NORTH FORK FLATHEAD
WILDFIRE MITIGATION AND PLANNING REPORT [1]

1. Geography and Resources.

The North Fork of the Flathead River flows south into Montana from its headwaters in British Columbia, bisecting a long, glacially-carved valley. The river is fed by numerous creeks that arise in its flanking mountain ranges. It is classified as a Scenic River under the National Wild and Scenic Rivers Act.

East of the river lie the Main Range of the Rockies and Glacier National Park, established in 1910. The National Park Service is charged with protecting the Park's scenic values and conserving its native plant and animal life. Some homesteads that existed when the Park was created continue as private inholdings within Park boundaries.

West of the river lie the Whitefish Range, private and state landholdings, and the Glacier View District of the Flathead National Forest. The Forest Service manages the Flathead Forest under a multiple-use concept, seeking to balance diverse interests. Among those interests are fish and wildlife habitat, clean water, timber production and recreation.

The topography of the North Fork rises from the relatively level river bottom through tributary drainages and uplands to rugged mountains. Approximately twenty-five percent of the North Fork is bottomland, thirty percent is glaciated valleys and uplands, and forty-five percent is mountainous.

The North Fork Valley is one of the most intact ecosystems in North America. All of the wildlife species that inhabited the valley before the arrival of European explorers still live in its reaches. Minimal development and infrastructure afford continuing habitat to grizzly bears, wolves, mountain lions, lynx, elk, moose and deer. Still-pristine streams and lakes are home to cutthroat trout, whitefish and greyling. Dense forests composed primarily of lodgepole pine, western larch, subalpine fir, Engelmann spruce and Douglas-fir cover the valley's bottom and uplands.

The North Fork's scenery, natural amenities and recreational opportunities have long attracted human visitors. Some of the visitors have chosen to buy property and build homes in the remote valley. Today about twenty percent of landowners live full-time in the North Fork. The remainder are seasonal residents.

2. Demography and Infrastructure.

a. Private Lands

More than 450 landowners currently hold about 750 lots of private property on the North Fork. The lots range in size from less than one acre to more than 300 acres, with an average size of about 19.4 acres. Based on assessment data,[2] the average lot has an approximate taxable market value of $43,827. Taxable market value often is substantially less than actual market value.

About 14,480 acres in the North Fork Valley are privately owned, all but 137 of them on the west side of the river. Again based on assessment data, private property on the North Fork has an aggregate taxable market value of approximately $46,864,000. About $18,858,000 of the aggregate value is attributable to structures and $28,006,000 to land. Private property is concentrated in the bottomlands and in lower creek drainages in a corridor approximately three miles wide.

In 1998, the Flathead County Commissioners established the North Fork Zoning District, consisting of private property bounded on the east by the centerline of the river, on the west by the crest of the Whitefish Range, on the south by the Camas Creek and Big Creek drainages, and on the north by the Canadian Border. The district is approximately thirty-five miles long and twelve miles wide.

After many years of effort by the county-appointed North Fork Land Use Advisory Committee and other members of the North Fork community, the county commissioners adopted amended zoning regulations for the district in 2003. In order to manage development and encourage the preservation of open space, the regulations specify setbacks from waterways and roads and require minimum twenty-acre lots for new subdivisions. The Flathead County Planning and Zoning Department projects that the potential build-out of the North Fork with a twenty-acre density would be 1034 separate lots, with an average lot size of fourteen acres.

Another community effort culminated in 2008 when the commissioners adopted the revised North Fork Neighborhood Plan proposed by the North Fork Land Use Advisory Committee. The plan serves as the foundation for the zoning district's regulations. Among the goals set forth in the plan are preserving the North Fork's low densities and open spaces; maintaining its remote, undeveloped qualities; and preserving and enhancing its scenic values.

b. Federal Lands

The federal government is by far the largest landowner in the North Fork Valley.

The Flathead National Forest occupies about 246,600 acres, approximately eighty-eight percent of the total acreage west of the river. Forest lands intermix with or adjoin private property in the populated corridor along the river and in lower creek drainages.

