

Koyukuk

Community Wildfire Protection Plan



Koyukuk, AK

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1. BACKGROUND

The Middle Yukon River community of Koyukuk is home to approximately eighty-eight people (2006 State Demographer count). Koyukuk is located on the west side of the confluence of the Yukon and Koyukuk Rivers. It is 30 miles west of Galena and 290 air miles west of Fairbanks. It lies adjacent to the Koyukuk National Wildlife Refuge and the Innoko Wildlife Refuge. The community encompasses six square miles of land. Community lands lay entirely within the Galena Fire Management Zone (Alaska Fire Service/BLM, GAD), Critical Fire Management Option.

There are three major local environmental characteristics that provide potential threats to Koyukuk; Erosion, flooding, and wildfire danger. The community lies within a boreal forest setting. Protection from wildfire has long been a concern in the community. The fire threat is from both “outside in” and “inside out”. Lightning is the main cause of *wildland* fires near the community. Primary activities of human caused fires are open burning in the spring and chimney fires in the fall. The community lacks viable fire suppression equipment to fight home fires. Most houses have only a fire extinguisher and many of these are non-working.

2. EXECUTIVE SUMMARY

This Community Wildfire Protection Plan is a collaborative effort between the Community of Koyukuk, Koyukuk Traditional Council, Koyukuk City Council, the Division of Forestry, BLM/Alaska Fire Service (Galena Zone), U.S. Fish and Wildlife Service (Northwest Area Refuges) and the Tanana Chiefs Conference.

The Yukon and Koyukuk Rivers provide the community of Koyukuk a significant southern and eastern barrier from an approaching wildfire.

There are numerous lakes and swampy areas surrounding the community though many appear to be drying up. They have narrow riparian zones situated in the midst of highly flammable fuel types.

The airstrip is a poor barrier as it runs parallel to the Yukon River and does not separate the community from significant outside fuels. The road system surrounding Koyukuk would be considered a fair barrier though it does not serve as a barrier for the cemetery.

An initial hazardous fuels assessment was conducted in September of 2009 for “Old Town Koyukuk”.

The Alaska Division of Homeland Security and Emergency Management administered funding for this project as part of the; “Governor’s Subcabinet on Climate Change”, Immediate Action Workgroup. This plan is part of the Hazard Assessment of Koyukuk.

3. COLLABORATION

The Koyukuk CWPP involved stakeholders from the community as well as local, state and federal agencies. The key decision makers included the City of Koyukuk, Koyukuk Tribal Council, U.S. Fish & Wildlife Service (USFWS) and the Division of Forestry (ADOF). Other important players were the Alaska Fire Service (AFS) and the Tanana Chiefs Conference (TCC).

4. ASSESSMENT TO PRIORITIZE AREAS FOR FUEL REDUCTION

Introduction

This risk assessment used for this CWPP provides information about four primary elements contributing to or mitigating wildfire danger within or near Koyukuk.

The elements of the risk assessment include:

- 1) Hazards/Risks related to Wildfire.
- 2) Barriers
- 3) Fire Protection Response
- 4) Community Firewise Rating

4.1. Identification and Description of Community and Area

Wildland Urban Interface (WUI) Boundary

The WUI boundary is the area that is within the Critical Fire Management Option as designated in the Alaska Interagency Fire Management Plan. *See Section 7. Maps – Map 1*

Community Name: Koyukuk

Location / Community Information

Koyukuk is located on the north bank of the Yukon River and the west bank of the Koyukuk River, at the confluence. It is 30 miles west of Galena and 290 air miles west of Fairbanks. It is adjacent to the Koyukuk National Wildlife Refuge and the Innoko National Wildlife Refuge.

General Geographic Location

- a. Latitude: 64 52'54"N Longitude: 157 42'16"W
- b. Section 17, Township 007S, Range 006E, Kateel River Meridian

Population:

88 (2006 State Demographer estimate)

Structures

- **Homes:**

There are fifty-three houses in the community and thirty-three of them are occupied (2000 census).

- **Community buildings:**

There are approximately 14 community buildings.

These are the Power Plant/generator, Health Clinic/Library, City/Tribal office, Community Hall, bulk fuel storage, Telecommunications building, Washeteria, U.S. Post Office, School (K-10), Airport Maintenance building, National Guard Armory, ball field, boat landing area, and Catholic Church.

- **Commercial:**

The City manages the retail gasoline sales facility.

