landscapes include:

- Planting lower-growing plants or groundcovers near the home to form low, dense mats with strong root systems
- Avoiding the use of tall grasses close to buildings since they can ignite easily and burn rapidly
- Mulching with rocks, gravel or other hardscaping around the foundation instead of bark, pine needles or other flammable mulches
- Paving patio areas and creating raised beds to create firebreaks
- Planting low-growing succulent shrubs rather than taller, resinous evergreen shrubs
- Spacing trees so that tree crowns are 10 feet from each other
- Pruning dead limbs
- Removing dried annuals or perennials
- Raking leaves and litter as they build up
- Placing screens beneath decks to keep leaves or woody debris from collecting underneath
- Keeping wood piles at least 30 feet away from the house
- Providing open access for firefighting equipment that is not limited by fences, trees, or other obstructions
- Keeping propane tanks a good distance from buildings, and taking care when refueling garden equipment
- Using non-flammable outdoor furniture

#### Selecting Firewise Plant Materials

No plant species is entirely fireproof. Virtually any vegetation can fuel a fire, but some species are more resistant than others. The following information can help property owners select more fire-resistant plant materials, but where they are planted and how they are cared for can be just as important as the plants themselves.

- Planting a variety of sizes and species of plants in small, irregular clusters creates a better barrier than large masses of a single species
- Groundcovers or other plants that grow close to the ground offer less fuel
- Conifers or other plants are high in very flammable resin, so it’s best to keep them thinned and pruned—especially close to the ground
- Conifers with thick bark and long needles are more able to withstand fire
- Salt-tolerant plants tend to be somewhat more fire-resistant
- Deciduous plants have higher moisture content, are less flammable and, when dormant, offer less fuel
- Drought-tolerant plants tend to be more fire-resistant as they are likely to contain lots of moisture (succulents) or to shed leaves or needles during extreme drought
- Plants with open, loose branches and minimal vegetation (such as currant and mountain mahogany) are less of a hazard, as are plants that grow slowly and need little pruning
- Plants, like aspen, that can resprout following a fire will more quickly rejuvenate a landscape

#### Using Native Prairie Plants

In Nebraska it is often the case that a “Firewise” landscape should also be a “waterwise” landscape where drought-tolerant plants are an important part of the mix. Obviously our native plants have evolved to grow under natural moisture conditions and many of them are suitable for both a “waterwise” and a “Firewise” landscape. Just a little water here and there can go a long way to keeping such plants green and viable. Another important aspect of using native plants is that they play a vitally important role in supporting biodiversity and all the benefits derived from it. We strongly recommend that native plants be utilized within any landscape, including the Firewise landscape. The trick is to use them appropriately, especially near the home.

## North Central Nebraska Community Wildfire Protection Plan

Although native prairie grasses and forbs make a lot of sense in a “waterwise” landscape, they can also be highly combustible when they are brown and dry. For a Firewise landscape, prairie plants, especially taller grasses, should be used sparingly and judiciously within the 30 foot “Lean, Clean and Green Zone” nearest the home. A few scattered here and there for ornamental affect are fine, but they should not be massed tightly close to the home. A prairie meadow or thick border planting should be reserved for those areas farther away from important structures.

### Lawn and Groundcover

One of the best ways to defend a structure against wildfire is to maintain a closely-cropped green zone near the home. This typically means the maintenance of a green lawn, but turf grass is not the only choice. Cool-season lawn grasses such as Kentucky bluegrass and tall fescue are good choices, although they can require significant amounts of supplemental irrigation to keep green in dry weather. For sunny areas, a good alternative is buffalo grass, which requires much less moisture than other lawn grasses. Our native blue grama can also be used as a turf alternative, however it will need to be mowed higher – at 8-10” while green and then mowed short when dormant. Recent years has brought the advent of many sedge species as lawn alternatives especially for more shady zones.

Groundcovers don’t need to be grasses or grass-like plants requiring mowing. There are several species of “Firewise” groundcover perennials that make sense including such things as vinca, bergenia, hosta, bugleweed, geranium, sedum, primrose, pussytoes, snow in summer, Virginia creeper, wild strawberry and yarrow.

