

An aerial photograph of a landscape, likely a valley or plain, with a yellow outline highlighting a specific area. The landscape is green and brown, with some water bodies. The text is overlaid on the top half of the image.

Sutherland Protected Area Shrubland Complex – Extending an Interpretation Deeper into the Past

sern Society for Ecosystem Restoration
in North Central British Columbia

Torsten Kaffanke
April, 2018

An aerial photograph of a landscape, likely a wetland or marsh area, with a prominent yellow boundary line tracing a large, irregularly shaped area in the center. The terrain is a mix of dark green, brown, and greyish areas, suggesting different types of vegetation or water levels. The yellow line follows the perimeter of a large, roughly rectangular area with some internal indentations and protrusions.

Acknowledgements

John DeGagne

Larry McCulloch

Mark Parminter

Gord Saito

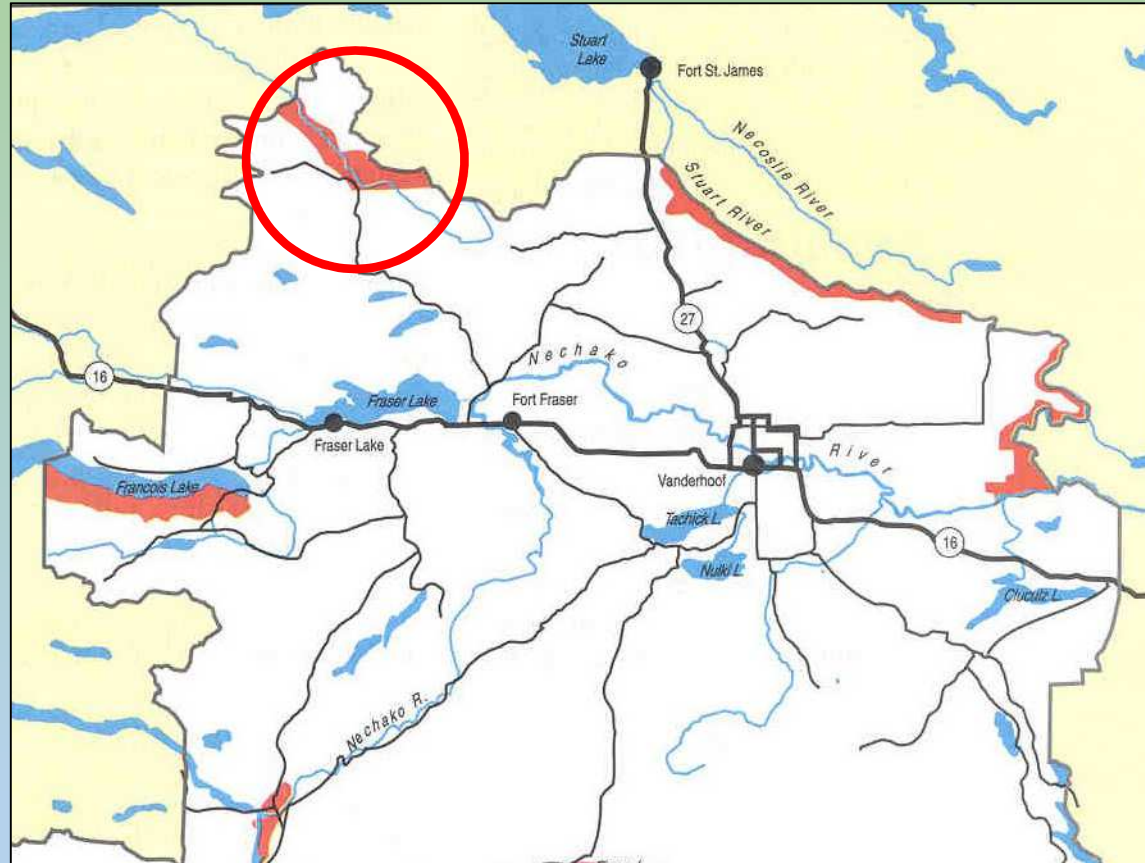
Karen Tabe

Paul Inden

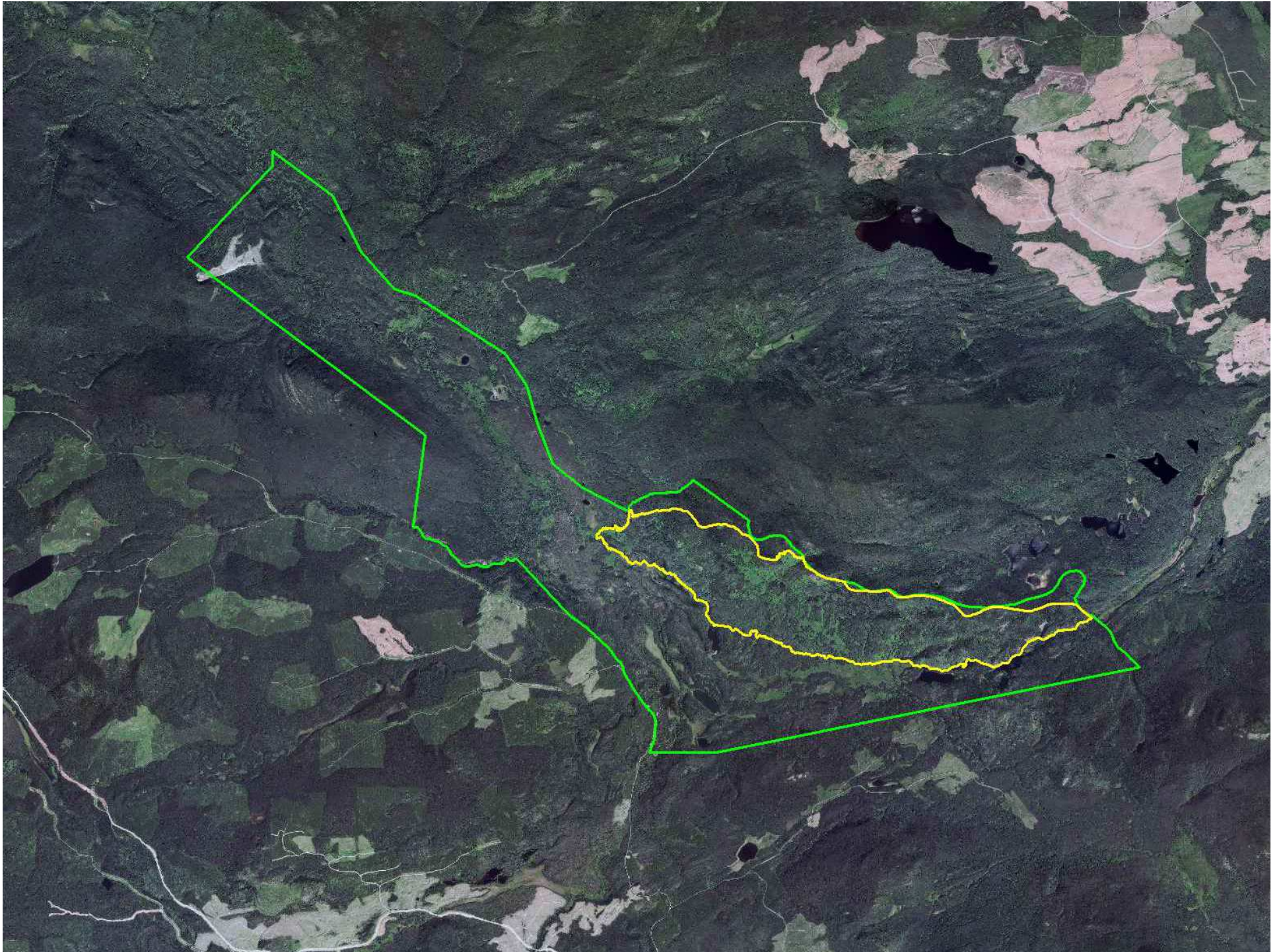
Initial Funding by
Habitat Conservation Trust Fund



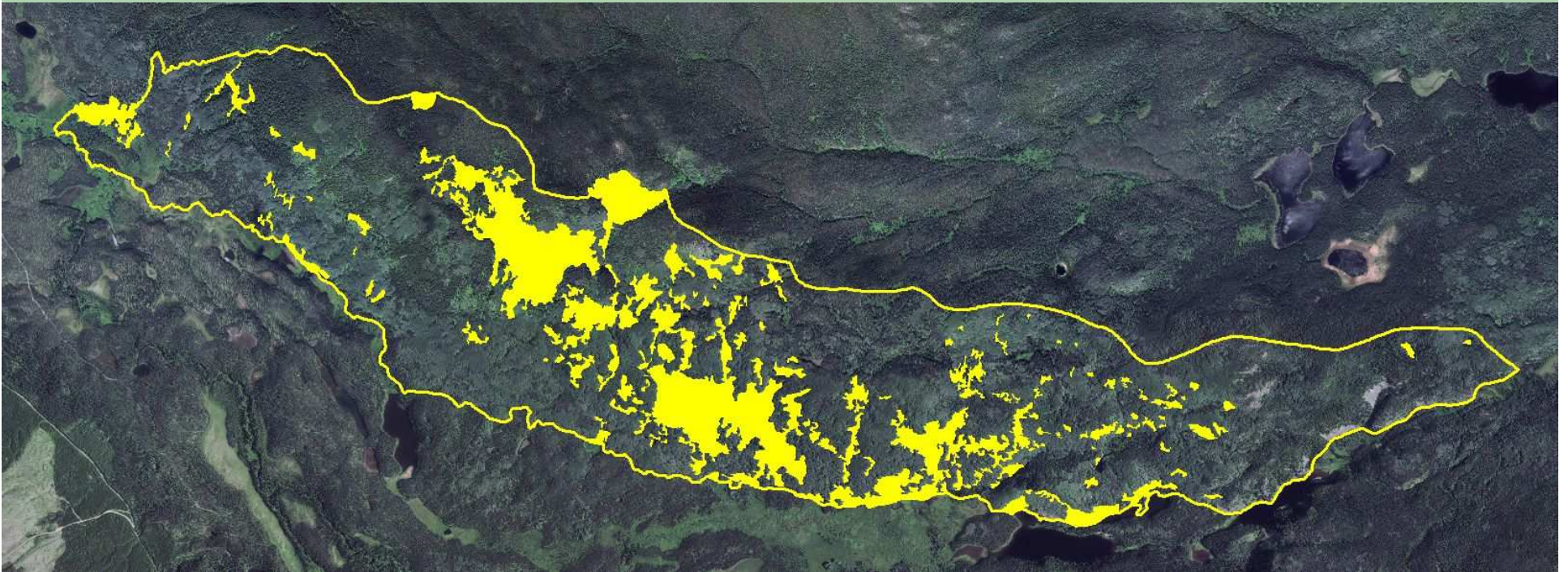
Key Map



(source: Vanderhoof LRMP)