Infrastructure

- The electrical power generation system serves the entire community.
- The City operates a water treatment plant/*washeteria*. The *washeteria* provides a centralized distribution point for safe drinking water, showers, restroom, and laundry services.
- The sewage lagoon is adjacent to the centralized water well and *washteria*. It is connected to the school and teacher-housing unit.
- The Class III landfill has a six-foot high fence and a single disposal cell. Refuse collection is not available.
- The Ella B. Verneti School provides students with K-10 education.
- The Community Health Clinic is staffed by two Health Aides who provide basic primary health care and emergency services, diagnostic assessments and dispense medications.

- The primary mode of transportation into Koyukuk is air travel (year round access). The community has approximately four miles of local roads (mixture of composite material made up of gravel, crushed rock, and dirt). The river system serves as a highway for freight delivery and boat and snow machine transportation during summer and winter. Supplies are delivered by barge about four times each summer.

Industry

There are very few employment opportunities in Koyukuk. Income is sporadic for most of the community and limited to government transfers, airline support, forest fire fighting in the summer and construction.

Natural Resource Values

- The Yukon and Koyukuk River watersheds and plant and animal habitat are critical to supporting traditional subsistence activities.
- Locally harvested trees are used for home building and heating.

Cultural Sites

There are three historic sites in the Koyukuk area.

- The old Cemetery along the Koyukuk River.
- The new Cemetery at the end of Cemetery Road (At the base of Koyukuk Mountain).
- The Ruby-Kaltag Connecting Trail that borders the community to the northwest.

Landfill

The Class III landfill is approximately 2.5 acres. No burn box or incinerator is available.

Hazards

There is a Fuel Tank Farm located behind the School (west). All of the fuel tanks are elevated for flooding and have minimal *wildland* fuels surrounding the gravel pad they sit on.

Fire Equipment

Other than a few fire extinguishers in the school, city and tribal offices and homes there is no fire suppression equipment in Koyukuk.

Local Fire Prevention Efforts

There are no regularly scheduled fire prevention efforts within the community.

4.2 Areas or Values to be protected

- In addition to the community itself, the cemeteries are of high value and concern.
- Timber resources, both White Spruce and various Hardwoods, are considered high value for fire wood and construction with in the community.
- The community is currently planning a bio-mass feasibility study to determine the future use of bio-mass as an alternative fuel source.

4.3 Wildfire Hazard/Risk Assessment, Barriers, Fire Protection Resources, and Firewise

Summary

An initial Hazard/Risk Assessment was done September 27th, 2009. The assessment began by looking at the roadways, landfill and cemetery and finished with the residential area. The Cemetery Road begins at the airport in the south and borders the community to the West traveling approximately 3 miles north ending at the community's cemetery.

4.3.1 Fire Regime Condition Class (FRCC) and Fuels Description

A fire regime is a set of recurring conditions of fire that characterizes a given ecosystem. The combination of fire frequency, intensity, severity, seasonality, size of burn, fire spread pattern, and pattern and distribution of burn circumscribe those conditions. Fire regimes can often be described as cycles because some parts of the histories usually get repeated, and the repetitions can be counted and measured, such as fire return interval. (*NWCG Communicator's Guide for Wildland Fire Management*)

- **Inside** of the village of Koyukuk, AK; fuels consist of White Spruce, Willow, Alder and native grasses. White Spruce and grass take primacy in classifying this area of the community making it a **Class IV** in the *Historic National Fire Regime Condition Class* (FRCC).
- **Outside** of the village of Koyukuk, AK; large stringers or patches of Black Spruce are present. Black Spruce is a fire dependent species and considered a **Class IV** in the *Historic National Fire Regime Condition Class* (FRCC).

Fire-dependent ecosystems are those where fire is essential and the species have evolved adaptations to respond positively to fire and to facilitate fire's spread, i.e. the vegetation is fire-prone and flammable. (*NWCG Communicator's Guide for Wildland Fire Management*)

- It is common for lightning caused or human caused fires to rapidly develop in Black Spruce, White Spruce and Grass fuel types which threaten communities like Koyukuk from both inside and outside of the community.

Fire Regime Condition Class (FRCC) is a standardized, interagency tool for determining the degree to which current vegetation and fire regime conditions have departed from historical reference conditions.

The Five Historic Natural Fire Regime Groups

Fire Regime Group	Frequency (Fire Return Interval)	Severity
I	0-35 years	Low Severity
II	0-35 years	Stand Replacement Severity
III	35-100+ years	Mixed Severity
IV	35-100+ years	Stand Replacement Severity
V	>200 years	Stand Replacement Severity

(NWCG Communicator's Guide for Wildland Fire Management)

Fuels Description

For the purposes of this document a "General" Fuels Description using the Canadian Forest Fire Danger Rating System (CFFDRS) and the Fuel model guide to Alaska vegetation was used to verify fuel type and determine the Wildfire Hazard / Risk Assessment.

