

Ferry County, Washington

Community Wildfire Protection Plan

Appendices



White Mountain Fire Overlook

Approved by the
Ferry County Commissioners
2015

Acknowledgements

This Community Wildfire Protection Plan represents the efforts and cooperation of a number of organizations and agencies working together to improve preparedness for wildfire events while reducing factors of risk.



WASHINGTON STATE DEPARTMENT OF
Natural Resources



EMD Washington Military Department
Emergency Management Division

FERRY CONSERVATION DISTRICT



Ferry/Okanogan County Fire
Protection District #13
Ferry/Okanogan County Fire
Protection District #14
Ferry County Joint Fire Protection
District #3

Washington State Ferry County Extension,
Malo Grange, Ferry County Planning
Department
&
Local Businesses and Citizens of Ferry
County

Copies of this plan can be found at:

www.ferry-county.com

www.dnr.wa.gov

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Appendix 1

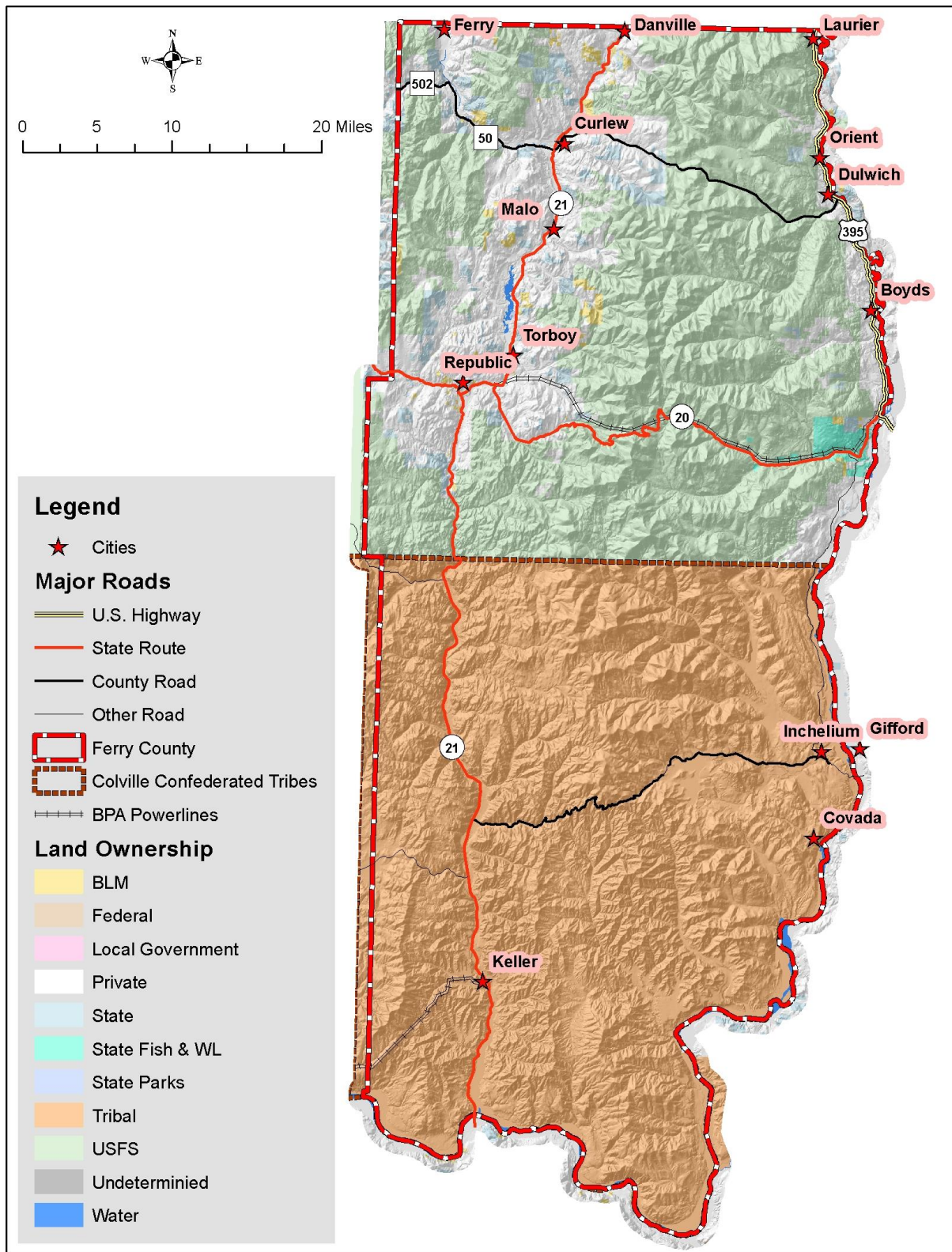
Mapping Products

Northwest Management, Inc.

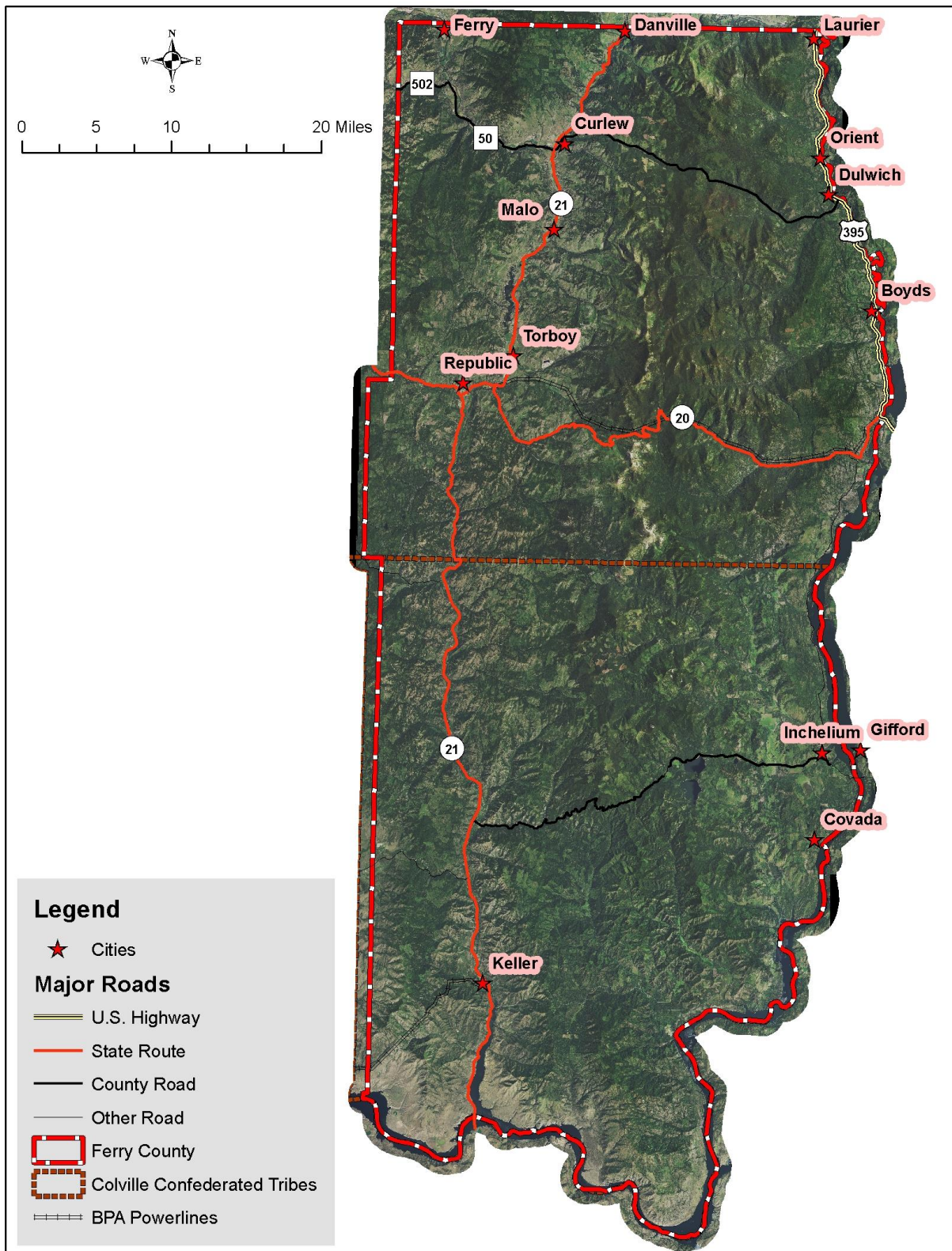
233 East Palouse River Dr.
P.O. Box 9748
Moscow, ID 83843
208-883-4488
www.Consulting-Foresters.com

The information on the following maps was derived from digital databases held by Northwest Management, Inc. Care was taken in the creation of these maps, but all maps are provided “as is” with no warranty or guarantees. Northwest Management, Inc. cannot accept any responsibility for errors, omissions, or positional accuracy, and therefore, there are no warranties accompanying this product. Although information from land surveys may have been used in the creation of this product, in no way does this product represent or constitute a land survey. Users are cautioned to field verify information on this product before making any decisions.

