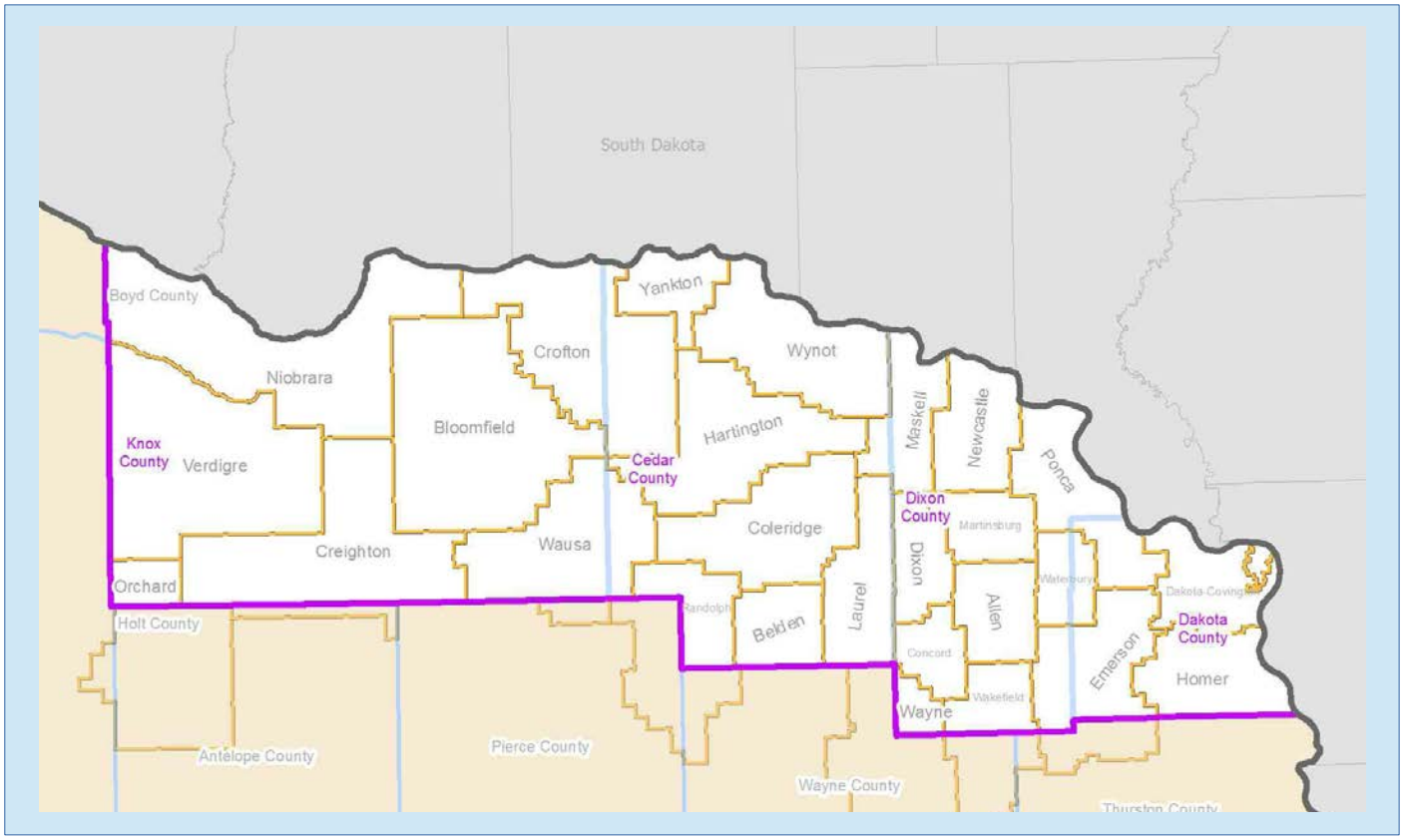
Missouri River Northeast
Community Wildfire Protection Plan
Part A ~ Narrative
Developed for these Fire Districts

Allen ~ Bloomfield ~ Coleridge ~ Concord ~ Creighton
Crofton ~ Dakota – Covington ~ Dixon ~ Emerson ~ Fordyce
Hartington ~ Newcastle ~ Niobrara ~ Ponca ~ Randolph
South Sioux City ~ Verdigre ~ Wakefield ~ Wausa
Wayne ~ Wynot



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for
Nebraska State Forest Service

In collaboration with

Fire Districts
Emergency Managers
Nebraska Game & Parks
National Park Service
US Army Corps of Engineers
Municipalities
County Governments

Part B contains
Maps and Fire Department Survey Summaries by Mutual Aid Districts

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Introduction

In the last decade, two broad overarching natural resource assessments and strategies for conservation were developed in each state as required by the federal government to be eligible for possible future funding assistance. One was for wildlife and one for forests.

Nebraska Natural Legacy Project was published initially in 2005 as the state's first Wildlife Action Plan and took a *"habitat-based approach to conservation, identifying 40 biologically unique landscapes to help prioritize where conservation work can best be directed"*. Two of the biologically unique landscapes (BUL) are within the Missouri River Northeast CWPP planning area (CWPP), Ponca Bluffs and Verdigris-Bazile (Appendix A).

The 2008 Farm Bill mandated each state to conduct a comprehensive analysis of its forests. The Nebraska Forest Service (NFS) with several partners completed the analysis and formulated the Statewide Forest Resource Assessment and Strategy, which is now referred to as the Forest Action Plan (FAP). The strategic spatial analysis of all the data helped identify priority forest areas throughout the state using the National Land Cover Dataset (NLCD) as the base data of where forest is located. The NLCD represents 15 land cover and land use types covering open water, development, crops, shrubs, pasture, wetlands and forest types.

Two of the priority forest areas are transitional mixed forest in the Niobrara River Valley and Missouri River (Appendix B). This CWPP covers a small portion of eastern Niobrara River Valley Priority Forest Landscape and the northern portion of the Missouri River BUL. The CWPP or outcomes from its implementation falls under several FAP objectives:

Objective 1—Actively and Sustainably Manage Forests (Implementation)

Objective 2—Restore Fire-Adapted Lands and Reduce Risk Of Wildfire Impacts In Forests & Adjacent Communities (Directly)

Objective 3—Identify, Manage and Reduce Threats To Forest and Ecosystem Health (Implementation)

Objective 4—Protect and Enhance Water Quality and Quantity (Implementation)

Objective 6—Assist Communities In Planning For and Reducing Wildfire Risks (Directly)

Objective 7—Maintain And Enhance The Economic Benefits and Values Of Trees and Forests (Implementation - Fuels reduction projects)

Objective 8—Protect, Conserve and Enhance Fish and Wildlife Habitat (Implementation)

Objective 9—Manage and Restore Trees and Forests to Mitigate and Adapt To Global Climate Change (Indirectly)

Priority landscapes were identified during the FAP process with the intention of focusing effort and scarce project funding on landscape scale projects in the priority landscapes. The area represented by the CWPP boundaries contains a range of these landscapes.

Process

The Missouri River Northeast CWPP area was defined by county boundaries using the Biologically Unique Landscapes, priority forest areas and known wildland urban interface areas. Each fire district wholly or partially within Cedar, Dixon, Dakota and Knox Counties will be considered a wildland urban interface (WUI) for planning purposes, as each contains one or more villages, cities, unincorporated communities, and scattered farmsteads and infrastructure. The CWPP area north of Highway 12 is of the most concern in multiple fire districts with more homes in the riparian forest and Eastern red cedar growth.

Collaborators were given the opportunity to provide input via personal communication and a web survey covering fire district equipment and personnel, community infrastructure, access and fuels concerns. Fire Chiefs, Emergency Managers, Municipal and County officials, the Natural Resource Districts and Nebraska Public Power District were asked what if any concerns they had and to rank possible programs in fire prevention, suppression and education areas. The survey is found in Appendix C. The narrative that follows includes the concerns and information provided by all partners.

Aerial Views

Visual assessments of each district was made using United States Department of Agriculture (USDA) National Agriculture Imagery Program (NAIP) 2012 imagery. The one-meter ground sample distance of the imagery allows some analysis of fuel concentrations and trouble spots in areas not easily accessible on the ground in a time efficient manner. An aerial view map in each fire district's map section displays the NAIP imagery.

Native Vegetation Data

Native Vegetation	Acres	% CWPP
Gravelly Mixed-grass Prairie	97,629.00	5.81%
Loess Mixed-grass Prairie	228,515.25	13.60%
Lowland Tallgrass Prairie	58,527.79	3.48%
Riparian Deciduous Forests	88,020.59	5.24%
Sand Hills Borders Mixed-grass Prairie	1,680.79	0.10%
Sand Hills Mixed-grass Prairie	12,321.19	0.73%
Upland Deciduous Forests	137,002.02	8.15%
Upland Tallgrass Prairie	1,056,921.43	62.89%
Total	1,680,618.05	

Native Vegetation of Nebraska was gathered from the University of Nebraska - Lincoln School of Natural Resources. The layer is described in it's metadata as "data from a mylar 1:1,000,000 map published by CSD in 1993. Used to determine the number of acres of each broad vegetation type across the state. Considerable effort was required to geocode over 1000 polygons to properly represent the map."

Upland Tallgrass Prairie is by far the most prevalent native vegetation in the CWPP at nearly 63%. The next most abundant type of Loess Mixed-grass Prairie, 13.6%, is within the two

biologically unique landscapes. The generalized Native Vegetation map is in Appendix D.