(1) Inside Community

- The community is bordered by the Yukon and Koyukuk Rivers to the East and Southeast. Along the banks are mainly Willow, various shrubs and native grasses. Within the community and its immediate borders are Mixed- Hardwoods / White Spruce equal to CFFDRS Fuel Model: M1 and M2. A large abundance of grass also exists within the community and its borders. Beyond the immediate boarder, still within 1 mile of the community, several "stringers" of Black Spruce exist, equivalent to CFFDRS Fuel Model: C2, along with typical Alaskan bog / swamp conditions.

(2) Outside Community

- Black Spruce, CFFDRS FM: C1 and C2, is the dominant fuel type outside the community. Several fire scars surround the community and are indicated on the Fire History Map in Section 7 of this document. The Fire Scars may or may not provide an adequate fuel break or aid in stopping the spread of surface fire.

4.3.2. Rating Elements

A. Wildfire Hazard/Risk Analysis

(1) Inside Community: *See Chart A. (1)*

The rating area includes lands within one mile of the community in all directions. The rating is based on history/likelihood of fire in the community and the availability of hazard fuels. Provide a description of local fire history and fuel conditions and give High, Moderate or Low rating based on the Hazard/Risk Chart.

(2) Outside Community: *See Chart A. (2)*

The rating area is from 1-10 miles outside the community and is based on the history/likelihood of fire in the area and the availability of hazard fuels. Provide a description of area fire history and fuel conditions and give a High, Moderate or Low rating based on the Hazard/Risk Chart.

A. Wildfire Hazard/Risk Analysis Chart

(1) Inside Community Area (within 1 mile)

	Alaska Fire Return Interval		
FUELS (predicted fire behavior based on historic summertime weather with hot, dry conditions)	High (0-99 years)	Moderate (100-300 years)	Low (>300 years)
Black Spruce Boreal Forest (CFFDRS=C2) <i>Rate of Spread: high</i> <i>Intensity: high</i> <i>Spotting Potential: high</i>	H	M	M
Black Spruce Lichen Woodland (CFFDRS=C1) <i>Rate of Spread: moderate</i> <i>Intensity: moderate</i> <i>Spotting Potential: high</i>	H	M	M
Grass (Cured tall standing or matted; CFFDRS = O1a/O1b) <i>Rate of Spread: High</i> <i>Intensity: Moderate</i> <i>Spotting Potential: Low</i>	H	M	L
Mixed Boreal Forest (may include white or black spruce, aspen and/or birch; CFFDRS=M1) <i>Rate of Spread: moderate</i> <i>Intensity: moderate</i> <i>Spotting Potential: moderate</i>	M	M	L
Hardwood Forest (Includes Aspen & Birch; CFFDRS use D1 or M1, M2) <i>Rate of Spread: low</i> <i>Intensity: low</i> <i>Spotting Potential: low</i>	M	L	L
Deciduous Brush (includes willow & alder) <i>Rate of Spread: low</i> <i>Intensity: low</i> <i>Spotting Potential: low</i>	L	L	L
Insect and Disease in Mixed Boreal Forest (may include white or black spruce, aspen and/or birch; <i>Rate of Spread: moderate</i> <i>Intensity: High</i> <i>Spotting Potential: High</i>	M	H	M

A. Wildfire Hazard/Risk Analysis Chart

(2) Outside Community Area (1-10 miles)

	Alaska Fire Return Interval		
FUELS (predicted fire behavior based on historic summertime weather with hot, dry conditions)	High (0-99 years)	Moderate (100-300 years)	Low (>300 years)
Black Spruce Boreal Forest (CFFDRS=C2) <i>Rate of Spread: high</i> <i>Intensity: high</i> <i>Spotting Potential: high</i>	H	M	M
Black Spruce Lichen Woodland (CFFDRS=C1) <i>Rate of Spread: moderate</i> <i>Intensity: moderate</i> <i>Spotting Potential: high</i>	H	M	M
Grass (Cured tall standing or matted; CFFDRS = O1a/O1b) <i>Rate of Spread: High</i> <i>Intensity: Moderate</i> <i>Spotting Potential: Low</i>	H	M	L
Mixed Boreal Forest (may include white or black spruce, aspen and/or birch; CFFDRS=M1) <i>Rate of Spread: moderate</i> <i>Intensity: moderate</i> <i>Spotting Potential: moderate</i>	M	M	L
Hardwood Forest (Includes Aspen & Birch; CFFDRS use D1 or M1, M2) <i>Rate of Spread: low</i> <i>Intensity: low</i> <i>Spotting Potential: low</i>	M	L	L
Deciduous Brush (includes willow & alder) <i>Rate of Spread: low</i> <i>Intensity: low</i> <i>Spotting Potential: low</i>	L	L	L
Insect and Disease in Mixed Boreal Forest (may include white or black spruce, aspen and/or birch; <i>Rate of Spread: moderate</i> <i>Intensity: High</i> <i>Spotting Potential: High</i>	M	H	M