### Introduced Perennials and Ornamental Grasses

As with native plants, there are many great non-native species that can be used in a “Firewise” landscape that is also “waterwise.” The trick is to place them appropriately and cut them back (clean them up) when they die back late in the season. Some of our favorites include sedum, geranium, coral bells, daylily, lambs ear, feather reed grass, Korean reed grass, and fountain grass.

### Trees and Shrubs

Although nearly any tree or shrub could burn in a severe fire, it is the highly volatile evergreen species including pine, spruce, fir, juniper, and cedar that pose the most risk when growing near homes or other structures. Within the area nearest the home (30-foot interior zone) it is advisable to exclude volatile evergreens entirely. However, because deciduous trees are so important at casting shade and cooling the home and its surroundings, and because they are not nearly as prone to burning, they can be utilized relatively close to the home. Keep in mind that any branches directly overhanging the roof should be removed. Some of the best deciduous trees for planting near homes include our tough native species including hackberry, bur oak, coffeetree, and honeylocust.

Most deciduous shrubs are acceptable for use in a Firewise landscape. Nearest the home, the shrubs should be kept lower than 30 inches and they should not be massed in tight groupings. Beyond the 30-foot interior zone, the shrubs can be taller and more tightly spaced, however grouping should still be kept relatively small until at least 50 feet from the home. Native species will do the most for biodiversity. Species to consider include mountain mahogany, rabbit brush, sumac, serviceberry, currant, snowberry, gooseberry, plum, and chokecherry.

## Firewise Plants for Nebraska

### Perennials & Groundcovers

*Artemisia*  
*Bergenia*  
Blanket flower, *Gaillardia*  
Bugleweed, *Ajuga*  
Candytuft, *Iberis*  
Catmint, *Nepeta*  
Coneflowers, *Rudbeckia*  
Columbine, *Aquilegia*  
Coral bells, *Heuchera*  
*Coreopsis*  
Daylily, *Hemerocallis*  
Flax, *Linum*  
*Geranium*  
Hens and chicks, *Sempervivum*  
*Iris*  
Lambs ear, *Stachys*  
*Penstemon*  
Pinks, *Dianthus*  
Primrose, *Oenothera*  
Pussytoes, *Antennaria*  
Sage, *Salvia*  
*Sedum*  
Snow-in-summer, *Cerastium*  
Violets, *Viola*  
Virginia creeper, *Parthenocissus*  
Wild ginger, *Asarum*  
Wild strawberry, *Fragaria*  
Yarrow, *Achillea*

### Shrubs

Buffaloberry, *Shepherdia*  
Cherry and plum, *Prunus*  
Cinquefoil, *Potentilla*  
Coralberry, snowberry, *Symphoricarpos*  
*Cotoneaster*  
Currant and gooseberry, *Ribes*  
Dogwood, *Cornus*  
Lilac, *Syringa*  
*Mahonia*  
Mock orange, *Philadelphus*  
Mountain mahogany, *Cercocarpus*  
Ninebark, *Physocarpus*  
Rose, *Rosa*  
Sumac, *Rhus*

### Trees

Aspen, cottonwood and poplar, *Populus*  
Birch, *Betula*  
Black cherry, *Prunus*  
Boxelder, *Acer*  
Bur, Gambel, Chinkapin oak, *Quercus*  
Hackberry, *Celtis*  
Maple and boxelder, *Acer*  
Ohio buckeye, *Aesculus*  
Willow, *Salix*

## Appendix J: Emergency Assistance References

### 1. Link to the Nebraska Forest Service “Yellow Book” Emergency Assistance for Wildfire Control

<https://nfs.unl.edu/documents/Yellowbook.pdf>

This reference is a “must have” for Nebraska’s emergency responders. It contains:

- Contact information for state, federal and private agencies that have emergency suppression resources or can provide technical expertise in the suppression of wildfires
- Aerial Applicator and Foam Retardant Directory
- Deployment procedures and forms you will need to follow to order a Single Engine Air Tanker (SEAT)
- Map of cooperating aerial applicators and SEAT base locations

### 2. Emergency Phone Numbers and Radio Frequencies for the North Central Nebraska CWPP Region

*(Updated from Appendix K in the 2009 CWPP)*

To report a wildland fire call these numbers:

Boyd County: **911** or (402) 775-2331 (Sheriff’s Office)

Brown County: **911** or (402) 387-1440 (Sheriff’s Office)

Cherry County: **911** or (402) 376-1890 (Sheriff’s Office)

Holt County: **911** or (402) 336-2850 (Sheriff’s Office)

Keya Paha County: **911** or (402) 497-3201 (Sheriff’s Office)

Rock County: **911** or (402) 684-3811 (Sheriff’s Office)

Great Plains Interagency Dispatch Center (605) 393-8017

## North Central Nebraska Community Wildfire Protection Plan

Dept. Name	Chief/FMO/Supt.	Phone #
Ainsworth	Brad Fiala	402-760-1512
Atkinson	Randy Bilstein	402-925-5150, 402-340-4606
Barley	Rex Adamson	402-832-4334, 402-389-0418
Bassett	Jim L. Stout	402-760-1330; 402-684-2906; 402-684-3333
Butte	Scott Bernt	402-775-2670
Chambers	Ryan Walters	402-340-0169
Clearwater	Steve Hankla	402-485-2582
Cody	Jordan Pitkin	605-220-0409, 605-822-4100
Ewing	Chad Napier	402-336-6210
Gordon	Richard Haller	308-282-1770, 308-360-1652, 308-282-2762
Gracy	Brian Jordan	308-750-2281
Johnstown	Wade Buechel	402-760-2456
Kilgore	Todd Rothleutner	402-389-0614, 402-966-2111
Long Pine	Matt Pohzel	402-760-1531
Lynch	Jim McBride	402-340-4913, 402-569-2222
Merriman	Clifford Cady	605-890-7616, 308-684-3397
Mid-Cherry	Kevin Ravenscroft	402-376-1166, 402-823-4139
Mullen	Josh Barnes	308-546-2400, 308-546-0569
Naper	Bryon Vogt	402-340-6451
Newport	Colby Sybrant	402-760-2132
O'Neill	Roger Miller	402-336-3034, 402-340-4780, 402-336-1700
Orchard	Duane Risinger	402-893-4355, 402-893-2009
Page	Rod Isom	402-340-5473, 402-338-5901
Purdum	Shane Keller	402-376-5831, 308-834-3267
Sandhills/Hyannis	Darrel Seidler	308-458-2763, 308-458-8200, 308-458-2424
Spencer	Shawn Davis	402-340-9563, 402-961-9376
Springview	Scott Hallock	402-760-1391, 402-497-3991
Stuart	Dan Malone	402-924-3108, 402-340-1487, 402-924-3469
Thedford	Russ Reiser	402-322-0760
Valentine	Terry Engles	402-376-1700, 402-322-1843, 402-376-3100
Wood Lake	Craig O'Kief	402-376-4133
Smith Falls	Amy Kucera	402-376-1306, 402-389-0042
USFWS	Billy Cumbow	402-376-3789 ext. 225, 402-322-0252
NPS	Steve Thede	402-376-1901

### Radio Frequencies

#### Guidelines:

- Try to use primary high-band channels for communications within an agency
- Use **39.98** MHz for communications between departments and agencies/organizations; **State Mutual Aid** (155.475) or **Govt. Common Use Digital** (168.6125/F7E (Rx), 168.6125/293 (Tx))
- Keep radio traffic to a minimum—communications between agencies should be restrained to command level(s)
- Avoid 10-codes; use plain language
- Ensure all vehicles and on-foot firefighters have a working radio with spare batteries
- On mutual assist fires the IC should develop a simple communications plan immediately