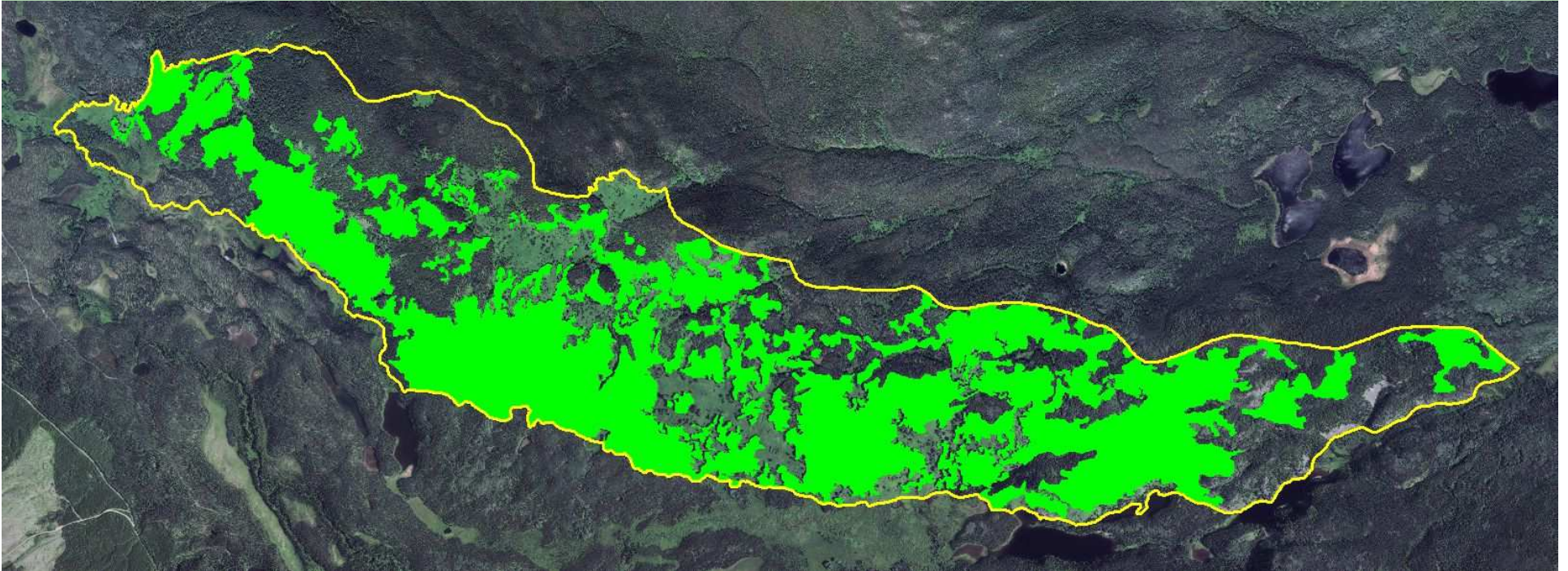


Shrubland / Grassland Areas



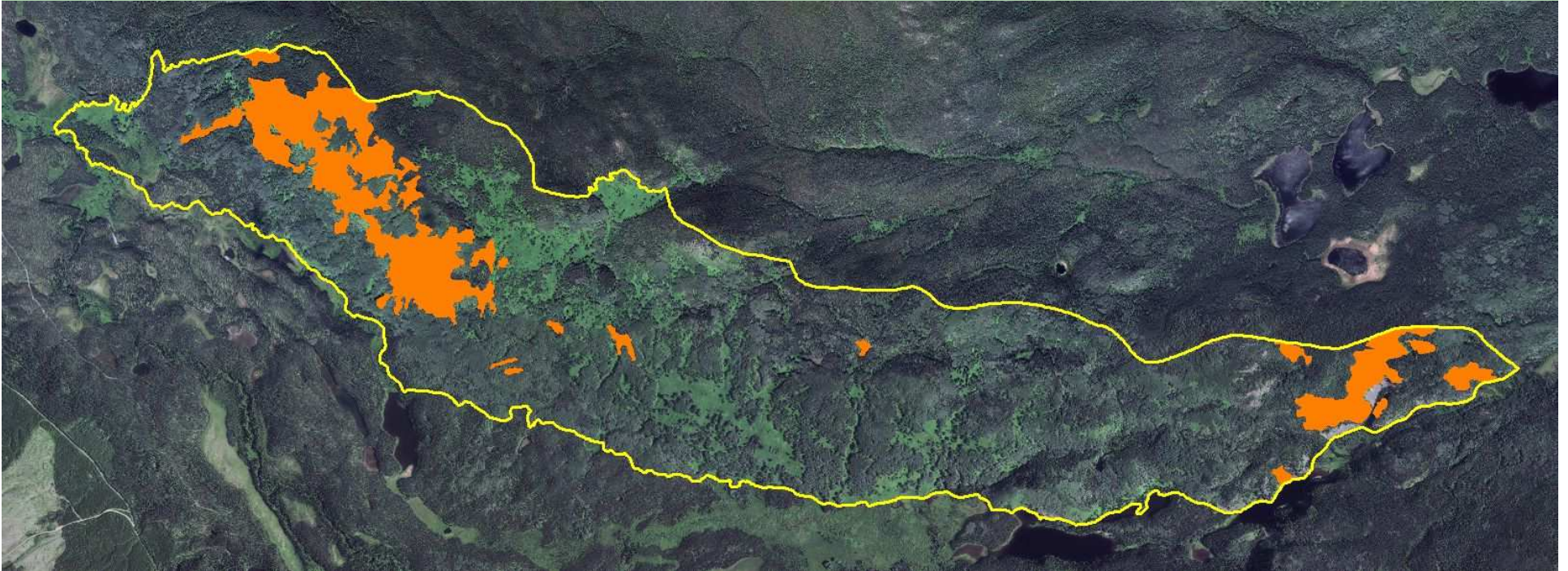
15%

Aspen Areas



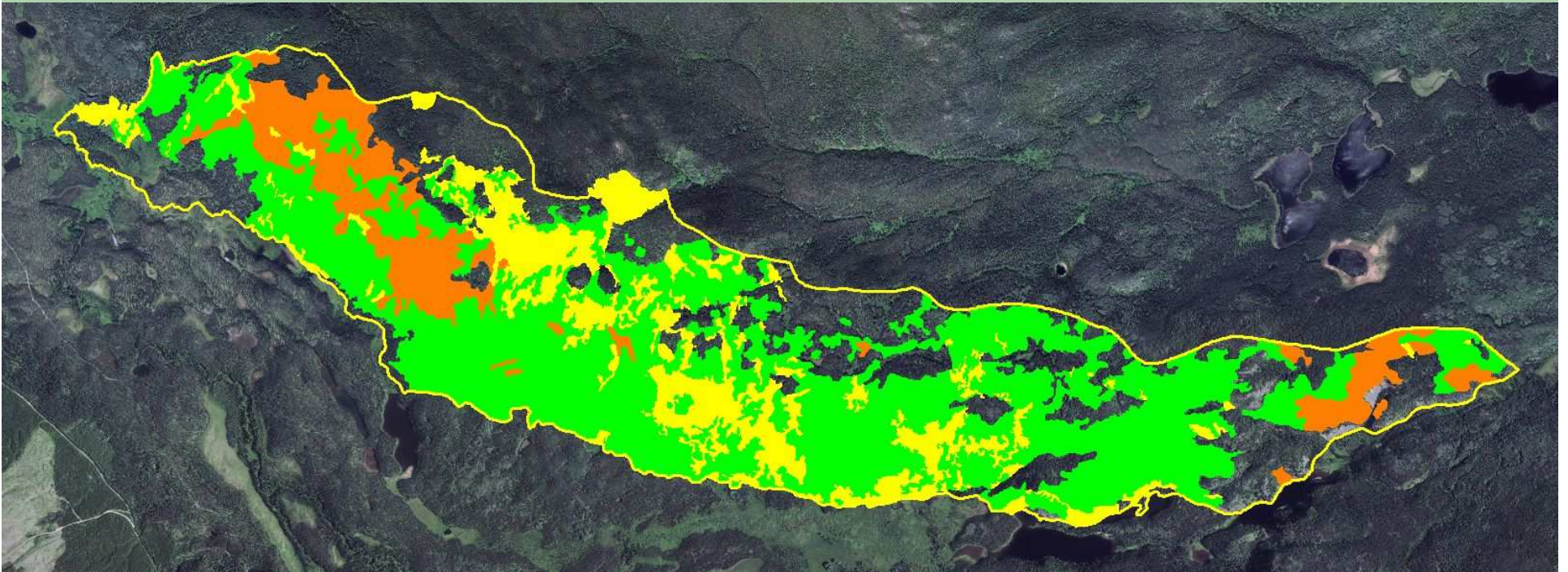
45%

Douglas-fir Areas



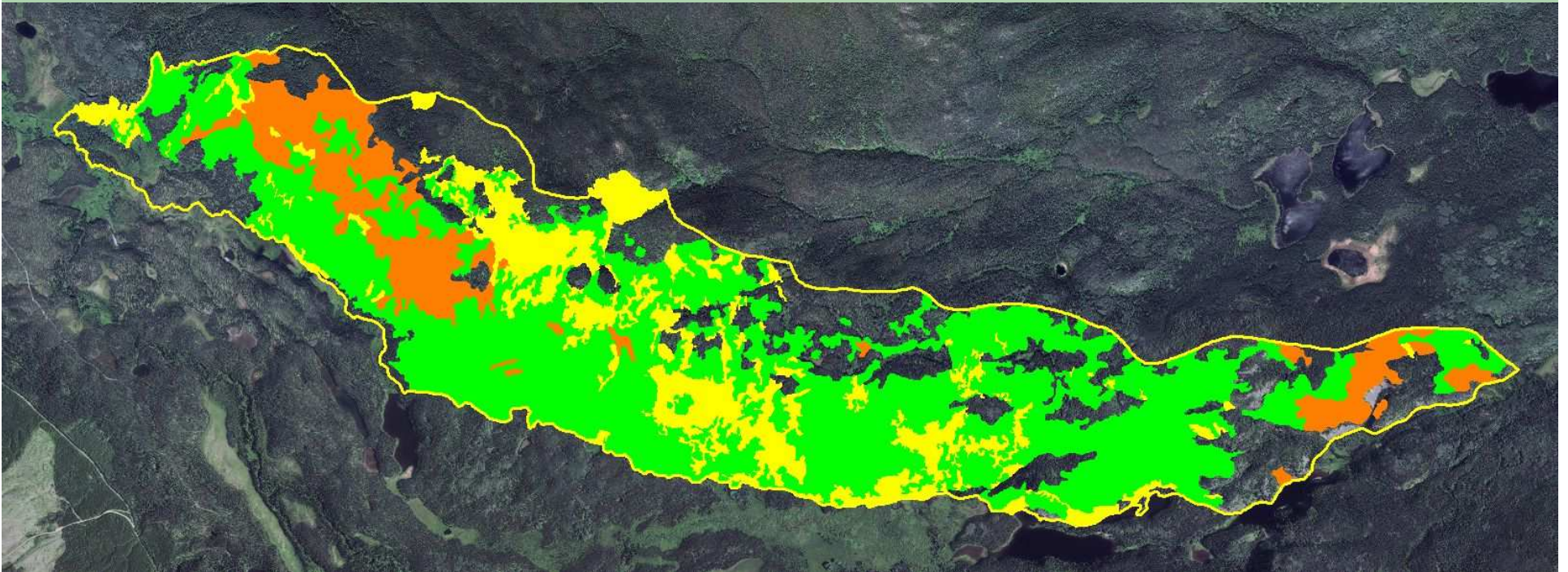
10%

Shrubland, Aspen and Douglas-fir Areas



70%

What's the Concern?



Fire suppression -> Undesirable change in age class distribution and species composition;

Aspen encroachment -> decrease forage value, displace grasslands.

Management Direction Statement Strategies:

Develop a fire management plan;

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maintain natural fire cycles of fire-dependent
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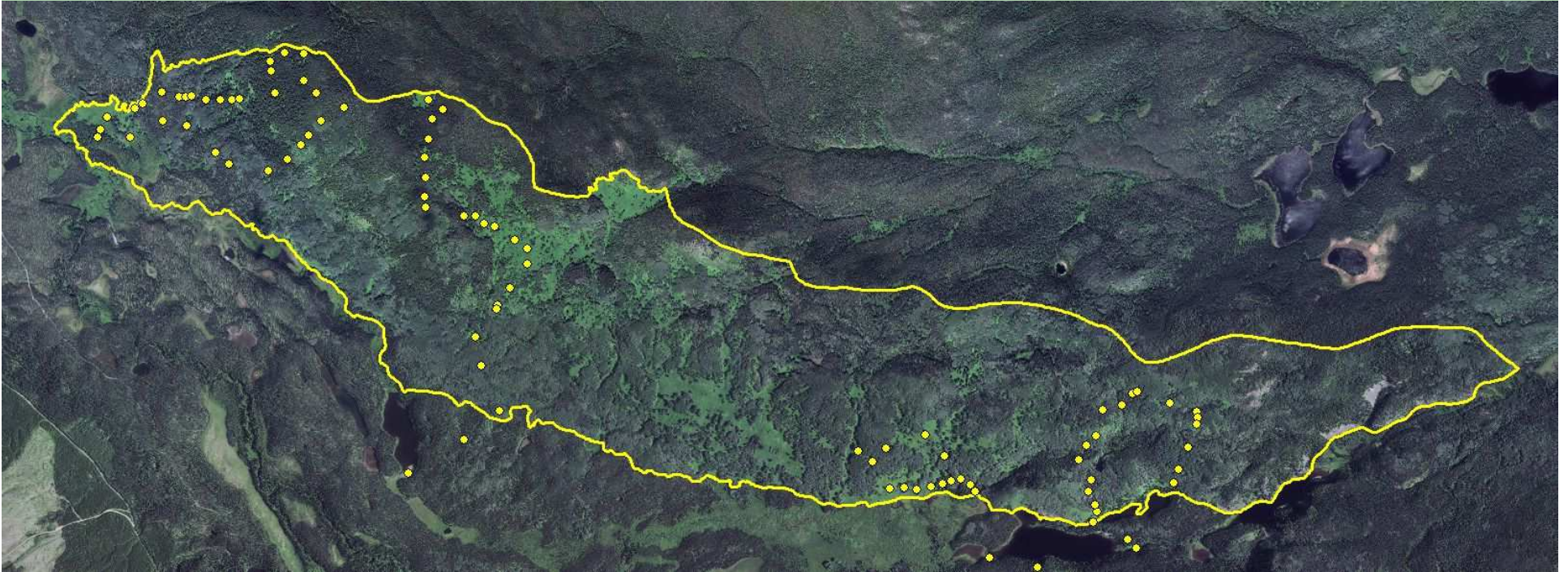
Consider manual brushing (including hinging) to prevent aspen encroachment of grassland and scrub-steppe ecosystems