B. Barrier Rating Chart

Barrier Type (List specific type under excellent, fair or poor)	Excellent	Fair	Poor
Water (May include lakes, rivers, streams and sloughs)		Yukon and Koyukuk Rivers to the South and East. Several sloughs to the West.	
Natural Features (May include barren landscape, rock, topographic features)			None to aid in slowing fire spread.
Human-made Features (May include airstrips or other clearings)		The Airstrip and Cemetery Rd. follows the Western edge of Koyukuk.	
Overall Rating		Fair	

Barrier Rating Chart Key:

Excellent: Community has a barrier(s) that provides thorough protection from fuels less than 1 mile away in at least 3 cardinal directions. An example of this would be a small community sandwiched between a major river and a runway (e.g. Sleetmute), or a community on an island (Stony River).

Fair: The community has a barrier(s) that provides thorough protection from fuels less than 1 mile away in at least two cardinal directions. Communities may have multiple barriers affecting a rating. Examples are airstrips separating a community from significant outside fuels, communities set amidst certain vegetation types or some communities situated on major rivers (e.g. Red Devil).

Poor: Any barriers that exist provide protection from fuels less than 1 mile away in fewer than two cardinal directions. Examples of insignificant barriers are small streams or sloughs with narrow riparian zones situated in the midst of highly flammable fuel types.

C. Fire Protection Resources Response Chart

<i>Response Time</i>	<i>Risk</i>	<i>Kind of Resource</i> (List kinds of resources available for initial attack)
Adequate initial attack resources are more than 75 minutes away and adequate extended attack resources are more than 12 hours away.	High	Alaska Smoke Jumpers and Retardant Aircraft from Fairbanks, Type 1 and Type 2 Hand Crews in state.
Adequate initial attack resources are 30-75 minutes away and adequate extended attack can be in place in 8-12 hours.	Moderate	Heli-tack from AFS/Galena
Adequate initial attack resources are less than 30 minutes away and adequate extended attack can be in place in less than 8 hours.	Low	
<i>Rating Sum</i>		<i>Moderate – High Risk</i>

*Adequate initial and extended attack forces are defined as the minimum force necessary to stop the spread of a wildfire under 90th percentile weather and fuels conditions. Calculating percentile weather can be done by downloading RAWs data into *Fire Family Plus* from WIMS/KCFAST. Response times are based on resource location and historical response times.

D. Community Firewise Rating for Defensible Space - Overall Community
(Assessment does not include individual Structures)

	<i>Excellent</i> Over 65% of home sites and community buildings meet standard <i>Value =5</i>	<i>Fair</i> Between 35-65% of home sites and community buildings meet standard <i>Value =3</i>	<i>Poor</i> Less than 35% of home sites and community buildings meet standard <i>Value=1</i>
<i>Alaska Firewise Standards</i> <i>(Structures; both Commercial and Residential)</i>			
Landscaping			X
Construction			X
Water Supply			X
Access		X	
Clear of Flammables/ Refuse/Debris (flammables stored properly & area cleared)			X
<i>Ratings Sums</i>		3	4

Total of Rating Sum / 25 x 100 = Community Firewise Rating Excellent greater than 65%, Fair 35-65%, Poor less than 35%	28% / Poor
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Standards for Firewise Rating

Landscaping: There is a clearing of flammable vegetation at least 30 feet around the home for firefighting equipment: coniferous brush and dead/overhanging branches are removed; trees are pruned 6-10 feet above the ground; lawn is mowed and watered regularly and ladder fuels are removed from the yard; remaining trees are spaced at least 30' apart at crowns; garden equipment (hoses and hand tools) are kept on the property.

Construction Guidelines: Home is made of fire-resistant or non-combustible construction materials (especially important for roofing); vents are covered with wire mesh no larger than 1/8 inch; at least two ground-level doors exist; at least two means of escape exist in each room.

Water Supply Guidelines: Home has a reliable water source, 3 to 4 sprinklers and enough hose to circle the home.

Access Guidelines: Access roads are at least 2 lanes wide and clearly marked; ample turnaround space exists for vehicles/fire equipment.

Clear of Flammables/Refuse/Debris Guidelines: Combustible materials are not located in the yard or under decks or porches; firewood is stored away (at least 30 feet) from the house; all debris or refuse is picked up regularly.