## North Central Nebraska Community Wildfire Protection Plan

*(The information in this table was listed in Appendix K of the 2009 CWPP)*

<b>Ainsworth VFD</b> High band Direct: 158.775 MHz High band Repeater: 153.785 MHz	<b>Bassett VFD</b> High band Direct: 155.925 MHz High band Repeater: 153.920 MHz Low band 39.98 MHz
<b>Keya Paha County (Roads)</b> Direct (Springview VFD): 158.880 MHz Repeater (Springview VFD): 154.085 MHz	<b>Valentine VFD</b> Radio (used also by Wood Lake): 39.98 MHz Pagers: 158.820 MHz
<b>Fort Niobrara National Wildlife Refuge</b> United States Fish & Wildlife Service (FWS): Rx 169.775/078 MHz; Tx 169.775/078/127.3 MHz Repeater: Rx 169.775/078; Tx 169.725/078/127.3 MHz	<b>Niobrara National Scenic River</b> National Park Service (NPS): Direct 171.1625/100 MHz West Repeater: Rx 171.1625/100; Tx 166.3375/200 MHz East Repeater: Rx 171.1625/100; Tx 166.3375/300 MHz
<b>Brown County (Roads)</b> Direct (used by Long Pine, Johnstown, South Pine, Raven & Calamus): 155.025 MHz Repeater (used by same departments as listed above): Rx 153.775 MHz, Tx 153.815/114.8	<b>Nebraska State Mutual Aid</b> High Band Law Enforcement (LE): 155.475 MHz Low Band LE: 39.90 MHz Low Band Fire: 39.98 MHz
<b>Niobrara Valley Preserve</b> The Nature Conservancy (TNC): 151.520 MHz	<b>NOAA (weather): 162.450 MHz</b>
<b>Smith Falls State Park</b> Nebraska Game & Parks Commission (NGPC) (Parks): 151.475 MHz	

### Air-to-Ground VHF Channels

Used to communicate with the SEAT and other aircraft. These are ONLY used with aircraft. These frequencies are for the entire state and should be used if the capability exists. If not, then a VTAC channel can be used, if needed.

A/G 25: 168.7500 MHz – PRIMARY frequency

A/G 5: 166.7500 MHz

A/G 29: 166.9000 MHz

The radio contact list on the following page was provided by Cherry County Emergency Management:

# North Central Nebraska Community Wildfire Protection Plan

ENTITY	SITE	FUNCTION	BAND	TX FREQ	PL/DPL TX	RX FREQ	PL/DPL RX	CONTROL	LOCATION
Cherry Co	Local HB	Mobile	12.5	158.8200	411	158.8200	411	Tone	
Cherry Co	Beaver HB	Mobile	12.5	153.8750	243	158.8200	411	Tone	
Cherry Co	Nenzel HB	Mobile	12.5	153.8000	411	158.8200	411	Tone	
Cherry Co	Norden HB	Mobile	12.5	153.8000	532	158.8200	411	Tone	
Cherry Co	Merriman HB	Mobile	12.5	153.8750	315	158.8200	411	Tone	
Cherry Co	Beaver Law/ AF	Mobile	12.5	153.7400	351	155.4300	351	NAC 351	
Cherry Co	Nenzel Law/AF	Mobile	12.5	158.9550	263	155.8050	263	NAC 263	
Cherry Co	Norden Law/AF	Mobile	12.5	156.0900	432	154.1450	432	NAC 432	
Cherry Co	Merriman Law/AF	Mobile	12.5	153.9800	306	155.8950	306	NAC 306	
Cherry Co	Valentine TAC/ AF	Mobile	12.5	159.0000	565	154.9800	565	NAC 565	
Cherry Co	Valentine Law	Mobile	12.5	158.7900	546	155.7900	546	NAC 546	
Cherry Co	Cherry Co Hospital	Mobile	12.5	156.1350	152	153.8150	152	NAC 152	
Cherry Co	Valentine Direct	Mobile	12.5	155.4300	351	155.4300	351		(Beaver A/F Talk Around)
Cherry Co	Valentine Police	Mobile	12.5	158.9100	156.7	155.6400	156.7		
Cherry Co	Wood Lake Fire	Mobile	12.5	159.1350	351	154.3100	351		
So Dak	RST Tac	Mobile	12.5						
So Dak	Winner Int	Mobile	12.5						
So Dak	Martin Int	Mobile	12.5						
So Dak	NWSW	Mobile	12.5						
So Dak	RST	Mobile	12.5	155.9100	CSQ	154.7850	CSQ		
Nebr	B Roc								
Nebr	D Roc								
Nebr	E Roc								
Nebr	V tac								
Cherry Co	North Mullen	Mobile	12.5	153.7700	172	156.1800	172		
Cherry Co	Nenzel 39.90 Link	Mobile	12.5	457.6500	110.9	452.6500	110.9		
Cherry Co	Nenzel Mullen Link	Mobile	12.5	457.9750	118.8	452.9750	118.8		
Federal	NPS Smith	Mobile	12.5	166.3375	NAC 200	171.1625	NAC 100		
Federal	NPS Norden	Mobile	12.5	166.3375	NAC 300	171.1625	NAC 100		
Key Co	KP Springview	Mobile	12.5	158.8800	D031	154.0850	D031		UPDATED 06/10/2016
Key Co	KP Mills	Mobile	12.5	153.9500	174	155.9550	174		
Key Co	KP Norden	Mobile	12.5	153.9950	205	156.2250	205		
Cherry Co	Valentine Utilities	Mobile	12.5	155.9400	118.8	158.8500	118.8		