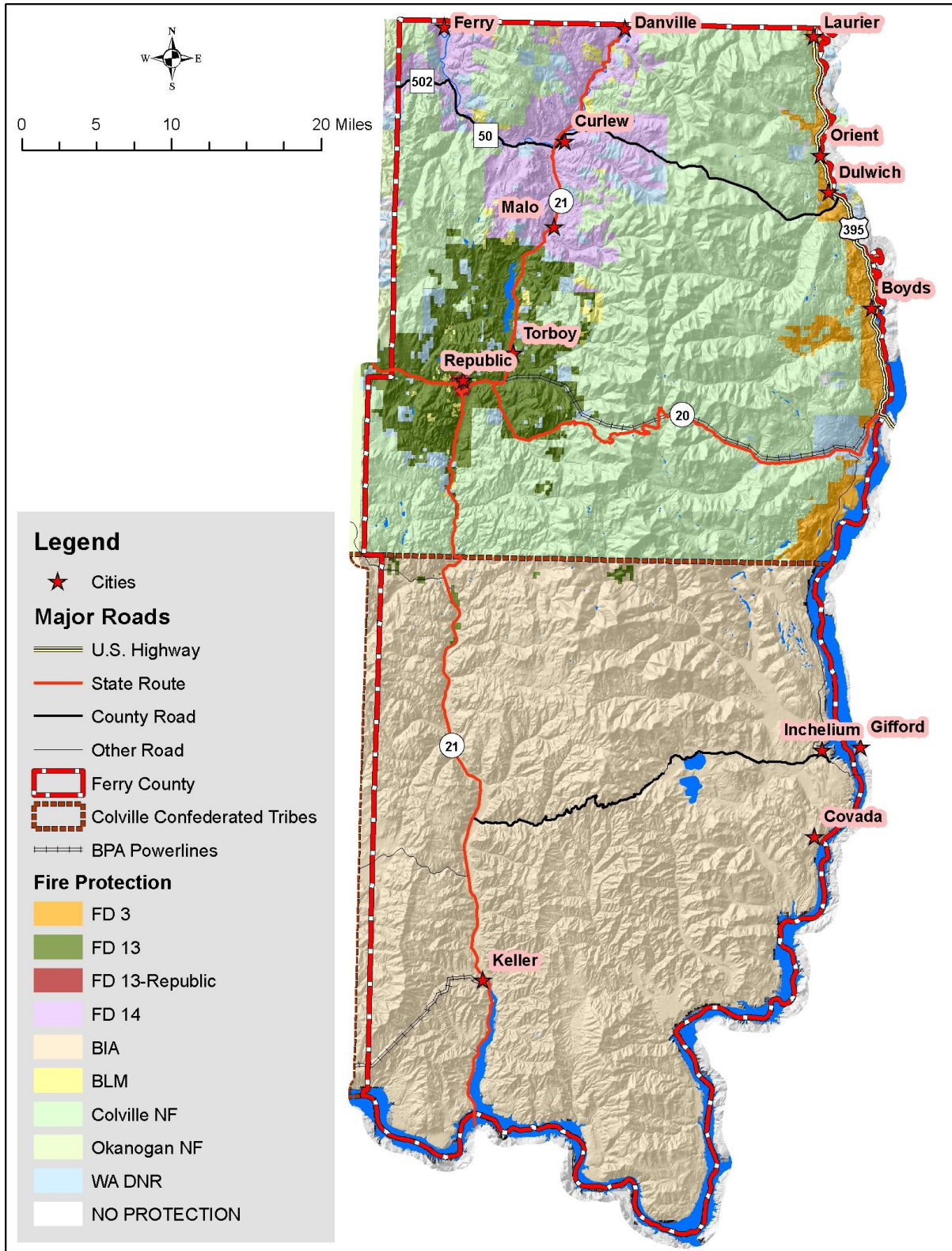
Land Ownership Map



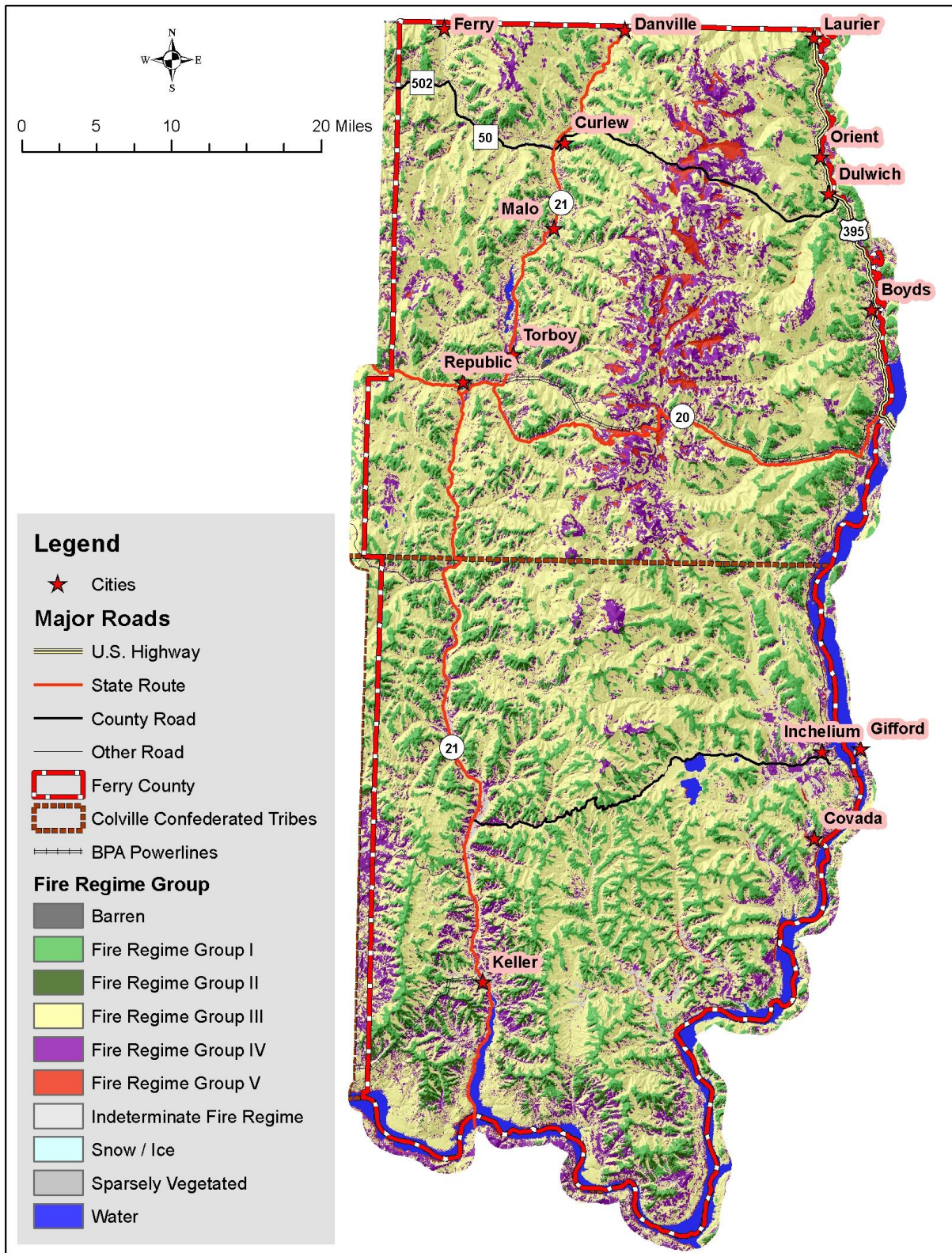
Aerial Imagery



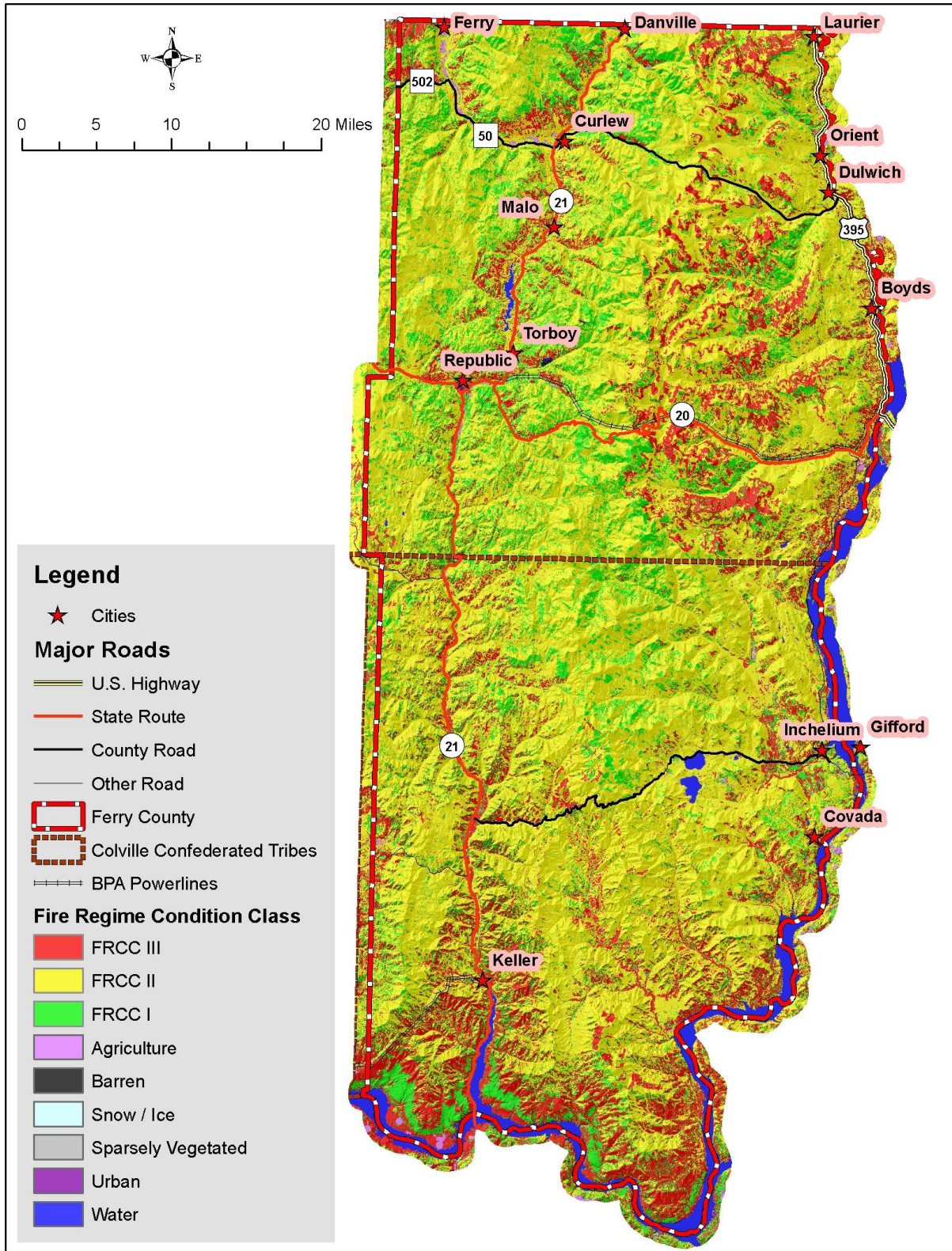
Fire Protection Boundary Map



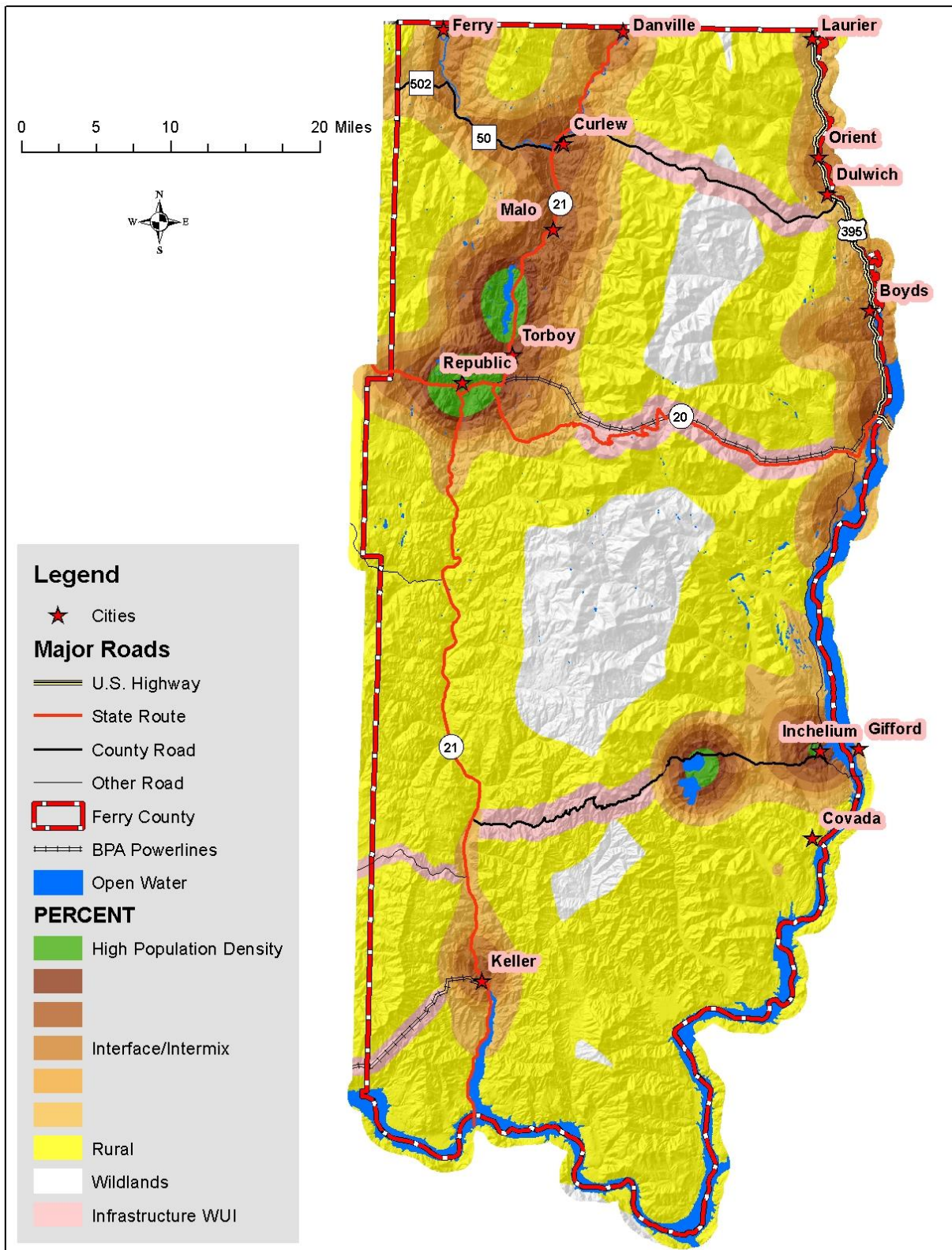
Historic Fire Regime Map



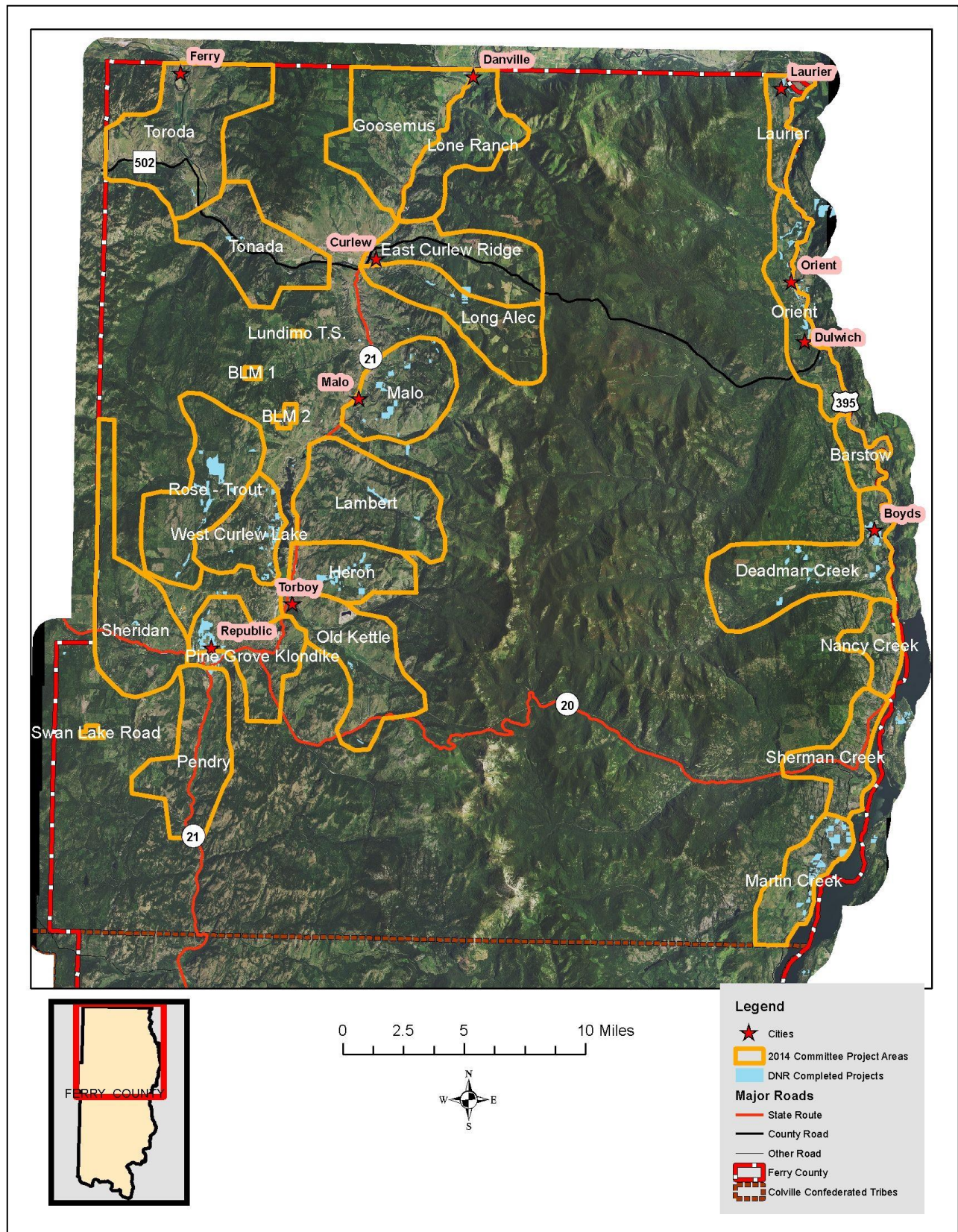
Vegetation Condition Class Map



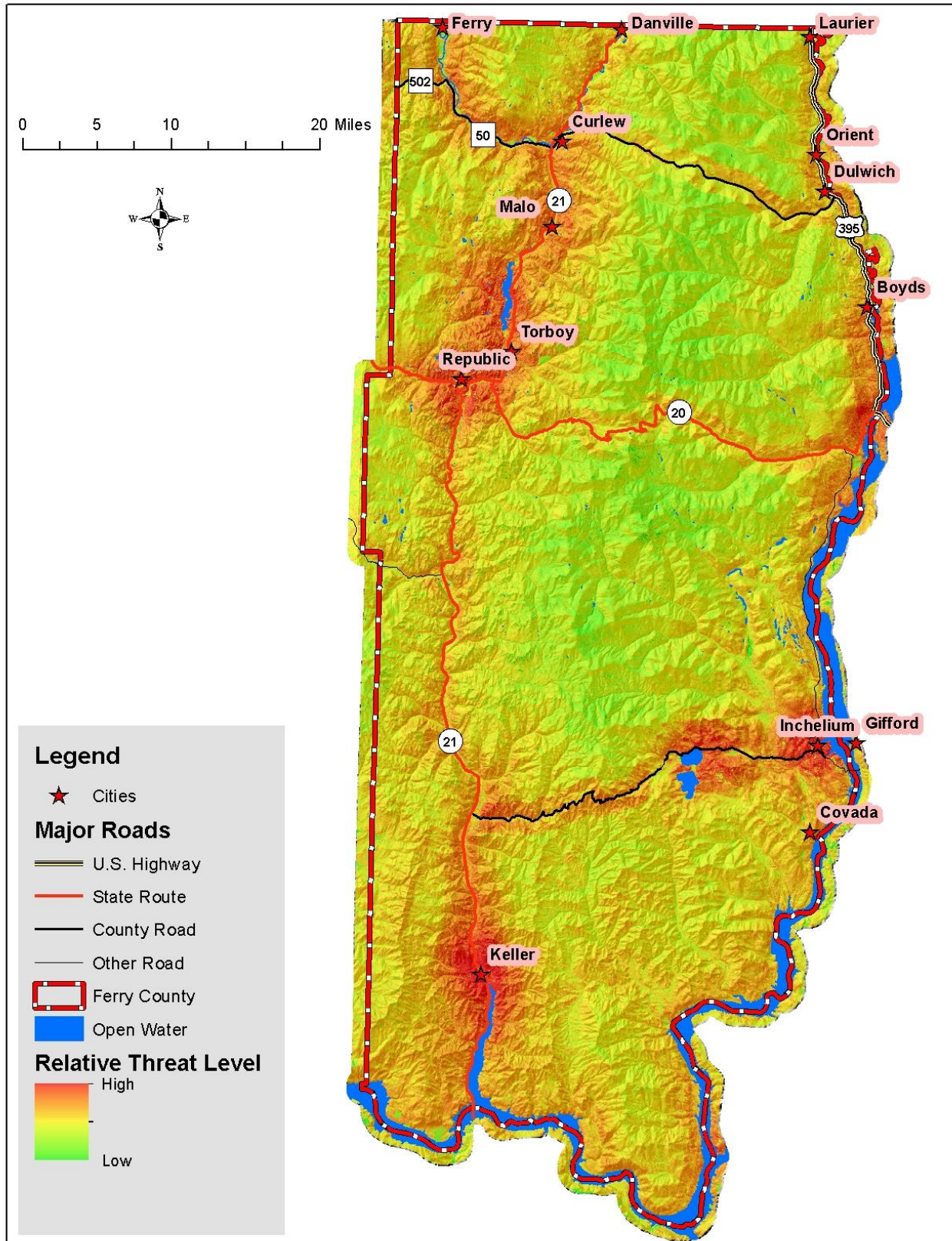
Wildland Urban Interface Map



Proposed Treatment Area Map



Relative Threat Level Map



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Appendix 2

Documenting the Planning Process

Documentation of the planning process, including public involvement, is necessary to meet FEMA's DMA 2000 requirements (44CFR§201.4(c)(1) and §201.6(c)(1)). This appendix includes the minutes taken at planning committee meetings, a record of published articles regarding the CWPP, and the presentation given at local public meetings.

Planning Committee Meeting Minutes

April 29th, 2014 – Ferry County Fair Grounds Carousel Building

Attendance:

Steve Harris, Washington DNR	Irene Whipple, Ferry Co. Planning Department
Mike Solheim, BLM Spokane District	Jon Chrysler, Ferry Co. F.D. 13/ Malo Grange
Reed Heckly, Colville National Forest	Vincent Corrao, Northwest Management, Inc. (NMI)
Brad Miller, Ferry Co. Commissioner	Tera King, Northwest Management, Inc. (NMI)
Lloyd Odell, Ferry Conservation District	Brock Purvis, Northwest Management, Inc. (NMI)
	Brad Tucker, Northwest Management, Inc. (NMI)

Agenda Item #1 – NMI Presentation:

Brad Tucker from Northwest Management gave a brief powerpoint presentation explaining the planning process, need for a Community Wildfire Protection Plan, and expectations from the planning committee. Individuals introduced themselves. NMI passed around handouts. Brad made a general request for committee members to send NMI relevant data (GIS, projects, plans, fire history, etc.)

Agenda Item #2– Public Involvement Strategy:

The committee discussed where press releases should be sent to reach the most people in Ferry County. The View, Statesman Examiner, and Omak Chronicle were all suggested for print media, while KOMW was suggested as a radio outlet for press releases. Word of mouth and flyers posted around communities throughout the county will provide some public outreach as well.

The tentative locations discussed for potential venues of public meetings are Republic (Carousel Building), Curlew, and Orient (Barstow Fire Hall).

Agenda Item #3 – Mission & Goals:

NMI passed out copies of the previous Mission & Goals statements for the committee to review. Some discussion was held on whether these needed updated or not. It was decided that we would keep the current statements and revise as needed throughout the planning process.

Agenda Item #4 – Fire District Surveys:

NMI explained the need to update the fire district and agency summaries. Any agency or fire district that has fire suppression responsibilities within Ferry County also need to provide an updated resource list to NMI. The committee requested that we send electronic versions of the survey forms to the committee.

Agenda Item #5 – Fire History:

The committee discussed the importance of developing a solid wildland fire history to show the need for mitigation projects. NMI provided a map developed using agency data showing point locations of ignitions throughout the county. NMI requested fire history data from the local fire districts that may not

show up at the state or federal level. Steve Harris (DNR) said that he could provide shapefiles for large wildland fires that have occurred within the last decade.

Agenda Item #6 – Wildland Urban Interface:

The committee reviewed the current version of the WUI map which was based on structure density that was manually digitized at the time. It was decided that the Ferry Co. Planning Department would send NMI their 911 structure layer and rebuild the map from that to determine if there are major differences between the old and new versions. It was also decided that having the main travel corridors, traveling from the east to the west portions of the county, be included within the WUI.

Agenda Item #7 – Immediate Concerns:

The committee discussed the importance of ensuring that projects from the eastside of the county be included in the updated CWPP. There was also a discussion about the importance of including a maintenance statement with any of the fuels projects that are developed. State fee lands also need to be identified on Tribal lands to allow the state to request funding for those areas.

Agenda Item # 8 – Meeting Schedule:

The next meeting is scheduled for May 28th at 11:00 am. It will be held at the Forest Service building in Republic. NMI will send out a reminder as we get closer.

May 28th, 2014 – Forest Service Building, Republic

Attendance:

Steve Harris, Washington DNR	Irene Whipple, Ferry Co. Planning Department
Richard Parrish, BLM Spokane District	Jon Chrysler, Ferry Co. F.D. 13/ Malo Grange
Reed Heckly, Colville National Forest	Vaiden Bloch, Northwest Management, Inc. (NMI)
Brad Miller, Ferry Co. Commissioner	Tera King, Northwest Management, Inc. (NMI)
Lloyd Odell, Ferry Conservation District	Brock Purvis, Northwest Management, Inc. (NMI)
Myron Bocos, Washington DNR	Brad Tucker, Northwest Management, Inc. (NMI)

Agenda Item #1 – Old Business:

Brad Tucker from Northwest Management gave a brief rundown of what was covered at the previous meeting (eg. Mission & Goals, District Surveys, Fire History, WUI, and Public Involvement). The committee did not have any comments on these topics at this time.

Agenda Item #2– Maps Presentation:

Vaiden Bloch of Northwest Management gave a powerpoint presentation to show the committee the maps that have been developed to date and how they were made. Some of the maps that were reviewed included; Vegetation Condition Class, Historic Fire Regime, Rate of Spread, Wildfire Intensity, Wildland Urban Interface, and Relative Threat Level Map.

Agenda Item #3 – Identify Project Locations:

NMI asked the committee to identify any areas that would benefit from a fuels reduction project. We will review and update projects from the previous version of the plan at the next meeting.

Agenda Item #4 – Review Chapters 1 & 3:

NMI passed out the drafts of chapters 1 & 3. Chapter 1 discusses the plan development and various guidelines. Chapter 3 describes Ferry County’s characteristics and demographics. The committee briefly discussed the different sections within each chapter. Brad asked that the committee review the chapters more thoroughly and email Brad (tucker@nmi2.com) with comments.

Agenda Item #5 – Field Assessments:

NMI intends to conduct field assessments throughout the County to ground truth maps, as well as explore areas of concern either in June or July. NMI welcomes anyone from the County to join them during the field assessments. NMI will send out a notice to the email list of when they intend to conduct the assessments. Brad asked the committee to identify areas of concern (with regard to wildland fire) that should be visited by NMI during the field assessments.

Agenda Item #6 – Western States WUI Grant Selection:

Steve Harris with the DNR took the opportunity of having a collection of folks to determine some possible project areas within the County to apply for funding to assist landowners with fuel reduction.