East of the river, about 240,200 of Glacier National Park's 1,013,600 acres lie within the North Fork Valley. Private inholdings within Park boundaries are not included in the North Fork Zoning District. The North Fork Planning District covers the eastern side of the valley and thus inholder property, however.

c. State Lands

The State of Montana owns about 18,600 acres in the North Fork Valley, almost seven percent of the total acreage west of the river. Most of the acreage is located in the Coal Creek State Forest south of Polebridge. The remainder lies in scattered school trust lands. Like federal lands, state lands intermix with or adjoin private property. The Montana Department of Natural Resources and Conservation (DNRC) has primary responsibility for their management.

d. Infrastructure

The North Fork Road is about fifty-five miles long, running from Columbia Falls to the Canadian Border. The predominantly dirt/gravel road, which lies west of the river and roughly parallel to it, affords the only year-round motor vehicle access to the North Fork Valley. The road is maintained by Flathead County.

For decades, landowners have debated what, if anything, should be done to improve the condition of the North Fork Road. Visitors to the Park and recreationists have contributed to increased use of the road in recent years, exacerbating road dust during the summer. The 2008 North Fork Neighborhood Plan calls for work within the North Fork community, and with local, state and federal agencies, to find solutions for dust generated by road use.

Trail Creek and Red Meadow Roads climb from the bottomlands to the crest of the Whitefish Range, where they continue west under other names. The dirt/gravel roads are maintained by the Forest Service and are closed during the winter.

On the east side of the river, Camas Creek Road travels through the southwest corner of Glacier National Park, connecting West Glacier with the North Fork Road at the Camas Creek Bridge. The paved road is closed during winter. The primitive "Inside" North Fork Road runs along the east side of the river from Apgar to Kintla Lake; it too is closed in the winter.

No public utilities serve the North Fork Valley. Landowners supply their own water, septic, energy, heating and lighting needs and haul their own trash. Hard-wire telephone access is available in Polebridge and in some Park locations. Otherwise, North Fork landowners rely on radio-phones, satellite Internet, and twice-weekly mail service to

communicate with one another and with the outside world.

e. Law Enforcement and Emergency Services

The Flathead County Sheriff's Department is officially responsible for law enforcement west of the river. The department is on call; no deputies are stationed in the North Fork Valley. Response time can be lengthy, depending on the distance that must be travelled and on the condition of the road.

With landowner consent, the North Fork Patrol monitors private property for damage or suspicious activity. Patrol members, all of whom are full-time residents, maintain contact with one another and with law enforcement by radio. The Patrol is funded by landowner donations.

The U.S. Border Patrol, a federal law enforcement agency within the Department of Homeland Security, maintains a presence at the Canadian Border and at other strategic locations within the North Fork Valley. Border Patrol agents are charged with preventing terrorists from entering the country as well as apprehending illegal aliens and individuals engaged in the illegal drug trade.

The Flathead County Office of Emergency Services provides emergency response and disaster management in the North Fork Valley. ALERT helicopter landing sites are located at regular intervals along the river corridor. Safety zones also have been designated. North Valley Search and Rescue holds annual exercises on the North Fork, helping to familiarize responders with the area.

f. Firefighting Capacity

The North Fork Valley does not have a designated fire district. Instead, the area west of the river is part of a county-wide fire service area in which companies provide mutual aid.

Community volunteers staff the Trail Creek/Polebridge Fire Service Area Fire Companies. The Trail Creek Fire Company consists of ten to twelve members. They have the capacity to develop three fill sites. The Polebridge company is staffed by six to ten members. Most of the fire company members are over the age of fifty; some of them do not live in the area year-round. They receive annual refresher training and provide initial response to fire calls on a seasonal basis.

Currently, the fire service area does not have a dedicated fire engine or station on the North Fork. A centrally-located site adjoining the North Fork's community hall has been proposed as the site for a fire station. The station potentially could house an engine year-round. A 1956 Howe fire engine is kept near Polebridge but must be drained and is therefore unavailable during the extended winter season.

In addition, a number of landowners have their own pumps, tanks, hose and other

firefighting equipment to protect their properties and to assist their neighbors, if needed. The area does not have an Insurance Services Organization (ISO) rating; many North Fork landowners have difficulty obtaining property insurance.