4.3.3. Overall Assessment Rating of Wildfire Hazard/Risk, Barriers, Fire Protection Resources and Firewise.

OVERALL HAZARD/RISK RATING CHART

<i>Category</i>	<i>Rating</i>
A. Wildfire Hazard/Risk	
(1) Inside Community	High
(2) Outside Community	High
B. Barriers	Fair
C. Fire Protection Resources	Moderate / High
D. Community Firewise Rating	28% / Poor
Overall Hazard/Risk	High

4.3.4. Other Contributing Factors to risk and mitigation of wildland fire.

During the initial Hazard / Risk Assessment, Bark Beetles were discovered in White Spruce along the Cemetery Road. The Ips Beetle was discovered in the inner bark of several trees along the road. No trees looked significantly damaged but the community should monitor the effects of the attack and be cautious not allow slash pile accumulation and the cutting of White Spruce in the spring and summer months. Slash should be immediately burned or scattered in dry sunny areas to prevent attracting engraver beetles.

5. WILDLAND FIRE HISTORY

The primary cause of fires in the Koyukuk area is lightning. Fire history data was retrieved from the Alaska Fire Service (AFS), geospatial database. *See Fire History Map in Section 7.*

- Of the 30 fires*, within 5 miles of the community, 21 were caused by lightning and 9 were human caused.
- Out of the human caused fires within 1 mile of the community:
 - 1 was caused by smoking (1999) for a total of 15 acres.
 - 1 was caused by trash or debris burning (2008) for a total of .2 acres.

Fire History 1999-2009

General Cause	Number of Fires	Acres (Est.)
Lightning	21	157, 372
Human	9	182
Total	30	157,554