Agenda Item # 7 – Meeting Schedule:

The next meeting is scheduled for June 25th at 11:00 am. Location ‘To Be Determined’. It will either be held at the Commissioners’ Room or the Republic Fire Hall. NMI will send out a reminder as we get closer.

June 25th, 2014 – Ferry County Commissioners’ Office, Republic

Attendance:

Steve Harris, Washington DNR	Brad Miller, Ferry Co. Commissioner
Irene Whipple, Ferry Co. Planning Department	Jon Chrysler, Ferry Co. F.D. 13/ Malo Grange
Ben Curtis, Colville National Forest	Brad Tucker, Northwest Management, Inc. (NMI)

Agenda Item #1 – Old Business:

Brad Tucker from Northwest Management gave a brief rundown of what was covered at the previous meeting (eg. Maps, Chapter 1, and Chapter 3). The committee did not have any comments on these topics at this time. Brad had the newest version of the Relative Threat Level map and WUI map that the group reviewed and seemed pleased with the changes that were made and felt both maps were more accurate.

Agenda Item #2– Prioritize Projects:

The group used a poster sized aerial photo to draw new project areas and/or refine existing project areas for the new plan. There was an emphasis to create project areas on the east side of the county because that area unintentionally got left off of the original plan. NMI will digitize these new polygons and bring to the next meeting.

Agenda Item #3 – Field Assessments:

NMI has been exploring the county over the last couple of months and will focus on one-way in/out communities during July. NMI made it known that if anyone would like play “tour guide” for any areas that they feel are at risk to wildland fire please let Brad Tucker know so he can set up a day and time to meet you.

Agenda Item #4 – Action Items:

The group reviewed the Action Items from the previous plan. Many items were left in the plan as ‘on-going’ projects, however there were a few items that were deemed not needed and thus omitted from the plan or marked as completed. NMI will work to update the list of Action Items and pass it along to the committee for review. Any new items are welcomed if you or your district has specific needs (eg. water tender, PPE, new station, etc.).

Agenda Item #5 – Review Chapters 2 & 4:

NMI passed out the drafts of chapters 2 & 4. Chapter 2 discusses the various ways that the planning process occurred. Chapter 4 describes Ferry County’s wildland fire characteristics, history, and hazard assessment. Brad asked that the committee review the chapters more thoroughly and email Brad (tucker@nmi2.com) with comments.

Agenda Item #6 – Public Meetings:

The public meetings will be held at the end of July. It was determined that there would be three meetings (Republic, Curlew, & Orient):

- July 29th at 6:30 pm Republic
- July 30th at 6:30 pm Curlew
- July 31st at 6:30 pm Orient

Specific locations for the meeting in each community will be passed along as soon as NMI can get confirmation for each potential venue. NMI will also contact the various media outlets about the event to inform the public. NMI encourages anyone to post a flyer (to be provided by NMI) in their community or post the announcement on their facebook page or website if possible. Involving the public in this process is critical and the more participation we get, the better the plan will be.

Agenda Item # 7 – Meeting Schedule:

The next meeting is scheduled for July 29th at 10:00 am. It will be held at the Commissioners’ Office located north of the Courthouse. NMI will send out a reminder as we get closer.

July 29th, 2014 – Ferry County Commissioners’ Office, Republic

Attendance:

Steve Harris, Washington DNR	Brad Miller, Ferry Co. Commissioner
Irene Whipple, Ferry Co. Planning Department	Jon Chrysler, Ferry Co. F.D. 13/ Malo Grange
Al Crouch, BLM	Brad Tucker, Northwest Management, Inc. (NMI)
Arne Johnson, DNR-North Columbia District Manager	Trevor Lane, WSU Ferry County Extension

Agenda Item #1 – Old Business:

Brad Tucker from Northwest Management gave a brief rundown of what was covered at the previous meeting (eg. Project list, Chapter 2, and Chapter 4). The committee did not have any comments on these topics at this time.

Brad had the updated version of the Action Items. The group went through the list again and made a few refinements that will be ready for the draft that is expected to be available for the next meeting.

The group also reviewed the project boundary map. The group noticed that all of the original project areas had been left off of the new version. The group made the request to NMI to put the original project areas on the map with the new ones.

Agenda Item #2– Review Chapters 5 & 6:

Brad passed around copies of Chapters 5 & 6. The group had discussed the content of Chapter 6 (Action Items) at length and subsequently ran out of time to cover Chapter 5. Brad asked the committee to review Chapter 5 at their earliest convenience and provide comments to NMI within two weeks.

Agenda Item #3 – Public Meetings:

Three public meetings were scheduled for the week of July 28th. Two citizens attended the first meeting which was on the 29th in Republic. No one showed up to the second meeting which was held on the 30th in Curlew. Five individuals attended the third meeting which was held at the Barstow Training Center on the 31st.

Agenda Item # 4 – Meeting Schedule:

The next (and likely the LAST) meeting is scheduled for August 26th at 10:00 am. It will be held at the Commissioners’ Office located north of the Courthouse. NMI will send out a reminder as we get closer.

Public Meeting Presentation

The following slideshow was presented at each of the public meetings by Brad Tucker of Northwest Management, Inc. In addition, where possible, a fire district or other planning committee representative opened the meeting with a brief introduction.

Slide 1



Slide 2



Slide 3

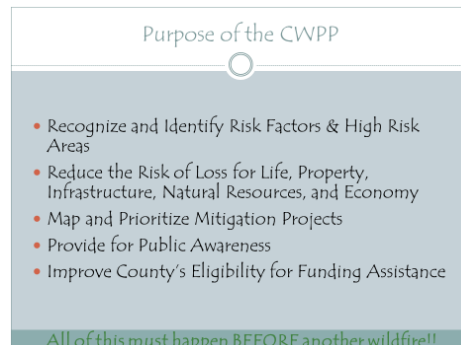
Fire History

Table 4.1. Summary of Cause from State and BLM databases 1972-2012.

General Cause	Number of Ignitions	Percent of Total Ignitions	Acres Burned	Percent of Total Acres
Human-Caused	1,426	52%	131,013	71%
Natural Ignition	1,228	44%	52,828	29%
Unknown	113	4%	<1	<1%
Total	2,767	100%	183,841	100%

The highest number of ignitions in Ferry County was witnessed in 2009 with 188 separate ignitions. The largest amount of area burned in Ferry County occurred in 1988 with over 39,000 acres being burned in a single year.

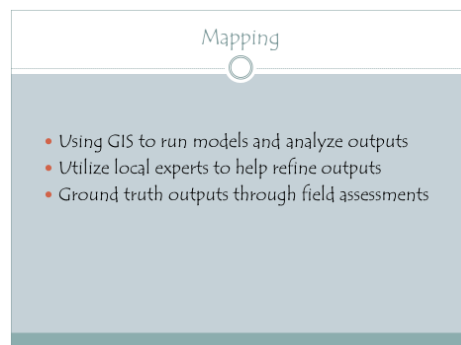
Slide 4



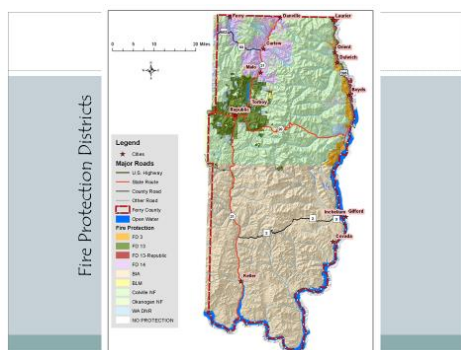
Slide 5



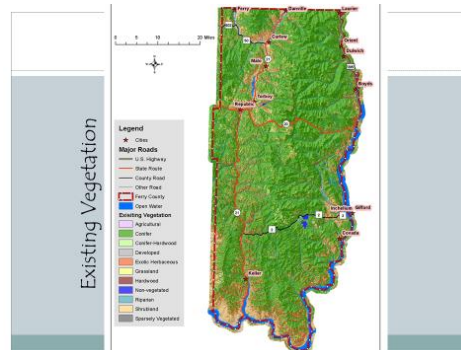
Slide 6



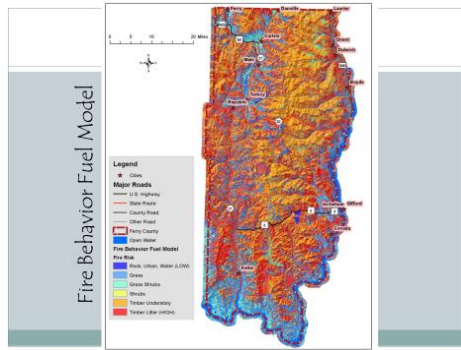
Slide 7



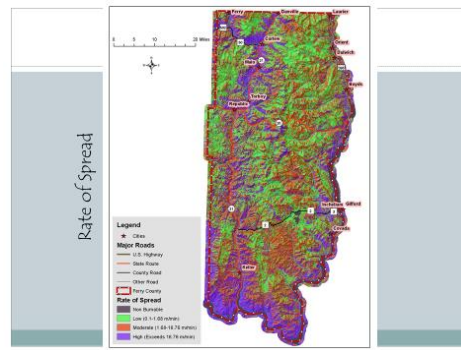
Slide 8



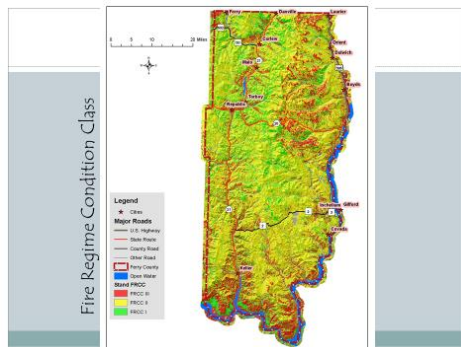
Slide 9



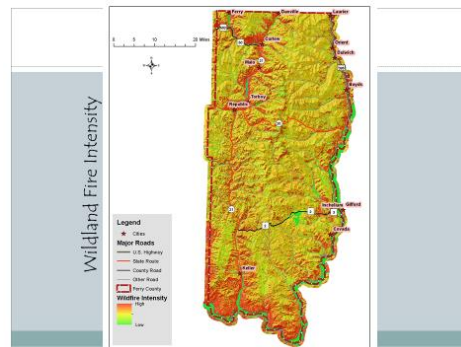
Slide 10



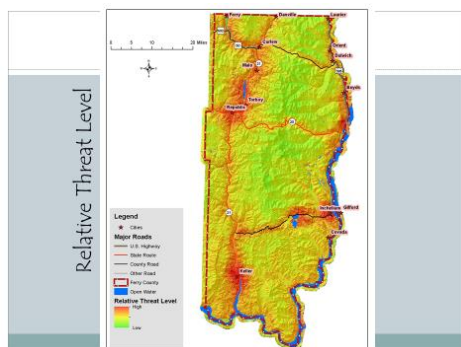
Slide 11



Slide 12



Slide 13



Slide 14

Preparedness

- Fire Services & Emergency Services
 - Resources & Training
- Wildland Fire Protection
 - Who's Jurisdiction?
 - What MOUs are in place?
- Local Government
 - Protecting citizens through policy & education
- Local Organizations
 - Find out how you can get involved

Slide 15

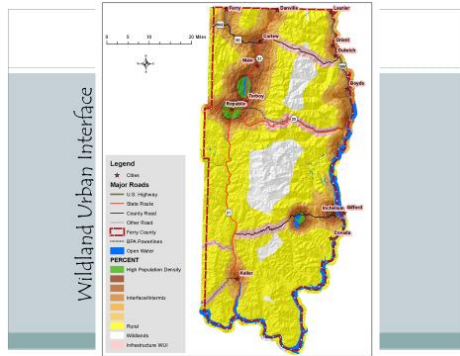
Public Involvement

- Press Releases about planning efforts
- Informational flyers
- Public Meetings X3
- Public Review of the DRAFT Plan

Slide 16



Slide 17



Slide 18



Slide 19



Slide 20

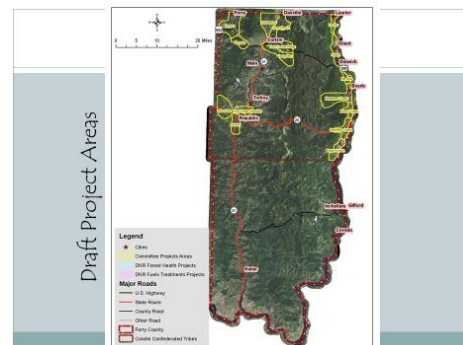
- Types of Projects
- Defensible Space
 - Thinning, pruning, construction materials, etc.
 - Roadside Fuels Treatments
 - Access Issues
 - Bridges, turnouts, ingress/egress, etc.
 - Emergency Response Needs
 - Training, equipment, recruitment, etc.
 - Policy Issues
 - WUI building codes, public education, etc.
 - Pre-planning Efforts in High Risk Areas
 - Evacuation routes, safety zones, etc.

Slide 21

Action Items

Action Item	Cash Addressed	Responsible Organization	Timeline
6.1.4 Create a Schedule for Safety and Policy Updates	CRFP Goal 6.1.4	Low: Commission's Office	On-going
6.1.4 Create a Schedule for Safety and Policy Updates	CRFP Goal 6.1.4	Medium: Ferry County, City of Republic	On-going
6.1.4 Review City and County efforts to include the protection of critical fire and fuel load resources as well as other resources as well as other resources as well as other resources	CRFP Goal 6.1.4	Low: City of Republic, Commission and County	On-going
6.1.4 Review City and County efforts to include the protection of critical fire and fuel load resources as well as other resources as well as other resources	CRFP Goal 6.1.4	High: Ferry County, City of Republic	On-going
6.1.4 Review City and County efforts to include the protection of critical fire and fuel load resources as well as other resources as well as other resources	CRFP Goal 6.1.4	Low: County Road 2 team	On-going
6.1.4 Review City and County efforts to include the protection of critical fire and fuel load resources as well as other resources as well as other resources	CRFP Goal 6.1.4	Medium: County Commission, Ferry County Fire Protection District	On-going
6.1.4 Review City and County efforts to include the protection of critical fire and fuel load resources as well as other resources as well as other resources	CRFP Goal 6.1.4	Low: Commission	On-going
6.1.4 Review City and County efforts to include the protection of critical fire and fuel load resources as well as other resources as well as other resources	CRFP Goal 6.1.4	High: City and County, Planning Department, Road Department, Ferry County, City of Republic, and other organizations	On-going

Slide 22



Slide 23

- Your Input
- Maps on the Walls – Mark them up!
 - Talk to one of the planning committee members.
 - Let us know your ideas and concerns.
 - Make this YOUR Plan!
 - Thank you for attending and participating! Please visit with us.

Slide 24



Public Comments

On behalf of the Kettle Range Conservation Group, I submit the following comments to the Community Wildlife Protection Plan. We appreciate the time and effort put into this plan, though we do feel there was insufficient public notice of it and especially the public comment period. That said, I appreciate the time, professionalism and detail put into this. It will be useful as both a source document and historic account of wildfire and ecosystem conditions in Ferry County.

Specific Comments:

- Page 27, Figure 4.1 – this map does not accurately portray large fire history in Ferry County. Although this map is coarse scale, it appears the Copper Butte Fire (1994) and White Mountain Fire (1988) were not included.
- Page 37, Figure 4.11 – this map does not appear to reflect large wildfires that have occurred in Ferry County and as reflected in Figure 4.1.
- Page 84 – Target Livestock Grazing. The ecological impacts of livestock grazing to arid and semi-arid regions are well known and documented including increased soil erosion, stream degradation, loss of habitat and other ecological damage on millions of acres of forest, grassland, sagebrush steppe and riparian ecosystems throughout the West. With cattle, sheep and other livestock using more than 70 percent of National Forest System and Bureau of Land Management lands, grazing may be the biggest factor affecting wildlife in 11 Western states, including fish, birds, amphibians, small mammals and pollinators. (Beschta, et al 2012).

Current rates for public lands (state and federal) grazing is \$1.35 to \$1.38 per animal unit month (cow/calf). These rates do not cover the costs of administering the program or maintenance/upkeep of fences, water troughs and other infrastructure, that is, they are subsidized by the taxpayers – and it unfairly tips margins in favor of a few ranchers at the expense of the majority of small-scale producers.

Supporting research re Targeted Livestock Grazing listed in the CWPP was done in Nevada, which is an entirely different ecosystem with entirely different weather patterns and plant association groups than those that occur in the north half of Ferry County – is not germane to local ecological or wildfire regimes. Empirical analysis of grazing effectiveness at controlling weedy herbaceous species in Ferry County has shown that grazing exacerbates weed spread (K Diamond K Ranch).

A critical element missing in your assumption (grazing reduces wildfire risk) is the health of soils. Removing plant materials through grazing reduces organic matter necessary to build soils and shelter soils from rain, wind and snowmelt.

Cheatgrass grows rapidly where it can readily occupy a site, in particular lands denuded of vegetation by livestock grazing, roadside ditches, logging roads, trails and pastures. Pound for pound, cheatgrass when burned has a similar BTU output as gasoline. Cheatgrass thrives in burned environments and grazed environments. Historically low-severity fire regime has turned into a high-severity or mixed-severity fire regime, a

change that has occurred over millions of acres in the West (USDA Forest Service 2000a, Skinner and Chang 1996).

The thesis that livestock grazing reduces wildfire risk is unsubstantiated by the evidence, whereas your CWPP document early on (and correctly) notes that livestock grazing has altered fire regimes:

Nearly a century of wildland fire suppression coupled with past land-use practices (primarily agriculture and grazing) has altered plant community succession and has resulted in dramatic shifts in the fire regimes and species composition. (Page 20 Ferry County CWPP Update).

In conclusion, I appreciate the time and effort that went into producing the updated Community Wildfire Protection Plan. Thank you for this opportunity to submit comments.

Having resided in Ferry County over twenty years as an active citizen participant in numerous organizations and on a number of boards, I have interacted with a wide cross section of our community on several levels. During this time I have experienced nearby fires that dropped ash (both cold, large, black chunks and warmer, smaller white firebrands) on our homes and new vehicle clear coats. I have also participated in at least two different sets of Washington DNR fuels reduction grants over ten years to make our property far more fire wise and in the process have interacted with a number of citizens, agencies and others who have varied opinions on how to best deal with the ongoing wild land fire risk in our area. Some overriding impressions have emerged from these interactions, which I will share in my comments where appropriate.

This plan (from my lay persons view as a freelance writer and editor with some lay background in fire behavior and two 6 week long classes on forest stewardship) looks excellent overall, (with only one or two notable exceptions), and meets all points in the mission statement. It has taken much work and coordination among many agencies and entity's and the result appears to be quite comprehensive.

I have identified places where, in my personal opinion stronger language could be beneficial. I also suggest additional ways to ensure private landowners are provided every opportunity to get the message regarding how they are individually responsible for primary fire hazard reduction. Any wording suggestions I make are in *italics*.