Fire History - 1928

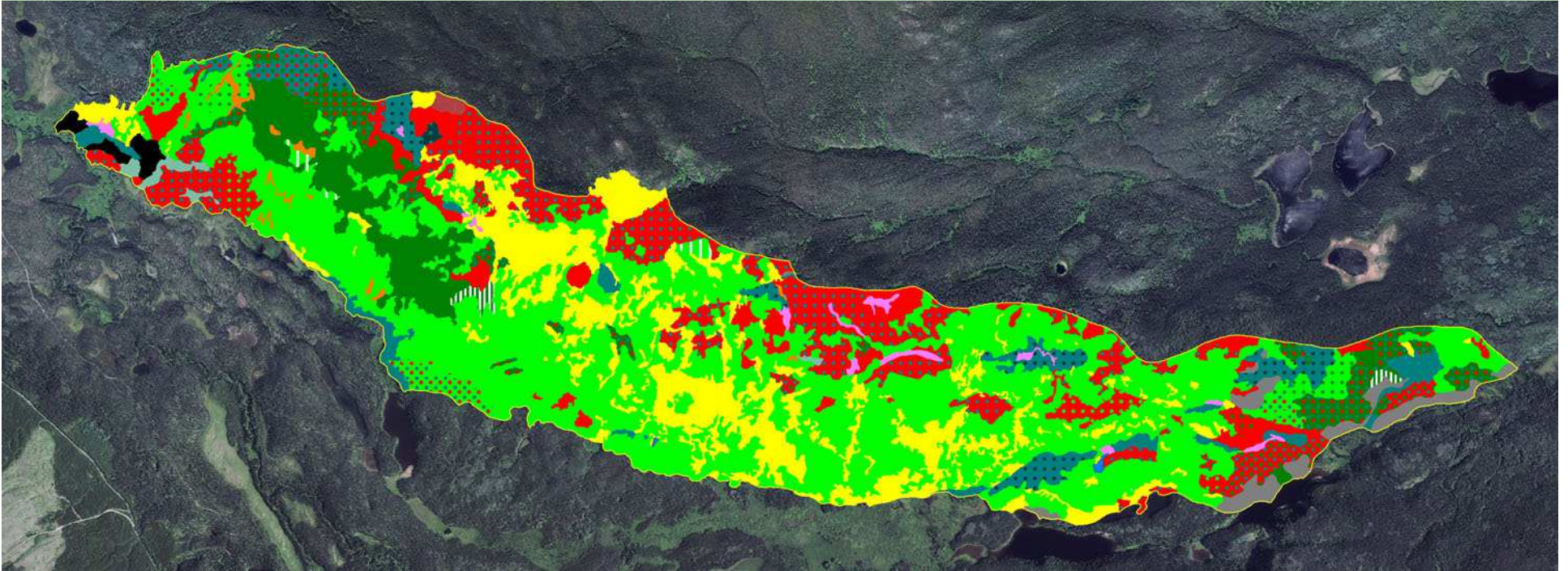


This area is from the fire database.

Field Reconnaissance (2014)