LANDFIRE & National Land Cover Database (NLCD)

Data regarding fuel models was acquired from LANDFIRE (Landscape Fire and Resource Management Planning Tools). It contains 20 national geospatial layers of data that support regional and landscape scale projects. LANDFIRE has been used in hazardous fuel reduction and ecological conservation planning, Community Wildfire Protection Plans and other initiatives set forth in the Healthy Forests Restoration Act and National Fire Plan.

Each Fire District is overlayed with fire behavior fuel models to assist in prioritizing hazardous fuels projects. Fuel models used are the 40 Scott and Burgan Fire Behavior Fuel Models (40FBFMs) which are a more dynamic predictor of fire behavior across prairie type fuels than those that were defined by the original 13 fire fuel models in 1982. More information on the fuel models can be found in the USDA Forest Service Rocky Mountain Research Station General Technical Report RMRS-GTR-153.

The data layers are scientifically based and the process was thoroughly ground truthed to develop this nationwide resource for planning. The NFS agrees with the boundaries between fuel types, but questions the accuracy of some of the underlying fuel descriptions in the state, i.e. the fuel may be more dense than what LANDFIRE defines as was presented in the original publication of data. ThE 40FBFMs layer used here was published March 31, 2013 and appears to have improved in that area.

The NLCD and LANDFIRE layers are in raster format, with each cell in the raster representing 0.222 acres (900 sq meters) which provides avenues for spatial analysis. Should the partners decide, a more detailed spatial analysis with LANDFIRE and other data could be completed in plan revisions.

Maps of NLCD and 40FBFMs for the whole CWPP are in Appendix E and in each fire district's map section displaying the 40FBFMs in that district. Each district's write-up contains a breakdown of acres from the NLCD, the 15 classifications were simplified into fewer broad categories – crop, developed, forest, shrub, water, barren, and wetlands for more relate-able than the 40FBFMs. Acres listed as shrub are typically rangeland, which will have varying fire hazard, risk, and resulting activity based on annual vegetation growth and amount and consistency of grazing.

Weather Effects

Predominant wind direction across the area was obtained from the National Weather Service records and verified with personal records of district personnel and emergency managers. Weather factors are a driving force for defining 'fire season' and fire direction. Two general fire seasons have been noted in the area. From the last spring frost, bud break, and grass flush in wildland fuels up to early May is the early season, with a fall season starting mid-to-late September to mid-November aligning with both agriculture crop harvests, leaf drop and curing of grasses in wildland areas. Wet winters and springs can produce more grasses and

forbs (fine fuels) in ditches and across rangelands that in late summer-fall become cured tender for sparks to start wildfires. In dryer years, there is less growth, therefore there is less fine fuels to catch the sparks from trains, farm equipment, and traffic.

Wind is primarily northwest as seen in wind rosettes from April and October from three stations surrounding the plan area, Dakota City, Wayne and Yankton (Appendix F). Wind is also a prime factor in fire spread where fuels are light and/or discontinuous as is much of the agriculture area at certain times of the years. Many districts are more than fifty-percent (50%) agriculture and grass fuels which are described in each section.

Historic Fire Activity

Wildland fire occurrences are suppose to be reported to the NFS. Since 2007, all fire locations have been reported with latitude/longitude coordinates for mapping purposes. The data is then able to be analyzed to find any human caused fire patterns that can assist in targeting fire prevention education messages or if more staffing is needed in a district.

In each fire district's map section is a map displaying 2004-2014 fires reported by size class.

In that time frame 435 fires are in the database, with only 13 being lightning fires.

Fire Dept	# Man Caused	Man Acres	# Lightning	Lightning Acres
Allen	5	117		
Belden				
Bloomfield	5	55	1	0.13
Coleridge	2	24		
Concord	9	459.2		
Creighton	4	80		
Crofton	47	1409.32	2	0.12
Dakota City				
Dixon	5	18.11		
Fordyce	3	3.5		
Hartington	39	417.35	1	1
Homer	46	1198.5		
Laurel				
Lynch				
Martinsburg				
Newcastle	23	417.22		
Niobrara	2	6	1	160
Pierce				
Ponca	80	790.52	1	10
Randolph	41	285.3		
Springview				
Verdigre	32	1038.35	4	4.1
Wakefield	2	3.5		
Wausa				
Wayne	3	29		
Wynot	9	16.325	2	1.45
TOTAL	**357**	**6368.195**	**12**	**176.8**

unreported fires does not mean no fire occurrence

Special Concerns

Large confinement facilities of poultry, pork and cattle represent unique interface locations. Each facility should have a fire response plan that they share with the Fire Chief.

Infrastructure of any type, homes and farm yards are not safe from a wildfire just because they are not surrounded by a forest or woodland. Grass fires, and some crop fires, can present more of a challenge and can be more dangerous with a hot drying wind pushing the fire, increasing the rate of spread, directing the fire's path and jumping areas of little to no wildland fuels. Because of their fast rate of spread and sometimes unpredictable direction, wind driven fires present a shortened response time for the people in its path, and those needed to suppress the fire.

The fast rate of spread and small, fine fuels does mean the fire does not linger and cause catastrophic damage to the soil or other resources, unless a piece of infrastructure ignites as well. Since a 'forest' fire is rare in the CWPP area, firefighter training should include mop up and handling heavy fuels for those wildland fires that burn into riparian forests, windbreaks and wood lots.

FireWise principles and concepts found in Living with Fire should be practiced around all critical infrastructure, farm yards, stock facilities, cities and villages.

GIS/Mapping

Local fire fighters in each District knows which loaded fire truck or tender they should not take over which bridges and how many homes are down a specific narrow road. Updated maps showing this information is imperative if a large fire requires mutual aid from farther away than adjacent districts. Current technology would allow smart phone, tablet or laptop displays of dynamic maps, even without internet access.

It is suggested that all fire districts/counties work towards having these map layers.

- Industrial areas should be mapped and potential hazards known. This includes agriculture and other chemical storage, propane storage, and stockpiled feed at feedyards that turns a wildland fire into an industrial fire.
- Bridges with height, width, and load restrictions, which is available from the state.
- Roads with width and surface.
- Railroads, including hazardous crossings.
- Powerlines, radio or communication towers.
- Airstrips / airports that could be used by air resources during an incident.
- Parcels with building footprints.
- Water sources – hydrants, locations on ponds, streams. and rivers for drafting or with dry hydrants, irrigation pumps with access.
- Any other layers specific for local resources or hazards

Communications

Dispatch communications and communications between mutual aid responders can be issues in the CWPP area. In areas along the Missouri River, 911 calls can go to South Dakota. Yankton, South Dakota Fire Dept has a subscription fire response service in Nebraska. Many properties along Lewis & Clark Lake have this service and Yankton is called to respond, not Nebraska units. If Nebraska Dispatchers/Fire Departments don't know of a fire/response until after the fact, it can cause resentment or duplication of effort if a call comes into a Nebraska dispatch. It is also a dangerous situation if more resources or evacuation are needed and Nebraska dispatchers are not in the loop.

When working together on mutual aid, Nebraska resources and South Dakota resources are on different radio frequencies/systems. This is a major wildland fire Watch-Out Situation that should be fixed. At the very least, portable radios should be in each South Dakota unit responding to a Nebraska fire call so they can send/receive on Nebraska frequencies.

District Capacity

A listing of apparatus and manpower for each district (as reported) is listed in with the individual maps. Some have agreements with other agencies, other county departments such as Roads for assistance with heavy equipment. Most are actively participating in Mutual Aid Associations (MAA). The order for district write-ups will be alphabetic within their respective MAA.

Fire Districts as Communities for Planning

Information by Fire District, arranged by Mutual Aid Associations for reference.

Mutual Aid Associations in CWPP

40-12	**Big 9**	**Northeast**	
Bloomfiield	Belden	Allen	Pender**
Brunswick**	Carroll**^	Concord	Ponca
Creighton	Coleridge	Dakota City	Rosalie**
Crofton	Concord	Dakota-Covington	So Sioux City
Magnet**	Dixon	Dixon	Thurston**
Neligh**	Fordyce / Hartington	Emerson	Wakefield
Niobrara	Laurel	Homer	Walthill**
Orchard	Maskell	Laurel	Waterbury
Osmond**	Newcastle	Martinsburg	Wayne^
Page**	Randolph	Newcastle	Winnebago**
Pierce**	Wynot		
Plainview**		**Not in any Nebraska**	**MAA**
Royal**	** not in the CWPP	Yankton	
Verdigre	^ also in Elkhorn Valley MAA		
Wausa			

40 – 12 Mutual Aid Association

Bloomfiield Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
78,246.06	5,933.25	4,326.94	64,647.89	316.99	4.35	89.72	153,565.20
50.95%	3.86%	2.82%	42.10%	0.21%	0.00%	0.06%	

Village of Bloomfield, population 1028
Lindy, population 13

Crops and shrub vegetation make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence. Areas of the district along Howe, Lost, Cook, Devils Nest, and Weigand Creeks, plus the west side along Little Bazile Creek would have the highest probability of large fire growth in the hilly mixed fuels.

Creighton Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
46,648.40	5,003.09	6,743.03	62,527.58	346.79	16.77	148.00	121,433.65
73.32%	4.31%	2.49%	19.64%	0.23%	0.02%	0.00%	

Village of Bazile Mills, unincorporated, population 29
Village of Center, population 94
City of Creighton, population 1154
Winnetoon, unincorporated, population 68

Crops and shrub vegetation make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence. Areas of district along Bazile Creek in the north and Merriman, and branches of Verdigre/Cottonwood Creeks in the west would have the highest probability of large fire growth in the hilly mixed fuels.