Page 4: Under USGAO pp 1: I am pleased to see the primary responsibility for prevention being with the homeowner clearly stated and suggest taking every opportunity to restate this fact. Wherever the phrase can be expanded on would help such as the final pp on that page: “ the two most effective measures ...are.... (1) *For the homeowner* to create and maintain a buffer ...” and elsewhere to drive home the point. Anytime it can be emphasized that the homeowner must create, or cause this defensible space to be created, adds motivation for essential, preventative action.

Page 4, pp2 : begins with “Although protective measures are available ...” I would go as far as to suggest changing a portion of that statement as follows: “...and lack of awareness of *both their primary and* shared responsibility for fire protection.

Page 6 Integration with other local planning docs: **Question:** While all details were not provided here, should I assume that wherever conflicts were identified they will be addressed in future updates? Any opportunity to make reference to this planning document within other local planning documents could certainly provide a useful cross reference opportunity.

Page 12, 13: References to the public notices and press releases surprised me as in my role as an active community volunteer, I am always on the lookout for public notices, meeting announcements and I subscribe to the local newspaper. I did not see the bright and colorful notices placed in either of my local post offices or any newspaper notices. The only notice I did see in The View was one big box ad for this public comments period more recently in fact. I might have missed one, but all? I have heard this from a number of other residents also. Might I suggest that future updates and public comment periods employ more widespread attempts to get the public's attention and participation? Such as: Volunteers to regularly replace posted notices wherever they have been removed; a newspaper insert in addition to press releases; even a countywide bulk postcard mailing could help. I realize this can be costly but nowhere near as costly as trying to fight wildfire on private property. Perhaps the county commissioners could be asked to include future public meetings as items on their regular agenda as they approach. Additionally, if there is

any sort of list of those who have cost shared with DNR or otherwise shared in funds for fire wise/fuel reduction treatment, perhaps those folks could be contacted and asked to gather neighbors to attend. Also the County Department of Emergency Management could occasionally print a small add with webpage links in our paper and prominently display links to resources on the county webpage and the planning department webpage. (Note: Currently I do not even see a downloadable version of the fire wise booklet on the planning department webpage.) Anytime a clickable link can be provided wherever the public visits online even occasionally for permits, take the opportunity!

Page 32: top of page continued pp from page 31”It is *essential* that regional planners and *especially* local residents *fully* understand that threat in order to prepare for potential wildfire events.”

Page 38 pp3 begins, “ By reducing hazardous fuel loads...” and goes to end of page. I suggest placing that entire bit either in italic or bold to draw reader’s attention to this review of the pivotal basic points. Take every opportunity to emphasize the landowner’s personal responsibility, because some do not get it the first or second time they read it---perhaps the third or fifteenth time, only then might it sink in enough for them to visualize what it really means. In my twenty plus years here I’ve often heard newcomers and others say they think it is the firefighter’s responsibility to save their stuff; their structures regardless of risk and more often with no knowledge of what defensible space even is. Some Ferry County residents apparently really do believe that, for example, because they were issued a building permit for a wood framed structure, on a side hill, surrounded by trees, that it all must be ok or they would not be allowed to build there unless firefighters could save it all for them! Indeed, on a recent field trip I took with the Forest Service in Ferry County, on one 5 mile stretch of mountain gravel road I personally observed at least 3 wood sided structures, built on side hills with immense amounts of vegetation surrounding them, poorly marked or unmarked access, no secondary escape route and no visible defensible space. Clearly, it is going to take more than the (highly unusual) Carlton Complex fire or the (more typical) Devil’s Elbow fire to get Ferry County landowners attention fully zeroed in on our primary, personal responsibility to prepare our property for even the most typical wildfire threat.

Page 42: As I read this page the following came to mind: Where will money originate for the type of fire assessment/home evaluation we had at no cost in the mid 2000;’s wherein a local conservation employee did a comprehensive fire wise inspection complete with handouts with our scores and how to improve them? While the oft repeated no new taxes mantra still reigns in some minds, presently, this requires more money than we now have to work with. While every taxpayer wishes to root out government waste, fraud and abuse, that is quite separate from choosing not to fully fund government agencies and departments that are best equipped to assist landowners with exactly this sort of thing. For example: The DNR cost share programs I took advantage of last year were excellent. There was no duplication of effort and those inspecting, prescribing, GPS-ing and later, finally approving cost share payment to both me and the contractor I hired, all judiciously utilized tax dollars to get this done.

Also, it must always be made clear to the public, far in advance of any fire threat, that if homeowners choose not to take the necessary steps to provide defensible space around all structures they value and would like to survive a fire, that no amount of firefighter risk will help when fire looms if those steps were neglected or not maintained. Indeed, the Carlton Complex fire illustrated that even with defensible space sometimes the battle is lost. We must all still prepare ourselves for battle however.

Page 44: pp6 under Field assessments: In line 3 a word reversal appeared for some reason. Just after: “West Curlew Lake area”, you have, “Lone Creek Ranch area” but it should read “*Lone Ranch Creek area*” as it does everywhere else in the document.

Page 48: end of continued pp from previous page: “It is *essential* for residents to *fully* understand the vulnerability of living within dense vegetation where dry summers create the potential for catastrophic wildfire events.”

Pp5: I would offer that residents indeed must be fined when their own fire requires a suppression response. Additionally, I’d love to see a program where residents might be able to “apply” for on scene firefighting standby help for small controlled burns in spots of high fine fuels risk (there is one in our area I could point out and many others exist as more of us build in these areas) that lie within areas of denser population around Curlew Lake and some places along Kettle River for two examples. When population densities were lower it only took two or three neighbors with shovels, rakes, charged hoses and some basic fire knowledge (how to do primary back burns along a perimeter; how to burn off multi acre patches in small steps, how to effectively protect single trees within the target burn area etc) to work together just as snow was melting off to greatly reduce fine fuel risk every three or four years or so between well-spaced out homes.

Now, too many newcomers do not have the knowledge or skill level and if we could implement an application program wherein homeowners could apply for local fire department’s to determine if certain spots might qualify for this sort of assist, this might fill a gap. Applications could for example, require two or more homeowners apply together, a map-description of what needs burning and the fire department could then assess if it could be a worthwhile, small landscape scale, fuel reduction project and if so “approve” stand by assist for a few of these burns early each spring. Clearly it would have to be based upon firefighter availability and the homeowner’s flexibility but in some developments it could provide a useful defense against for example the risk of summer thunderstorm lightning strikes-the difference between something that could be knocked down quickly or something that blows up so fast structures are imperiled before response arrives.

Page 49: “The fire district had entered into an Emergency Forestland Response Agreement in the past with the Washington State Department of Natural Resources, but it has not been re-signed.”

Question: Why has the agreement not been re-signed?

District Needs/ Wish List:

Page 57: Yellow box: I’d suggest stating this even more bluntly but you’ve already guessed that by now!

Page 59 Is there an organized effort between emergency responders including SAR, CERT and others to ensure our HAM and any other alternative communications are properly trained and ready to go? Avoid redundancy and invite everyone to the table. If legal bits require that in order to be part of such a communication effort you must train with a recognized group, pass a background check, and/or adhere to specific response protocols, invite everyone and find them a way for them to take part in order to meet the requirement.

Page 84, 85, 86; Targeted Livestock grazing: I was quite surprised to read this section. I had to read it twice and examined the footnotes cited. While a tiny portion of this might apply in Nevada, and even then

only in quite narrow specific situations (indeed even the footnoted documents which were cut and pasted in segments verbatim to this document state this elsewhere) there is nothing cited here or anywhere else that I could find so far that is peer reviewed, accepted management strategy for this approach in our northern forests. I would have to disagree loudly that considering paying for even a small portion of targeted grazing is any sort of viable option. Besides which it flies in the face of our now extremely limited government funding generally and currently, livestock grazing leases in our area are not even paying for the increased weed seed production, stream erosion and more impacts I'll not list here as it is. I would challenge anyone here to cite any real peer reviewed evidence of how this sort of proposal could work anywhere, especially in our particular topography climate etc.

Final thoughts: We need more Fire wise volunteers. Those of us who have taken part should all be asked if we are willing to share this with your neighbors; would we host a Fire wise meeting in our home for adjoining landowners. Each time a fuels reduction grant is either initially approved (thus allowing those landowners to possibly pool together to get the contractor to simply move the crew from place to place) and again upon completion (to those still not applying) the agency could use mapping software to send a postcard to all adjoining landowners: Did you know your neighbor just took part in making his or her property and structure more able to withstand a wildfire? Would you like to continue the effort to make your entire neighborhood more fire wise?

Each time anyone applies for any sort of permit from the county planner they should not only be given a fire wise brochure or booklet (as they are now on initial build permits), but each application should have a place for them to acknowledge they got one! This makes a difference. Homeowners are far more apt to actually read the information and take steps if they know they had to check a box on a signed and filed document saying they got it. Permit fees might even include a small fee to cover printing costs. You could require all build or remodel permits require a small fee (to cover time and gas) for a fire wise inspection as part of completing the permit process. If folks were educated before they built about what their proposed building site may really require in order to be more fire wise for such a large investment, they might at least build the cost of creating defensible space into their budget. Perhaps I'm too hopeful but education early and often is key to any real change.

You could also goose local and state insurance agencies to require fire wise planning and proof of maintaining it at each renewal. That would take nothing more than a power point presentation online (clickable link again) of just what occurs in a wildfire in our topography and what insurers payout numbers really are. A reminder that FEMA did not step in even for Carton Complex private structure owners could also help here.

Thank you for allowing me the extended opportunity to comment on this 2014 Wildfire Plan for Ferry County Washington. I greatly appreciate it and hope to be included in future updates.

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Appendix 3

Risk Analysis Models

Historic Fire Regime

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning (Agee 1993, Brown 1995). Coarse-scale definitions for natural (historical) fire regimes have been developed by Hardy et al. (2001) and Schmidt et al. (2002) and interpreted for fire and fuels management by Hann and Bunnell (2001). The five natural (historical) fire regimes are classified based on average number of years between fires (fire frequency) combined with the severity (amount of replacement) of the fire on the dominant overstory vegetation. These five regimes include: I – 0-35 year frequency and low (surface fires most common) to mixed severity (less than 75% of the dominant overstory vegetation replaced); II – 0-35 year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced); III – 35-100+ year frequency and mixed severity (less than 75% of the dominant overstory vegetation replaced); IV – 35-100+ year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced); V – 200+ year frequency and high (stand replacement) severity.

A database of fire history studies in Washington was used to develop modeling rules for predicting historical fire regimes (HFRs). Tabular fire-history data and spatial data was stratified into ecoregions, potential natural vegetation types (PNVs), slope classes, and aspect classes to derive rule sets which were then modeled spatially. Expert opinion was substituted for a stratum when empirical data was not available.

Fire is one of the dominant disturbance processes that manipulate vegetation patterns in Washington. The HFR data were prepared to supplement other data necessary to assess integrated risks and opportunities at regional and subregional scales. The HFR theme was derived specifically to estimate an index of the relative change of a disturbance process, and the subsequent patterns of vegetation composition and structure.

This data was derived using fire history data from a variety of different sources. This data was designed to characterize broad scale patterns of historical fire regimes for use in regional and subregional assessments. Any decisions based on these data should be supported with field verification, especially at scales finer than 1:100,000. Because the resolution of the HFR theme is 30 meter cell size, the expected accuracy does not warrant their use for analyses of areas smaller than about 10,000 acres (for example, assessments that typically require 1:24,000 data).

Vegetation Condition Class

Vegetation Condition Class (VCC) is an interagency, standardized tool for determining the degree of departure from reference condition vegetation, fuels, and disturbance regimes. Assessing VCC can help guide management objectives and set priorities for treatments.

As scale of application becomes finer the five historic fire regimes may be defined with more detail, or any one class may be split into finer classes, but the hierarchy to the coarse scale definitions should be retained. Coarse-scale VCC classes have been defined and mapped by Hardy et al. (2001) and Schmidt et al. (2001). They include three condition classes for each historic fire regime. The classification is based on a relative measure describing the degree of departure from the historical natural fire regime. This departure results in changes to one (or more) of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated disturbances (e.g. insect and diseased mortality, grazing, and drought). There are no wildland vegetation and fuel conditions or wildland fire situations that do not fit within one of the three classes.

The three classes are based on low (VCC 1), moderate (VCC 2), and high (VCC 3) departure from the central tendency of the natural (historical) regime (Hann and Bunnell 2001, Hardy et al. 2001, Schmidt et al. 2002). The central tendency is a composite estimate of vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated natural disturbances. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside.

Characteristic vegetation and fuel conditions are considered to be those that occurred within the natural (historical) fire regime. Uncharacteristic conditions are considered to be those that did not occur within the natural (historical) fire regime, such as invasive species (e.g. weeds, insects, and diseases), “high graded” forest composition and structure (e.g. large trees removed in a frequent surface fire regime), or repeated annual grazing that maintains grassy fuels across relatively large areas at levels that will not carry a surface fire.

Determination of amount of departure is based on comparison of a composite measure of fire regime attributes (vegetation characteristics; fuel composition; fire frequency, severity and pattern) to the central tendency of the natural (historical) fire regime. The amount of departure is then classified to determine the vegetation condition class. A simplified description of the fire regime condition classes and associated potential risks follow.

Vegetation Condition Class Risks and Management Options.						
Condition Class	Fire Regime	Management Options	Species Composition and Structure	Invasion by non-native Species	Smoke Production, Hydrology, and Soils	Insects and Disease
Condition Class 1	Fire Regimes are within the natural (historical) range and the risk of losing key ecosystem components is low. Vegetation attributes (Species composition, structure, and pattern) are intact and functioning within the natural (historical) range.	Where appropriate, these areas can be maintained within the natural (historical) fire regime by treatments such as fire use.	Species composition and structure are functioning within their natural (historical) range at both patch and landscape scales.	Non-native species are currently not present or present in limited extent. Through time or following disturbance, sites are potentially vulnerable to invasion by non-native species.	Functioning within their natural (historical) range.	Insect and disease populations functioning within their natural (historical) range.
Condition Class 2	Fire Regimes have been moderately altered from their natural (historical) range. Risk of losing key ecosystem components is moderate. Fire frequencies have departed from natural frequencies by one or more return intervals (either increased or decreased). This result in moderate changes to one or more of the following: fire size, intensity and severity, and landscape patterns. Vegetation and fuel attributes have been moderately altered from their natural (historical) range.	Where appropriate, these areas may need moderate levels of restoration treatments, such as fire use and hand or mechanical treatments, to be restored to the natural fire regime.	Species composition and structure have been moderately altered from their historical range at patch and landscape scales. For example: <u>Grasslands</u> – Moderate encroachment of shrubs and trees and/or invasive exotic species. <u>Shrublands</u> – Moderate encroachment of trees, increased shrubs, or invasive exotic species. <u>Forest/Woodland</u> – Moderate increases in density, encroachment of shade tolerant tree species, or moderate loss of shade intolerant tree species caused by fire exclusion, logging, or exotic insects or disease. Replacement of surface shrub/grass with woody fuels and litter.	Populations of non-native species have increased in some areas, thereby increasing the potential risk for these populations to expand following disturbances, such as wildland fires.	Have been moderately altered from their natural (historical) range. Water flow is typically slower. Smoke and soil erosion following a wildland fire is typically greater.	Insect and disease populations have been moderately altered from their natural (historical) Range.

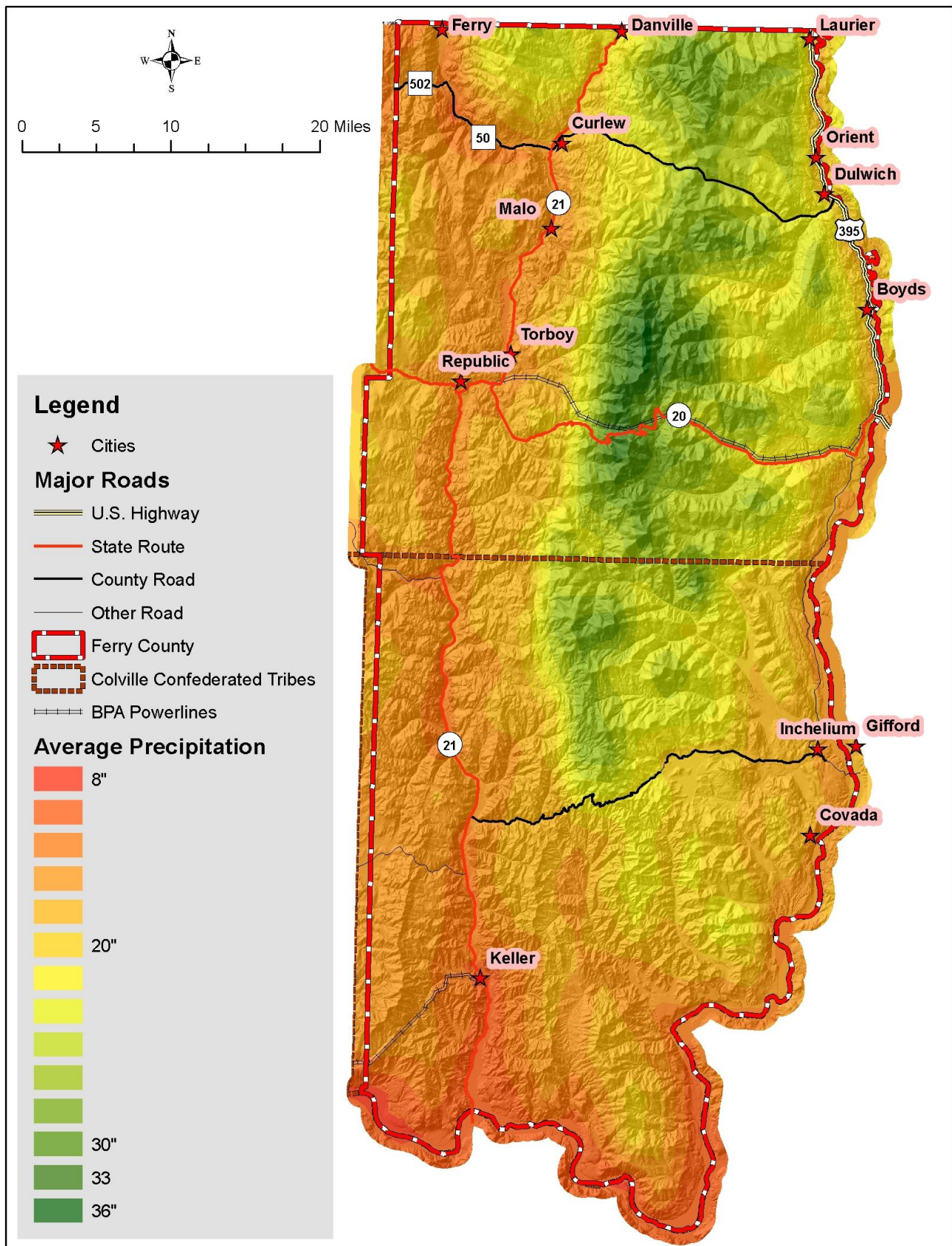
Vegetation Condition Class Risks and Management Options.						
Condition Class	Fire Regime	Management Options	Species Composition and Structure	Invasion by non-native Species	Smoke Production, Hydrology, and Soils	Insects and Disease
Condition Class 3	Fire Regimes have been substantially altered from their natural (historical) range. The risk of losing key ecosystem components is high. Fire frequencies have departed from natural frequencies by multiple return intervals. Dramatic changes occur to one or more of the following: fire size, intensity, severity, and landscape patterns. Vegetation attributes have been substantially altered from their natural (historical) range.	Where appropriate, these areas may need high levels of restoration, such as hand or mechanical treatments, before fire can be used to restore the natural fire regime.	Species composition and structure have been substantially altered from their historical range at patch and landscape scales. For Example: <u>Grasslands</u> – High encroachment and establishment of shrubs, trees, or invasive exotic species. <u>Shrublands</u> - High encroachment and establishment of shrubs, trees, or invasive exotic species. <u>Forest/Woodland</u> - High increase in density, encroachment of shade tolerant tree species, or high loss of shade intolerant tree species caused by fire exclusion, logging, or exotic insects or disease.	Invasive species are common and in some areas the dominant species on the landscape. Any disturbance will likely increase both the dominance and geographic extent of these invasive species.	Have been substantially altered from their natural (historical) range.	Insect and disease populations have been substantially altered from their natural (historical) range. Potentially resulting in higher mortality or defoliation.