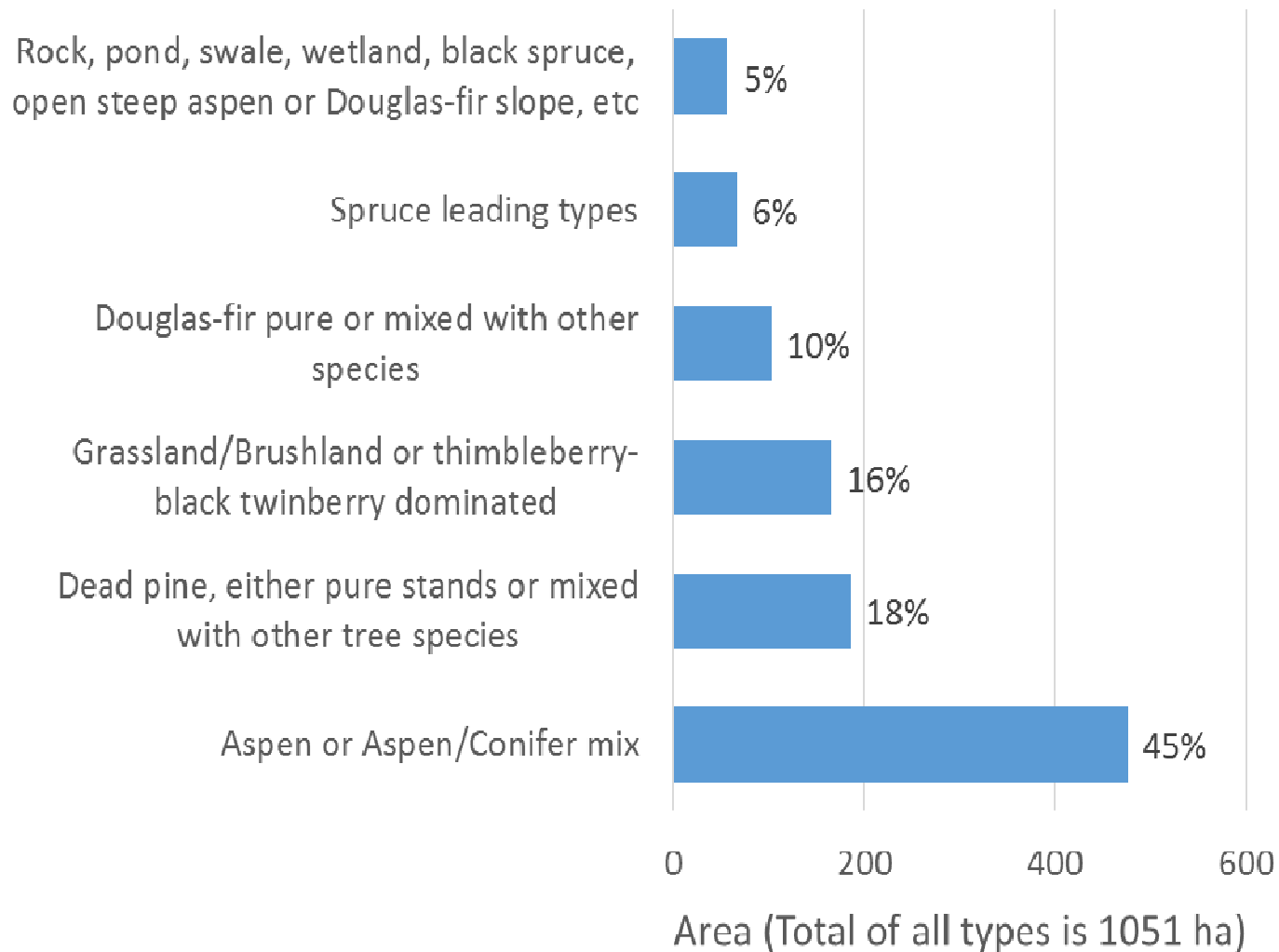


Stratification and Interpretation



Results

Area by Vegetation/Cover Type

































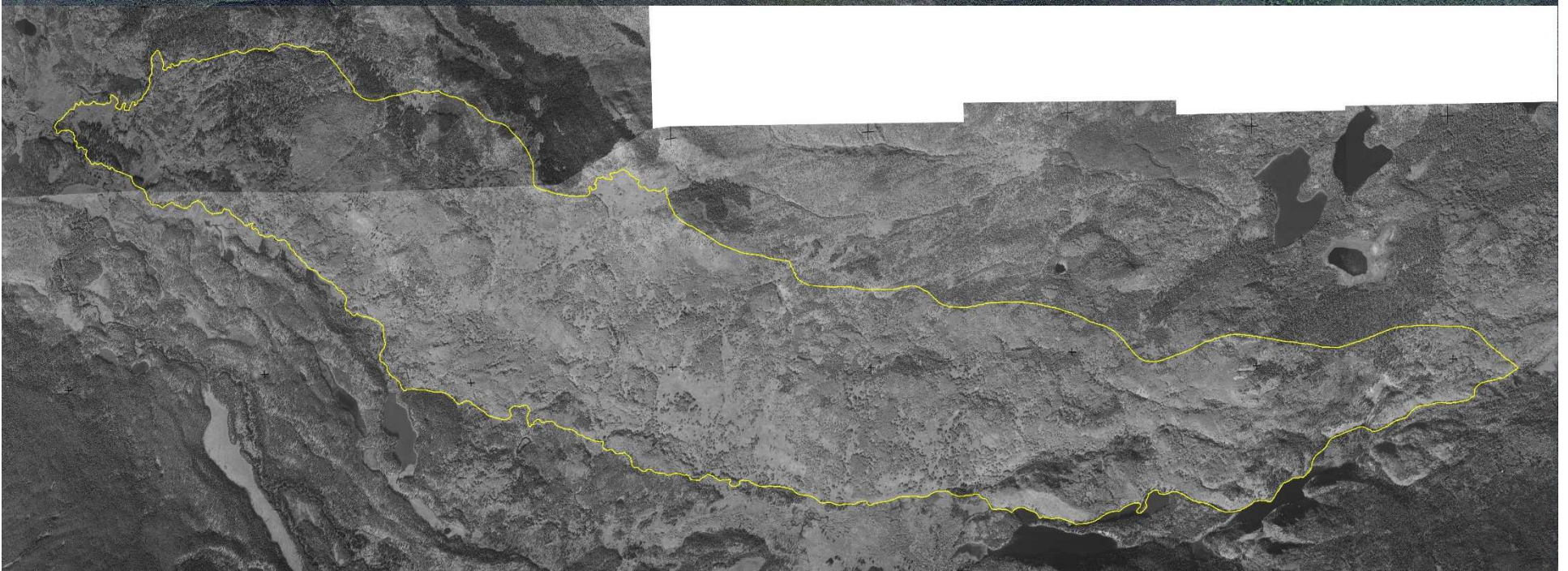




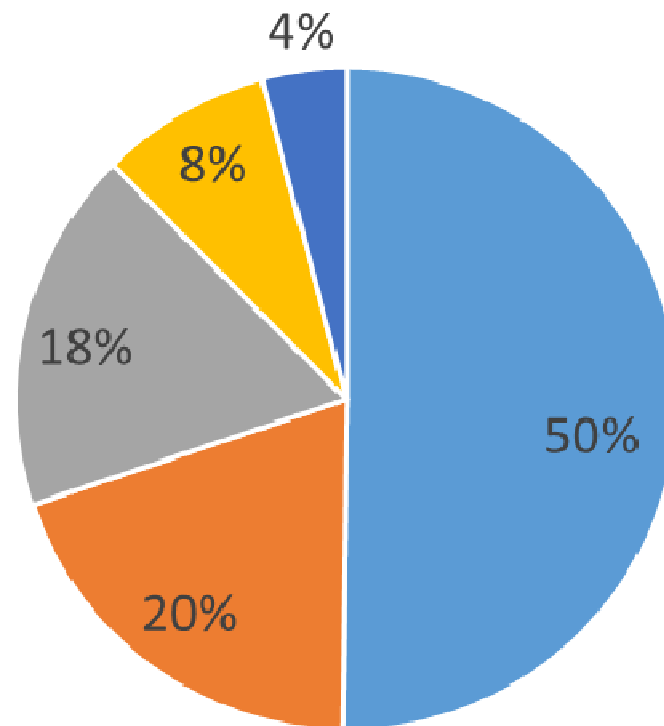




1960 Images for historic perspective

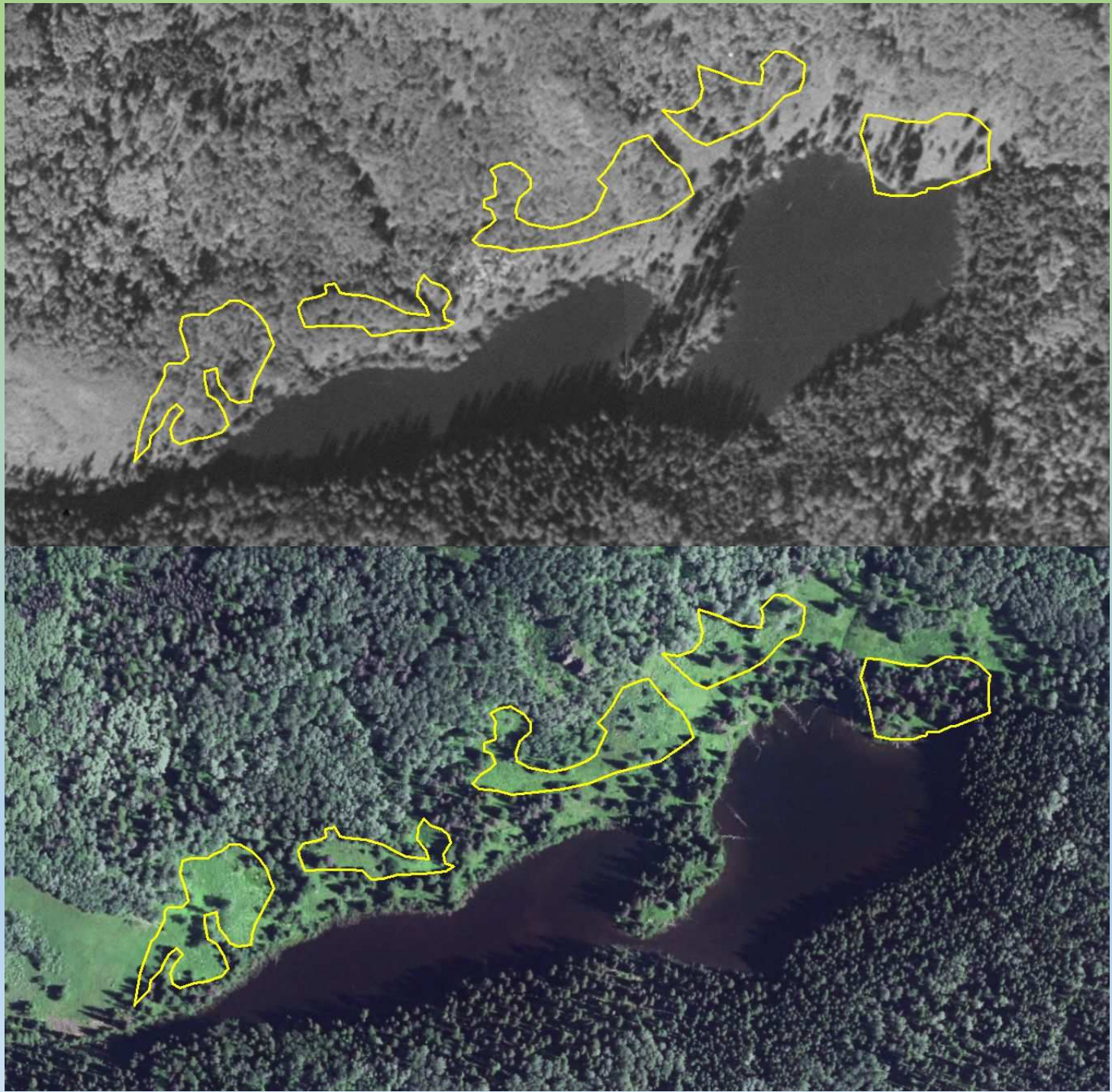


Overstory Type Changes Between 1960 and 2012

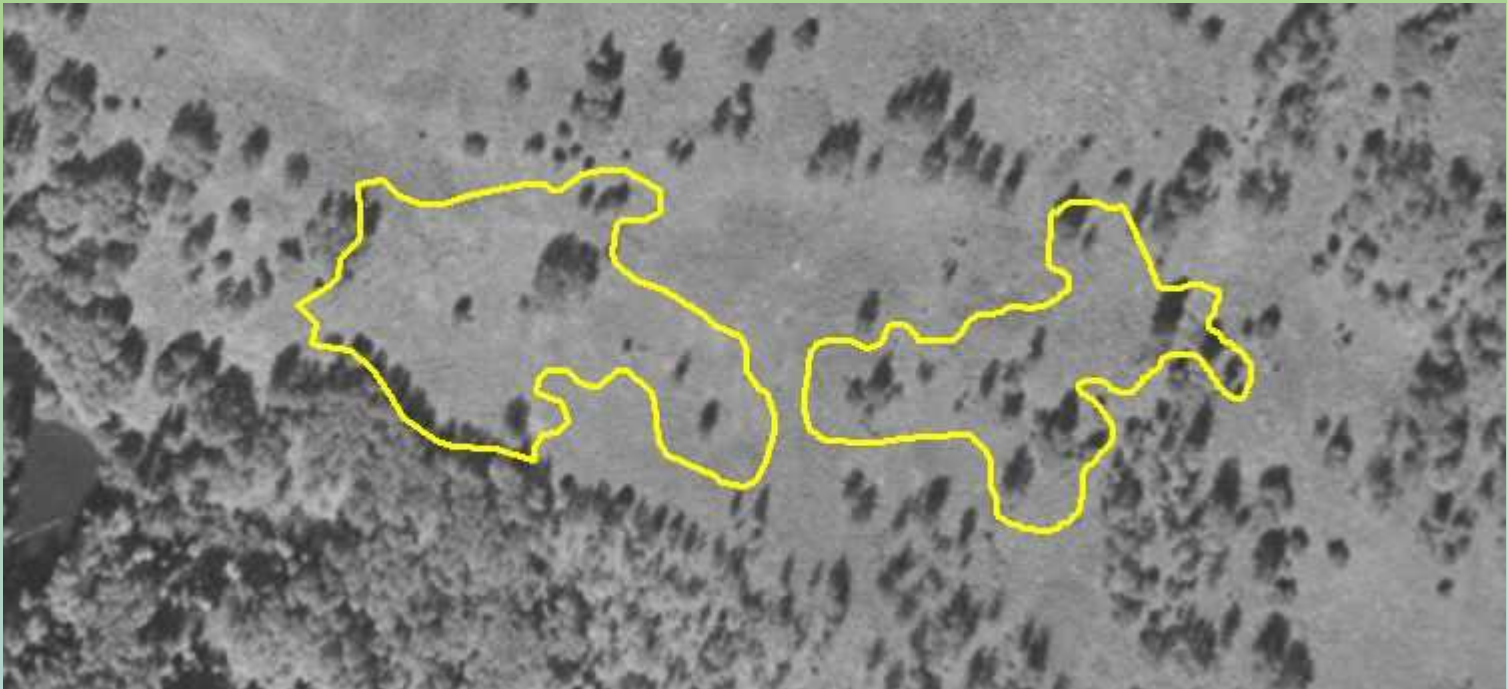


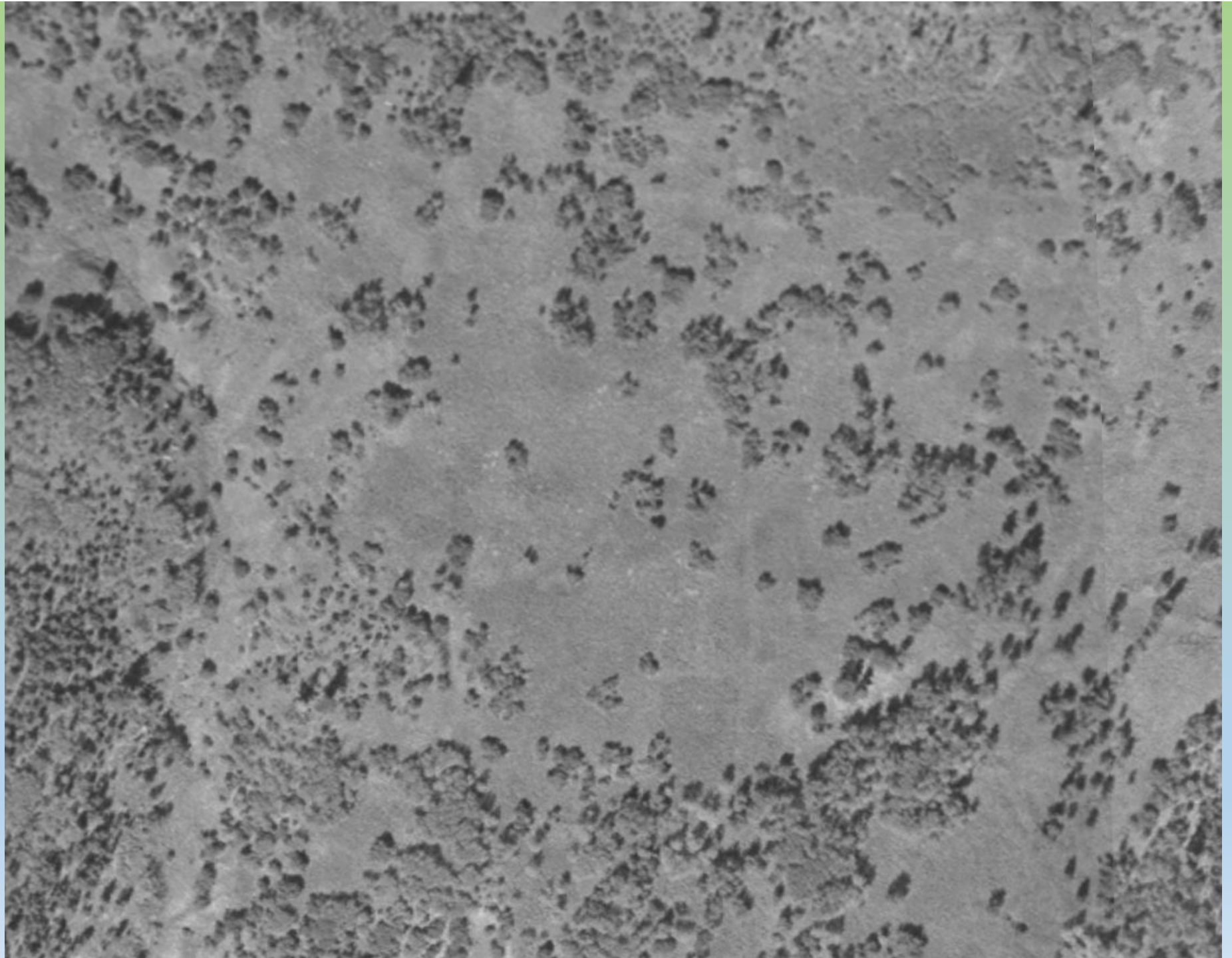
- Aspen to Open
- Grassland to aspen or willow
- Timber to Brush
- Grassland to Conifer
- Brush to Conifer

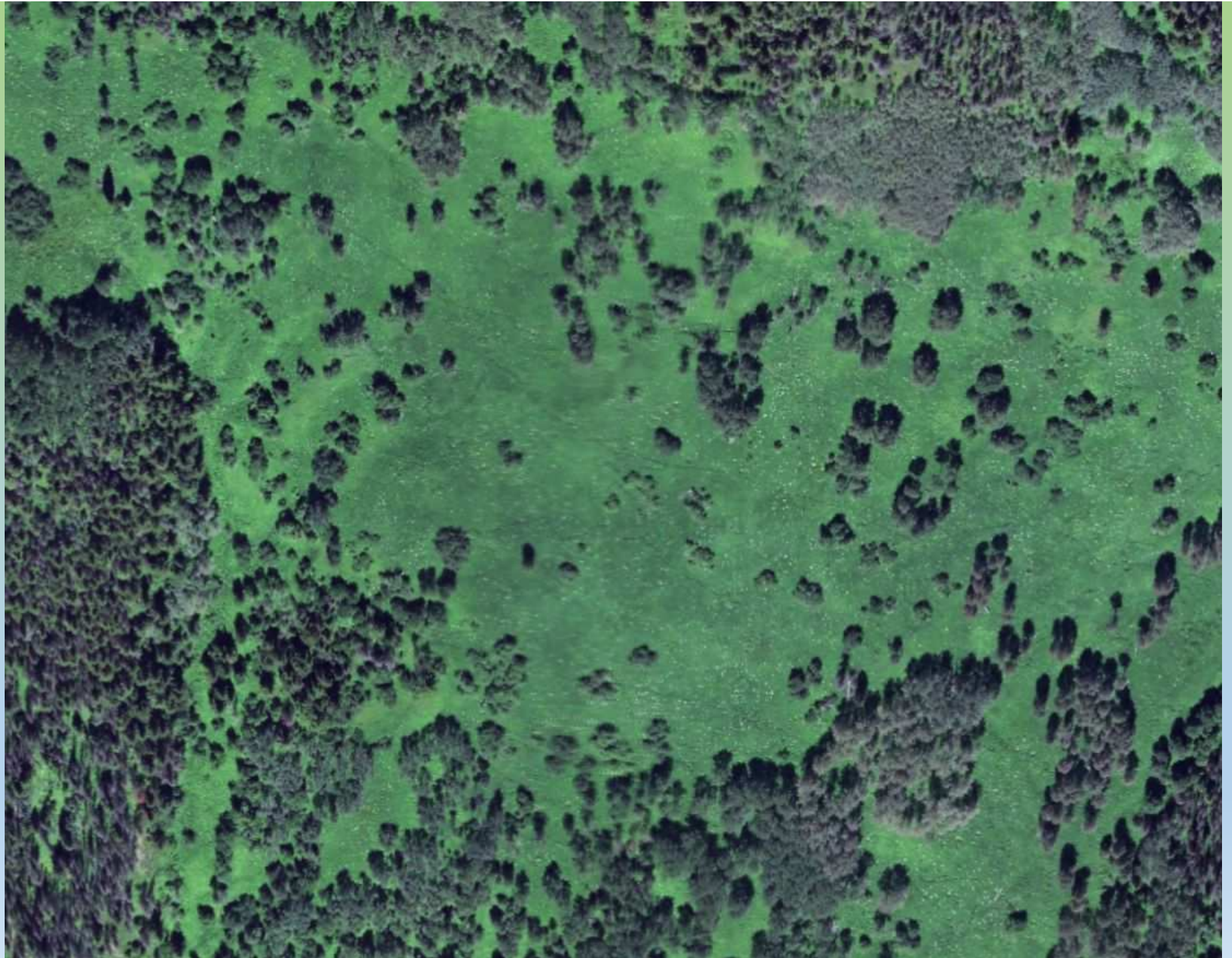
Total Area
Affected was
9 ha











2015 Discussion; Grassland/Shrubland/Aspen Complex

Open areas seem to have been stable for over 50 years without maintenance fires.