Crofton Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
53048.02	5,228.48	5,761.78	46,180.79	8,165.89	5.71	0.00	118,390.67
44.81%	4.42%	4.87%	39.01%	6.90%	0.00%	0.00%	

Village of Crofton, population 726

The district as a whole is close to half ag crop land and half shrubs and forest, however the forested area is concentrated along the Missouri River, with 91% of the forested acres and 45% of the shrub acres north of Beaver Creek. The topography and increase in homes, both vacation and full-time residential, amongst the hardwood riparian forest and Eastern redcedar

is a high concern. Egress and road width issues compound the fire fighter access and safety, as well as evacuation and wildland fire suppression.

Resident and public education was started with a FireWise workshop June 27, 2014, and there is a FireWise billboard on state highway 121 sponsored by the Winnebago Tribe.

Building codes to increase the use of FireWise building materials which decrease the flammability of homes and buildings are recommended. FireWise principles and concepts found in Living with Fire, and especially defensible space, should be practiced around all homes. New covenant neighborhoods should require them.

Niobrara Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
10,190.81	4,637.76	20,832.04	96,069.29	12,358.68	48.36	9,795.79	153,932.72
6.62%	3.01%	13.53%	62.41%	8.03%	0.03%	6.36%	

Village of Niobrara, population 370
Village of Santee, population 346
Village of Verdel, population 30

The FD is over 75% forest and shrub fuels fairly evenly distributed throughout. Stream and river valleys of various sizes are numerous and can potentially limit access to some wildland fires. These valleys and ridges between can also influence wind and its affects on fire behavior.

Limited water supply is a concern in the Verdel area. Strategically placed dry hydrants could reduce the scarcity of available water during a fire event. Locations should be investigated along Ponca Creek, Davey Creek, stock ponds or at the Missouri River, which would be closer than ferrying water from Niobrara and save valuable time.

Orchard

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
4,866.99	479.28	262.83	9,433.74	13.95	27.33	0.00	15,084.12
32.27%	3.18%	1.74%	62.54%	0.09%	0.18%	0.00%	

Village of Orchard, population 379

The FD has little forest, the acres listed in the data is perhaps windbreaks at crop field edges and they do not pose a great wildland fire threat. There are two distinct areas of range and shrub ground with irrigated crop ground between. These areas would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Verdigre Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
25,641.22	5,751.28	16,556.90	99,988.77	1,618.08	23.99	1,064.35	150,644.59
17.02%	3.82%	10.99%	66.37%	1.07%	0.02%	0.71%	

Village of Verdigre, population 575

Most of the forest and shrub land is along waterways and in intermittent drainages and they do not pose a great wildland fire threat to infrastructure. If these areas burned, it could create water quality and quantity issues, along with erosion.

Wausa Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
68,075.88	4,142.75	872.52	13,820.88	78.38	3.41	29.28	87,023.10
78.23%	4.76%	1.00%	15.88%	0.09%	0.00%	0.03%	

Village of Magnet, population 57
Village of Wausa, population 634

The 1% forest is almost exclusively windbreaks and shelter belts protecting fields and homesteads. The 16% shrub acreage is not in large blocks that could lead to excessive wildfire growth or threat to infrastructure.

Big 9 Mutual Aid Association

Belden Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
28,579.01	1,621.30	270.27	2,113.71	8.86	2.52	0.00	32,595.66
87.68%	4.97%	0.83%	6.48%	0.03%	0.01%	0.00%	

Village of Belden, population 115

The less than 1% forest is almost exclusively windbreaks and shelter belts protecting fields and homesteads. The less than 7% shrub acres are not generally in large blocks that could lead to excessive wildfire growth or threat to infrastructure. The two large acre areas that show on the map as shrubs are pastures or alfalfa fields that would need to be dry, with high heat, low humidity, and high wind for a fire occurrence to carry into neighboring fuels.

Coleridge Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
63,869.90	3,304.39	536.28	12,494.19	65.59	1.18	2.24	80,273.76
79.57%	4.12%	0.67%	15.56%	0.08%	0.00%	0.00%	

Village of Coleridge, population 473

The less than 1% forest is almost exclusively windbreaks and shelter belts protecting fields and homesteads. The 15.5% shrub acres are not in large blocks that could lead to excessive wildfire growth or threat to infrastructure. Crop acres make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Concord Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
18,416.23	920.38	227.83	3,600.84	19.09	24.84	0.00	23,209.21
79.35%	3.97%	0.98%	15.51%	0.08%	0.11%	0.00%	

Village of Concord, population 166

The less than 1% forest is almost exclusively windbreaks and shelter belts protecting fields and homesteads. The 15.5% shrub acres are not in large blocks that could lead to excessive wildfire growth or threat to infrastructure. Crop acres make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Dixon Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
20,461.31	1,396.97	198.98	6,925.46	28.78	13.58	0.00	29,025.08
70.50%	4.81%	0.69%	23.86%	0.10%	0.05%	0.00%	

Village of Dixon, population 87

The less than 1% forest is almost exclusively windbreaks and shelter belts protecting fields and homesteads. The less than 24% shrub acres are not in large blocks that could lead to excessive wildfire growth or threat to infrastructure. Crop acres make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Fordyce Fire District / Hartington Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
53,597.36	4,458.32	1,323.87	31,948.00	129.67	9.90	2.31	91,469.43
58.60%	4.87%	1.45%	34.93%	0.14%	0.01%	0.00%	

Bow Valley (unincorporated), population 116
Village of Fordyce, population 139
City of Hartington, population 1,554

The less than 2% forest is almost exclusively windbreaks and shelter belts protecting fields and homesteads. The less than 35% shrub acres are not in large blocks that could lead to excessive wildfire growth or threat to infrastructure. Crop acres make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Laurel Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
42,081.02	2,385.55	341.37	4,291.45	36.37	63.72	0.00	49,199.47
85.53%	4.85%	0.69%	8.72%	0.07%	0.13%	0.00%	

City of Laurel, population 964

The less than 1% forest is almost exclusively windbreaks and shelter belts protecting fields and homesteads. The less than 9% shrub acres are not in large blocks that could lead to excessive wildfire growth or threat to infrastructure. Crop acres make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Newcastle Fire District

Acres - Total

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
18,845.83	1,713.71	4,310.08	18,593.84	1,873.98	75.12	542.73	45,955.29
41.01%	3.73%	9.38%	40.46%	4.08%	0.16%	1.18%	

Acres North/East of Highway 12

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
5,503.80	612.34	3,531.46	8,303.97	1,555.12	74.01	542.35	20,123.05
27.35%	3.04%	17.55%	41.27%	7.73%	0.37%	2.70%	

Village of Newcastle, population 325

The total area of the FD is nearly 10% forest and 41% shrubs, however the area south of Newcastle and Nebraska Highway 12 is less than 3% forest and almost 40% shrubs. The forest cover in the southern portion is almost exclusively windbreaks and shelter belts protecting fields and homesteads. The shrub acres are not in large blocks that could lead to excessive wildfire growth or threat to infrastructure. Crop acres make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

North of Newcastle and Nebraska Highway 12 there is a different fuel composition with 17.5% forest and 41% shrubs growing across hills and valleys with some areas of contiguous forest up to 246 acres and larger blocks of mixed forest and shrubs with few roads or areas of crops breaking up the potential for a long fire run. Isolated homes and farm yards should follow FireWise building principles, create and maintain defensible space, and establish a wildfire response plan.

Randolph Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
27,495.40	1,869.54	239.69	2,752.23	14.43	7.90	5.33	32,384.53
84.90%	5.77%	0.74%	8.50%	0.04%	0.02%	0.02%	

City of Randolph, population 944

The less than 1% forest is almost exclusively windbreaks and shelter belts protecting fields and homesteads. The less than 9% shrub acres are not in large blocks that could lead to excessive wildfire growth or threat to infrastructure. Crop acres make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Wynot Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
37,494.51	2,914.90	10,242.07	28,226.76	3,474.74	86.50	256.13	82,695.62
45.34%	3.52%	12.39%	34.13%	4.20%	0.10%	0.31%	

Village of Obert, population 23
Village of St Helena, population 96
Village of Wynot, population 166

The 34% shrub acres is distributed pretty evenly across the FD, however the 12% forest is mainly north of Nebraska Highway 12 and east of Wynot with 7300 acres along the bluffs and an island in the Missouri River, with a smaller blocks of woodland near St Helena totaling 1641 acres and 180 acres south of Wynot west of Bow Creek.

A portion of the 7,300 forested acres northeast of Wynot is within the National Park Service (NPS) Missouri National Recreational River, 59-Mile District, and Nebraska State Game & Parks Wiseman State Wildlife Management Area. An NPS Fire Management Plan and Environmental Assessment outlines both suppression and prevention on those lands and cooperation between the agencies, neighboring landowners and fire departments.

Infrastructure and vacation homes can be found on the edges of the 59-Mile District. Information from neighboring agencies, local government, and NFS provides information that the area has few subdivisions have on one-way access which was verified with one personal drive-thru of the area and the aerial photography in GIS. FiewWise protocols should be instituted to reduce fire risk, and mandated for any future development.

Northeast Mutual Aid Association

Allen Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
22,585.53	2,001.95	949.76	10,418.49	68.07	1.18	0.00	36,024.98
62.69%	5.56%	2.64%	28.92%	0.19%	0.00%	0.00%	

Village of Allen, population 377

The less than 3% forest is almost exclusively windbreaks and shelter belts protecting fields and homesteads. The 29% shrub acres are not in large blocks that could lead to excessive wildfire growth or threat to infrastructure. Crop acres make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Stock piles of feed at the large feed yard on north fire district line may be of concern under certain weather conditions.