Relative Threat Level

Development of a Threat Level map for the Ferry County CWPP involved geographically developing and ranking the various threat categories identified by the CWPP Committee. Threat categories identified for the analysis include Slope, Aspect, Fire Behavior Fuel Model, Predicted Flam Length Class, Precipitation Levels, Predicted Rate of Fire Spread, Predicted Wild Fire Intensity and Population Density. The various data sets for each threat or condition were developed and ranked based on their significance pertaining to wildfire. The various ranked layers were then analyzed in a geographical information system to produce a cumulative effects map based on the ranking. Following is a brief explanation of the various threats identified for the analysis, and the general value ranking scheme used for each. The Relative Threat Level Map is found on page 9 of the appendices of the CWPP document.

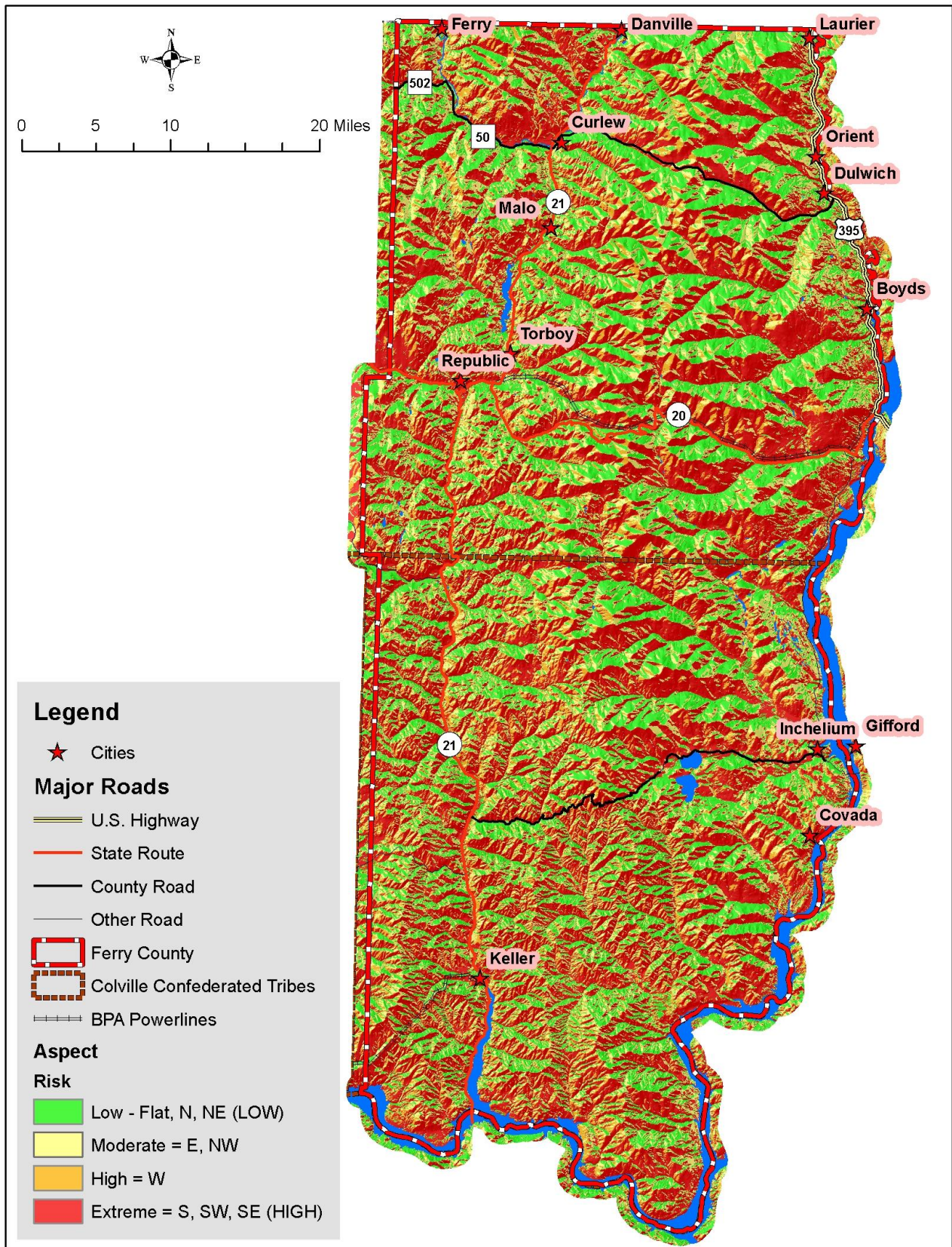
Precipitation

A GIS precipitation data layer developed by the USDA/NRCS – National Cartography & Geospatial Center, was used to identify average precipitation across Ferry County. The dataset provides derived average annual precipitation in polygon contour format according to a model using point precipitation and elevation data for the 30 year period of 1971-2000. Precipitation plays a role in wildfire threat; areas of lower precipitation are more likely to exhibit a higher threat than high precipitation areas. For the threat level analysis, a precipitation layer value was created by dividing the range of precipitation values into seven classes where the maximum precipitation average area for the county had the lowest treat value (1), and the lowest or driest average precipitation areas had the highest threat level (7).



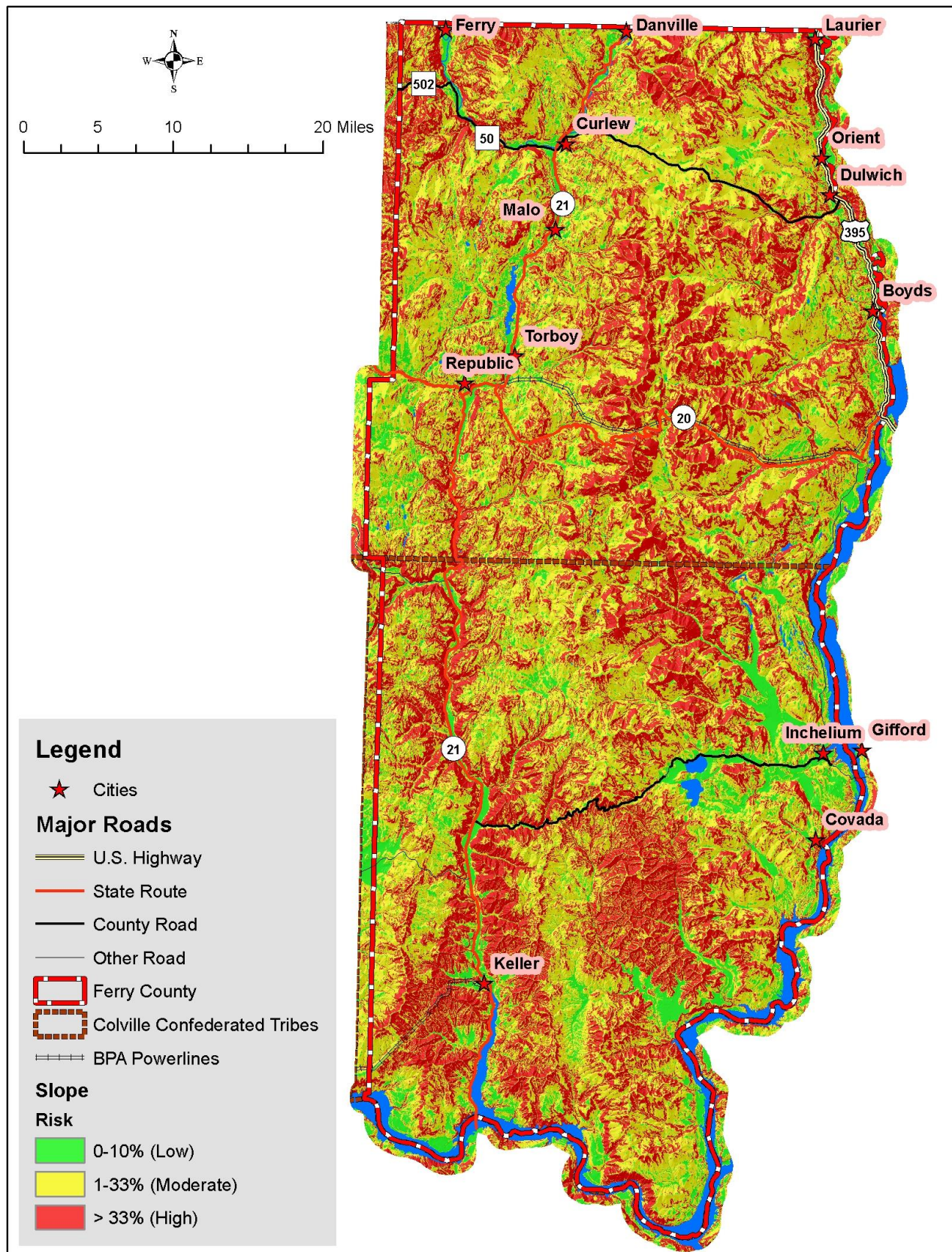
Aspect

An aspect raster data layer was created in ArcGIS using the Spatial Analyst extension and a 10 meter digital elevation model. Data processing in ArcGIS assigns an aspect value from 0-359° to each pixel to represent compass azimuths. These azimuths were interpreted and given a treat value based on their relative contribution to wildfire behavior. In general, the southerly and westerly aspects have a higher threat level than the easterly and northerly aspects. Based on this, the raster values were classified into 4 aspect threat levels and assigned a threat value. The aspects Flat, North and Northeast were assigned a value of 1 for low, East and Northwest were assigned a value of 2 for moderate, West was assigned a value of 3 for high, and Southwest, South and Southeast were assigned a value of 4 for extreme aspect threat level.



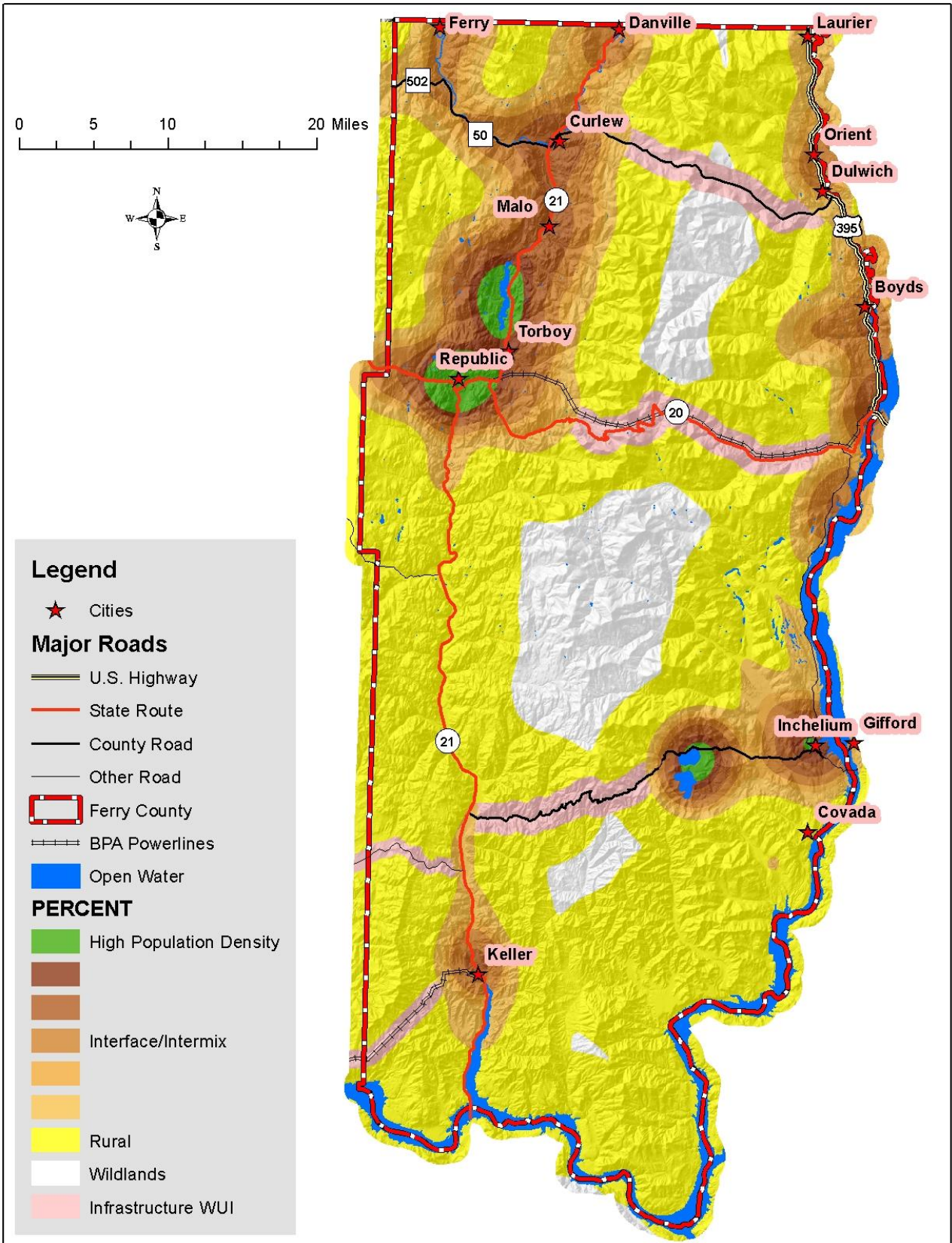
Slope

A slope raster data layer was created in ArcGIS using the Spatial Analyst extension and a 10 meter digital elevation model. Data processing in ArcGIS assigns a slope value in percent for each pixel. Once created, the slope model was classified into 3 groups, Low, Moderate, and High for final analysis. From a wildfire stand point, the threat from fire increases with increased slope. For this analysis, 0-10% slope was assigned a value of 1 for low threat, 10-33% slope a value of 2 for moderate threat, >33% slope a value of 3 for high or extreme threat.



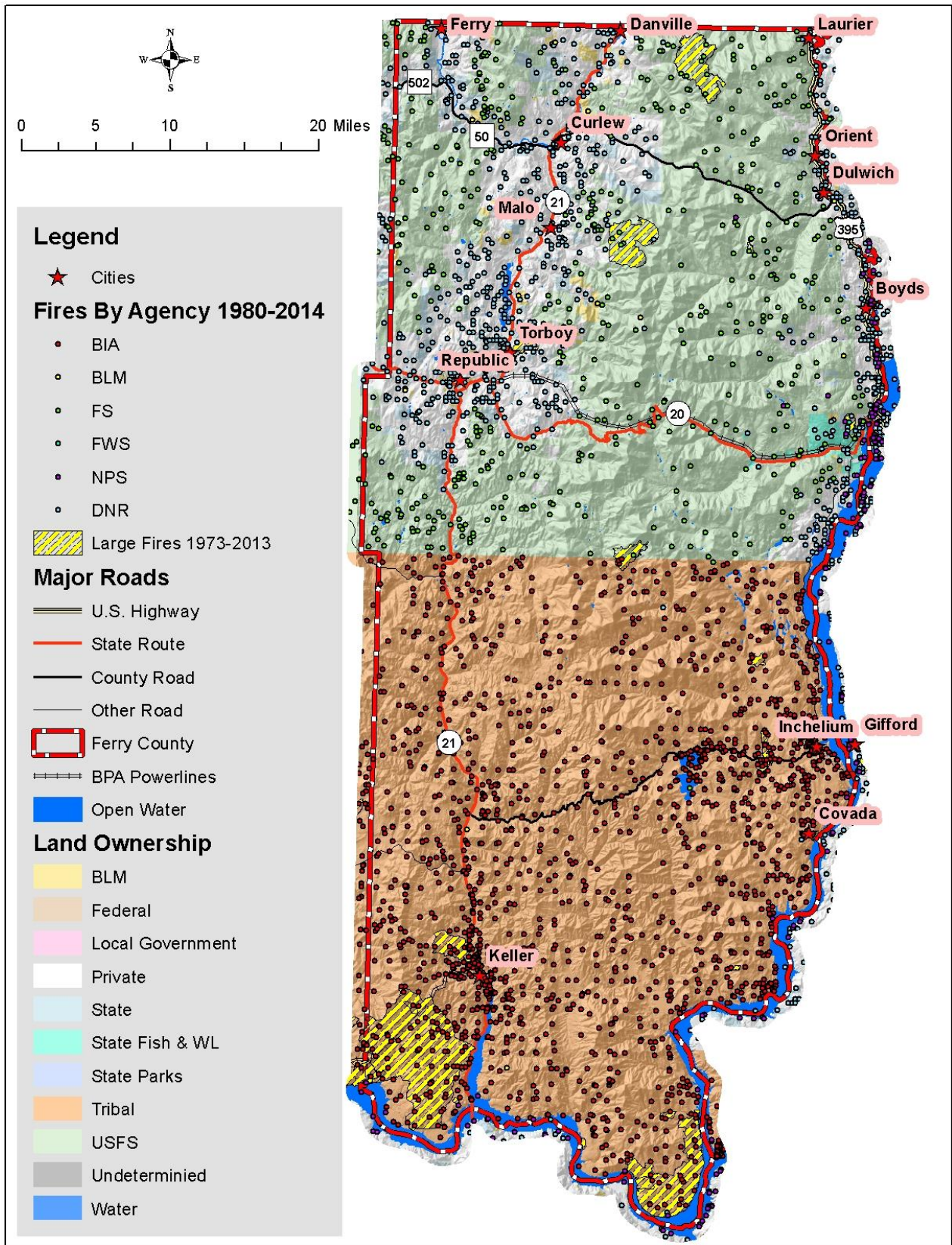
Wildland Urban Interface

Population density plays a role in Ferry County wildfire threat. A high proportion of all wildfires in the county are man caused. To represent this in a threat level analysis, population density across the county was portrayed using the WUI layer to show the areas of highest human occupation. The WUI layer was created using a Kernel density model based on the counties address point locations. The output from this analysis produces contour polygons of equal population density across the landscape. The contour polygon data set was then reclassified into six categories and assigned a population threat level value from 1 to 6 representing low to high threat based on population density. The assigned threat level values represent the relative threat caused by population density and the increased risk of fire being man caused as population increases.



