

A grayscale photograph of a person, likely a researcher or field worker, crouching in a field. The person is wearing a light-colored baseball cap, a dark vest over a long-sleeved shirt, and dark pants. They are holding a white sheet of paper and looking down at it. The background shows a field with sparse vegetation, including small shrubs and grasses, and some fallen branches or logs on the ground. The overall scene suggests a field study or data collection activity.

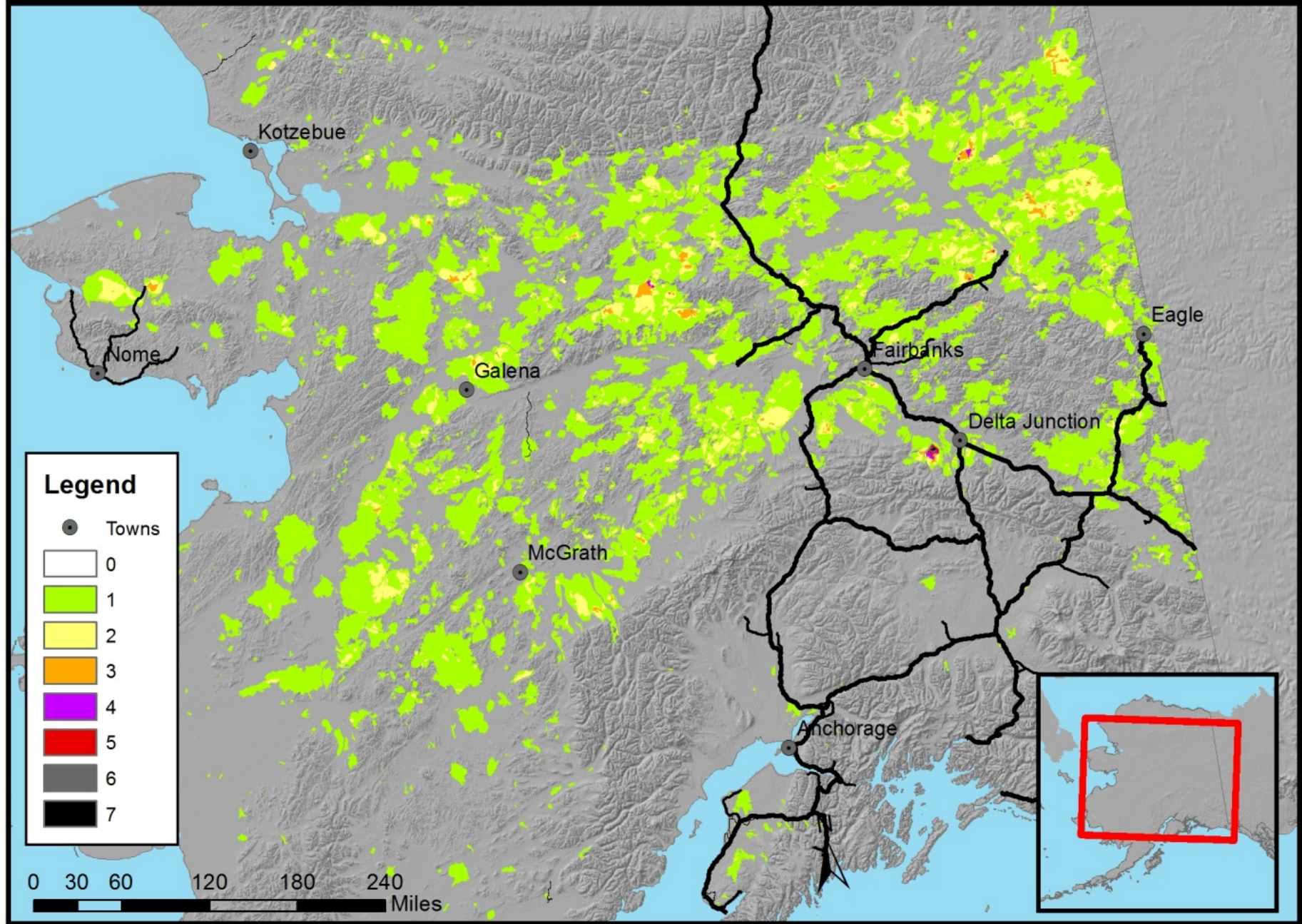
EFFECTS OF SHORTENED FIRE RETURN INTERVALS IN ALASKA BOREAL FOREST

2011 Alaska Fire Science Consortium

Fall Fire Review

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Number of multiple fires from 1950-2010 (draft)



What happens after repeat fires?