Concord Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
18,416.23	920.38	227.83	3,600.84	19.09	24.84	0.00	23,209.21
79.35%	3.97%	0.98%	15.51%	0.08%	0.11%	0.00%	

Village of Concord, population 166

The less than 1% forest is almost exclusively windbreaks and shelter belts protecting fields and homesteads. The less than 15% shrub acres are not in large blocks that could lead to

excessive wildfire growth or threat to infrastructure. Crop acres make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Dakota City (Dakota-Covington) Fire District / South Sioux City Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
32,981.49	7,151.87	1,946.14	3,449.58	1,436.46	5.52	550.67	47,521.73
69.40%	15.05%	4.10%	7.26%	3.02%	0.01%	1.16%	

City of Dakota City, population 1,919**
City of South Sioux City, population 13,353
Village of Jackson, population 223 (also in Ponca FD)
Village of Hubbard, population 236 (also in Emerson FD)

The 4% forest is split between windbreaks and shelter belts protecting fields and homesteads and just under half of the forest acres on the bluffs north and south of Jackson. The 7% shrub acres are mainly in small blocks with only 8 areas having 50 acres or more that could provide a higher risk or uncontrolled wildfire on the bluffs. Crop acres make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

The flooding that occurred in 2012 along the Missouri River left the riparian forest in poor shape. Many trees died and are now beginning to fall. These fallen logs represent an increase in fuel loading and makes access and transport thru the areas difficult. The logs are 1000 hour fuels and will increase the longevity of a fire event or at a minimum, will increase manpower to contain the fire and monitor as the large fuels burn out.

Fuels reduction could be accomplished and the logs used for pallets, mulch or other product that would remove it from the area, decreasing not only the fuel level but also the possibility of hydrophobic soil damage from the heat of prolonged fire presence.

The developed acres are basically the City of South Sioux City.

Dixon Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
20,461.31	1,396.97	198.98	6,925.46	28.78	13.58	0.00	29,025.08
70.50%	4.81%	0.69%	23.86%	0.10%	0.05%	0.00%	

Village of Dixon, population 87

The less than 1% forest is almost exclusively windbreaks and shelter belts protecting fields and homesteads. The less than 24% shrub acres are not in large blocks that could lead to excessive wildfire growth or threat to infrastructure. Crop acres make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Emerson Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
44,545.29	2,617.68	1,512.87	11,930.18	138.72	12.22	0.00	60,756.96
73.32%	4.31%	2.49%	19.64%	0.23%	0.02%	0.00%	

Village of Emerson, population 840
Village of Hubbard, population 236 (also in Dakota-Covington FD)

The less than 2.5% forest is almost exclusively windbreaks and shelter belts protecting fields and homesteads. The less than 20% shrub acres are distributed throughout the FD. Roughly half of the shrub acres are in blocks of over 80 acres but the aerial view does not lead one to believe that they could support excessive wildfire growth or threaten infrastructure. Crop acres make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Homer Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
31,415.12	2,338.17	6,453.74	10,873.36	527.41	1.11	142.01	51,750.92
60.70%	4.52%	12.47%	21.01%	1.02%	0.00%	0.27%	

Village of Homer, population 549

The nearly 12.5% forest acres are on the bluffs running northwest to southeast through Homer and to the west. While they are in a few large blocks, there are limited assets on the east edges that can have reduced risk by implementing FireWise principles. The 21% shrub

acres are mainly in small blocks with only 8 areas having 50 acres or more that could provide a higher risk of uncontrolled wildfire on the bluffs. Crop acres make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Laurel Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
42,081.02	2,385.55	341.37	4,291.45	36.37	63.72	0.00	49,199.47
85.53%	4.85%	0.69%	8.72%	0.07%	0.13%	0.00%	

City of Laurel, population 964

The less than 1% forest is almost exclusively windbreaks and shelter belts protecting fields and homesteads. The less than 9% shrub acres are not in large blocks that could lead to excessive wildfire growth or threat to infrastructure. Crop acres make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Martinsburg Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
14,228.50	1,140.81	1,520.97	13,129.05	167.01	3.48	0.00	30,189.82
47.13%	3.78%	5.04%	43.49%	0.55%	0.01%	0.00%	

Village of Martinsburg, population 94

The 5% forest is almost exclusively associated with streams and drainage streamers. The 43% shrub acres appear to be mostly pasture areas that are not contiguous woody fuels. These acres and cropland make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Newcastle Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
18,845.83	1,713.71	4,310.08	18,593.84	1,873.98	75.12	542.73	45,955.29
41.01%	3.73%	9.38%	40.46%	4.08%	0.16%	1.18%	

Village of Newcastle, population 325

The total area of the FD is nearly 10% forest and 41% shrub acres, however the area south of Newcastle and Nebraska Highway 12 is less than 3% forest and almost 40% shrub acres. The southern portion forest cover is almost exclusively windbreaks and shelter belts protecting fields and homesteads. The shrub acres are not in large blocks that could lead to excessive wildfire growth or threat to infrastructure. Crop acres make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

North of Newcastle and Nebraska Highway 12 there is a different fuel composition with 17.5% forest and 41% shrub growing across hills and valleys with some areas of contiguous forest up to 246 acres and larger blocks of mixed forest and shrubs with few roads or areas of crops breaking up the potential for a long fire run. Isolated homes and farm yards should follow FireWise building principles, create and maintain defensible space, and establish a wildfire response plan.

Ponca Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
30,010.75	2,616.50	9,030.74	16,516.15	2,454.00	53.19	334.14	61,015.48
49.19%	4.29%	14.80%	27.07%	4.02%	0.09%	0.55%	

City of Ponca, population 961
Village of Jackson, population 223 (also in Dakota-Covington FD)

The nearly 15% forest acres are on the bluffs running northwest to southeast with the Missouri River and floodplain below. While they are in a few large blocks, there are limited assets on the east edges that can have reduced risk by implementing FireWise principles. The 21% shrub acres are mainly in small blocks with only 8 areas having 50 acres or more that could provide a higher risk or uncontrolled wildfire on the bluffs. Crop acres make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Wakefield Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
20,231.33	1,383.12	316.02	3,114.78	149.35	11.99	17.32	25,223.92
80.21%	5.48%	1.25%	12.35%	0.59%	0.05%	0.07%	

City of Wakefield, population 1,451 (partially within CWPP)

The 1% forest is almost exclusively associated with farmyards. The 12% shrub acres appear to be mostly pasture areas that are not contiguous woody fuels. These acres and cropland make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Waterbury Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
12,821.01	1,097.70	895.27	9,897.55	27.17	0.00	0.00	24,738.70
51.83%	4.44%	3.62%	40.01%	0.11%	0.00%	0.00%	

Village of Waterbury, population 71

The nearly 4% forest is almost exclusively associated with streams and drainage streamers. The 40% shrub acres appear to be mostly pasture areas that are not contiguous woody fuels. These acres and cropland make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Wayne Fire District

Acres of FD within CWPP

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
8,797.29	481.92	118.13	1,724.21	0.97	0.00	0.00	11,122.51
79.09%	4.33%	1.06%	15.50%	0.01%	0.00%	0.00%	

City of Wayne, population 5,660 (outside of CWPP)

The 1% forest is almost exclusively associated with farm yards. The 15.5% shrub acres appear to be mostly pasture areas that are not contiguous woody fuels. These acres and cropland make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Not in a Mutual Aid Association

Yankton Fire District

Acres

CROP	DEVELOPED	FOREST	SHRUBS	WATER	BARREN	WETLANDS	TOTAL
15,832.41	1,239.89	1,651.55	9,913.79	1,096.75	14.84	163.24	29,912.48
52.93%	4.15%	5.52%	33.14%	3.67%	0.05%	0.55%	

Village of Aten, population of 112

The nearly 6% forest is almost exclusively associated with streams and drainages, with some in windbreaks or protective stands around farmsteads and feed yards. The 33% shrub acres appear to be mostly pasture areas that are not contiguous woody fuels. These acres and cropland make up the majority of fuels, which would need to be dry, with high heat, low humidity, and high wind for a major fire occurrence.

Fire response plans should be in place at large feed yards and communicated ahead of time with any fire districts that may respond. Prior knowledge of the locations of fuel, chemicals and stock piled feed is beneficial to formulate a plan for suppression. This would reduce hazards and increase safety for responders in a wildland - industrial mix represented by large feed yards

Action Plan

Education and Involvement of community leaders and landowners will be important to achieve reduced hazard and risk. Under certain weather and fuel conditions fire can be a beneficial tool for removing the overabundant fuels and restoring prairie grassland Ecosystems. Some prescribed fire is already occurring in some fire districts.

It is when there are weather extremes of prolonged heat, below average rainfall, low relative humidity, high winds and an unintentional spark from a human source or a dry lightning strike that resources are typically under heightened risk of loss. It is under these 'perfect storm' circumstances that previously completed proactive steps can reduce the threat for one or many properties and infrastructure.

Individuals can reduce structure ignitability on their home and outbuildings. For example, cedar shake shingles should be replaced with asphalt shingles or metal roofing so firebrands landing on the roof cannot start the building on fire. New buildings in wooded or dense shrub area should consider construction techniques that would reduce ignitability from fire brands, or convective and radiant heat as a fire moves past, such as steel, stucco or cement siding. Removing ignitability sources in the buildings' ignition zone is also needed to increase defensible space and possibly provide a safe zone for the landowner or firefighters.