County, state and federal agencies may mobilize in a wildfire emergency in the North Fork Valley. The location of a fire and any applicable agreements determine which agency or agencies have the obligation to respond.

Flathead County's National Incident Management System (NIMS) Community Protection Plan calls for a trained team to respond to fire on private property anywhere in the county within a short period of time. Although initial attack is the primary focus of the response teams, they also may carry out sustained attack under a Unified Command System.

The Forest Service has extensive firefighting resources that may be deployed on the Flathead National Forest. The Montana Department of Natural Resources and Conservation has assigned firefighting responsibilities for state lands on the North Fork to the Forest Service. Glacier National Park and the Forest Service have a joint fire plan; despite separate mandates, both agencies recognize the need for a collaborative approach to fire management in the area.

3. Fire History.[3]

The North Fork has been visited frequently by wildfire. Fire has been second only to glaciation in shaping the valley's landscape.

Before permanent settlement of the North Fork Valley, the Kootenai Indians employed several trails to travel from the Tobacco Valley to the eastern slope of the Rockies. They used fire to clear the trails and to improve hunting and gathering along the way. In some documented cases, they also used fire as a battle tactic.

Although anthropogenic ignitions have played a role in the North Fork's fire history, lightning has been the primary source of large fires in the valley. An average of one to two lightning strikes occurs per square mile during the fire season, with a higher number of strikes occurring on ridges and slopes and a lesser number on the valley bottoms. See the accompanying map depicting North Fork area lightning strikes from 2004 – 2008.[4] The vast majority of the strikes do not ignite fires. In non-drought conditions, those fires that are ignited rarely become larger than one acre before self-extinction or suppression by firefighters.

About once every thirty years, however, climatic oscillations have created multi-year drought conditions. Then lightning strikes in suitable locations aligned with favorable fuel conditions, weather and topography can produce large fires. Because of the dynamic nature of climatic and fuel conditions and the random placement of ignitions on the landscape, it is difficult to derive a single average for how often a particular

portion of the North Fork will burn. Thus the so-called "return interval" is best described in a range of years.

In his Fire History of Glacier National Park: North Fork Flathead River (1983), Steven W. Barrett observed that before 1900, fires usually recurred at intervals of fifteen to eighty years. Some stands had fire intervals as short as five years. A few stands had lengthy intervals, the longest being 169 years. In most centuries, large fires burned across the North Fork for a period of several decades.

Barrett's study of fires in the Park also noted an increase in the frequency of large fires in the mid-nineteenth and early-twentieth centuries. Significant fires occurred in 1844, 1852, 1866, 1889, 1910, 1926 and on the west side of the valley, in 1929. Nearly ninety per cent of Barrett's 60,000-acre study area burned in period from 1887 to 1926.

For approximately sixty years, from the late 1920's to the late 1980's, there were no large fires on the west side of the North Fork Valley. Then in 1988, major fire activity resumed with the Red Bench Fire, which burned approximately 37,000 acres on both sides of the river. The Moose Fire followed in 2001, burning approximately 71,000 acres. 2003 brought the Wedge Canyon and Robert Fires, respectively burning about 54,400 and 52,900 acres. The Wedge Canyon fire destroyed seven homes and twenty-nine outbuildings in the area between Whale Creek and Trail Creek; one home was damaged. The costs of suppressing the Wedge Canyon Fire exceeded $50 million.

Notably, all four of the recent large fires – Red Bench, Moose, Wedge Canyon and Robert – were ignited in the Whitefish Range. Pushed by prevailing winds, they traveled in an easterly direction across the populated corridor along the North Fork River before spreading into Glacier National Park. The predominant wind direction during the fire season is from the southwest. Winds from the south and the west also are common but less frequent.

The North Fork Valley is a fire-adapted ecosystem. Periodic wildfire influences the valley's vegetation patterns, its habitats and ultimately, the composition of the species living there. The natural frequency of fire and the propensity toward occasional large, stand-replacing fires present a significant challenge to North Fork landowners, however. Almost seventy-five per cent of the land currently held in private ownership in the North Fork falls within a fire perimeter from 1910 to 2003, as depicted in the accompanying fire history map.[5]

4. Community Response to the Fires of 2003.

The destructive force and expense of the fires of 2003, combined with recognition that that the current fire cycle probably had not run its course, prompted the North Fork Improvement Association to appoint a Fire Mitigation Committee. The Improvement Association is now known as the North Fork Landowners' Association (NFLA). The NFLA provides a forum for addressing issues that confront the community.