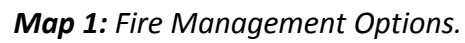
**Fire data is from years 1999 – 2009.*

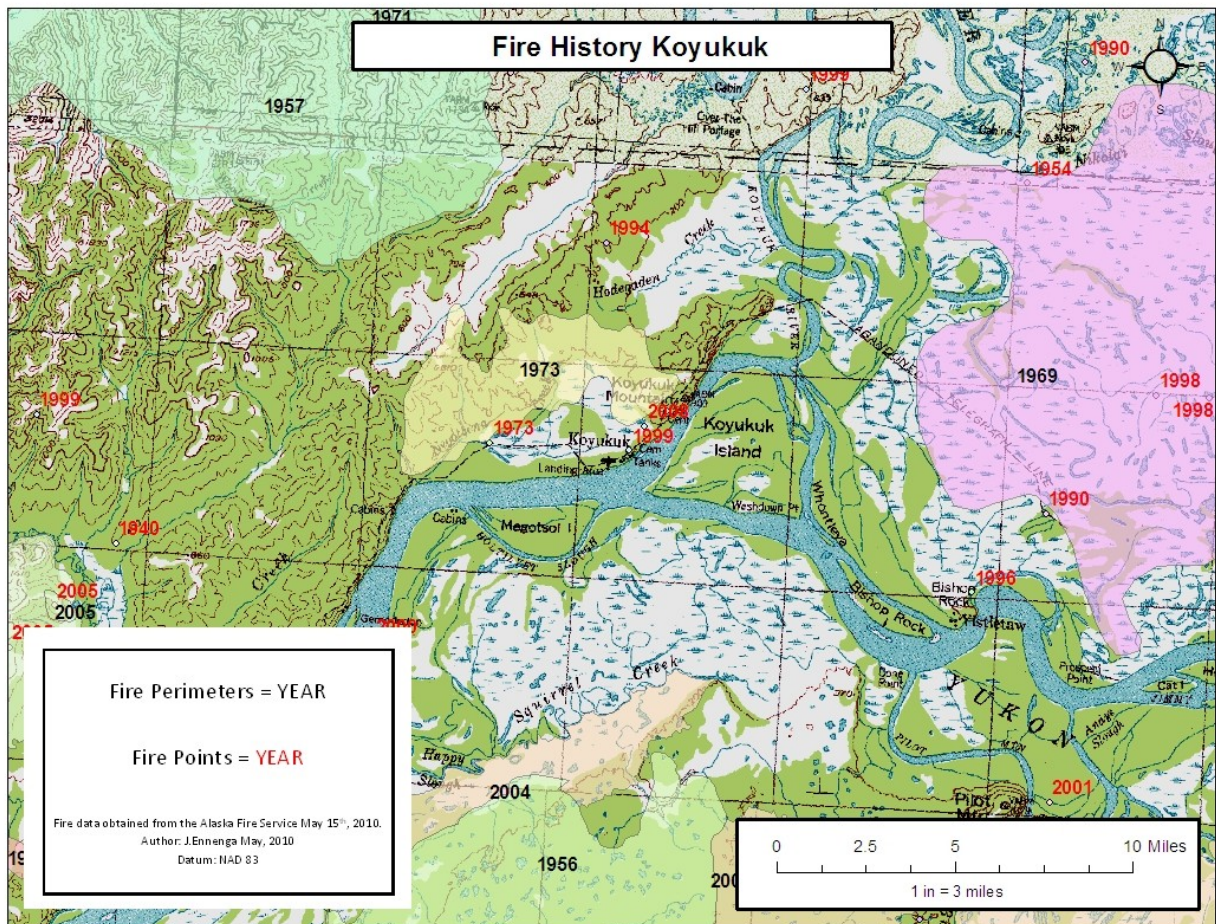
6. SUMMARY

Koyukuk is “High Risk” for impacts of wildfire. The area surrounding Koyukuk has a long history of wildfires with the primary cause being lightning. Firewise type standards are non-existent within the community and there is no firefighting equipment on site. The closest firefighting resources are 30 minutes away by air from Galena.

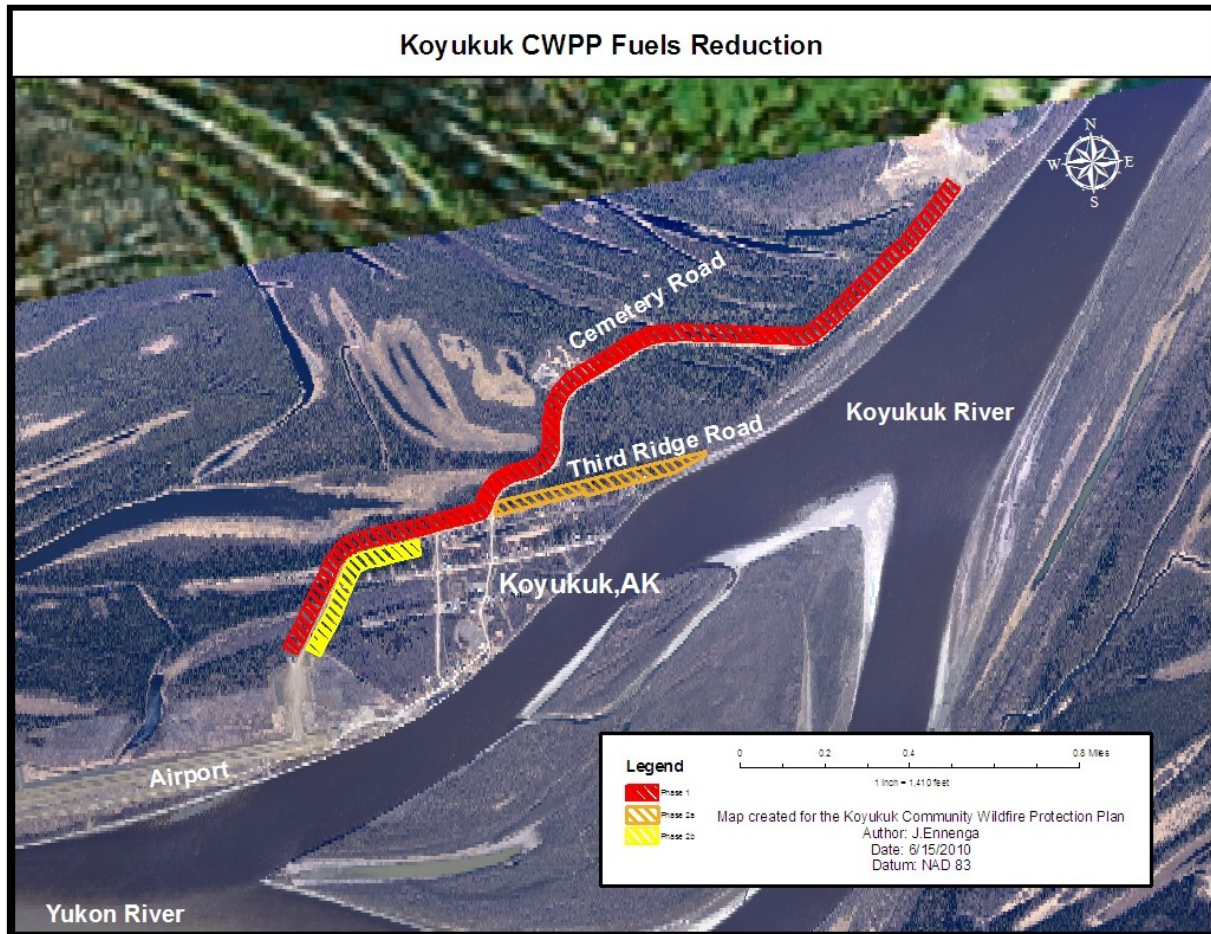
The expeditious completion and implementation of this plan will reduce the impact of wildfire to Koyukuk and its people.