More information on reducing hazard and risk, and definitions of unfamiliar terms used here, can be found at:

- FIREWISE (firewise.org) is a great resource for educational materials in wildfire preparedness.
- Nebraska Forest Service has several resources for Fire Prevention (http://nfs.unl.edu/fire-prevention)
- Wildland Fire Protection (http://nfs.unl.edu/wildland-fire-protection)
- Living With Fire, A Homeowner's Guide (Eastern Neb. Edition) available (http://nfs.unl.edu/ hover over Resources & Publications, click Publications, click Wildland fire Protection, scroll down)
- Ready, Set, Go (http://www.wildlandfirersg.org/) International Association of Fire
- Chiefs program for those who live in high risk wildfire areas best prepare themselves and properties against fire threats.

The Collaborator's Survey contained a poll to rank six possible programs that could facilitate portions of this plan. In order of respondents' rankings:

Emergency Preparedness And Communications Program
This can include training, equipment and education at many levels, and preparedness plans for evacuation procedures for a fire district, mutual aid district, entire county, or individual homeowners - trigger points for when, where to go/how to get there, including pets, people and livestock.

Hazardous Fuels Projects
The harvest and removal of excessive wildland fuels such as encroaching Eastern redcedar and riparian invasive plants. Evacuation routes, ingress and egress may also need treatments to have sufficient width with low density of trees and shrubs.

Wildfire Protection Program
Could include activities such as Smokey Bear school programs, home or farmstead inspections for FIREWISE practices to reduce fire risk and ignitability, and improve defensibility of the home/farmstead.

Community Homeowner Wildland Fire Education Program
This would likely be FIREWISE educational programs on how to make your home and farmstead safer from wildland fire threat.

Wildfire Suppression Program
Additional firefighter training for wildland Red Card certification (approved National Wildfire Coordinating Group [NWCG] courses), additional firefighting equipment and firefighter recruitment.

Restoration Of Fire-Adapted Ecosystems Programs
This could include a combination of harvest and prescribed fire to return rangelands to their native grassland or shrub-grassland state.

Economic Impacts

The excessive fuel loading along some areas of the bluff along the Missouri River often is also where summer and full time residences have been built. Some of these subdivisions have narrow one-way access with no turn-around. Fire in these areas could mean loss of life and property under fuel and weather conditions equating the 'perfect storm'.

If the cedar is removed by uncontrolled wildfire, other resources are also affected. Intense fires may induce hydrophobic soils, where in steep terrain runoff is significantly accelerated. Loss of all grazing and decreased quality water quality can be long lasting affects for landowners and their livestock and hunting livelihoods.

A proactive approach to reducing hazardous fuel levels can provide jobs and a resource of biomass or other products from the cedar trees. Mechanical removal of encroaching Eastern redcedar will reduce the hazard and risk of intense wildfire to plant and soil resources, homes and infrastructure, as well as improve wildlife habitat and increase water amounts reaching the streams, lakes and the water table.

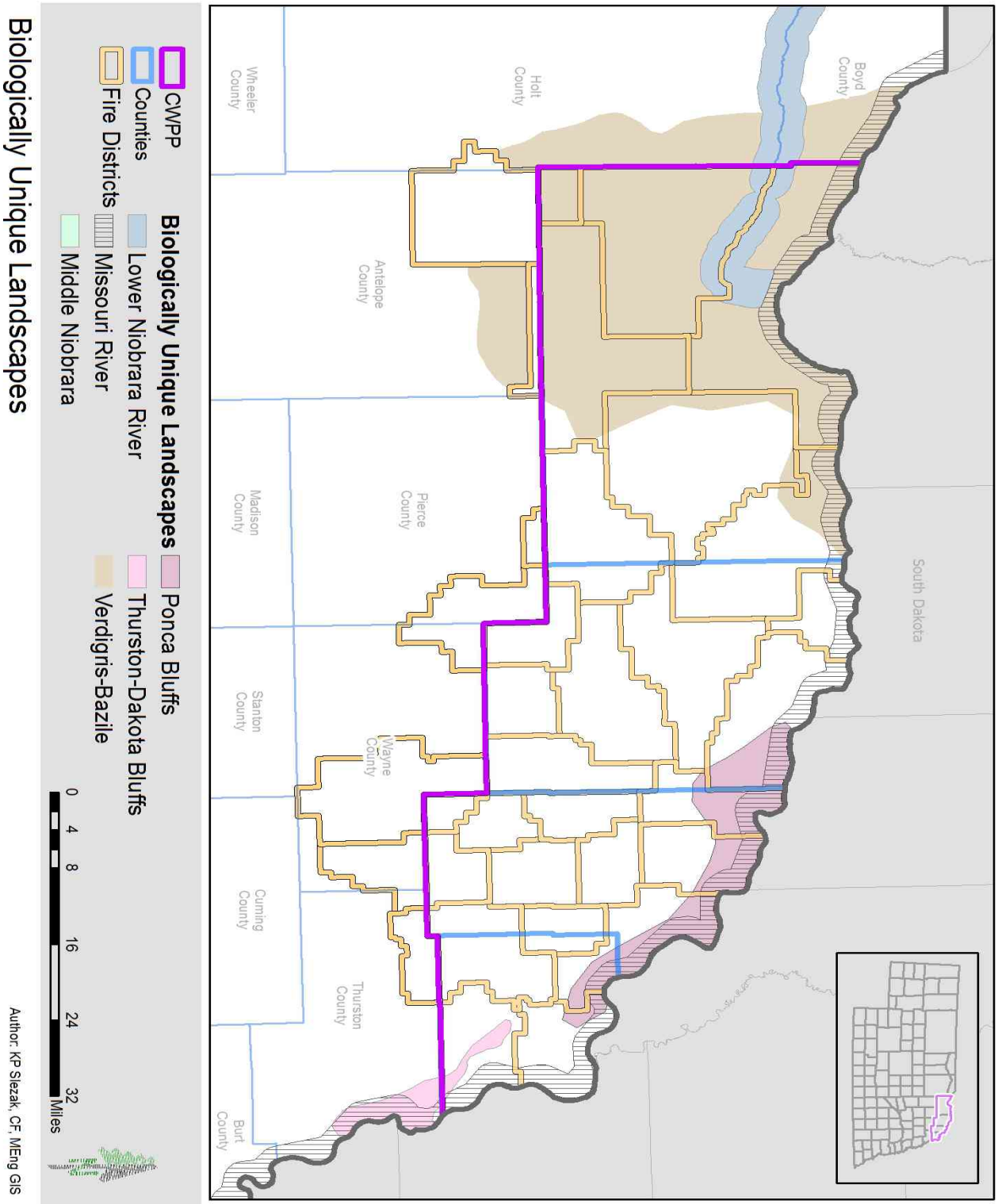
Care on bluff slopes and hillsides is needed so as to reduce potential erosion from both equipment use and less plant root zones holding soil.

Landowners or organizations within the NFS FAP Priority Landscapes proposing a project to reduce fuels would be first for assistance grant requests, especially those working in concert with neighbors providing a contiguous area.

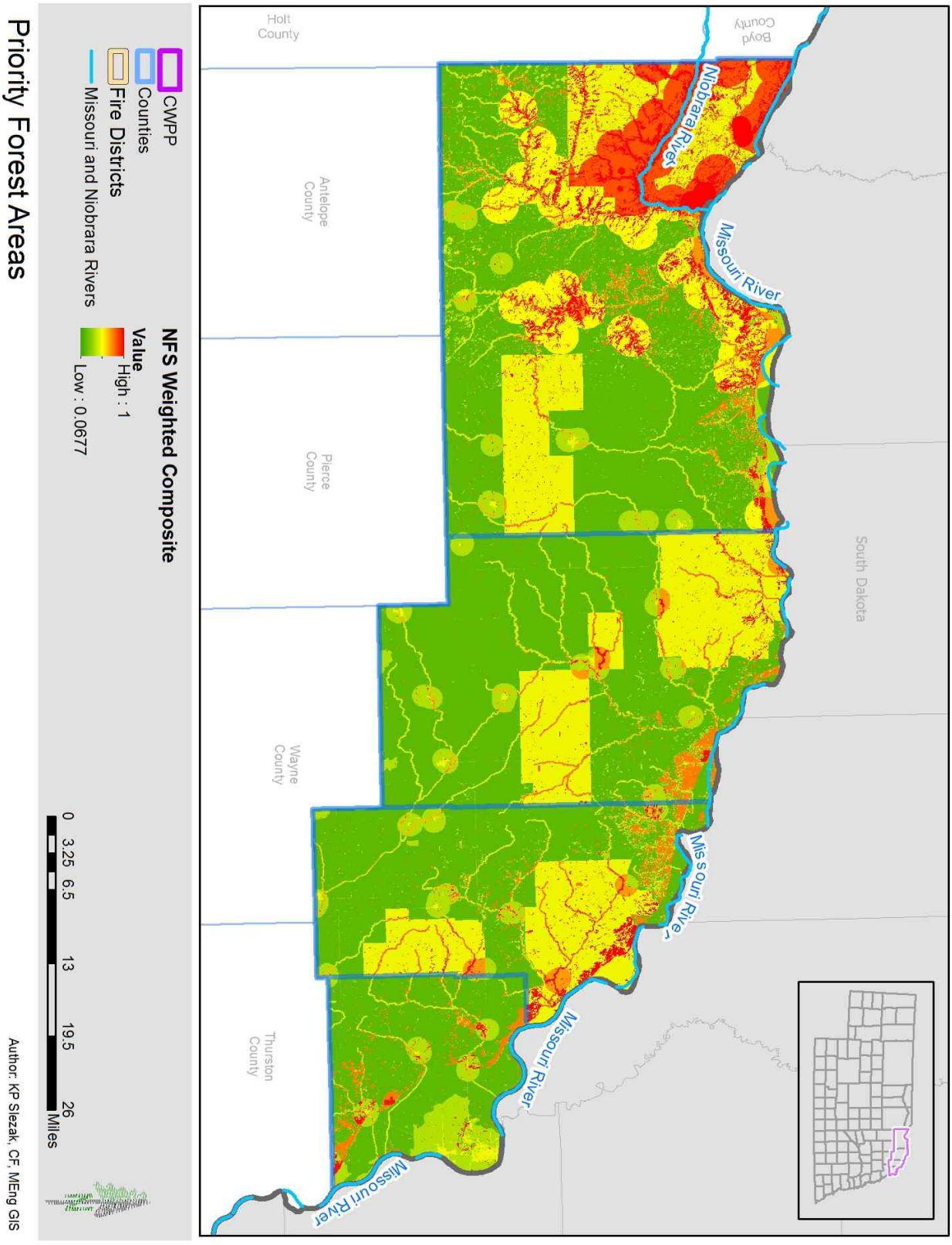
NFS is anticipating that material being removed can be utilized by local artisans, small wood processing businesses, or new biomass facilities.