Approximately 290 landowners belong to the organization.

The NFLA's Fire Mitigation Committee reflects the diverse interests and concerns of the North Fork community. Since late 2003, committee members have met regularly in an effort to determine what can and should be done to mitigate the risks of wildfire on and adjacent to private lands, particularly the risks to structures. Forest Service, Park Service and DNRC officials have participated in a number of the committee's meetings, bringing their expertise, resources and perspectives to bear.

a. Creating Defensible Space/Asset Protection Zones

One of the Fire Mitigation Committee's principal objectives has been to suggest sensible, cost-effective techniques that North Fork landowners may use to create defensible space or "asset protection zones" around their homes. In early 2004, under the auspices of the Northwest Regional Resource Conservation and Development Council (RC&D), the North Fork obtained a $150,000 Western States/Stevens Act grant to assist landowners with hazardous fuels reduction. The committee moved quickly to implement the grant program, serving as a model for other geographic areas in Northwest Montana.

During the first phase of the grant program, RC&D foresters provided free home/wildfire inspections to North Fork landowners who requested them. The foresters performed 107 inspections, significantly more than had been expected. Each inspection generated a treatment prescription based on Firewise principles, creating a zone of protection around a home. The inspection phase of the program was a remarkable success, evidence of North Fork landowners' willingness to assume substantial responsibility for protecting their properties.

Hazard reduction, the second phase of the grant program, began in the fall of 2004. With input from the Fire Mitigation Committee, RC&D foresters prioritized private lands on the North Fork for treatment. Generally, properties that had not burned since the fires of the early twentieth century were assigned the highest priority. Properties that burned in the 1988 Red Bench fire were given second priority and those that burned in the 2003 fire season, third priority. Additional criteria for selection included values at risk, fire risk, access, previous fuel treatment, potential joint projects, interest in the program and willingness to meet contract specifications.

The Fire Mitigation Committee recognized that additional funds would be needed to accommodate the large number of landowners who were interested in treating their properties, including those within the Red Bench Fire perimeter. Although the latter properties had been given second priority, significant downfall and dense lodgepole pine regeneration presented a growing risk to structures in the area. So in 2005, the committee applied for and received a $104,000 supplementary Community Protection Fuels Mitigation Program grant.

Both the initial grant and the supplementary grant have been administered by the

RC&D, which has entered into cost-share agreements with participating landowners. Pursuant to the agreements, grant money has paid seventy-five percent of the cost of the prescribed treatment and the landowner has paid twenty-five percent. The landowner's share may take the form of in-kind labor. The per-acre cost of treatment has ranged from a low of $100 to a high of $1500, depending upon the work that needed to be done to create a zone of protection. Many landowners have contracted for the use of mulching equipment or other forms of biomass utilization.

By the summer of 2009, six years after the Wedge Canyon Fire, RC&D foresters had met with 150 landowners and had entered into ninety-nine cost-share agreements to reduce fuels around homes. All grant funds had been expended. More than 500 acres of private property had been treated, more than one-third of the total acreage treated with grant money in Flathead, Lincoln and Sanders Counties combined. In recognition of their service to the community, the NFLA conferred awards on Bill Swope, Mason Richwine and Mike Justus, the RC&D foresters who launched and implemented the cost-share program.

In addition to the 500-plus acres that North Fork landowners have treated with cost-share assistance, RC&D foresters estimate that landowners have treated an even larger number of acres without financial assistance.

b. Strategic Planning

In keeping with the National Fire Plan, the NFLA's Fire Mitigation Committee adopted a definition of "Wildland/Urban Interface" in 2004 that was tailored to the North Fork ecosystem's geography, demography and fire history.

> The North Fork community occupies a corridor at risk from severe wildfire. The corridor is approximately three miles wide and thirty-five miles long, extending from Big Creek to the Canadian Border along the North Fork of the Flathead River. The community's wildland/urban interface extends up to 1.5 miles from the boundaries of the corridor, where private property adjoins or intermixes with public lands.