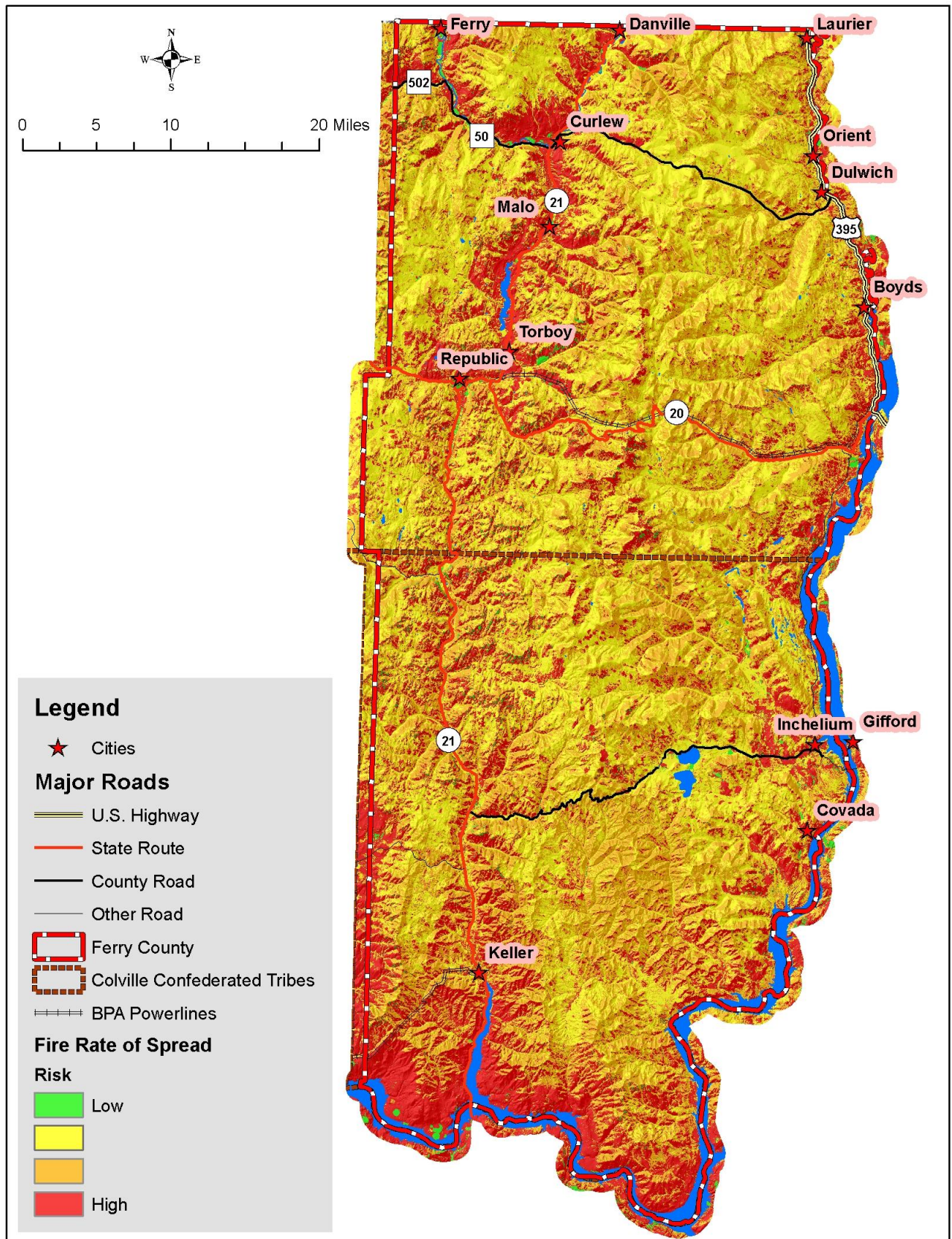
Fire Occurrence

Historic fire data was used in the treat level analysis to add risk to areas where fire commonly occurred. Fire point location data for the period 1980-2014 was analyzed in ArcGIS using the Kernel density utility to create a fire population model. The output from this analysis produces contour polygons of equal fire occurrence across the landscape. The contour polygon data set was then reclassified into nine categories and assigned a threat value from 1 to 9 representing low to high threat based on fire occurrence. The assumption here is that areas with fewer fires have a relatively lower risk from fire occurrence whereas areas with a high number of fires, based on the data used, represented a higher level of risk.



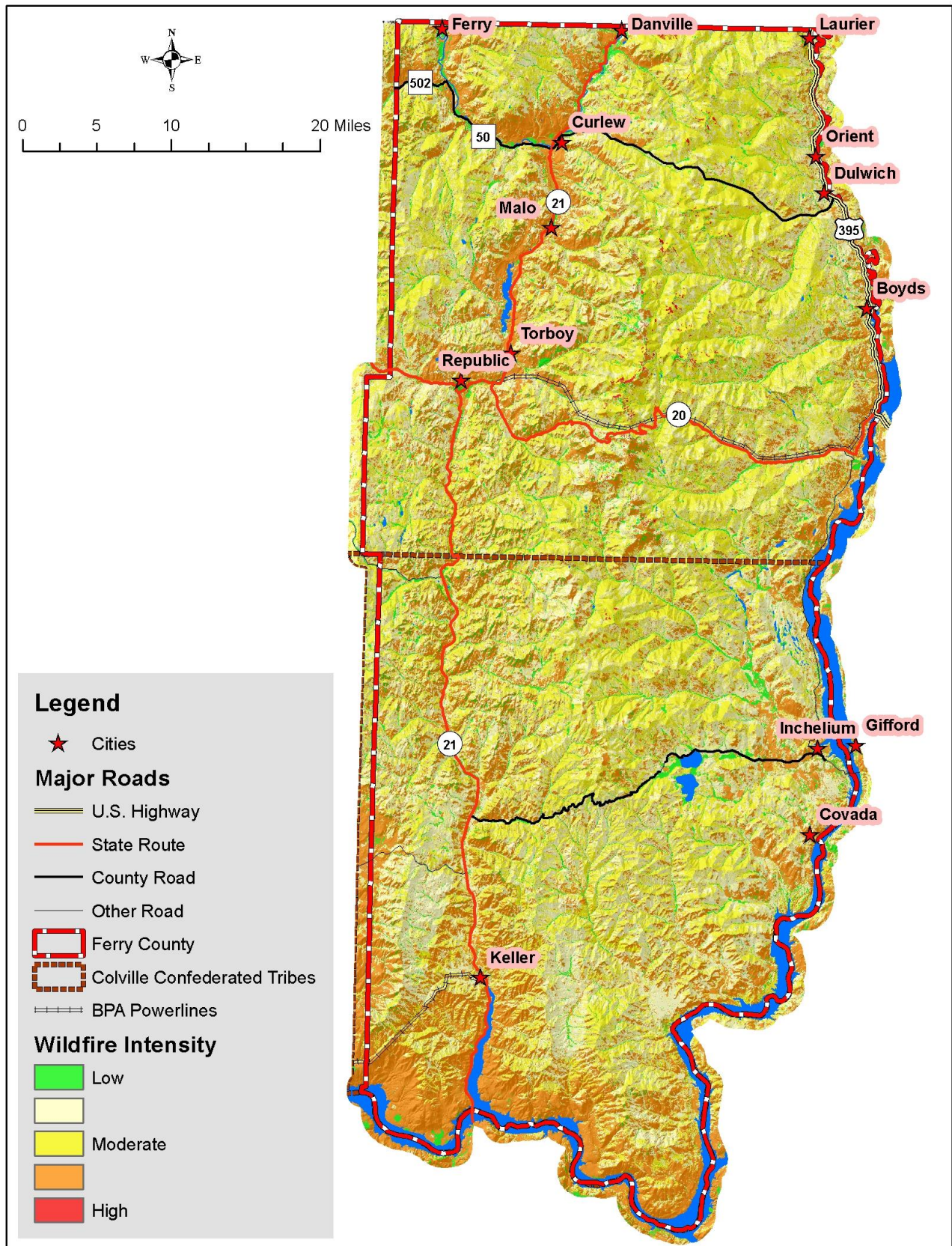
Rate of Spread

Output data from the Wildland Fire Assessment Tool (WFAT) was used to predict Rate of Spread (ROS). ROS is a derived metric that classifies areas into four classes representing non-burnable, low ($ROS < 5.5$ ft/min), moderate ($5.5 \text{ft/min} < ROS < 55 \text{ft/min}$) and high spread rates ($ROS > 55$ ft/min). Predicted ROS outputs from the WFAT model were reclassified to incorporate a threat level value. A value of 0 was assigned to the non-burnable ROS, 1 to low ROS, 2 to the moderate ROS, and 3 to a high ROS.



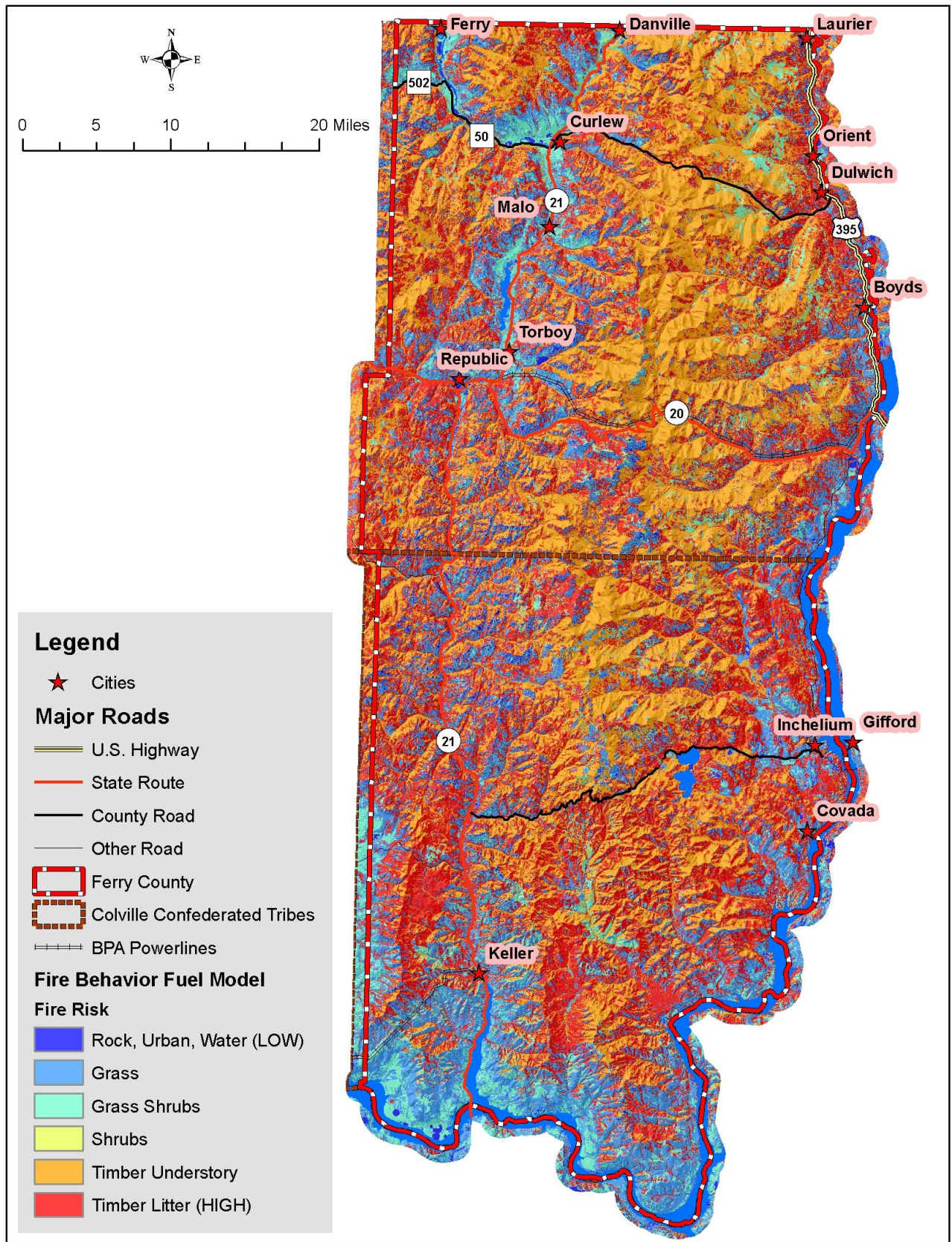
Wildland Fire Intensity

Output data from the Wildland Fire Assessment Tool (WFAT) was used to predict Wildland Fire Intensity (WFI). Wildland Fire Intensity is a derived metric that facilitates communication about and interpretation of fire line intensity. It is analogous to the logarithmic Richter scale used to measure the magnitude of earthquakes. For threat level analysis, the predicted WFI outputs from the WFAT model were classified into five categories based on the calculated threat level value predicted from the model. The output values ranged from 0-4.8.



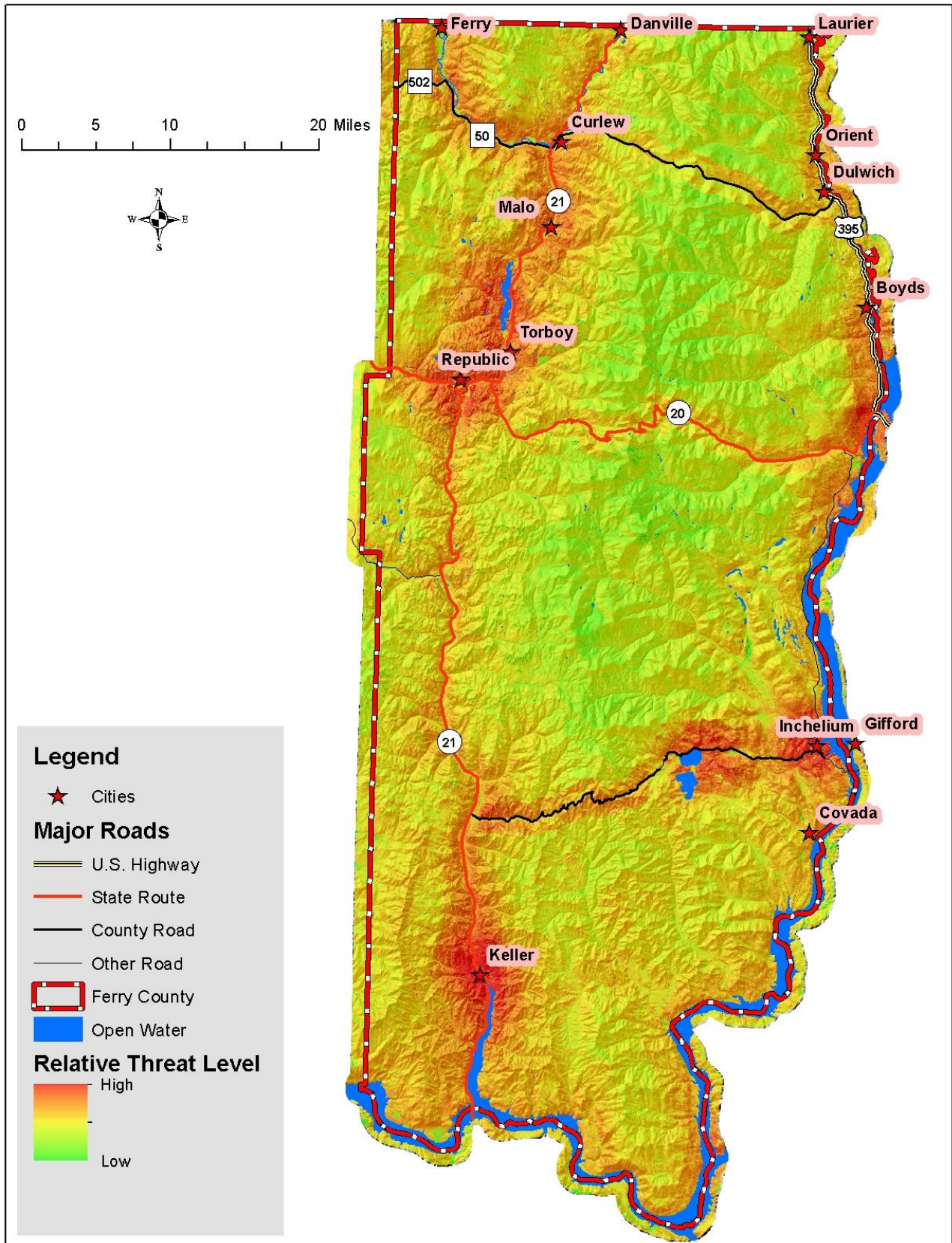
Fire Behavior Fuel Model

Scott and Burgan's 40 Fire Behavior Fuel Model was used in the threat level analysis to provide wildfire fuels information. For this analysis, the variety of fuels present in Ferry County that were depicted in the fuels layer were grouped into 6 threat level value categories based on perceived relative contribution to wildfire threat. The following ranking was used in the analysis. Rock, Urban and Water areas were assigned a value of 0, Grass fuels were assigned a value of 2, Grass Shrubs were assigned a value of 3, Shrubs a value of 4, Timber Understory a value of 5, and Timber Litter a value of 5. The values given the categories are meant to represent the role various surface fuels contribute to overall wildfire threat in Ferry County.



Relative Threat Level

Each data layer was developed, ranked and converted to a raster format using ArcGIS 10.1. The eight data layers were analyzed in ArcGIS using the Spatial Analyst extension to calculate their cumulative effects. This process sums the ranked overlaid values geographically at the pixel level to produce a final threat map layer. The final derived cumulative effects layer produced from the eight threat layers identifies the areas where the relative threat, based on the data sets used, is the highest. Areas with the highest values are the areas of concern based on the threats identified and values used. Varying results will occur by adjusting the threat value with in a particular layer, or omitting layers from the analysis. All threat values used in this analysis are based on discussion with committee members, documentation and general wildfire behavior characteristics. Adjusting or varying threat level values may result in a different final threat level in a particular geographic area.