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- 1) High intensity browsing prevents aspen encroachment

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- 1) High intensity browsing prevents aspen encroachment
- 2) Dense shrub and grass communities hinder conifer invasion on most sites, but...

2015 Discussion; Grassland/Shrubland/Aspen Complex

We do not know what the distribution of shrubs versus grasses would be today had maintenance fires been conducted in this time.

2015 Discussion; Grassland/Shrubland/Aspen Complex

High edge/area ratio and complex shape of open areas is an important attribute.

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How did it arise, is it vulnerable?

2015 Discussion; Grassland/Shrubland/Aspen Complex

Not *immediately* vulnerable.

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Probably arose because of large fire

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Probably arose because of large fire

Suckering overwhelmed browsers allowing large areas to grow beyond browse height, thereby re-asserting a previous vegetation pattern on the landscape.

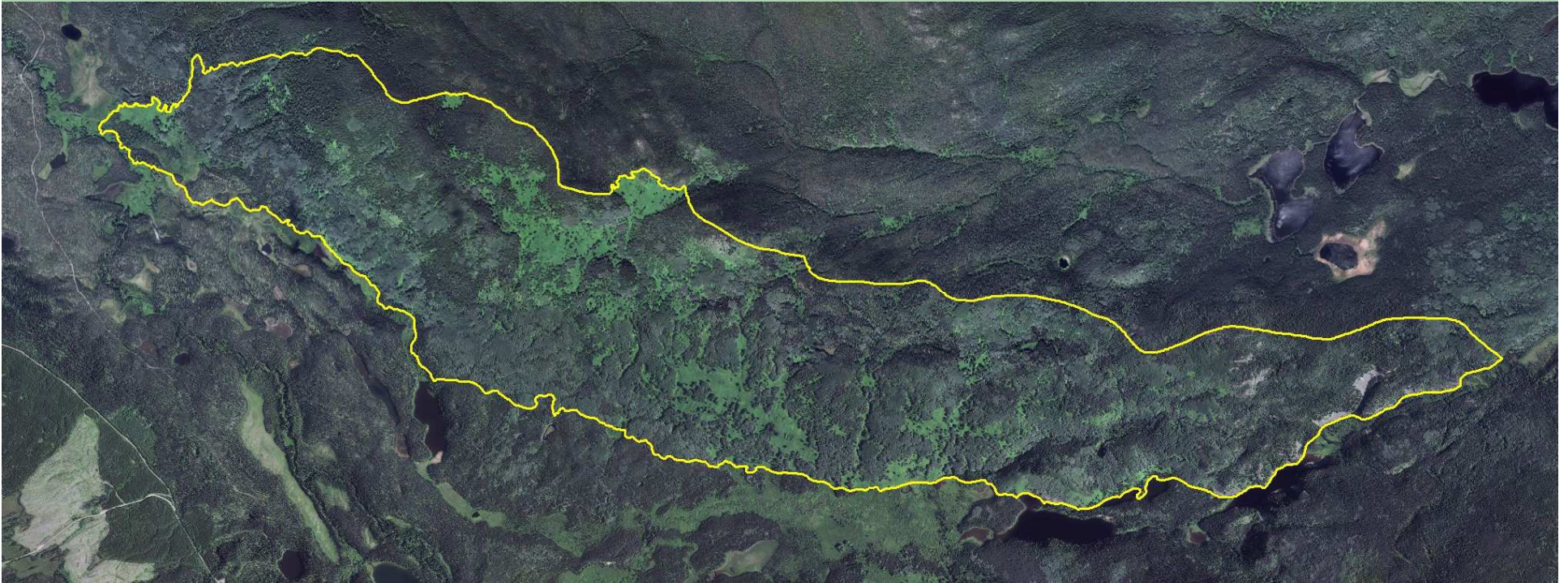
2015 Discussion; Grassland/Shrubland/Aspen Complex

We have a departure from a cycle that likely caused the pattern.

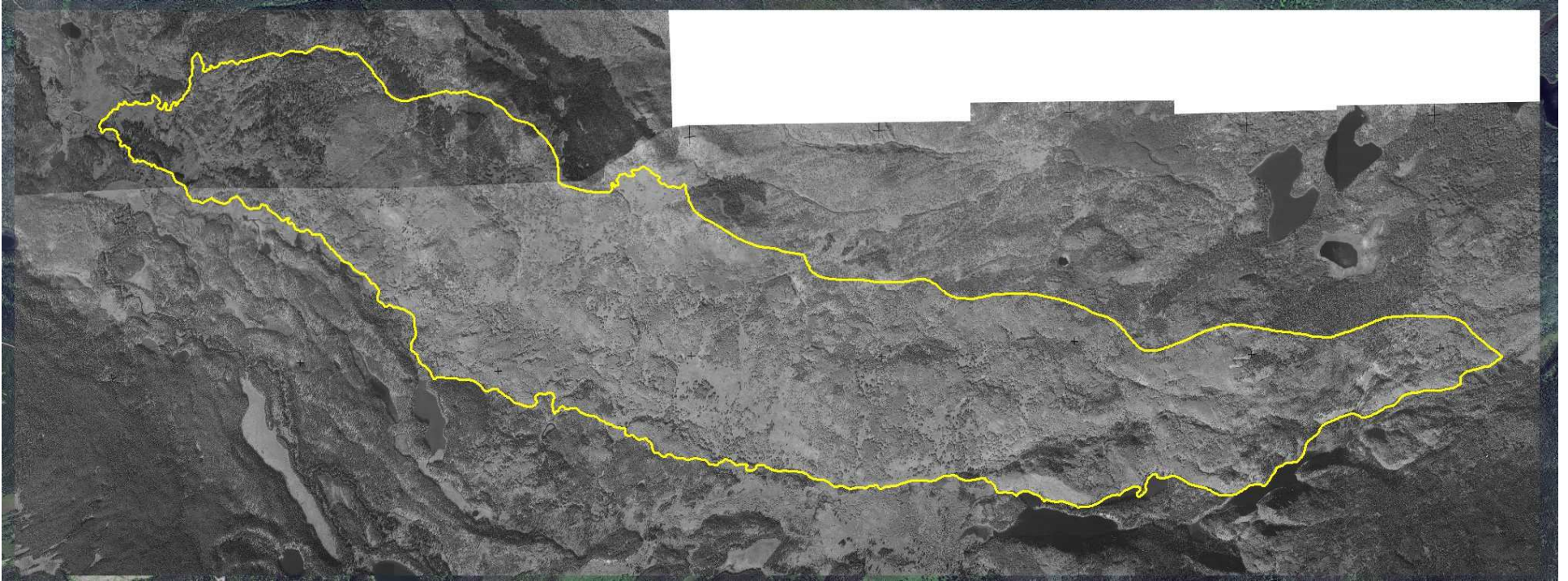
Concluded that a stand-replacing fire would eventually be needed, but easier said than done.

Deeper time details of that cycle were missing...

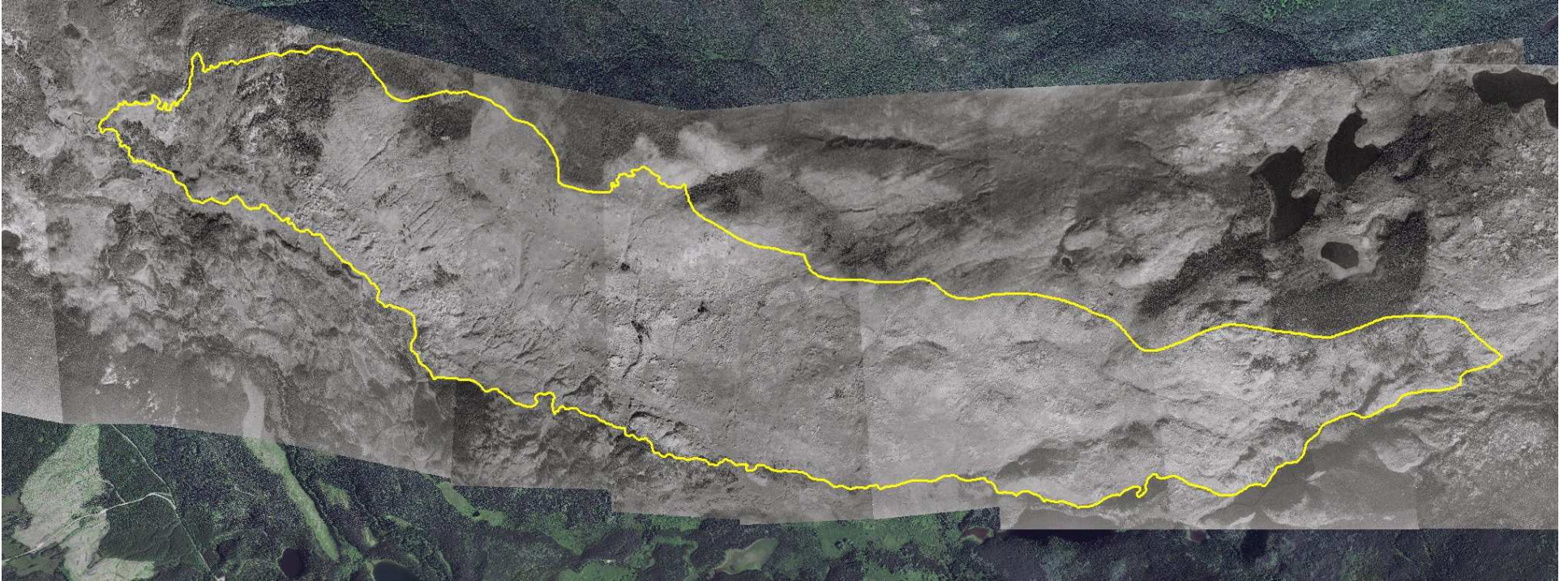
2012



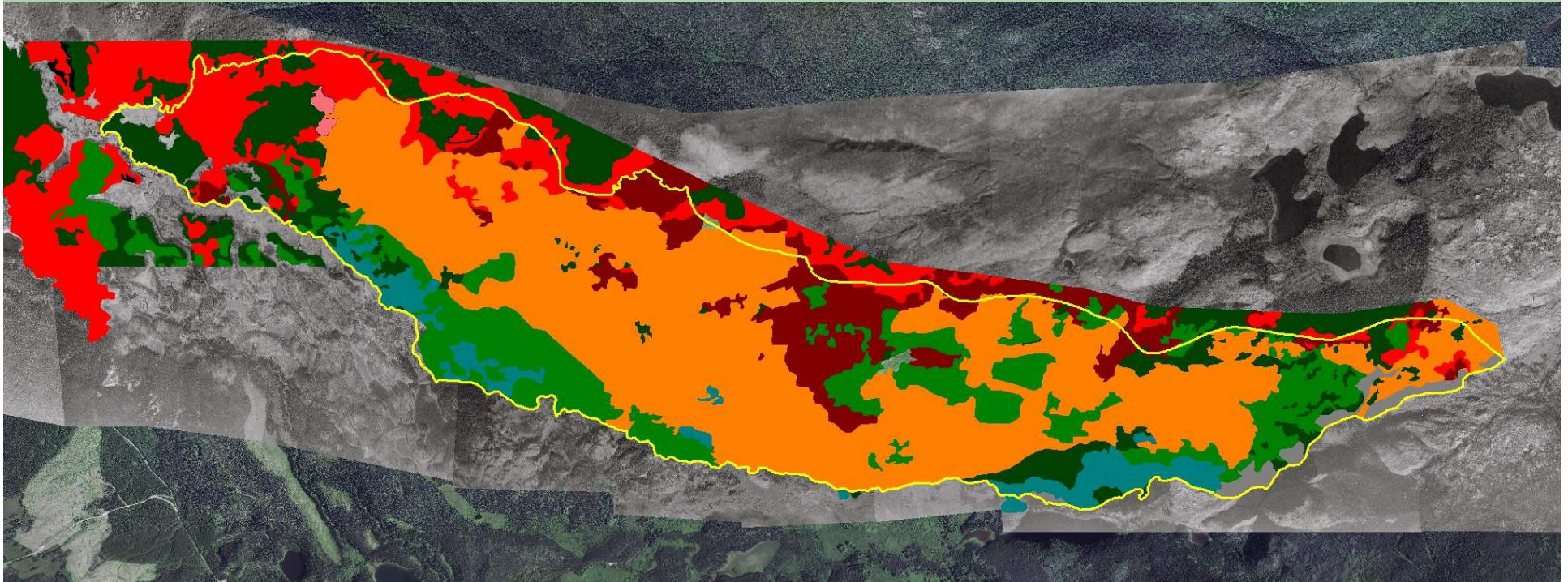
1960

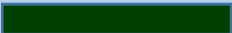
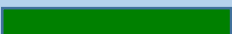