The committee also participated in the development of the Flathead County Wildfire Protection Plan (CWPP), approved by the county commissioners in 2005. Committee members prepared a "North Fork Flathead Wildfire Mitigation and Planning Report," which was appended to the county CWPP. The report identified properties in inhabited areas of the North Fork that were most at risk from future wildfires. Those properties, which are shown in the accompanying map depicting priority fuel reduction areas,[6] are as follows:

- Properties on the "North End," from Trail Creek to the Canadian Border, are considered particularly at risk. The area has not burned since the fires of the early twentieth century. Many sites within the area are choked with mature and decadent lodgepole pine and heavy downed fuels. It is difficult to gain access to

the sites and to defend them.

- Properties in the area from Whale Creek south to Moose Creek, which also have not burned during the renewed fire cycle. Thick ladder fuels mix with older trees on many sites. Center Mountain Road, now gated, anchors the western side of the area.
- Properties in the river corridor from Hawk Creek south to the 1988 Red Bench Fire boundary. In addition, properties within the fire boundary with significant downfall and dense lodgepole regeneration stands also may be at risk now or in the near future.
- Properties in the Hay Creek area, both north and south from the top of Hay Creek Hill, which have not burned during the current cycle.

c. Collaboration with Government Agencies

In connection with its strategic planning process, the Fire Mitigation Committee has welcomed partnerships with the Forest Service, the DNRC and Glacier National Park. Recent federal legislation encourages collaboration to reduce the likelihood of high-intensity fire in interface areas adjoining private property. Consistent with legislative initiatives, the committee and its partners have tried to be proactive rather than simply reacting to fires once they have begun.

Forest Service officials in particular have engaged with North Fork landowners to mitigate the risks that high-intensity fire poses to homes. After the fires of 2003, officials projected a sequence whereby landowners would proceed with fuels reduction around their homes followed by Forest Service reduction on interfacing public lands. The underlying premise was and is that public and private efforts must complement one another, with homes being the focal point. Thus mitigation efforts have radiated from those places where fire is least wanted.

The Forest Service planned its Trail Fuel Project after site visits with representatives from other agencies, members of the Fire Mitigation Committee and interested landowners. The mechanical thinning component of the project was completed in 2008. Approximately 350 acres were treated to reduce the risk of crown fire in the interface from Trail Creek north to the Canadian Border. The prescribed burn component of the project is still pending.

Implementation of the Forest Service's Red Whale Fuel Reduction Project has been delayed. A revised notice of decision was issued in 2009 after completion of a consultation with the U.S. Fish and Wildlife Service. The revised decision calls for mechanical thinning of 3200 acres and prescribed burning of 1000 acres in the area between Red Meadow Creek and Whale Creek. Barring litigation, the Forest Service expects to award the Red Whale contract so that work can begin in the summer of 2010.

The DNRC's North Fork By Two Timber Sale Project is pending on state lands. A contract was awarded in 2009 for timber harvesting and fuels reduction in the state's

Mud Lake and Moose sections. Because of poor market conditions, the contractor has several years in which to complete the project.

A workshop held in July, 2009 assessed the status of federal, state and private wildfire mitigation efforts in the North Fork Valley six years after the Wedge Canyon and Robert Fires. Officials from the Forest Service, the DNRC, RC&D and members of the Fire Mitigation Committee addressed how the landscape has changed since 2003. They also considered what remains to be done to mitigate the risk of wildfire to homes.

Maps generated for the workshop demonstrate the extent to which public and private efforts have complemented one another. They depict fuels reduction that has been performed on private property, both with and without cost-share assistance. They also depict Forest Service and DNRC projects that have been completed or are pending. Fire history since 1980 has been superimposed.[7]

d. Landowner Consultation and Education

Landowner education and consultation have been critical items on the Fire Mitigation Committee's agenda. The committee has reported to and solicited input from members at NFLA meetings since the fall of 2003. It also has reported to community members and agency officials at semi-annual North Fork Inter Local meetings. It has provided written information to landowners through direct mailings and the North Fork Newsletter. Furthermore, the NFLA Website, www.nflandowners.com, has a page on North Fork fire-related programs and activities as well as links to external sources.