Appendix 4

Fire Services Information

Ferry / Stevens County

Fire Protection District #3:

Chief:

Telephone: (509) 685-0181

Address: 151 Main St. Orient, WA 99160

Ferry / Okanogan County

Fire Protection District #13:

Chief:

Telephone: (509) 775-2033

Address: 17052 21 Hwy N. Republic, WA 99166

Ferry / Okanogan County

Fire Protection District #14:

Chief:

Telephone: (509) 779-4262

Email:

Address: 7 River St. Curlew, WA 99118

**Washington Department of Natural
Resources**

Highlands District:

Chief:

Telephone:

Address:

**Washington Department of Natural
Resources**

North Columbia District:

Chief:

Telephone:

E-Mail:

Address:

U.S. Forest Service:

FMO:

Telephone:

Address:

Bureau of Land Management

Spokane District

District FMO: Dennis Strange

Telephone: 509-536-1237

Address: 1103 N. Fancher, Spokane Valley, WA 99212

Fire Services Resource List

	Type	Resource	Gallons	Drive	Vehicle or License #	Specifications	Location
Ferry / Okanogan County Fire District #13 - REPUBLIC	Type 3	Wildland Engine	500	4x4	R-31; 55798C; 2001 F-550	250 GPM @ 150 psi	Sta # 1 @ Republic
	Type 6	Wildland Engine	300	4x4	R-28; 00205C; 2000 F-450	125 GPM	Sta # 1 @ Republic
	Type 6	Wildland Engine	300	4x4	R-32; 73598C; 1986 F-350	250 GPM @ 100 psi	West Lake
	Type 4	Structure Engine	750	2x4	RP-15; C49603; 1978 F-650	750 GPM @ 150 psi	West Lake
	Tact. Type 1	Tender	3600	2x6	RT-3; 71480C; 2000 IH 4800	600 GPM@150 psi PTO w 6 point indep. sprays	West Lake
	Type S-1	Tender	4000	2x6	RT-2; 64183C; 1978 KW 900	600 GPM@150 psi PTO w 6 point indep. sprays	Sta # 1 @ Republic
	pickup	crew transport	0	4x4	66661C; 1995 F-350 RC20	Crew Cab	Sta # 1 @ Republic
	Type 6	Wildland Engine	300	4x4	R27; C57740; 1982 Chev - 30	125 GPM @ 100 psi	East Lake
	Tact. Type 1	Tender	3800	2x6	RT-4;36207C;1978 KW 900	300 GPM @ 50 psi	West Lake
	Tact. Type 2	Tender	1800	4x4	RT-1; 2000 Intern. 4800	600 GPM@150 psi PTO w 6 point indep. sprays	East Lake
	Type 1	Structure Engine	1000	2x4	RP-17; FMC 1721;	1500 GPM @ 150 psi	Sta # 1 @ Republic
Type 1	Structure Engine	1000	2x4	RP-16; 1972 Intern.;	1000 GPM @ 150 psi	East Lake	
Ferry / Okanogan County Fire District #14 - CURLEW	Type 6	Wildland Engine	300	4x4	E-80; C45988	500 gpm PTO Fast Attack Combo	Curlew
	Type 6	Wildland Engine	300	4x4	E - 81	110 gpm w foam	Curlew
	Type 6	Wildland Engine	200	4x4	E - 82	75 gpm	Danville
	Type 3	Engine	1000	4x4	E - 83	110 gpm w foam	Toroda
	Type 3	Wildland Engine	1000	6x6	E - 85; 24639C	110 gpm w foam	Malo
	Type 2	Structural Engine	750	2x2	E - 89; C41825	750 gpm PTO Structural Engine	Toroda
	Type 2	Tender	3000	2x2	T - 1	w/ 2000 gal. portatank & floato pump	Curlew
	Type 2	Tender	2500	2x2	T - 2	w/ 1500 gal. portatank & volume pump	Curlew
Washington Department of Natural Resources - HIGHLANDS	Type 6	Wildland Engine 148	415	4x4	H4S-0034	90 GPM, BB-4, with foam capabilities	Aeneas Valley
	Type 6	Wildland Engine 141	415	4x4	H4S-0016	90 GPM, BB-4, with foam capabilities	Curlew // Republic
	Type 6	Wildland Engine 144	415	4x4	H4S-0011	90 GPM, BB-4, with foam capabilities	Republic
	Type 6	Wildland Engine 122	415	4x4	H4S-0012	90 GPM, BB-4, with foam capabilities	Tonasket
	Type 6	Wildland Engine 147	415	4x4	H4S-0033	90 GPM, BB-4, with foam capabilities	Molson / Chesaw
	Type 6	Wildland Engine 145	240	4x4	AIS-9102	90 GPM, BB-4, with foam capabilities	Aeneas Valley

	Type	Resource	Gallons	Drive	Vehicle or License #	Specifications	Location
Washington Department of Natural Resources - North Columbia District		Handcrew				10 Persons	North Columbia District
	Type 7		150	4x4			North Columbia District
	Type 7		150	4x4			North Columbia District
	Type 6		240	4x4		3 Person Crew	North Columbia District
	Type 6		240	4x4		3 Person Crew	North Columbia District
	Type 6		240	4x4		3 Person Crew	North Columbia District
	Type 6		240	4x4		3 Person Crew	North Columbia District
	Type 6		240	4x4		3 Person Crew	North Columbia District
	Type 5		425	4x4		3 Person Crew	North Columbia District
	Type 5		425	4x4		3 Person Crew	North Columbia District
	Mop-up Trailer					Extra hose, pumps, & tools	North Columbia District
	Mop-up Trailer					Extra hose, pumps, & tools	North Columbia District
Water Tender		2,000			Extra hose, fittings	North Columbia District	
BLM	Type 6	Wildland Engine	300	4x4	E-6696		Spokane
	Type 6	Wildland Engine	300	4x4	E-6695		Wenatchee
	Type 2	Handcrew		4x4	C-6201	10-person handcrew	Spokane
	ICT3	Command Vehicle					Spokane
		Chipper		Trailer		Vermeer BC1200	Spokane
U.S. Forest Service	Type 6	Wildland Engine	300	4x4	E-21		Republic RD
	Type 6	Wildland Engine	300	4x4	E-22		Republic RD
	Type 6	Wildland Engine	300	4x4	E-11		Republic RD
	Type 6	Wildland Engine	300	4x4	E-12		Three Rivers RD
	Handcrew	Wildland Handcrew	5 Person		C-201		Three Rivers RD
	Handcrew	Wildland Handcrew	10 Person		C-101A, C-101B		Three Rivers RD

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Appendix 5

State and Federal CWPP Guidance

National Cohesive Strategy

In response to requirements of the Federal Land Assistance, Management, and Enhancement (FLAME) Act of 2009, the Wildland Fire Leadership Council (WFLC) directed the development of the National Cohesive Wildland Fire Management Strategy (Cohesive Strategy).

The Cohesive Strategy is a collaborative process with active involvement of all levels of government and non-governmental organizations, as well as the public, to seek national, all-lands solutions to wildland fire management issues.

The Cohesive Strategy is being implemented in three phases, allowing stakeholders to systematically develop a dynamic approach to planning for, responding to, and recovering from wildland fire incidents. This phased approach is designed to promote dialogue between national, regional and local leadership.

Phase I involved the development of two documents: [*A National Cohesive Wildland Fire Management Strategy*](#) and the [*The Federal Land Assistance, Management And Enhancement Act Of 2009 - Report to Congress*](#). These documents provide the foundation of the Cohesive Strategy.

In Phase II, regional assessments were completed to address the national goals to the needs and challenges found at regional and local levels. Regional Strategy Committees representing three regions of the country—the Northeast, Southeast, and West—examined the processes by which wildland fire, or the absence thereof, threatens areas and issues that American value, including wildlife habitats, watershed quality, and local economies, among others.

Phase III involves taking the qualitative information gathered in Phase II and translating it into quantitative models that can help inform management actions on the ground. Once the strategy is finalized, it will be implemented across the country and overseen by the Wildland Fire Executive Council (WFEC), which will establish a five-year review cycle to provide updates to Congress.

The Wildland Fire Executive Council (WFEC) accepted the final Regional Action Plans for each of the Cohesive Strategy Regions: [Northeast](#), [Southeast](#), and [West](#) in April 2013. The WFEC tasked the Cohesive Strategy Sub-Committee (CSSC) to use the regional action plans to inform the development of the national action plan. The National Risk Analysis Report and National Action Plan will become WFEC recommendations to the Wildland Fire Leadership Council (WFLC) and ultimately to the Secretaries of the Interior and Agriculture. The regional action plans reflect the regional perspective that is important in the development of that national-level recommendation. Implementation of actions identified in Regional Action Plans is the responsibility of the sponsoring organizations at the discretion of those organizations.

National Fire Plan

The National Fire Plan (NFP) was developed by the U.S. Departments of Interior and Agriculture and their land management agencies in August 2000, following a landmark wildland

fire season, with the intent of actively responding to severe wildland fires and their impacts to communities while ensuring sufficient firefighting capacity for the future. The NFP addresses five key points: Firefighting, Rehabilitation, Hazardous Fuels Reduction, Community Assistance, and Accountability. The National Fire Plan continues to provide invaluable technical, financial, and resource guidance and support for wildland fire management across the United States. Together, the USDA Forest Service and the Department of the Interior are working to successfully implement the key points outlined in the National Fire Plan.

This Community Wildfire Protection Plan fulfills the National Fire Plan's 10-Year Comprehensive Strategy Implementation Plan (WFLC 2006). The projects and activities recommended under this plan are in addition to other federal, state, and private / corporate forest and rangeland management activities. The implementation plan does not alter, diminish, or expand the existing jurisdiction, statutory and regulatory responsibilities and authorities or budget processes of participating federal and state agencies.

The NFP goals of this Community Wildfire Protection Plan include:

1. Improve Fire Prevention and Suppression
2. Reduce Hazardous Fuels
3. Restoration and Post-Fire Recovery of Fire-Adapted Ecosystems
4. Promote Community Assistance

By endorsing this implementation plan, all signed parties agree that reducing the threat of wildland fire to people, communities, and ecosystems will require:

- Maintaining firefighter and public safety continuing as the highest priority.
- Communities and individuals in the wildland-urban interface to initiate personal stewardship and volunteer actions that will reduce wildland fire risks.
- A sustained, long-term and cost-effective investment of resources by all public and private parties, recognizing overall budget parameters affecting federal, state, county, and local governments.
- A unified effort to implement the collaborative framework called for in the strategy in a manner that ensures timely decisions at each level.
- Accountability for measuring and monitoring performance and outcomes, and a commitment to factoring findings into future decision making activities.
- The achievement of national goals through action at the local level with particular attention to the unique needs of cross-boundary efforts and the importance of funding on-the-ground activities.
- Management activities, both in the wildland-urban interface and in at-risk areas across the broader landscape.
- Active forestland management, including thinning that produces commercial or pre-commercial products, biomass removal and utilization, prescribed fire and other fuels reduction activities to simultaneously meet long-term ecological, economic, and community objectives.

The National Fire Plan identifies a three-tiered organizational structure including 1) the local level, 2) state/regional and tribal level, and 3) the national level. This plan adheres to the collaboration and outcomes consistent with a local level plan. Local level collaboration involves

participants with direct responsibility for management decisions affecting public and/or private land and resources, fire protection responsibilities, or good working knowledge and interest in local resources. Participants in this planning process include local representatives from federal and state agencies, local governments, landowners and other stakeholders, and community-based groups with a demonstrated commitment to achieving the strategy's four goals. Existing resource advisory committees, watershed councils, or other collaborative entities may serve to achieve coordination at this level. Local involvement, expected to be broadly represented, is a primary source of planning, project prioritization, and resource allocation and coordination. The role of the private citizen should not be underestimated as all phases of risk assessment, mitigation, and project implementation are greatly facilitated by their involvement.

National Association of State Foresters

This plan is written with the intent to provide decision makers (elected and appointed officials) the information they need to prioritize projects across the entire county. These decisions may be made by the Board of Commissioners or other elected body or through the recommendations of ad hoc groups tasked with making prioritized lists of communities at risk as well as project areas. It is not necessary to rank communities or projects numerically, although that is one approach. Rather, it may be possible to rank them categorically (high priority set, medium priority set, and so forth) and still accomplish the goals and objectives set forth in this planning document.

The following was prepared by the National Association of State Foresters (NASF), June 27, 2003, and is included here as a reference for the identification and prioritizing of treatments between communities.

Purpose: To provide national, uniform guidance for implementing the provisions of the “Collaborative Fuels Treatment” Memorandum of Understanding (MOU), and to satisfy the requirements of Task e, Goal 4 of the Implementation Plan for the 10-Year Comprehensive Strategy.

Intent: The intent is to establish broad, nationally compatible standards for identifying and prioritizing communities at risk, while allowing for maximum flexibility at the state and regional level. Three basic premises are:

- Include all lands and all ownerships.
- Use a collaborative process that is consistent with the complexity of land ownership patterns, resource management issues, and the number of interested stakeholders.
- Set priorities by evaluating projects, not by ranking communities.

The National Association of State Foresters (NASF) set forth the following guidelines in the Final Draft Concept Paper; Communities at Risk, December 2, 2002.

Task: Develop a definition for “communities at risk” and a process for prioritizing them, per the Implementation Plan for the 10-Year Comprehensive Strategy (Goal 4.e.). In addition, this definition will form the foundation for the NASF commitment to annually identify priority fuels reduction and ecosystem restoration projects in the proposed MOU with the federal agencies (section C.2 (b)).

Conceptual Approach

1. NASF fully supports the definition of the Wildland Urban Interface (WUI) previously published in the Federal Register. Further, proximity to federal lands should not be a

consideration. The WUI is a set of conditions that exists on, or near, areas of wildland fuels nationwide, regardless of land ownership.

2. Communities at risk (or, alternately, landscapes of similar risk) should be identified on a state-by-state basis with the involvement of all agencies with wildland fire protection responsibilities: state, local, tribal, and federal.
3. It is neither reasonable nor feasible to attempt to prioritize communities on a rank order basis. Rather, communities (or landscapes) should be sorted into three, broad categories or zones of risk: high, medium, and low. Each state, in collaboration with its local partners, will develop the specific criteria it will use to sort communities or landscapes into the three categories. NASF recommends using the publication “Wildland/Urban Interface Fire Hazard Assessment Methodology” developed by the National Wildland/Urban Interface Fire Protection Program (circa 1998) as a reference guide. (This program, which has since evolved into the Firewise Program, is under the oversight of the National Wildfire Coordinating Group (NWCG)). At a minimum, states should consider the following factors when assessing the relative degree of exposure each community (landscape) faces.
 - **Risk:** Using historic fire occurrence records and other factors, assess the anticipated probability of a wildfire ignition.
 - **Hazard:** Assess the fuel conditions surrounding the community using a methodology such as fire condition class, or [other] process.
 - **Values Protected:** Evaluate the human values associated with the community or landscape, such as homes, businesses, and community infrastructure (e.g. water systems, utilities, transportation systems, critical care facilities, schools, manufacturing and industrial sites, and high value commercial timber lands).
 - **Protection Capabilities:** Assess the wildland fire protection capabilities of the agencies and local fire departments with jurisdiction.
4. Prioritize by project not by community. Annually prioritize projects within each state using the collaborative process defined in the national, interagency MOUs, “For the Development of a Collaborative Fuels Treatment Program.” Assign the highest priorities to projects that will provide the greatest benefits either on the landscape or to communities. Attempt to properly sequence treatments on the landscape by working first around and within communities, and then moving further out into the surrounding landscape. This will require:
 - First, focusing on the zone of highest overall risk but considering projects in all zones. Identify a set of projects that will effectively reduce the level of risk to communities within the zone.
 - Second, determining the community’s willingness and readiness to actively participate in an identified project.
 - Third, determining the willingness and ability of the owner of the surrounding land to undertake, and maintain, a complementary project.
 - Last, setting priorities by looking for projects that best meet the three criteria above. It is important to note that projects with the greatest potential to reduce risk to communities and the landscape may not be those in the highest risk zone, particularly if either the community or the surrounding landowner is not willing or able to actively participate.

5. It is important, and necessary, that we be able to demonstrate a local level of accomplishment that justifies to Congress the value of continuing the current level of appropriations for the National Fire Plan. Although appealing to appropriators and others, it is not likely that many communities (if any) will ever be removed from the list of communities at risk. Even after treatment, all communities will remain at some, albeit reduced, level of risk. However, by using a science-based system for measuring relative risk, we can likely show that, after treatment (or a series of treatments); communities are at “*reduced risk.*”

Using the concept described above, the NASF believes it is possible to accurately assess the relative risk that communities face from wildland fire. Recognizing that the condition of the vegetation (fuel) on the landscape is dynamic, assessments and re-assessments must be done on a state-by-state basis, using a process that allows for the integration of local knowledge, conditions, and circumstances, with science-based national guidelines. We must remember that it is not only important to lower the risk to communities, but once the risk has been reduced, to maintain those communities at a reduced risk.

Further, it is essential that both the assessment process and the prioritization of projects be done collaboratively, with all local agencies with fire protection jurisdiction taking an active role.

Healthy Forests Restoration Act

On December 3, 2003, President Bush signed into law the Healthy Forests Restoration Act of 2003 to reduce the threat of destructive wildfires while upholding environmental standards and encouraging early public input during review and planning processes. The legislation is based on sound science and helps further the President's Healthy Forests Initiative pledge to care for America's forests and rangelands, reduce the risk of catastrophic fire to communities, help save the lives of firefighters and citizens, and protect threatened and endangered species.

The Healthy Forests Restoration Act (HFRA) seeks to:

- Strengthens public participation in developing high priority projects;
- Reduces the complexity of environmental analysis allowing federal land agencies to use the best science available to actively manage land under their protection;
- Creates a pre-decisional objections process encouraging early public participation in project planning; and
- Issues clear guidance for court action challenging HFRA projects.

The Ferry County Community Wildfire Protection Plan was developed to adhere to the principles of the HFRA while providing recommendations consistent with the policy document. This should assist the federal land management agencies with implementing wildfire mitigation projects in Ferry County that incorporate public involvement and the input from a wide spectrum of fire and emergency services providers in the region.

Federal Emergency Management Agency Philosophy

Effective November 1, 2004, a hazard mitigation plan approved by the Federal Emergency Management Agency (FEMA) is required for Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Program (PDM) eligibility. The HMGP and PDM programs provide funding, through state emergency management agencies, to support local mitigation planning and projects to reduce potential disaster damages.

The local hazard mitigation plan requirements for HMGP and PDM eligibility are based on the Disaster Mitigation Act (DMA) of 2000, which amended the Stafford Disaster Relief Act to promote an integrated, cost effective approach to mitigation. Local hazard mitigation plans must meet the minimum requirements of the Stafford Act-Section 322, as outlined in the criteria contained in 44 CFR Part 201. The plan criteria cover the planning process, risk assessment, mitigation strategy, plan maintenance, and adoption requirements.