1986 Pre-fire



1988 - 2 yrs Post-Fire



2005 - burned 2x in 17 years (1986 & 2004)

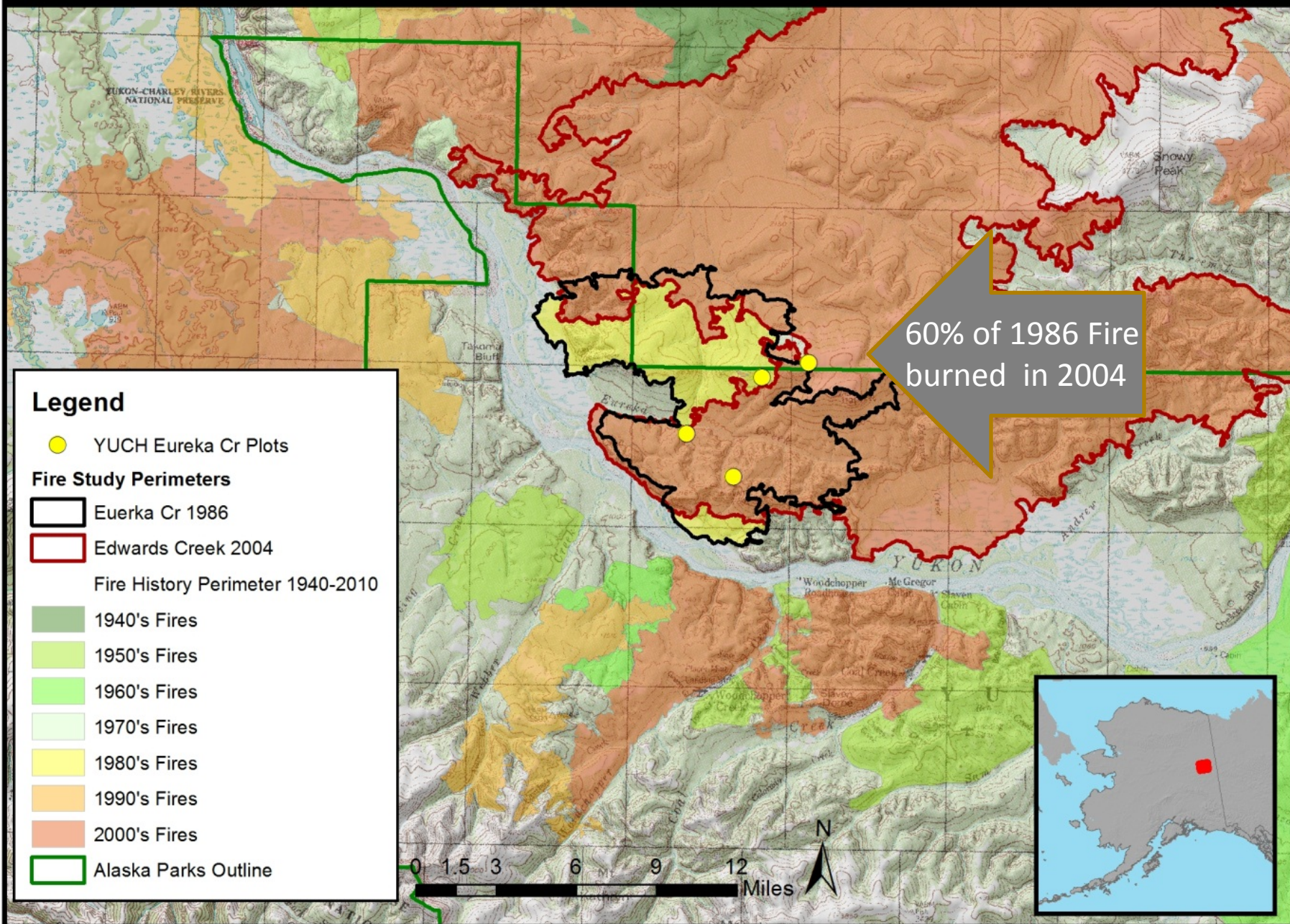
Study Sites 1986-2011

- ▣ Yukon-Charley Rives National Preserve
 - 1986 Eureka Cr Fire - 44,749 acres
 - 2004 Edwards Cr Fire - 278,116 acres
 - 4 Plots established in front of 1986 fire, 2 plots burned again in 2004
- ▣ Denali National Park & Preserve
 - 1986 and 1990 Fires
 - 2005 Highpower Fire - 115,778 acres
 - 10 plots established in older fires, burned again 1 week after sampling.