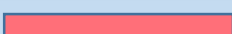



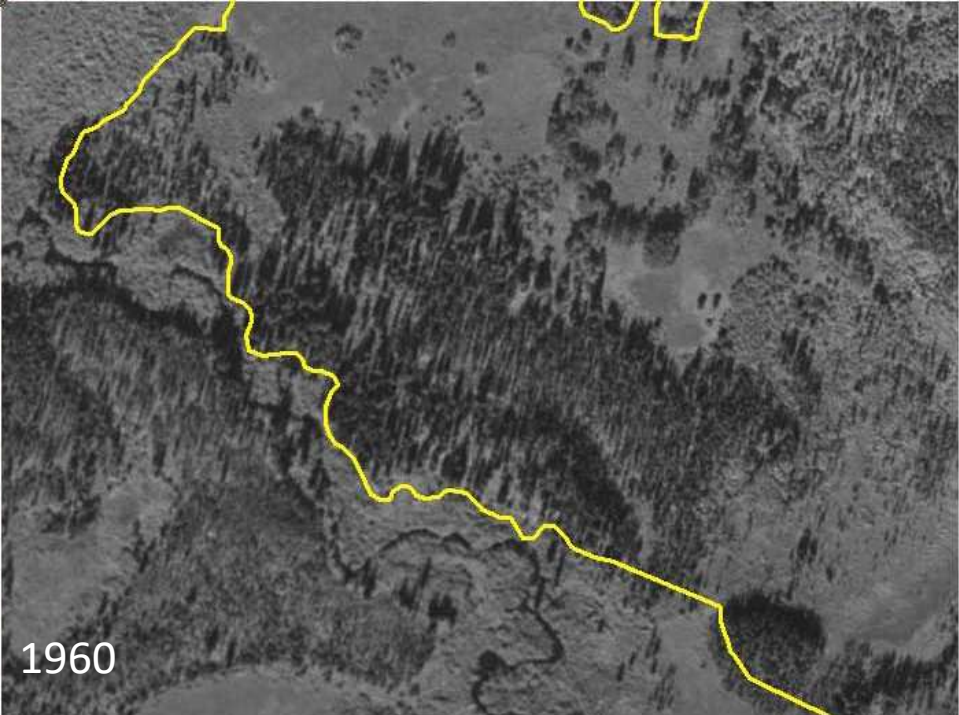
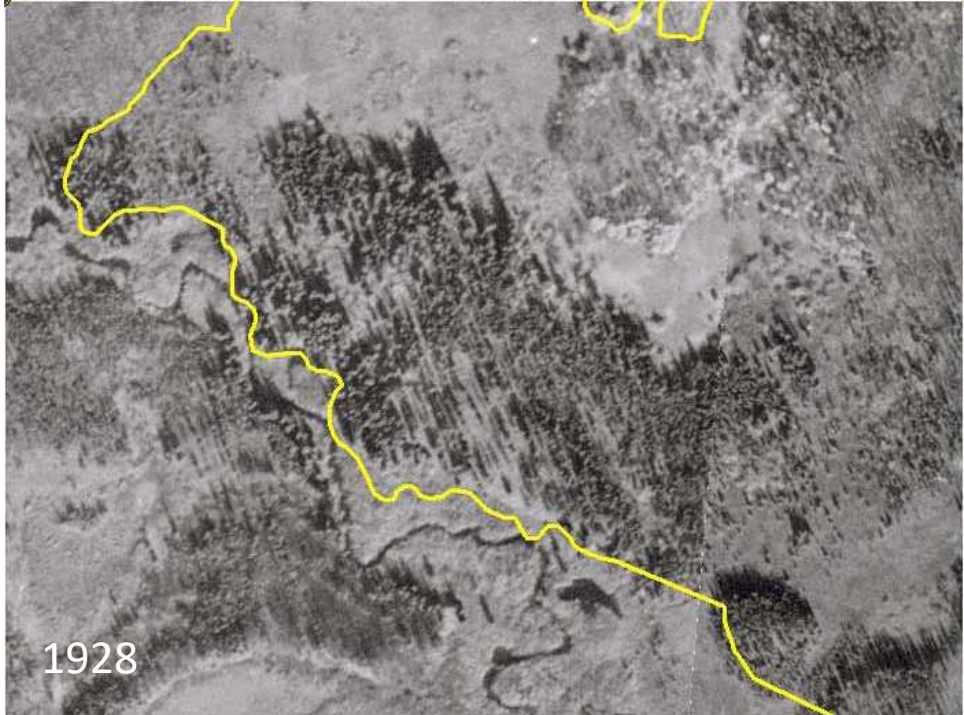
1928

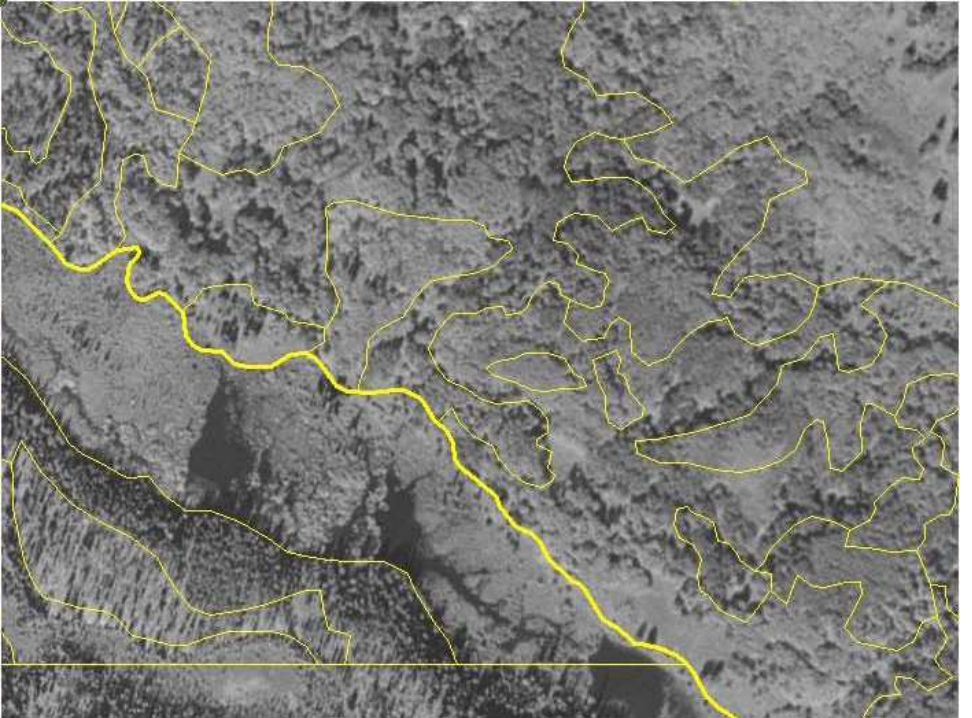
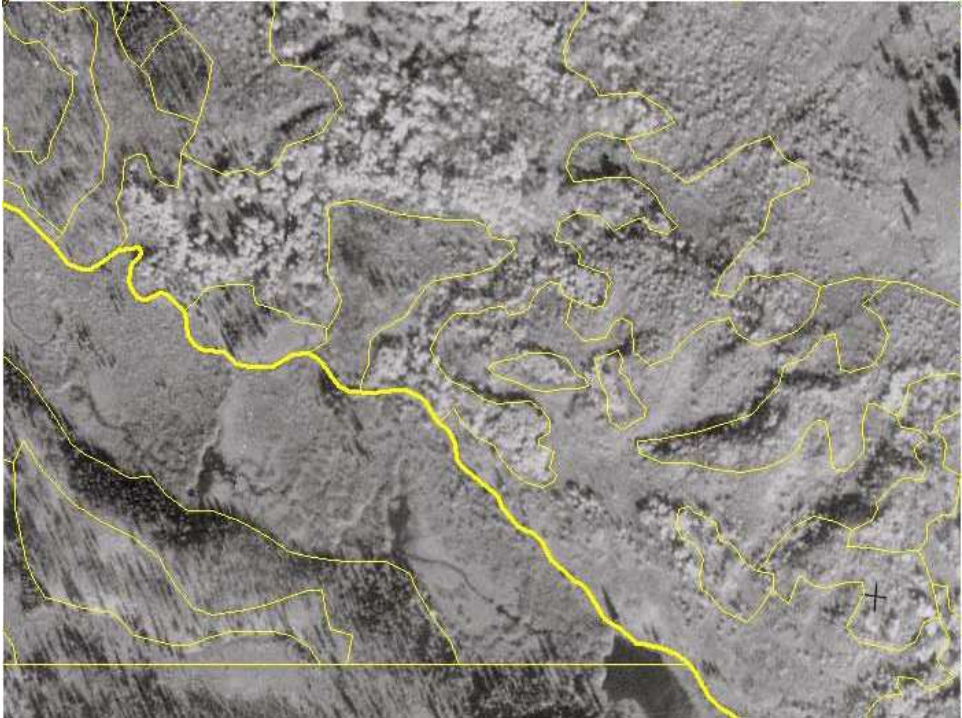
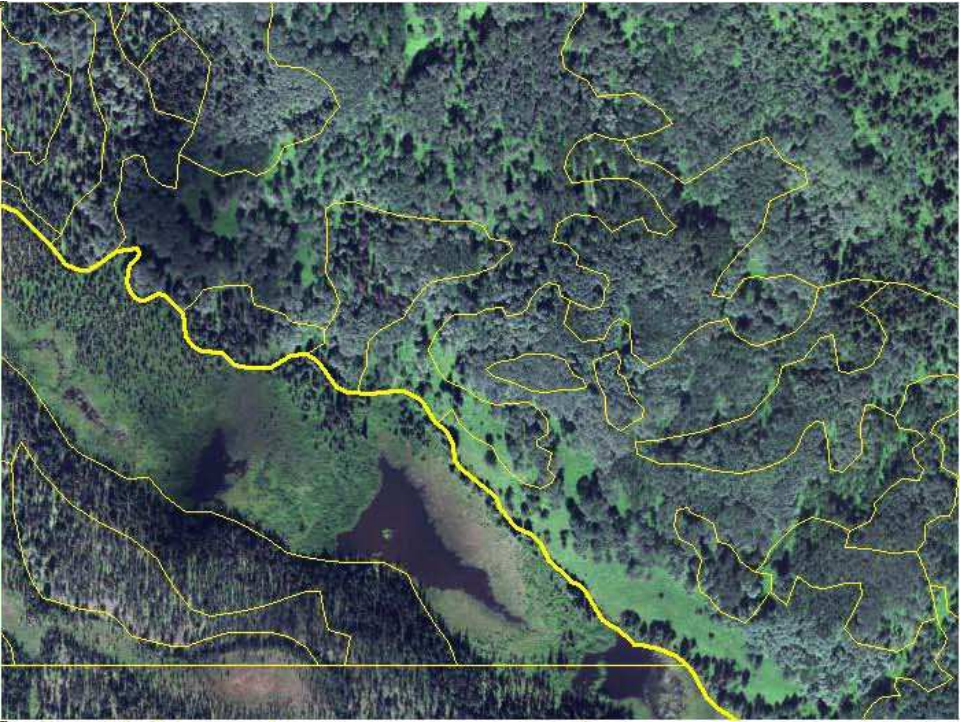
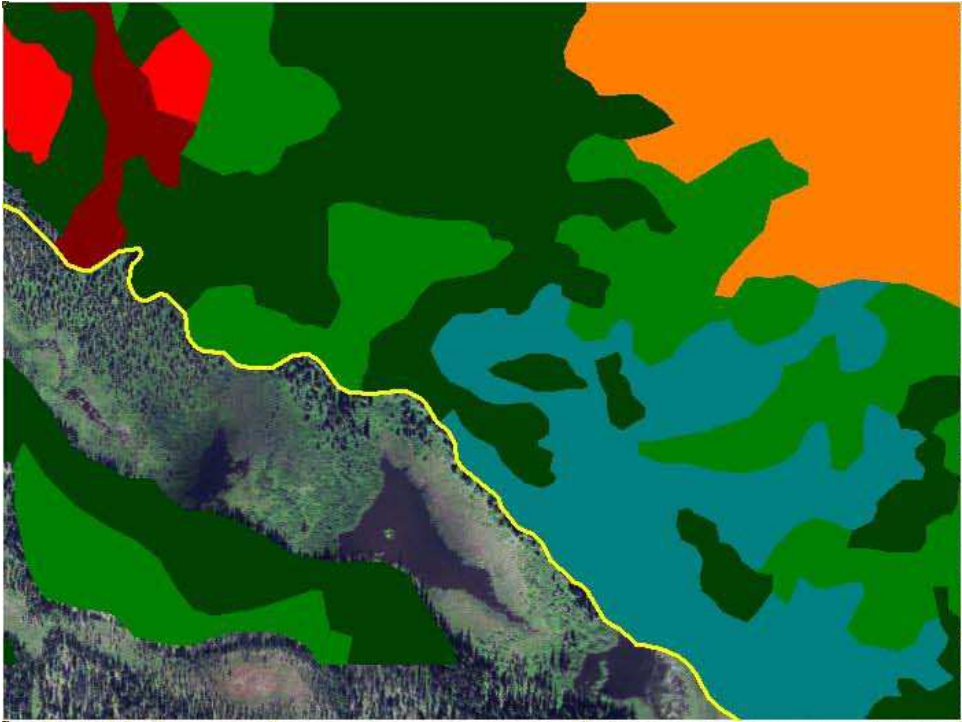