Beginning in 2004, the Fire Mitigation Committee has sponsored at least one fire-related educational workshop each year. The workshops have covered a range of topics, among them wildfire preparedness, landowner "do's and don'ts," insects and disease, weeds, and 2009's retrospective assessment of fuels mitigation efforts on the North Fork. The committee also has sponsored field trips so participants can observe conditions for themselves. Agency officials have contributed their time and expertise in both workshops and field trips. In addition, the Forest Service held an open house in 2008 explaining the concept of wildland fire for resource benefit and the parameters under which it might be used on the North Fork.

The purpose of education and consultation has been to enable landowners to make well-informed decisions about mitigating risk on their properties. Although fuels reduction is voluntary, it has become increasingly apparent that owning property in the fire-prone North Fork Valley confers both privilege and responsibility.

Whatever individual landowners may have decided to do on their properties, community understanding of the role of fire in the North Fork ecosystem has been enhanced since the 2003 fire season. So has community understanding of what can be done to reduce the hazards of severe wildfire that threatens lives, homes and access to the valley. With the collaboration of public agencies, the North Fork community continues

to implement those understandings on the ground.

e. Firewise Community Status

In 2006, the North Fork applied for and was granted Firewise Community status. The award is given by Firewise Communities/USA for taking action to protect lives and properties from the risk of wildfire. Among other benefits, the Federal Emergency Management Administration gives Firewise communities priority in consideration for predisaster mitigation planning and project grants.

Criteria for Firewise status, which include an annual Firewise Day and community investment in Firewise projects, must be met each year. The North Fork has maintained its status since its initial designation.

5. Conclusion.

The Flathead Community Wildfire Protection Plan established county-wide priorities for funding fuels mitigation projects. In areas where large fires occur, the criteria for determining priorities appropriately included life safety issues associated with population density; the presence of fuel hazards; fire history; threats to infrastructure; and environmental considerations.

The North Fork has a relatively low population density and limited infrastructure. Nonetheless, a compelling case can be made for assigning a high priority to North Fork fuels mitigation efforts. Despite relatively quiet fire seasons on the North Fork since 2003, the current fire cycle has not ended. Given the North Fork's fire history, it is reasonable to project that at least some of the areas that have not burned since 1988 will burn before the cycle ends. High fuel loads in many unburned sites increase the probability of severe fires.

The need for proactive fuels mitigation to help protect firefighter and public safety is commensurate with the probability of large fires in the future. So is the need for proactive mitigation to help protect structures. The North Fork's relative remoteness and limited escape routes make it dangerous, difficult and expensive to wait until fires are burning to attempt to abate known hazards. Public policy is better served by encouraging responsible mitigation measures, particularly in light of the human and financial costs of suppressing the Wedge Canyon fire.

Finally, the North Fork community has recognized its vulnerability and has taken action to reduce the risks that wildfire poses to safety, structures, ingress and egress. The community's willingness to address wildfire risk is an appropriate consideration in determining priorities for funding future risk mitigation projects.

North Fork Landowners' Association
Fire Mitigation Committee
December, 2009

Endnotes

[1] North Fork Fire Chief Lynn Ogle took the photograph of the Wedge Canyon Fire that appears on the cover of the report. The photo is used with his permission.

[2] The Flathead County Planning and Zoning Office calculated North Fork market values based on current assessment data.

[3] Mitchell R. Burgard, Prescribed Fire Specialist and Assistant Fire Management Officer for Glacier National Park, collaborated in preparing the fire history section of the report.

[4] The North Fork Area Lightning Map was prepared by Mitchell R. Burgard and is used with his permission.

[5] The North Fork Fire History Map was prepared by Forest Service personnel and is used with the agency's permission.

[6] The North Fork Priority Fuel Reduction Areas Map was prepared by Mitchell R. Burgard and is used with his permission.

[7] The North Fork Fuels Reduction Maps were prepared by Forest Service personnel with assistance from RC&D foresters, members of the NFLA Fire Mitigation Committee and other North Fork landowners. One map depicts fuels reduction in the south half of the valley and the other in the north half. The maps are used with the agency's permission.