Yukon-Charley Rivers Eureka Cr 1986 & Edwards Cr 2004



Yukon-Charley Rivers - Eureka Cr/Edwards Fire Plots



Closed Black Spruce stand

- > two fires in 25 years
- > moderate – high severity

ECA-1 – Aerial View 1986 pre-fire

An aerial photograph of a forested slope. The forest is dense and green, covering most of the frame. A yellow circle is drawn around a specific area in the upper-middle part of the image. The slope appears to be facing west. The overall tone of the image is slightly aged, with some yellowing and minor damage visible.

West facing 35% slope
Closed black spruce stand



ECA-1

1986 - Pre-fire plot

Closed black spruce with feathermoss

1988 - 2 yrs post-fire
1x burned, high severity



Herbaceous and grass

2005 – 1-year post-fire w/2 fires
1986 & 2004 fires- high severity fires



Mostly mineral soil

2011 – 7-years post-fire w/2 fires
1986 & 2004 fires- high severity fires

VOCH Raced Plot
ECA-1 7/16/2011
Tran B 50-0
166

Grass-Calamagrostis, willows, and birch



1986 Pre-fire



1988 - 2 yrs Post-fire
1 x burned



2005 - 1 yr Post-fire
2 x burned



2011 - 7 yrs Post-fire
2 x burned

What did it look like before it burned the
second time?