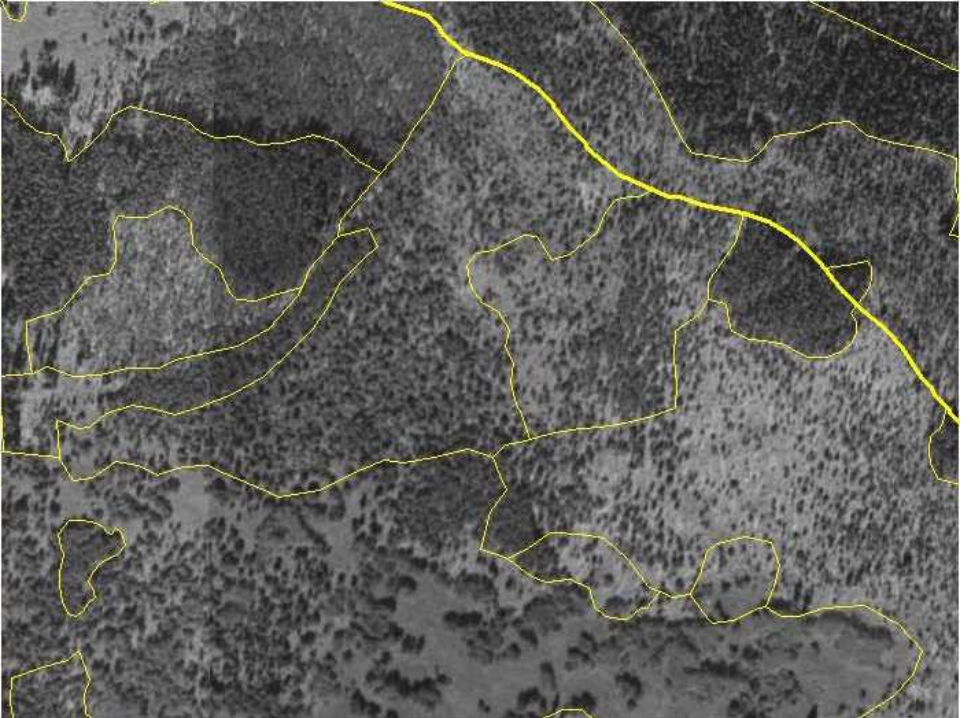
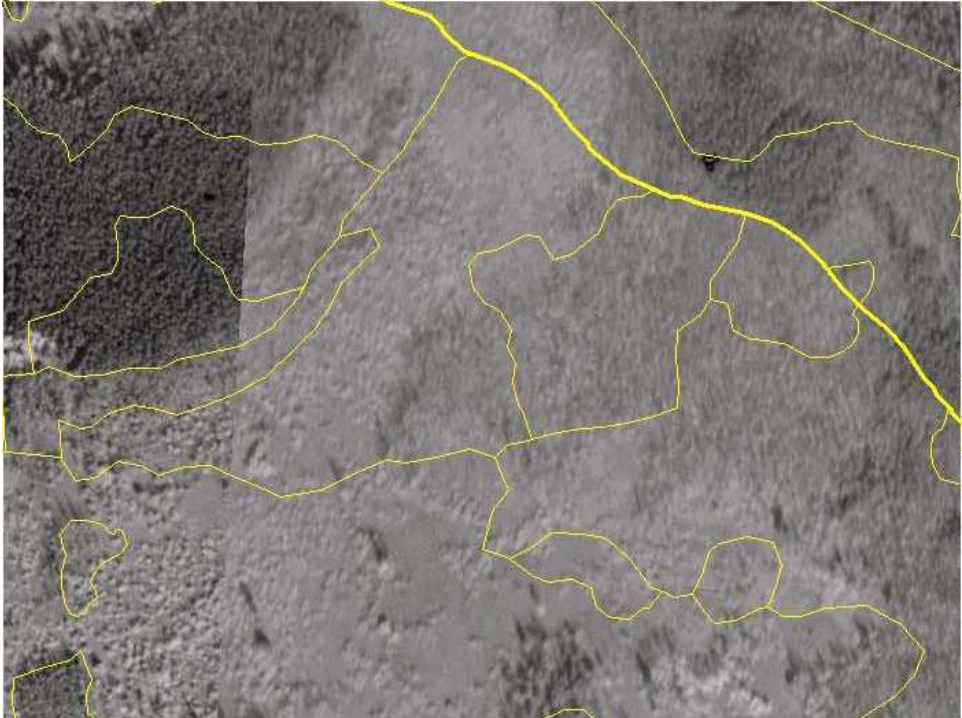
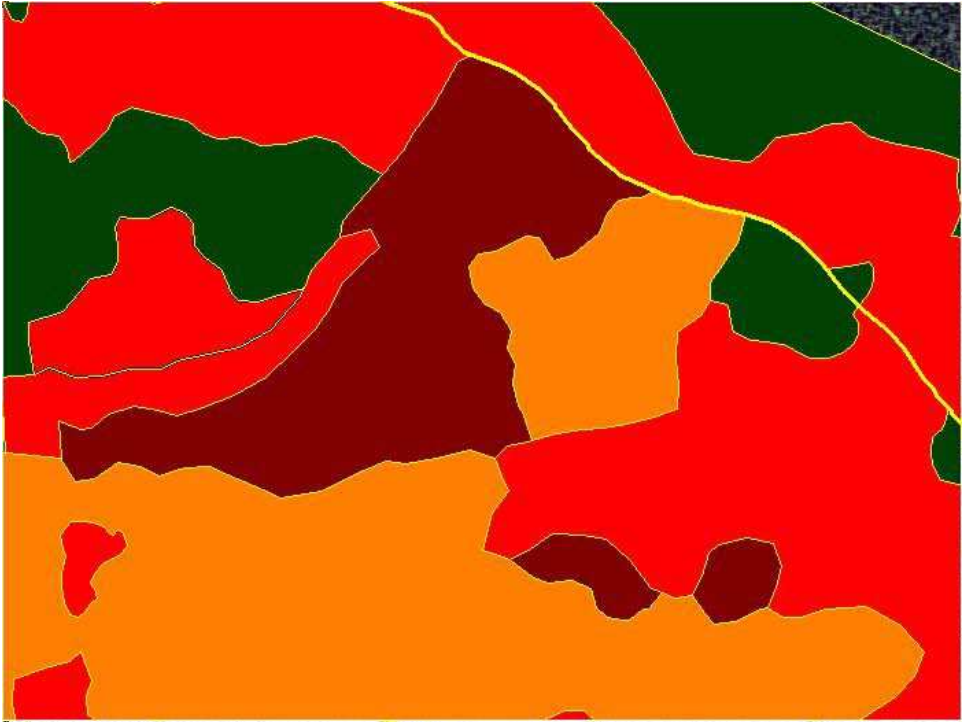
Interpretation of fire events

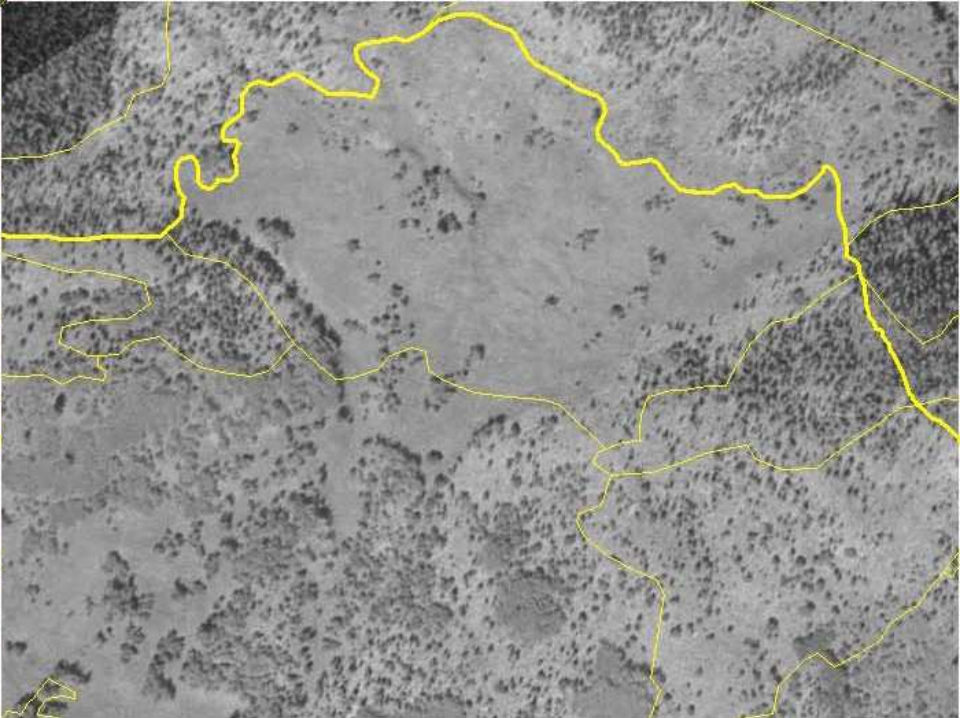
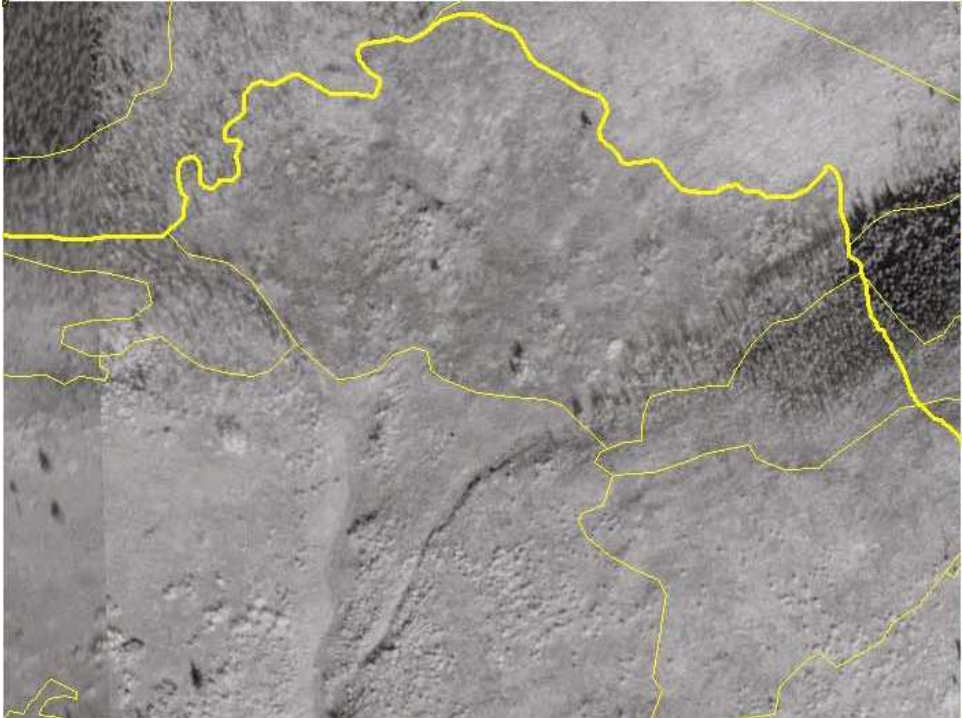
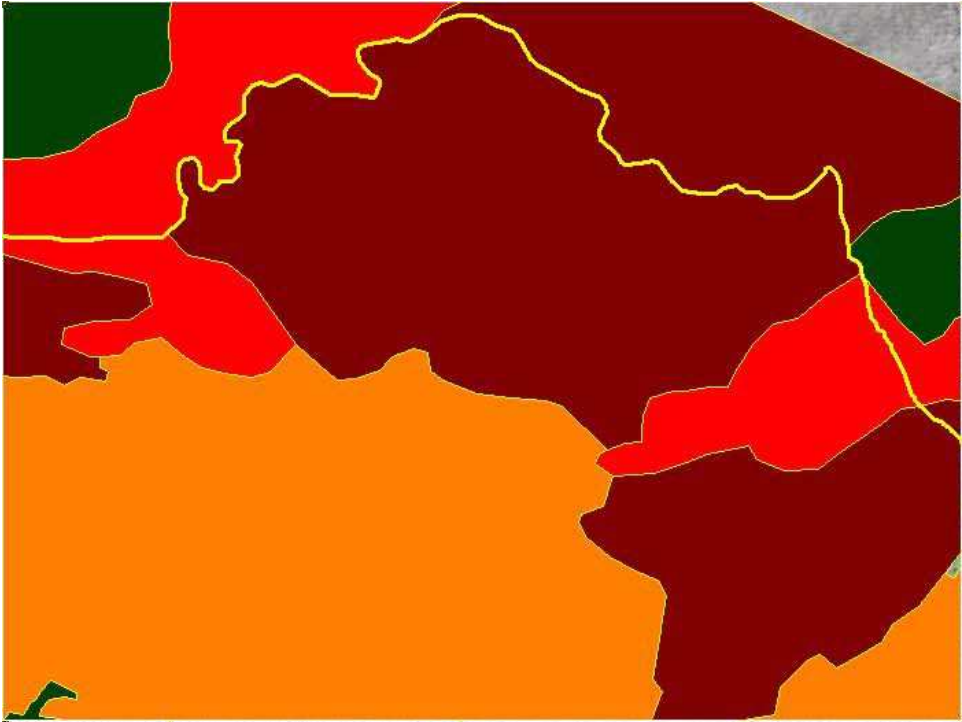