6/16/2010





Map 2: Fire History by Year, Points/Perimeters.



8. THE NEXT STEP – CWPP PHASE 2

8.1 Mitigation Plan

Summary

The Middle Yukon River community of Koyukuk is home to approximately eighty-eight people (2006 State Demographer count). Koyukuk is located at the confluence of the Yukon River and the Koyukuk River. It is 30 miles west of Galena and 290 air miles west of Fairbanks. It lies adjacent to the Koyukuk National Wildlife Refuge and the Innoko Wildlife Refuge. The community encompasses six square miles of land. Community lands lay entirely within the Galena Fire Management Zone (Alaska Fire Service/BLM, GAD), Critical Fire Management Option.

An initial Wildfire Hazard/Risk Assessment was conducted in September of 2009 and it was found that the community is in High to Moderate Risk of being impacted by either a wildfire or structure fire. The community has no viable fire suppression equipment, there are minimal fuel breaks surrounding the community and the majorities of structures in the community have poor defensible space and do not meet Alaska Firewise Standards.

This mitigation plan will outline what the community can do to mitigate the threat of impact from wildfire.

Background

There are three major local environmental characteristics that provide potential threats to Koyukuk; Erosion, flooding, and wildfire danger. The community lies within a boreal forest setting. Protection from wildfire has long been a concern in the community. The fire threat exists from both “outside in” and “inside out”.

Lightning is the main cause of *wildland* fires near the community. Primary activities of human caused fires are yard burning in the spring and chimney fires in the Fall. The community lacks viable fire suppression equipment to fight *wildland* or structure fires.

Fire behavior based on the dominant fuel types, (Black Spruce, White Spruce and Grass); both “inside” and “outside” the community poses significant danger to the community. Given the lack of fire suppression equipment needed to “catch” a fire in the incipient stage; it would be difficult to prevent the spread of any fire within 1 mile of the community without adequate support from the Alaska Fire Service.

Goals and Objectives

The **Goal** of this plan is to minimize the Hazard and Risk of Wildfire impacting the community through Firewise education, hazard fuels reduction and improving fire suppression capabilities.

The **Objectives** of this plan are to:

1. Assist in implementing Alaska Firewise Standards within the community.
2. Provide recommendations for constructing shaded fuels breaks to prevent spread into the community and aid in suppression of a wildfire.
3. Aid in acquiring practical fire suppression equipment and receive adequate firefighter training.

8.1.1 Strategic Plan/Desired Condition

The priority values to be protected are life, property and cultural resources.

Objective #1: Assist in implementing Alaska Firewise Standards within the community and increase fire prevention presence.

Alaska Firewise Standards can be achieved through community involvement and assistance from the Tanana Chiefs Conference, State and Federal agencies. Starting in the spring of 2010, the community and tribal council will delegate 4 community members to initiate this process and provide key leadership to the community in implementing the Alaska Firewise Standards within the community of Koyukuk.

With assistance from the Tanana Chiefs Conference, State and Federal agencies; instructions on implementing Firewise within the community will take place throughout the summer months of 2010. Minimal funding is needed for this critical component of Hazard / Risk reduction.

Objective #2: Provide recommendations for constructing shaded fuels breaks to prevent spread into the community and aid in suppression of a wildfire.

After the initial Hazard / Risk Assessment in September of 2009, the community was viewed high risk for wildfire to spread both “Outside in” and from “Inside out” the community. There are 3 practical ways to minimize the Hazard / Risk to the community based on the assessment.

It was viewed that along the borders of the community, within 1 mile, a significant fuel load existed. This fuel load can be reduced through common thinning and tree removal techniques by local hire workers and minimal equipment like chainsaws and hand tools.

Objective #3: Aid in acquiring practical fire suppression equipment and receive adequate firefighter training.

It was identified in the, *Community of Koyukuk: Comprehensive Community Development Plan (Pilot, 2008)*, that the community lacked sufficient emergency response equipment. The plan suggests obtaining funds for a new ambulance and fire truck.

Other villages in the Koyukon region have obtained equipment from Alaska Village Initiatives (AVI) through Project Code Red (PCR). The equipment and training provided by PCR is less expensive, easier to use and maintain and requires no additional facilities to build.

Further information regarding this program can found at the Alaska Village Initiatives website at:

<http://www.alaskavillageinitiatives.com/shop/scripts/codered.asp>

8.1.2 Actions and Methodology (Tactical Plan)

Objective #1: Assist in implementing Alaska Firewise Standards within the community and increase fire prevention presence.