Closed black spruce burned 1 x

ECA-3
1986 - Pre-fire plot

Closed black spruce with feathermoss

2005 - 19 years post fire
1x burned, moderate severity

ECA-3
6/27/05
SE Corner

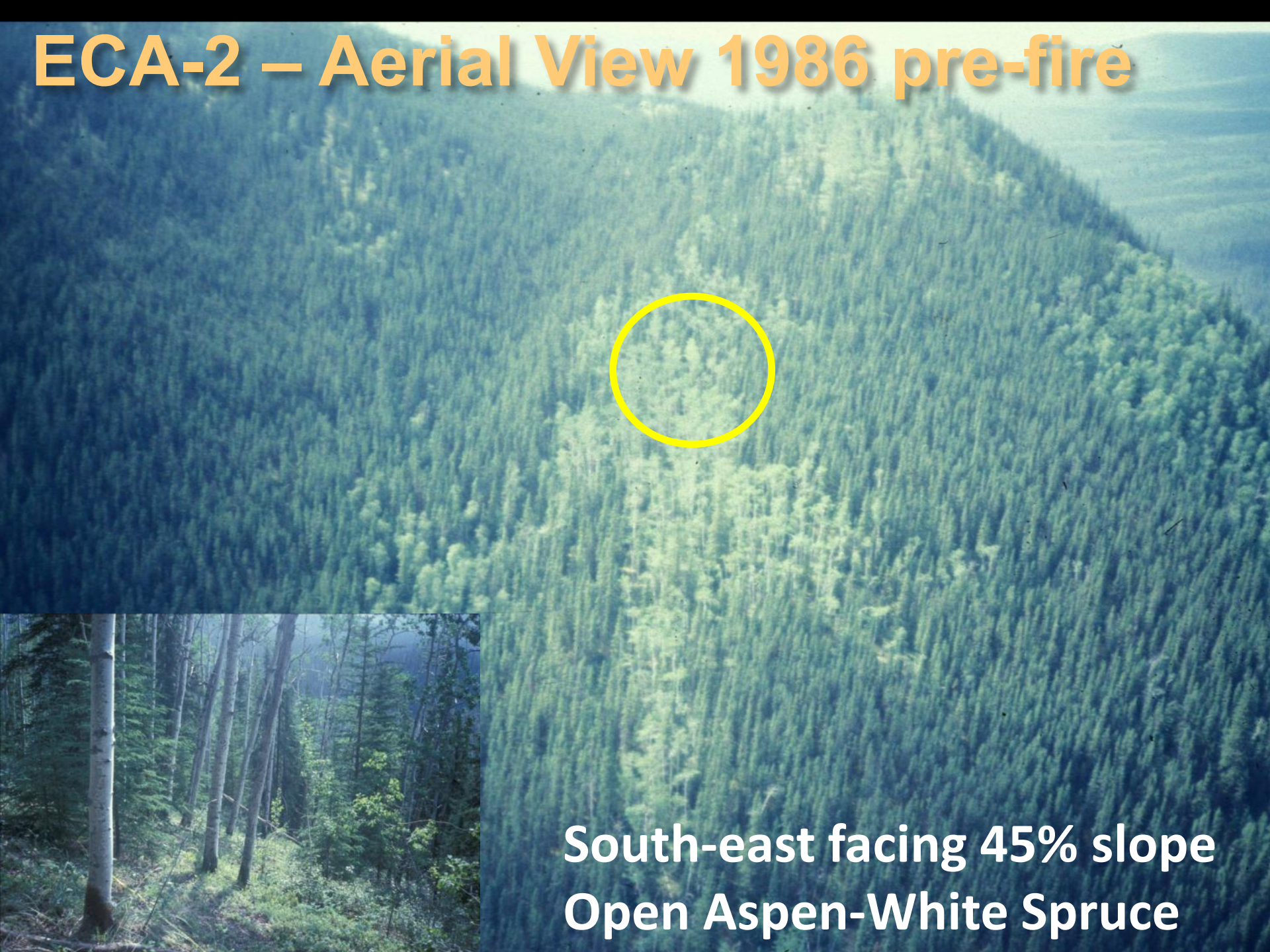
Shrub and herbaceous dominated

Aspen-White Spruce stand

- > two fires in 25 years

- > moderate severity

ECA-2 – Aerial View 1986 pre-fire



South-east facing 45% slope
Open Aspen-White Spruce

1986 - Pre-fire – Open Aspen-Spruce



Pre-Fire 1986

**1988 - 2 years post fire – Open Aspen-Spruce
1x burned, moderate severity**



Re-sprout Aspen-herbaceous - 2-yrs post-fire 1x burned

2005 – 1-year post-fire w/2 fires 1986 & 2004 fires- moderate-high severity fires



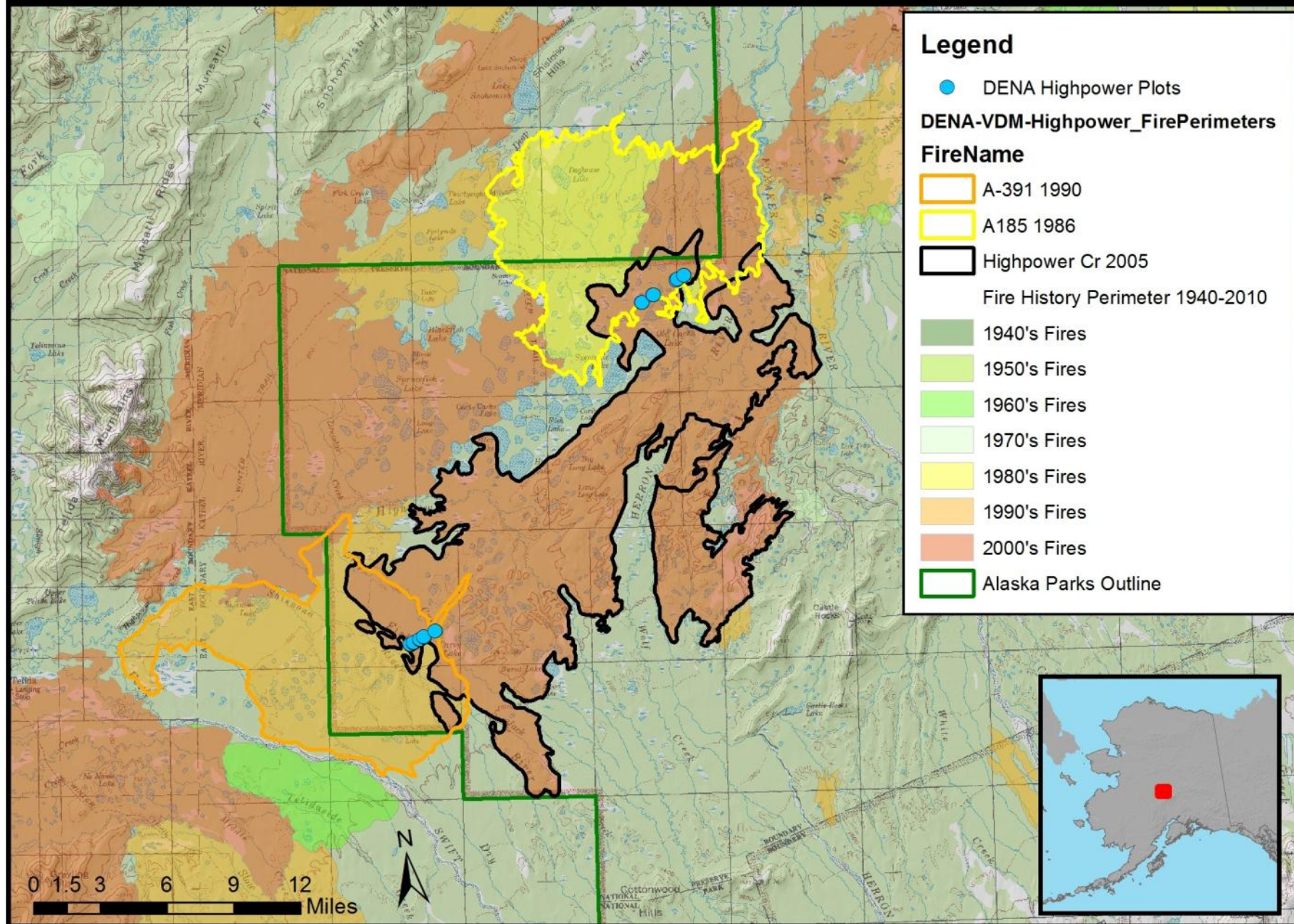
Re-sprout Aspen-herbaceous - 1 yr post-fire 2 x burned