Appendices

Appendix A – Biologically Unique Landscapes (BULs) - Map



Appendix B – Priority Forest Areas – Map



Appendix C – Survey Questions

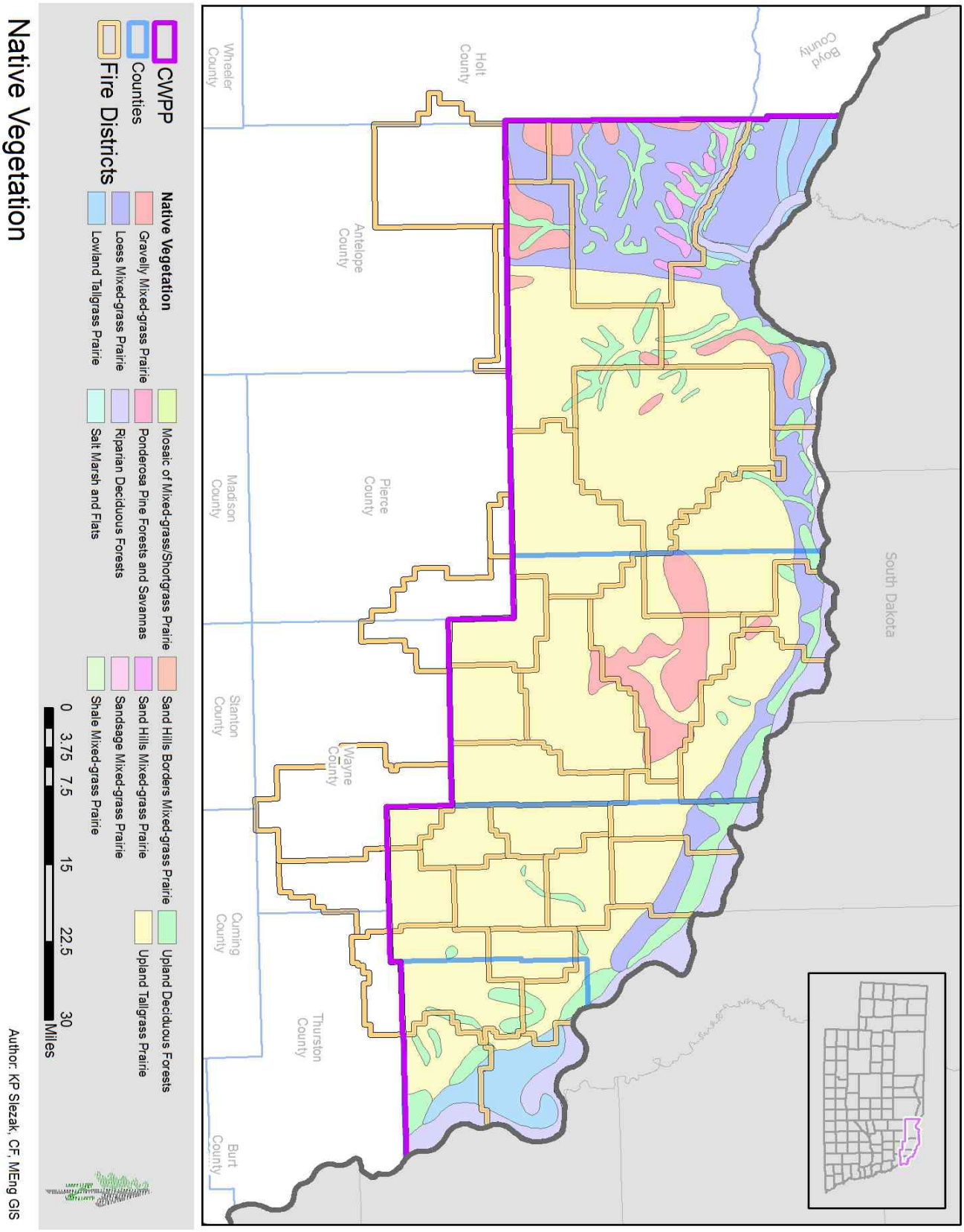
Survey
Date submitted
Please provide your first name
Last name:
Affiliation: Your County, Fire District, Village/City, or other agency:
Best email to conact you:
Business or daytime phone
Cell phone if it would asssist us during this process
How many personnel are available to respond to fires- [Full-time]
How many personnel are available to respond to fires- [Part-time]
How many personnel are available to respond to fires- [Volunteer]
Please define apparatus [Engines Type 1]
Please define apparatus [Tenders Type 2]
Please define apparatus [Tenders Other (please describe in comments)]
Please define apparatus [Engines Type 6 (Brush trucks)]
Please define apparatus [Engines Other (please describe in comments)]
Please define apparatus [Equipment Truck/Van]
Please define apparatus [Other (please describe in comments)]
Please define apparatus [Any equipment housed on ranches/not at main fire barn, please describe in comments]
Please select Districts with whom you have existing mutual aid agreements [Allen]
Please select Districts with whom you have existing mutual aid agreements [Belden]
Please select Districts with whom you have existing mutual aid agreements [Bloomfield]
Please select Districts with whom you have existing mutual aid agreements [Coleridge]
Please select Districts with whom you have existing mutual aid agreements [Concord]
Please select Districts with whom you have existing mutual aid agreements [Creighton]
Please select Districts with whom you have existing mutual aid agreements [Crofton]
Please select Districts with whom you have existing mutual aid agreements [Dakota-Covington]
Please select Districts with whom you have existing mutual aid agreements [Dixon]
Please select Districts with whom you have existing mutual aid agreements [Emerson]
Please select Districts with whom you have existing mutual aid agreements [Fordyce]
Please select Districts with whom you have existing mutual aid agreements [Hartington]

Please select Districts with whom you have existing mutual aid agreements [Homer]
Please select Districts with whom you have existing mutual aid agreements [Laurel]
Please select Districts with whom you have existing mutual aid agreements [Martinsburg]
Please select Districts with whom you have existing mutual aid agreements [Maskell]
Please select Districts with whom you have existing mutual aid agreements [Newcastle]
Please select Districts with whom you have existing mutual aid agreements [Niobrara]
Please select Districts with whom you have existing mutual aid agreements [Orchard]
Please select Districts with whom you have existing mutual aid agreements [Ponca]
Please select Districts with whom you have existing mutual aid agreements [Randolph]
Please select Districts with whom you have existing mutual aid agreements [Verdigre]
Please select Districts with whom you have existing mutual aid agreements [Wakefield]
Please select Districts with whom you have existing mutual aid agreements [Waterbury]
Please select Districts with whom you have existing mutual aid agreements [Wausa]
Please select Districts with whom you have existing mutual aid agreements [Wayne]
Please select Districts with whom you have existing mutual aid agreements [Wynot]
Please select Districts with whom you have existing mutual aid agreements [Yankton]
Please select Districts with whom you have existing mutual aid agreements [Other]
As Fire Cheif have you already identified issue areas if a large wildland fire were to start in your area- Please describe.
As Fire Chief, have you already identified one or more areas in your District that is your 'nightmare' if a wildfire were to start- Where- Resources at risk - infrastructure, homes- Firefighter safety- Ingress/egress issues- Topography- Lack of water within effective distance-
As Fire Chief, have you already identified one or more ares for fuel hazard reduction projects- Please describe current fuels, resources at risk and acres (if known).
Is there an area isolated from water sources that may hinder initial response- Description and distance by road (miles) to nearest water. (if you click no, please put one character or number in the field to the right, or else the way this program functions it will clear the whole question when you click on the next one) [Yes, please describe...]
Is there an area isolated from water sources that may hinder initial response- Description and distance by road (miles) to nearest water. (if you click no, please put one character or number in the field to the right, or else the way this program functions it will clear the whole question when you click on the next one) [Comment]
Is there an area isolated from water sources that may hinder initial response- Description and distance by road (miles) to nearest water. (if you click no, please put one character or number in the field to the right, or else the way this program functions it will clear the whole question when you click on the next one) [No]