FEMA only reviews a local hazard mitigation plan submitted through the appropriate State Hazard Mitigation Officer (SHMO). FEMA reviews the final version of a plan prior to local adoption to determine if the plan meets the criteria, but FEMA will not approve it prior to adoption.

A FEMA designed plan is evaluated on its adherence to a variety of criteria.

- Adoption by the Local Governing Body
- Multi-jurisdictional Plan Adoption
- Multi-jurisdictional Planning Participation
- Documentation of Planning Process
- Identifying Hazards
- Profiling Hazard Events
- Assessing Vulnerability: Identifying Assets
- Assessing Vulnerability: Estimating Potential Losses
- Assessing Vulnerability: Analyzing Development Trends
- Multi-jurisdictional Risk Assessment
- Local Hazard Mitigation Goals
- Identification and Analysis of Mitigation Measures
- Implementation of Mitigation Measures
- Multi-jurisdictional Mitigation Strategy
- Monitoring, Evaluating, and Updating the Plan
- Implementation through Existing Programs
- Continued Public Involvement

Appendix 6

Potential CWPP Project Funding Sources

Assistance to Firefighters Grant

http://www.rkb.mipt.org/contentdetail.cfm?content_id=44122

To provide direct assistance, on a competitive basis, to fire departments of a State or tribal nation for the purpose of protecting the health and safety of the public and firefighting personnel against fire and fire-related hazards.

Buffer Zone Protection Program (BZPP)

http://www.rkb.mipt.org/contentdetail.cfm?content_id=135490

The FY 2006 BZPP provides funds to build capabilities at the state and local levels to prevent and protect against terrorist incidents primarily done through planning and equipment acquisition.

Chemical Sector Buffer Zone Protection Program (Chem-BZPP)

http://www.rkb.mipt.org/contentdetail.cfm?content_id=135466

The Chem-BZPP, provides funds to build capabilities at the State and local levels through planning and equipment acquisition.

Citizen Corps

http://www.rkb.mipt.org/contentdetail.cfm?content_id=56829

The purpose of the Citizen Corps Program is to supplement and assist State and local efforts to expand Citizen Corps. This includes Community Emergency Response Team (CERT) training, establishing Citizen Corps Councils, and supporting oversight and outreach..

Citizen Corps Support Program

http://www.rkb.mipt.org/contentdetail.cfm?content_id=135192

Support the mission to engage everyone in America in hometown security through the establishment and sustainment of Citizen Corps Councils throughout the United States and territories.

Commercial Equipment Direct Assistance Program (CEDAP) FY2006 Description and Application

http://www.rkb.mipt.org/contentdetail.cfm?content_id=83219

To ensure that law enforcement and emergency responder agencies, departments, and task forces can acquire, through direct assistance, the specialized equipment and training they require to meet their homeland security mission.

Community Disaster Loans

http://www.rkb.mipt.org/contentdetail.cfm?content_id=44126

To provide loans subject to Congressional loan authority, to any local government that has suffered substantial loss of tax and other revenue in an area in which the President designates a major disaster exists. The funds can only be used to maintain ...

Disposal of Federal Surplus Real Property

http://www.rkb.mipt.org/contentdetail.cfm?content_id=43990

To dispose of surplus real property by lease, permits, sale, exchange, or donation.

Emergency Management Institute (EMI) Independent Study Program

http://www.rkb.mipt.org/contentdetail.cfm?content_id=44100

To enhance public and selected audience knowledge of emergency management practices among State, local and tribal government managers in response to emergencies and disasters. The program currently consists of 32 courses. They include IS-1, Emergency

Emergency Management Institute (EMI) Resident Educational Program

http://www.rkb.mipt.org/contentdetail.cfm?content_id=44102

To improve emergency management practices among State, local and tribal government managers, and Federal officials as well, in response to emergencies and disasters. Programs embody the Comprehensive Emergency Management System by unifying the

Emergency Management Institute Training Assistance

http://www.rkb.mipt.org/contentdetail.cfm?content_id=44098

To defray travel and per diem expenses of State, local and tribal emergency management personnel who attend training courses conducted by the Emergency Management Institute, at the Emmitsburg, Maryland facility; Bluemont, Virginia facility; and

Fire Management Assistance Grant

http://www.rkb.mipt.org/contentdetail.cfm?content_id=44124

To provide grants to states, Indian tribal governments and local governments for the mitigation, management and control of any fire burning on publicly (nonfederal) or privately owned forest or grassland that threatens such destruction as would

Hazard Mitigation Grant Program

http://www.rkb.mipt.org/contentdetail.cfm?content_id=44130

To provide states and local governments financial assistance to implement measures that will permanently reduce or eliminate future damages and losses from natural hazards through safer building practices and improving existing structures and

Hazardous Materials Planning and Training

http://www.rkb.mipt.org/contentdetail.cfm?content_id=133349

Hazmat Planning and Training grants to state, territory and native American Tribal grantees.

Homeland Defense Equipment Reuse Program - HDER

http://www.rkb.mipt.org/contentdetail.cfm?content_id=83222

The goal of the HDER Program is to provide excess radiological detection instrumentation and other equipment, as well as training and long-term technical support, at no cost to emergency Responder agencies nationwide.

Homeland Security Grant Program (HSGP)

http://www.rkb.mipt.org/contentdetail.cfm?content_id=118605

Through the DHS National Preparedness Directorate, State and local organizations will receive approximately \$2.5 billion in grant funding to build capabilities that enhance homeland security.

Interagency National Fire Plan Community Assistance

www.nwfireplan.gov

This grant provides a collaborative process for awarding funds to hazardous fuels reduction projects on non-federal land in the Wildland-Urban Interface. Eligible projects must be adjacent to Federal Land and identified in a Community Wildfire Protection Plan (CWPP) completed by February 6, 2009. Collaborated CWPP projects must implement fuels treatments in the wildland-urban interface.

National Fire Academy Educational Program/Harvard Fellowship Grant

http://www.rkb.mipt.org/contentdetail.cfm?content_id=133343

Each fellowship enables a senior fire executive to attend and participate in the three-week "Senior Executives in State & Local Government Program" course that is held twice each year at Harvard University.

National Fire Academy Training Assistance

http://www.rkb.mipt.org/contentdetail.cfm?content_id=44104

To provide travel stipends to students attending Academy courses.

Pre-Disaster Mitigation Program

http://www.rkb.mipt.org/contentdetail.cfm?content_id=102626

The PDM program will provide funds to states, territories, Indian tribal governments, and communities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event.

Rural Fire Assistance (RFA)

http://www.rkb.mipt.org/contentdetail.cfm?content_id=97736

The RFA program provides cost-share grants for equipment, training, and fire prevention and mitigation activities for those rural/Volunteer fire departments (RFDs) that protect rural communities.

Staffing of Adequate Fire and Emergency Response (SAFER) Grant Program

http://www.rkb.mipt.org/contentdetail.cfm?content_id=133340

The purpose of the Staffing for Adequate Fire and Emergency Response (SAFER) grants is to help fire departments increase their cadre of firefighters.

State Fire Assistance Wildland Urban Interface Hazard Mitigation Grants

<http://egov.oregon.gov/ODF/FIRE/grantopps.shtml>

Funds are provided to reduce the threat of fire in the wildland urban interface including hazard mitigation, fuels and risk reduction, and information and education programs for homeowners and communities. This is a competitive grant process among the 17 western states and Pacific Island Territories.

Volunteer Fire Department Assistance

<http://egov.oregon.gov/ODF/FIRE/grantopps.shtml>

Provides financial assistance to volunteer fire departments for organizing, training, and equipping rural fire districts.

Western States Fire Managers Wildland Urban Interface Grant Program

<http://www.oregon.gov/ODF/FIRE/docs/PREV/CriteriaandInstructions.pdf>

The focus of much of this funding is mitigating risk in Wildland Urban Interface (WUI) areas. In the West, the State Fire Assistance (SFA) funding is available and awarded through a competitive process with emphasis on hazard fuel reduction, information and education, and community and homeowner action. This portion of the National Fire Plan was developed to assist interface communities manage the unique hazards they find around them. Long-term solutions to interface challenges require informing and educating people who live in these areas about what they and their local organizations can do to mitigate these hazards.

Wildland-Urban Interface Community and Rural Fire Assistance

http://www.rkb.mipt.org/contentdetail.cfm?content_id=43914

To implement the National Fire Plan and assist communities at risk from catastrophic wildland fires by providing assistance in the following areas: Provide community programs that develop local capability including; assessment and planning.

Appendix 7

Additional Information

Glossary of Terms

Defensible Space - The area within the perimeter of a parcel, development, neighborhood or community where basic wildland fire protection practices and measures are implemented, providing the key point of defense from an approaching wildfire or defense against encroaching wildfires or escaping structures fires. The perimeter as used in this definition is the area encompassing the parcel or parcels proposed for construction and or development, excluding the physical structure itself. The establishment and maintenance of emergency vehicle access, emergency water reserves, street names and building identification, and fuel modification measures characterize the area.

Disturbance - An event which affects the successional development of a plant community (examples: fire, insects, windthrow, and timber harvest).

Diversity - The relative distribution and abundance of different plant and animal communities as well as species within an area.

Exotic/Invasive Plant Species - Plant species that are introduced and not native to the area.

Fire Behavior - The manner in which a fire reacts to the influences of fuel, weather, and topography.

Fire Behavior Prediction Model - A set of mathematical equations that can be used to predict certain aspects of fire behavior when provided with an assessment of fuel and environmental conditions.

Fire Danger - A general term used to express an assessment of fixed and variable factors such as fire risk, fuels, weather, and topography which influence whether fires will start, spread, and do damage; also the degree of control difficulty to be expected.

Fire Exclusion - The disruption of a characteristic pattern of fire intensity and occurrence (primarily through fire suppression).

Fire Intensity Level - The rate of heat release (BTU/second) per unit of fire front. Four foot flame lengths or less are generally associated with low intensity burns and four to six foot flame lengths generally correspond to “moderate” intensity fire behavior. High intensity flame lengths are usually greater than eight feet and pose multiple control problems.

Fire Prone Landscapes – The expression of an area’s propensity to burn in a wildfire based on common denominators such as plant cover type, canopy closure, aspect, slope, road density, stream density, wind patterns, position on the hillside, and other factors.

Fireline - A loose term for any cleared strip used in control of a fire. That portion of a control line from which flammable materials have been removed by scraping or digging down to the mineral soil.

Fire Management - The integration of fire protection, prescribed fire and fire ecology into land use planning, administration, decision making, and other land management activities.

Fire Prevention - An active program in conjunction with other agencies to protect human life, prevent modification of the ecosystem by human-caused wildfires, and prevent damage to cultural resources or physical facilities. Activities directed at reducing fire occurrence, including public education, law enforcement, personal contact, and reduction of fire risks and hazards.

Fire Regime - The fire pattern across the landscape, characterized by occurrence interval and relative intensity. Fire regimes result from a unique combination of climate and vegetation. Fire regimes exist on a continuum from short-interval, low-intensity (stand maintenance) fires to long-interval, high-intensity (stand replacement) fires.

Fire Return Interval - The number of years between two successive fires documented in a designated area.

Fire Risk - The potential that a wildfire will start and spread as determined by the presence and activities of causative agents.

Fire Severity - The effects of fire on resources displayed in terms of benefit or loss.

Fire Use – The management of naturally ignited fires to accomplish specific prestated resource management objectives in predefined geographic areas.

Flashy Fuel - Quick drying twigs, needles, and grasses that are easily ignited and burn rapidly.

Fuel - The materials which are burned in a fire: duff, litter, grass, dead branchwood, snags, logs, etc.

Fuel Break - A natural or manmade change in fuel characteristics which affects fire behavior so that fires burning into them can be more readily controlled.

Fuel Loading - Amount of dead and live fuel present on a particular site at a given time; the percentage of it available for combustion changes with the season.

Fuel Model - Characterization of the different types of wildland fuels (trees, brush, grass, etc.) and their arrangement, used to predict fire behavior.

Fuel Type - An identifiable association of fuel elements of distinctive species; form, size, arrangement, or other characteristics, that will cause a predictable rate of fire spread or difficulty of control, under specified weather conditions.

Fuels Management - Manipulation or reduction of fuels to meet protection and management objectives, while preserving and enhancing environmental quality.

Habitat - A place that provides seasonal or year-round food, water, shelter, and other environmental conditions for an organism, community, or population of plants or animals.

Habitat Type - A group of habitats that have strongly marked and readily defined similarities that when defined by its predominant or indicator species incites a general description of the area; *e.g. a ponderosa pine habitat type*.

Heavy Fuels - Fuels of a large diameter, such as snags, logs, and large limbwood, which ignite and are consumed more slowly than flashy fuels.

Human-Caused Fires - Refers to fires ignited accidentally (from campfires, equipment, debris burning, or smoking) and by arsonists; does not include fires ignited intentionally by fire management personnel to fulfill approved, documented management objectives (prescribed fires).

Intensity - The rate of heat energy released during combustion per unit length of fire edge.

Inversion - Atmospheric condition in which temperature increases with altitude.

Ladder Fuels - Fuels which provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees with relative ease. They help initiate and assure the continuation of crowning.

Landsat Imagery - Land remote sensing, the collection of data which can be processed into imagery of surface features of the Earth from an unclassified satellite or satellites.

Landscape - All the natural features such as grasslands, hills, forest, and water, which distinguish one part of the earth's surface from another part; usually that portion of land which the eye can comprehend in a single view, including all its natural characteristics.

Lethal - Relating to or causing death.

Lethal Fires - A descriptor of fire response and effect in forested ecosystems of high-severity or severe fire that burns through the overstory and understory. These fires typically consume large woody surface fuels and may consume the entire duff layer, essentially destroying the stand.

Litter - The top layer of the forest floor composed of loose debris, including dead sticks, branches, twigs, and recently fallen leaves or needles, little altered in structure by decomposition.

Mitigation - Actions to avoid, minimize, reduce, eliminate, replace, or rectify the impact of a management practice.

Monitoring Team - Two or more individuals sent to a fire to observe, measure, and report its behavior, its effect on resources, and its adherence to or deviation from its prescription.

Native - Indigenous; living naturally within a given area.

Natural Ignition - A wildland fire ignited by a natural event such as lightning or volcanoes.

Noxious Weeds - Rapidly spreading plants that have been designated "noxious" by law which can cause a variety of major ecological impacts to both agricultural and wildlands.

Planned Ignition - A wildland fire ignited by management actions to meet specific objectives.

Prescribed Fire - Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

Prescription - A set of measurable criteria that guides the selection of appropriate management strategies and actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

Seral - Refers to the stages that plant communities go through during succession. Developmental stages have characteristic structure and plant species composition.

Stand Replacing Fire - A fire that kills most or all of a stand.

Surface Fire - Fire which moves through duff, litter, woody dead and down and standing shrubs, as opposed to a crown fire.

Watershed - The region draining into a river, river system, or body of water.

Wetline - Denotes a condition where the fireline has been established by wetting down the vegetation.

Wildland Fire - Any non-structure fire, other than prescribed fire, that occurs in the wildland.

Wildland Fire Use - The management of naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in FMP's. Operational management is described in the WFIP. Wildland fire use is not to be confused with "fire use," which is a broader term encompassing more than just wildland fires.

Wildland Fire Use for Resource Benefit (WFURB) - A wildland fire ignited by a natural process (lightning), under specific conditions, relating to an acceptable range of fire behavior and managed to achieve specific resource objectives.

Wildland-Urban Interface (WUI) - For purposes of this plan, the wildland-urban interface is located defined in Section 4.5. In general, it is the area where structures and other human development meet or intermingle with undeveloped wildland.

General Mitigation Strategies

There are many actions that will help improve safety in a particular area; there are also many mitigation activities that can apply to all residents and all fuel types. General mitigation activities that apply to all of Ferry County are discussed below while area-specific mitigation activities are discussed within the strategic planning area assessments.

Prevention. The safest, easiest, and most economical way to mitigate unwanted fires is to stop them before they start. Generally, prevention actions attempt to prevent human-caused fires. Campaigns designed to reduce the number and sources of ignitions can be quite effective and can take many forms.

Limiting Use. The issues associated with debris burning during certain times of the year are difficult to negotiate and enforce. However, there are significant risks associated with the use of fire adjacent to expanses of flammable vegetation under certain scenarios. Fire departments typically observe the State of Washington closed fire season between July 1st to September 30th. During this time, an individual seeking to conduct an open burn of any type shall obtain a permit to prescribe the conditions under which the burn can be conducted and the resources that need to be on hand to suppress the fire. Although this is a statewide regulation, compliance and enforcement has been variable between fire districts.

Defensible Space. Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Ferry County must be made aware that home defensibility starts with the homeowner. Once a fire has started and is moving toward a structure, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the building. The Firewise Communities USA program is an excellent tool for educating homeowners on the steps to take in order to create an effective defensible space. Residents of Ferry County should be encouraged to work with local fire departments and fire management agencies within the county to complete individual home site evaluations. Home defensibility steps should be enacted based on the results of these evaluations. Beyond the homes, forest management efforts must be considered to slow the approach of a fire that threatens a community.

Evacuation. Development of community evacuation plans is necessary and critical to assure an orderly evacuation in the event of a threatening wildland fire. Designation and posting of escape routes would reduce chaos and escape times for fleeing residents. Community safety zones

should also be established in the event safe evacuation is impossible and ‘sheltering in place’ becomes the better option.

Access. Also of vital importance is the accessibility of homes to emergency apparatus. The fate of a home will often be determined by homeowner actions prior to the event. A few simple guidelines such as widening or pruning along driveways and creating a turnaround area for large vehicles, can greatly enhance home survivability.

Facility Maintenance. Recreational facilities near communities or in the surrounding forests such as parks or natural areas should be kept clean and maintained. In order to mitigate the risk of an escaped campfire, escape-resistant fire rings and barbeque pits should be installed and maintained. In some cases, restricting campfires during dry periods may be necessary. Surface fuel accumulations in nearby forests can also be kept to a minimum by periodically conducting pre-commercial thinning, pruning and limbing, and possibly controlled burns.

Fire District Response. Once a fire has started, how much and how large it burns is often dependent on the availability of suppression resources. In most cases, rural fire departments are the first to respond and have the best opportunity to halt the spread of a wildland fire. For many districts, the ability to reach these suppression objectives is largely dependent on the availability of functional resources and trained individuals. Increasing the capacity of departments through funding and equipment acquisition can improve response times and subsequently reduce the potential for resource loss.

Development Standards. County, city, and even fire district policies can be updated or revised to provide for more fire conscious techniques such as using fire resistant construction materials; improving roads, and establishing permanent water resources.

Other Mitigation. Other actions to reduce fire hazards are thinning and pruning timbered areas, creating a fire resistant buffer along roads and power line corridors, and strictly enforcing fire-use regulations. Ensuring that areas beneath power lines have been cleared of potential high risk fuels and making sure that the buffer between the surrounding lands is wide enough to adequately protect the poles as well as the lines is imperative.

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