2011 – 7-years post-fire w/2 fires
1986 & 2004 fires- moderate-high severity fires



Closed Aspen re-sprouts – 7 yrs post-fire 2x burned

Denali Highpower Cr 2005 and 1986/1990 Fire Plots



Denali Highpower Cr Fire – 2005

-- burns into 1986 and 1990 Fires



2009 Foraker Pond Fire

Black Spruce – shrub feathermoss

- > two fires in 25 years**

- > moderate-high severity**

Denali 1986 and 2005 Fires –Black spruce



*Closed shrub -
Labrador tea*



Barren-herbaceous



Grass-herbaceous

2005 – 19 yrs post-fire

2006 – 1 yr post-fire

2011 – 6 yrs post-fire

1 x burned 1986
Moderate severity

2 x burned 1986 & 2005
Moderate-high severity

2 x burned 1986 & 2005
Moderate-high severity

Black Spruce – tussock shrub

- > two fires in 25 years

- > moderate severity

Denali 1986 and 2005 Fires – Black spruce/tussocks



Tussock- Low shrub

2005 – 19 yrs post-fire

1 x burned 1986
Moderate severity



Tussocks

2006 – 1 yr post-fire

2 x burned 1986 & 2005
Moderate severity



Tussock-Low Shrub

2011 – 6 yrs post-fire

2 x burned 1986 & 2005
Moderate severity

DENA- A185-143

Denali 1990 and 2005 Fires – Black spruce/tussocks



Tussock- Low shrub



Tussocks



Tussock-Low Shrub

2005 – 15 yrs post-fire

2006 – 1 yr post-fire

2011 – 6 yrs post-fire

1 x burned 1990
Moderate severity

2 x burned 1990 & 2005
Moderate severity

2 x burned 1990 & 2005
Moderate severity

Spruce-Aspen stand

- > two fires in 25 years
- > moderate-low severity

Denali 1986 and 2005 Fires – Open Spruce-Aspen



Spruce-deciduous saplings



Barren



Aspen resprout

2005 – 19 yrs post-fire

2006 – 1 yr post-fire

2011 – 6 yrs post-fire

1 x burned 1986

2 x burned 1986 & 2005

2 x burned 1986 & 2005

Moderate severity

Low-Moderate severity

Low-Moderate severity

Plot: A185-136

Potential effects repeat burns

- ▣ Black spruce-feather moss + high severity fires x2 = grass/deciduous (type conversion)
- ▣ Black spruce-tussock + moderate severity fires x2 = tussock tundra
- ▣ Spruce-Aspen + fires x2 = Aspen some spruce

Thanks to the crews!