ENTITY	SITE	FUNCTION	BAND	TX FREQ	PL/DPL TX	RX FREQ	PL/DPL RX	CONTROL	LOCATION
Rock Co fire	Bassett	Mobile	12.5	153.9200	32	155.9250	32	Tone	
Rock Co fire	Rose	Mobile	12.5	153.9200	71	155.9250	32	Tone	
Rock Co fire	Gracey	Mobile	12.5	153.9200	271	155.9250	32	Tone	
Rock Co fire	Newport	Mobile	12.5	153.9200	132	155.9250	132	Tone	
Rock Co SO	Bassett	Mobile	12.5	158.8650	243	155.9025	243	Tone	
Bro Co SO	Ainsworth	Mobile	12.5	153.7550	114.8	155.0250	114.8	Tone	
Bro Co SO	Raven	Mobile	12.5	153.7550	162.2	155.0250	114.8	Tone	
Bro Co SO	Johnstown	Mobile	12.5	153.7550	131.8	155.0250	114.8	Tone	
Ainsworth	Fire dept	Mobile	12.5	153.7850	114.8	158.7750	114.8	Tone	
Ainsworth	Fire Mobile Rep	Mobile	12.5	159.4050	223	154.1750	223	Tone	
Ainsworth	City Repeater	Mobile	12.5	153.8450	1565.7	158.8050	156.7	TPL	
Bro Co SO	Mobile Repeater	Mobile	12.5	173.3125	94.8	173.3125	c/s	Tone	
Keyapaha	Springview	Mobile	12.5	158.8800	31	154.0850	31	Tone	
Keyapaha	Norden	Mobile	12.5	153.9950	205	156.2250	205	Tone	
Keyapaha	Mills	Mobile	12.5	153.9500	174	155.9550	174	Tone	
Boyd Co	Sheriff Naper	Mobile	12.5	156.0000	343	154.3100	43	Tone	
Boyd Co	Sheriff Butte	Mobile	12.5	156.0000	143	154.3100	43	Tone	
Boyd Co	Sheriff Lynch	Mobile	12.5	156.0000	243	154.3100	43	Tone	
Boyd Co	911 Butte	Mobile	12.5	158.8500	192.8	154.8750	100	TPL	
Boyd Co	911 Lynch	Mobile	12.5	158.8500	173.8	154.8750	100	TPL	
Boyd Co	911 Naper	Mobile	12.5	158.8500	114.8	154.8750	100	TPL	
Ainsworth	SO	Mobile		39.9000	c/s	39.9000	c/s		
Holt Co	Tac	Mobile	12.5	154.7700	100	154.7700	100	TPL	
Holt Co	911 Oneill	Mobile	12.5	158.7300	103.5	154.7400	100	TPL	
Holt Co	911 Ewing	Mobile	12.5	158.7300	141.3	154.7400	100	TPL	
Holt Co	911 Atkinson	Mobile	12.5	158.7300	156.7	154.7400	100	TPL	
Holt Co	911 Atkinson 2	Mobile	12.5	158.9625	134	155.8200	134	Tone	
Holt Co	911 Chambers	Mobile	12.5	158.9250	132	154.0100	32	Tone	
Holt Co	911 Stuart	Mobile	12.5	158.7300	127.3	154.7400	100	TPL	UPDATED 02/15/2017