- Hold a public meeting to gain interest in the Alaska Firewise program.
- Solicit community members wanting to become community Firewise team members.
- Acquire onsite Alaska Firewise Training for community team.
- Implement Firewise Assessments.

Objective #2: Provide recommendations for constructing shaded fuels breaks to prevent spread into the community and aid in the suppression of a wildfire.

After the initial Hazard / Risk Assessment in September of 2009, the community was viewed high risk for wildfire to spread both “Outside In” and from “Inside Out” the community. There are 3 (site specific) phases designed to minimize the Hazard / Risk to the community based on the assessment.

They are:

Phase 1: Construct a shaded Fuel Break, on the west side, along Cemetery Road from the Maintenance Building at the Airport working north to the Gravel Pit at the base of Koyukuk Mountain.

Prescription: Remove all dead, down and diseased trees 250 feet (from the road edge) along the West side of Cemetery Road. Thin Spruce trees to establish a 15 – 20 foot space between extending branches. Remove the limbs of all Spruce trees 6-8 feet from the ground.

Phase 2: Construct a fuel break (2a) by extending the East end of Third Ridge Road to the Koyukuk River. Construct a fuel break (2b) along Third Ridge Road on the east side from the airport to the intersection of Third Ridge and Muskrat Alley Roads.

Prescription: (1) Remove all dead, down and diseased trees 250 feet wide from the end of the existing road until reaching the Koyukuk River. (2) Remove all dead, down and diseased trees 100 feet wide from the airport runway to the first intersection. Thin Spruce trees to establish a 15 – 20 foot space between extending branches. Remove the limbs of all Spruce trees 6-8 feet from the ground.

Phase 3: Perform Hazard Fuels Reduction according to Alaska Firewise Standards around city and tribal government structures and community infrastructure facilities.

Work can begin in late summer to avoid further engraver beetle damage. A small crew of local hires could begin as early as August. A state or nationally approved chainsaw safety course is recommended for all employees involved in tree felling, thinning and removal.

It is critical to establish a plan of removing slash either by burning or chipping and treat logs by either debarking, with chemicals or burning to prevent the further threat of insects and disease.

Objective #3: Aid in acquiring practical fire suppression equipment and receive adequate firefighter training.

The best option for fire suppression equipment is provided through *Project Code Red (PCR)*. Steps to obtain the fire training and equipment are as follows:

- Step #1:** Submit the, “New Fire Department Registration Application” to the State of Alaska, Department of Public Safety, Division of Fire and Life Safety to establish a fire department.
- Step #2:** Submit application to Alaska Village Initiatives for Project Code Red.
- Step #3:** Identify location for PCR Conex and power supply. (AVI provides instructions for this process).
- Step #4:** Receive equipment and training from the Office of Rural Fire Protection.

8.1.3 Roles and Responsibilities

The City of Koyukuk will be responsible for registering as a fire department and applying for *Project Code Red*.

Depending on funding sources, the City of Koyukuk and the Koyukuk Traditional Council will share duties appropriately for any Firewise and/or Fuels Reduction work performed within the community.

The Tanana Chiefs Conference will provide oversight for the funding and implementation of *Firewise* and fuels reduction work.

8.1.4 Funding Guidelines

Preliminary funding options have been explored by the City of Koyukuk and the Koyukuk Traditional Council with the assistance of the Tanana Chiefs Conference.

8.2 Monitoring Plan

This initial plan shall be evaluated bi-annually until the following objectives have been completed:

- *Firewise* training and assessments.
- Fuels Reduction Phase 1, 2 & 3.
- Project Code Red equipment and training.

Additional plan review and monitoring should be done annually once the initial objectives have been met.

Additional monitoring functions / tasks are:

1. Establish pre and post treatment photo points at strategic areas where fuel reduction projects will take place.
2. Monitoring of the fuels treatment project to determine re-occurring maintenance needs.
3. Review SOP's (incident response, evacuation) biennially or when there is significant change in the community's situation.
4. Do periodic (every 5-10 years) risk assessments using the same criteria and compare whether ratings are lower.

9. SIGNATURE PAGE

This plan has been reviewed and approved by the following:

X_____ Date_____
Agnes Dayton, Mayor
City of Koyukuk

X_____ Date_____
Leo Lolnitz, 1 st Chief
Koyukuk Traditional Council

X_____ Date_____
Kenton Moos, Refuge Manager USFWS
Koyukuk National Wildlife Refuge

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Marlene Eno-Hendren, Fire Management Officer
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Clinton Northway, Fire Management Officer
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