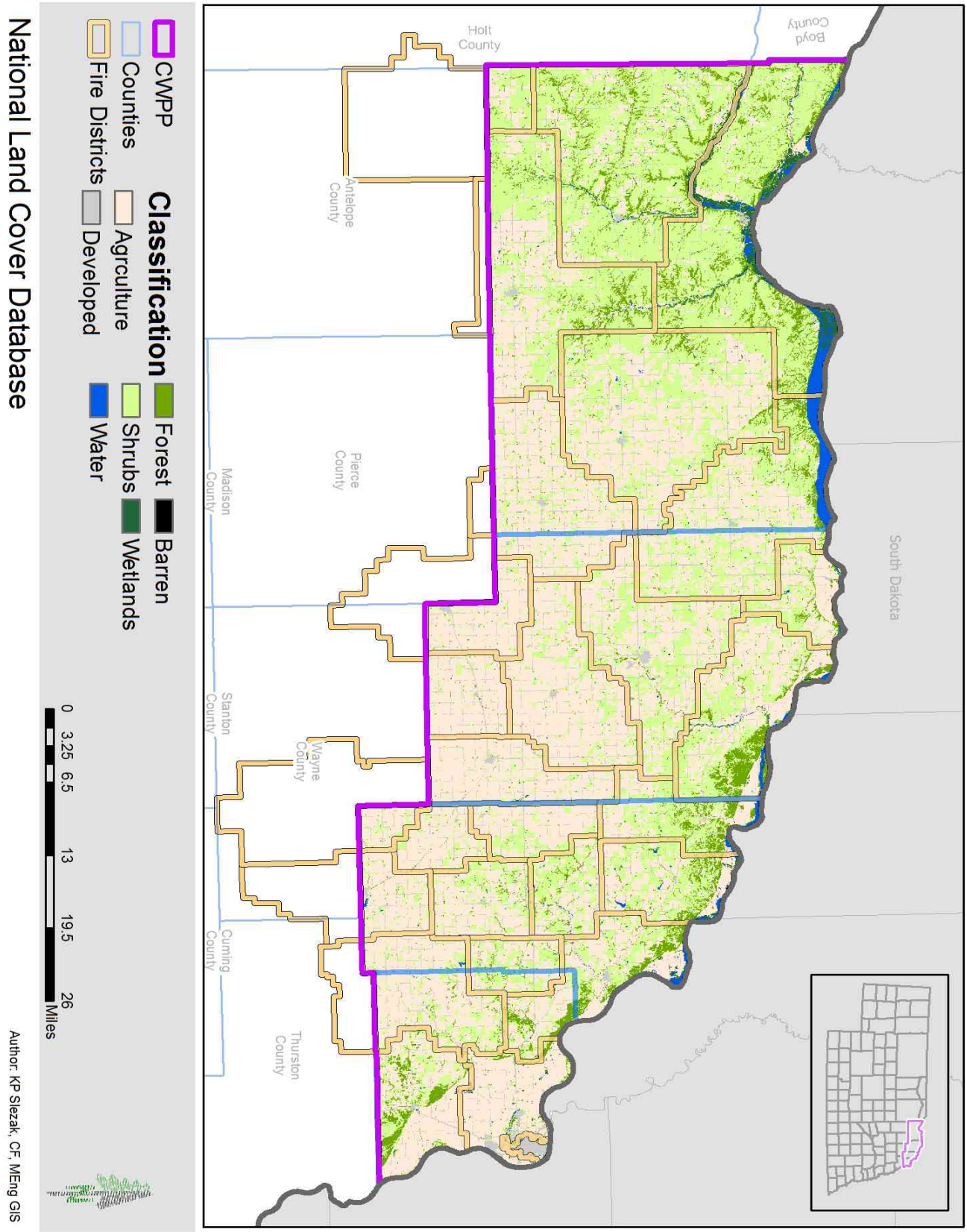
Is there an area isolated from water sources that may hinder initial response- Description and distance by road (miles) to nearest water. (if you click no, please put one character or number in the field to the right, or else the way this program functions it will clear the whole question when you click on the next one) [Comment]
Do you know of an area(s) with a high density of homes, any infrastructure or other resources at high risk from wildfire- If so, please describe. (if you click no, please put one character or number in the field to the right, or else the way this program functions it will clear the whole question when you click on the next one) [Yes, please describe...]
Do you know of an area(s) with a high density of homes, any infrastructure or other resources at high risk from wildfire- If so, please describe. (if you click no, please put one character or number in the field to the right, or else the way this program functions it will clear the whole question when you click on the next one) [Comment]
Do you know of an area(s) with a high density of homes, any infrastructure or other resources at high risk from wildfire- If so, please describe. (if you click no, please put one character or number in the field to the right, or else the way this program functions it will clear the whole question when you click on the next one) [No]
Do you know of an area(s) with a high density of homes, any infrastructure or other resources at high risk from wildfire- If so, please describe. (if you click no, please put one character or number in the field to the right, or else the way this program functions it will clear the whole question when you click on the next one) [Comment]
Are there subdivisions/areas with one-way in/out- (if you click no, please put one character or number in the field to the right, or else the way this program functions it will clear the whole question when you click on the next one) [Yes, please describe...]
Are there subdivisions/areas with one-way in/out- (if you click no, please put one character or number in the field to the right, or else the way this program functions it will clear the whole question when you click on the next one) [Comment]
Are there subdivisions/areas with one-way in/out- (if you click no, please put one character or number in the field to the right, or else the way this program functions it will clear the whole question when you click on the next one) [No]
Are there subdivisions/areas with one-way in/out- (if you click no, please put one character or number in the field to the right, or else the way this program functions it will clear the whole question when you click on the next one) [Comment]
Are there any bridges that won't support equipment weight- (if you click no, please put one character or number in the field to the right, or else the way this program functions it will clear the whole question when you click on the next one) [Yes, please describe/location...]
Are there any bridges that won't support equipment weight- (if you click no, please put one character or number in the field to the right, or else the way this program functions it will clear the whole question when you click on the next one) [Comment]
Are there any bridges that won't support equipment weight- (if you click no, please put one character or number in the field to the right, or else the way this program functions it will clear the whole question when you click on the next one) [No]

Are there any bridges that won't support equipment weight- (if you click no, please put one character or number in the field to the right, or else the way this program functions it will clear the whole question when you click on the next one) [Comment]
Any other comments or descriptions from items above:
Have you identified one or more areas in your municipality that you are more concerned about than others if a wildfire starts nearby. [Yes - where/why-]
Have you identified one or more areas in your municipality that you are more concerned about than others if a wildfire starts nearby. [Comment]
Have you identified one or more areas in your municipality that you are more concerned about than others if a wildfire starts nearby. [No]
Have you identified one or more areas in your municipality that you are more concerned about than others if a wildfire starts nearby. [Comment]
Does your jurisdiction have equipment to assist the Fire District in your Roads Department (or other)- [Yes, please describe...]
Does your jurisdiction have equipment to assist the Fire District in your Roads Department (or other)- [Comment]
Does your jurisdiction have equipment to assist the Fire District in your Roads Department (or other)- [No]
Does your jurisdiction have equipment to assist the Fire District in your Roads Department (or other)- [Comment]
Any other comments or concerns if a wildfire were to start or head into your jurisdiction:
Does your jurisdiction have GIS layer(s) that would show housing, infrastructure, bridge limits, hydrants and otherwater sources, etc- [Yes, please describe/who should I contact to acquire data...]
Does your jurisdiction have GIS layer(s) that would show housing, infrastructure, bridge limits, hydrants and otherwater sources, etc- [Comment]
Does your jurisdiction have GIS layer(s) that would show housing, infrastructure, bridge limits, hydrants and otherwater sources, etc- [No]
Does your jurisdiction have GIS layer(s) that would show housing, infrastructure, bridge limits, hydrants and otherwater sources, etc- [Comment]
Rank these items with 1 having the greatest need in your jurisdiction [Rank 1]
Rank these items with 1 having the greatest need in your jurisdiction [Rank 2]
Rank these items with 1 having the greatest need in your jurisdiction [Rank 3]
Rank these items with 1 having the greatest need in your jurisdiction [Rank 4]
Rank these items with 1 having the greatest need in your jurisdiction [Rank 5]
Rank these items with 1 having the greatest need in your jurisdiction [Rank 6]
Any other comments or concerns for or about this project:

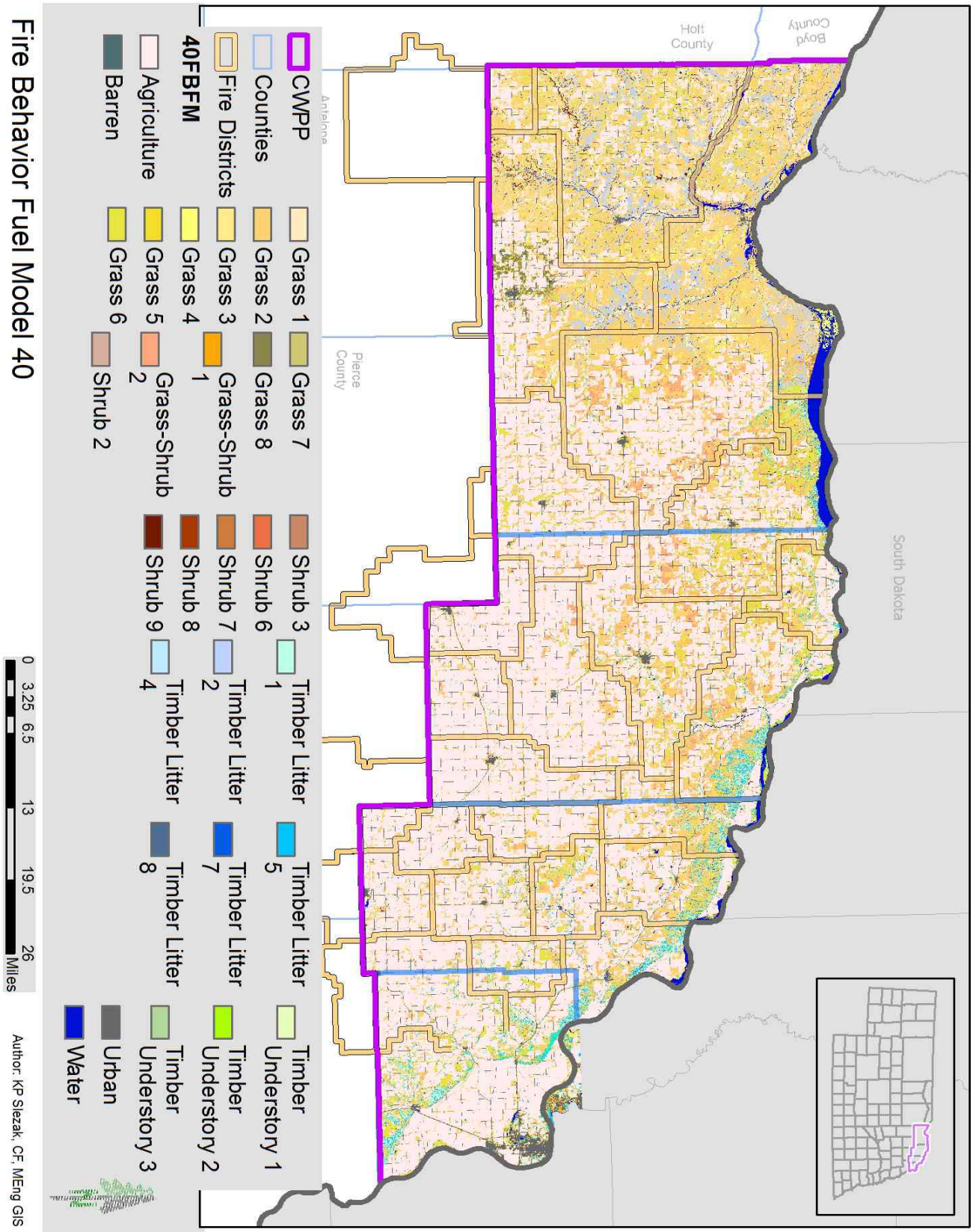
Appendix D – Native Vegetation – Map



Appendix E – National Land Cover Database

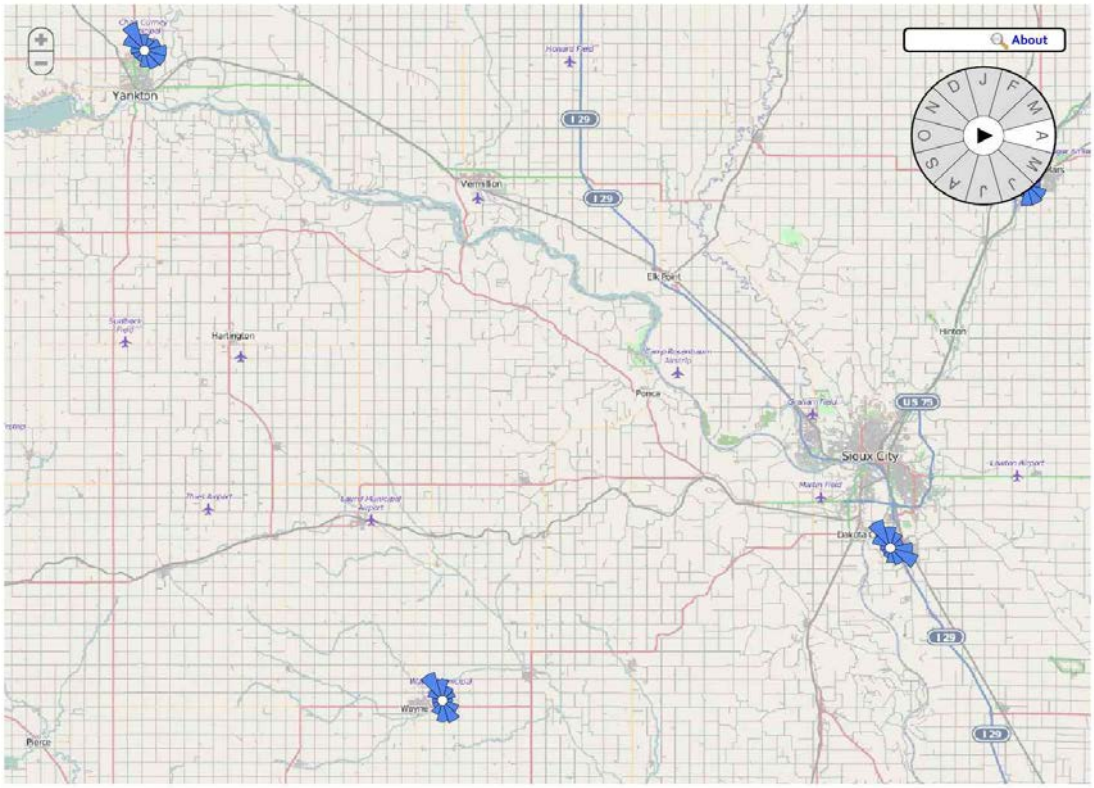


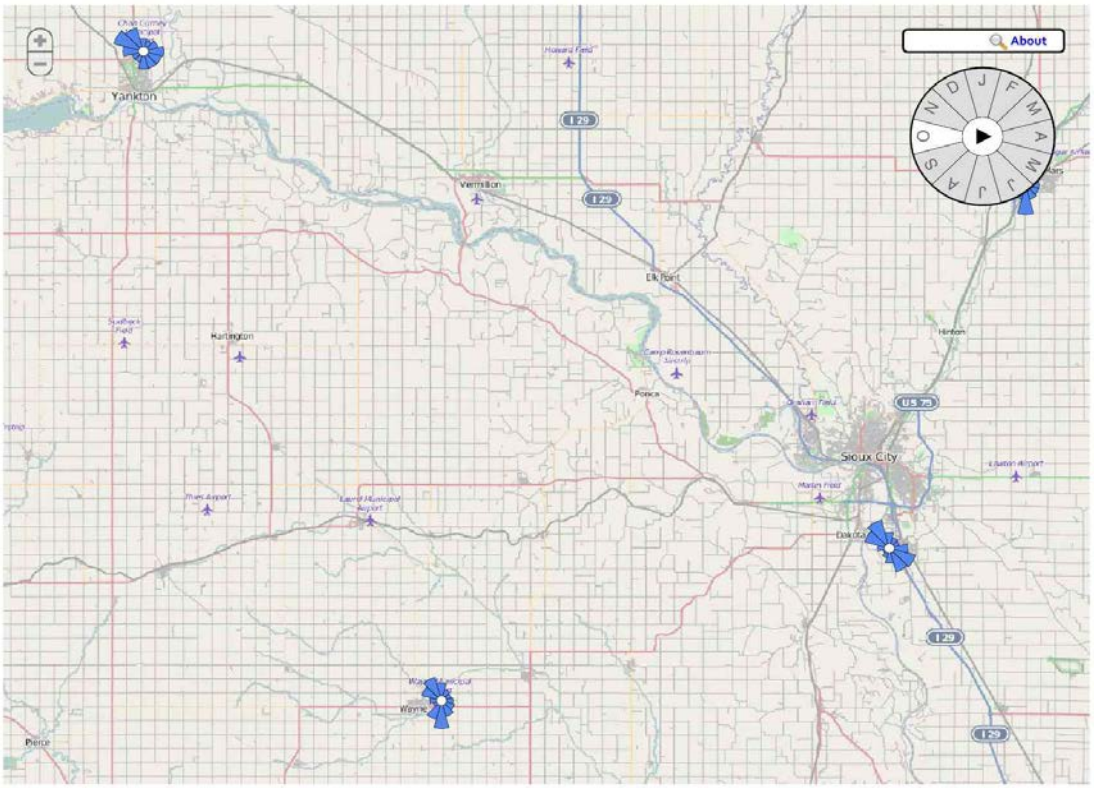
Fire Behavior Fuel Model 40 – Map



Appendix F – Wind Roses

Wind history map http://windhistory.com/map.html





References

Erdkamp, R., J. Stansberry, N. Evans, D. Adams (Team). 2011 Nebraska Statewide Forest Resource Assessment & Strategy. Nebraska Forest Service, Lincoln, NE. http://nfs.unl.edu/assessmentstrategy/assessmentstrategy.asp

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PE&RS, Vol. 77(9):858-864

LANDFIRE, USDA Forest Service Gen. Tech. Rep. RMRS-GTR-153. 2005 pgs 10-12.

Middlemis-Brown, S., S.K. Wilson. 2009 Fire Management Plan and Environmental Assessment. US Department of Interior, National Park Service, Missouri National Recreational River, Nebraska – South Dakota.

Schneider, R., K. Stoner, G. Steinauer, M. Panella, and M. Humpert (Eds.). 2011. The Nebraska Natural Legacy Project: State Wildlife Action Plan. 2nd ed. The Nebraska Game and Parks Commission, Lincoln, NE. http://outdoornebraska.ne.gov/wildlife/programs/legacy/

Signature Pages (as received)

I participated in the development of and/or reviewed this CWPP.
I am in support of the plan:

Signature	Entity / Departments
Brian Korman	7-22-15
Printed Name	Date

I participated in the development of and/or reviewed this CWPP.
I am in support of the plan:

Signature	Entity / Departments
Lance Hodgust	7/30/15
Printed Name	Date