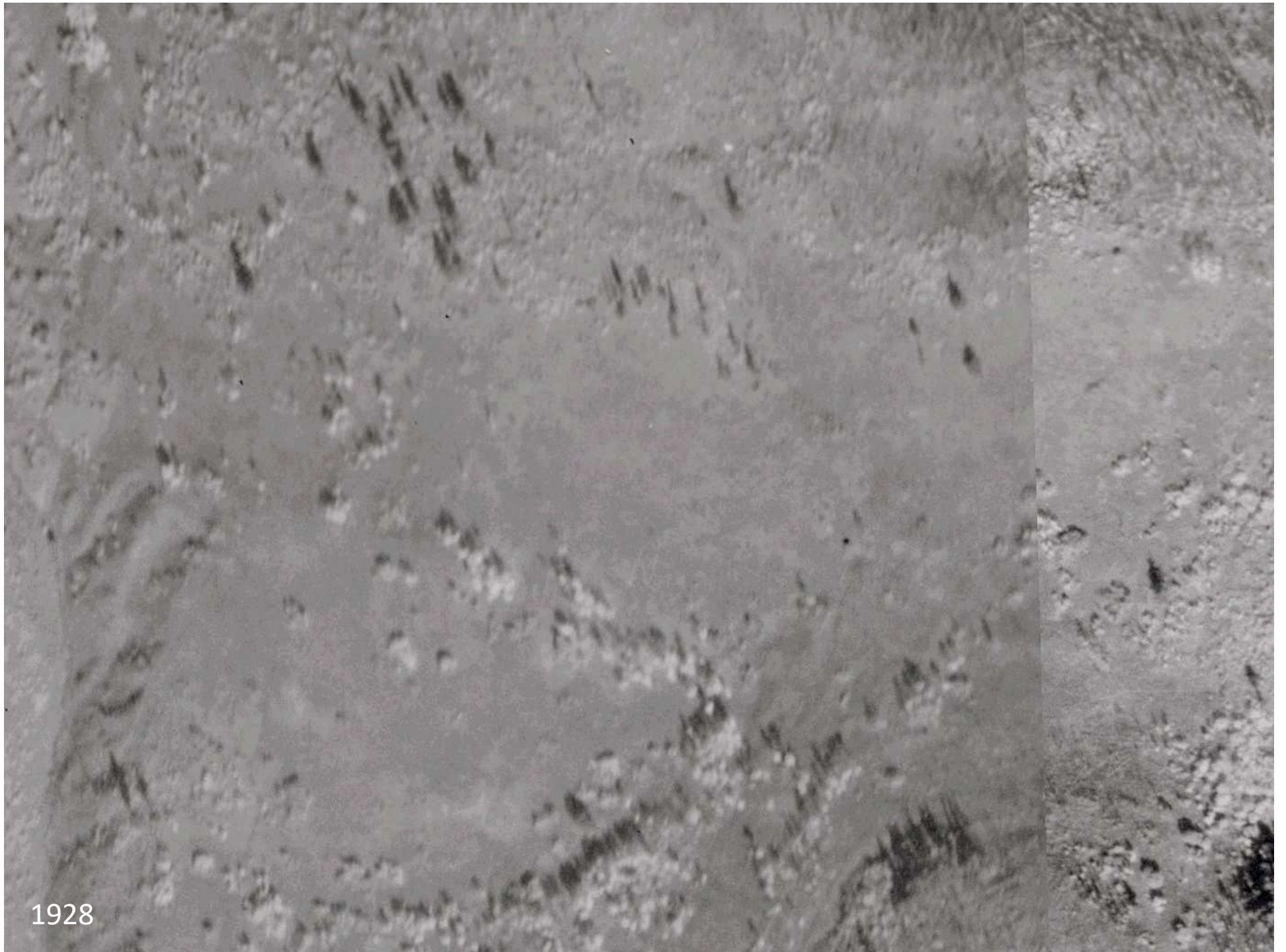
-  No burn since before 1900
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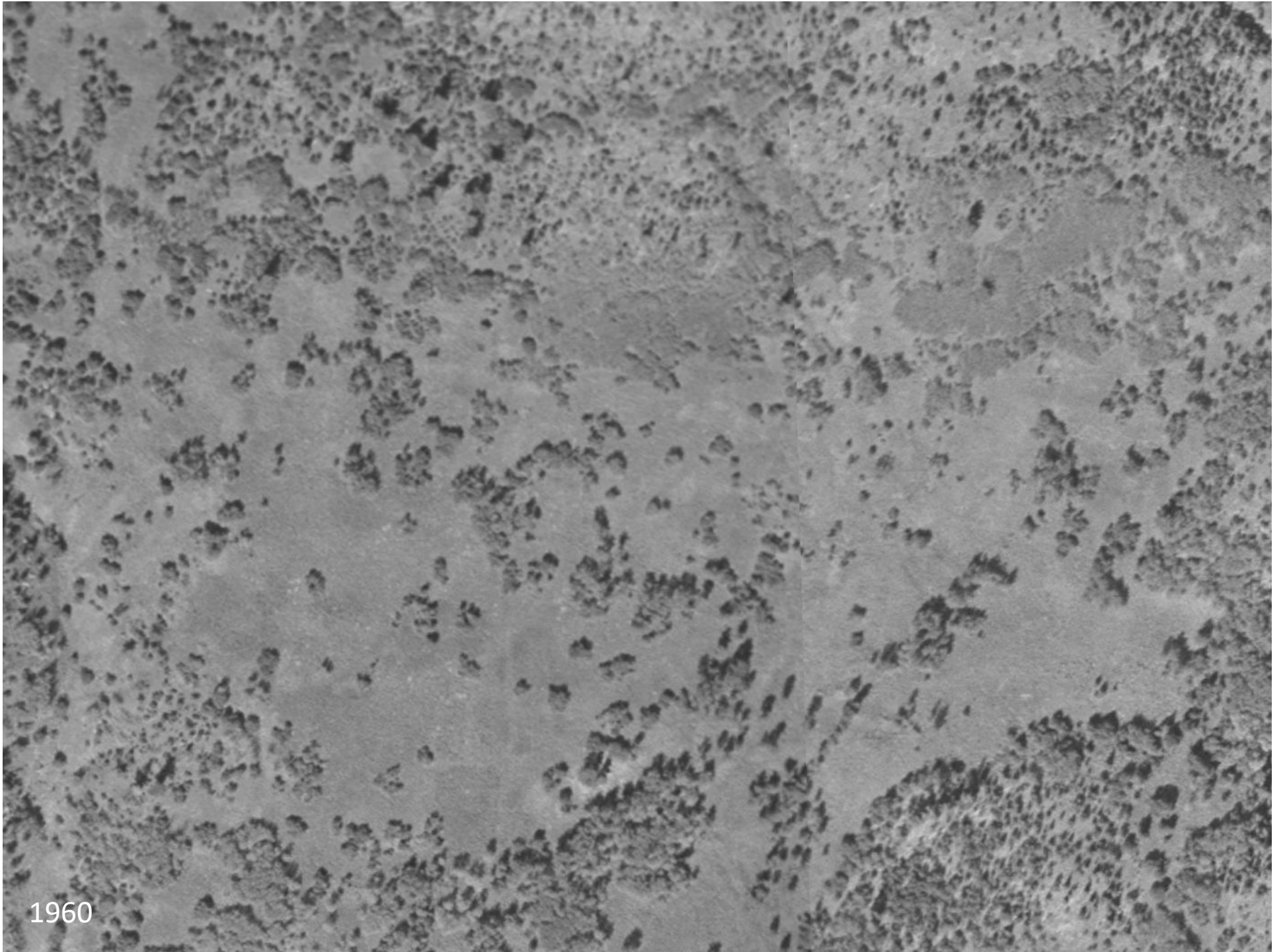




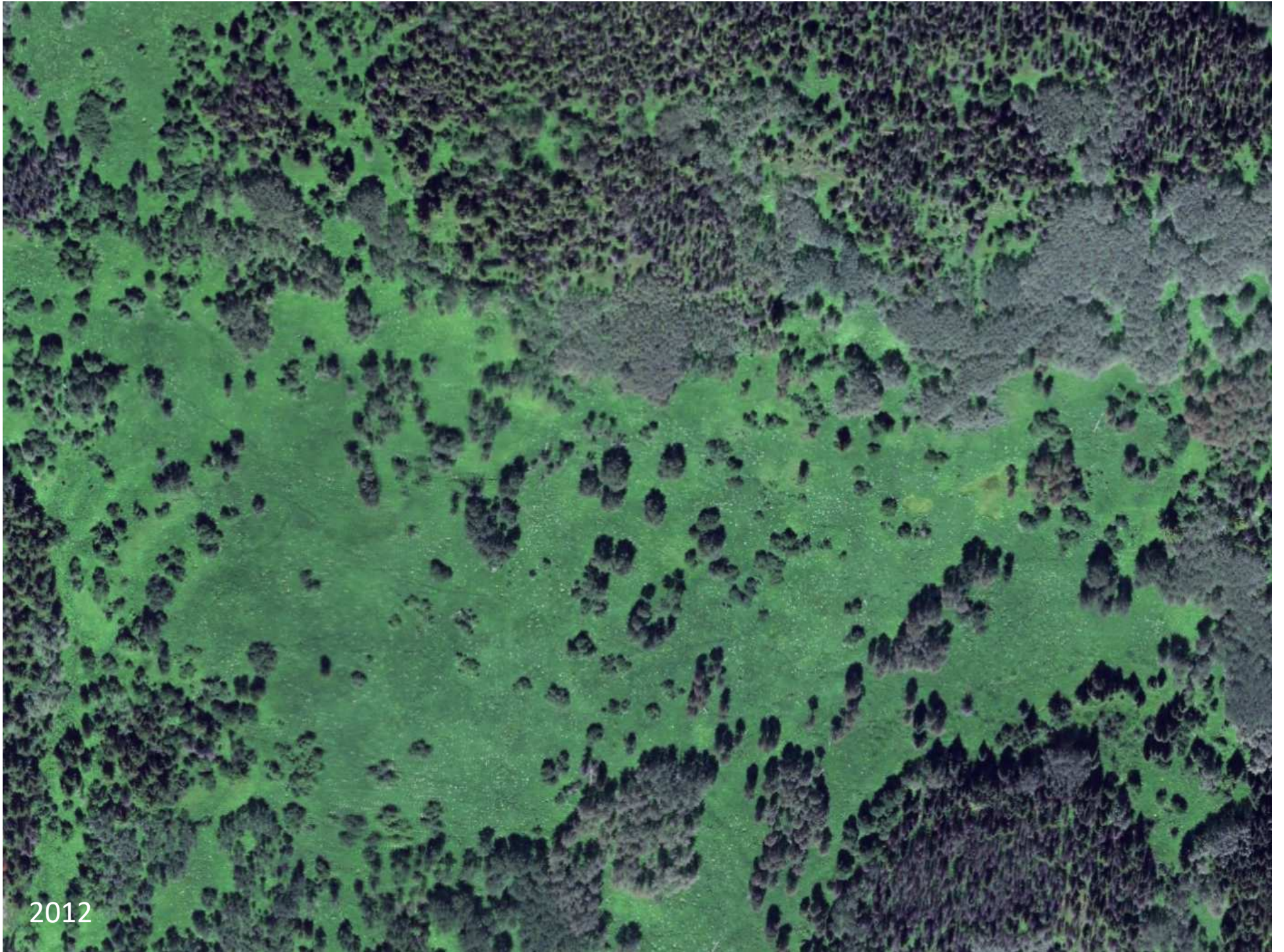




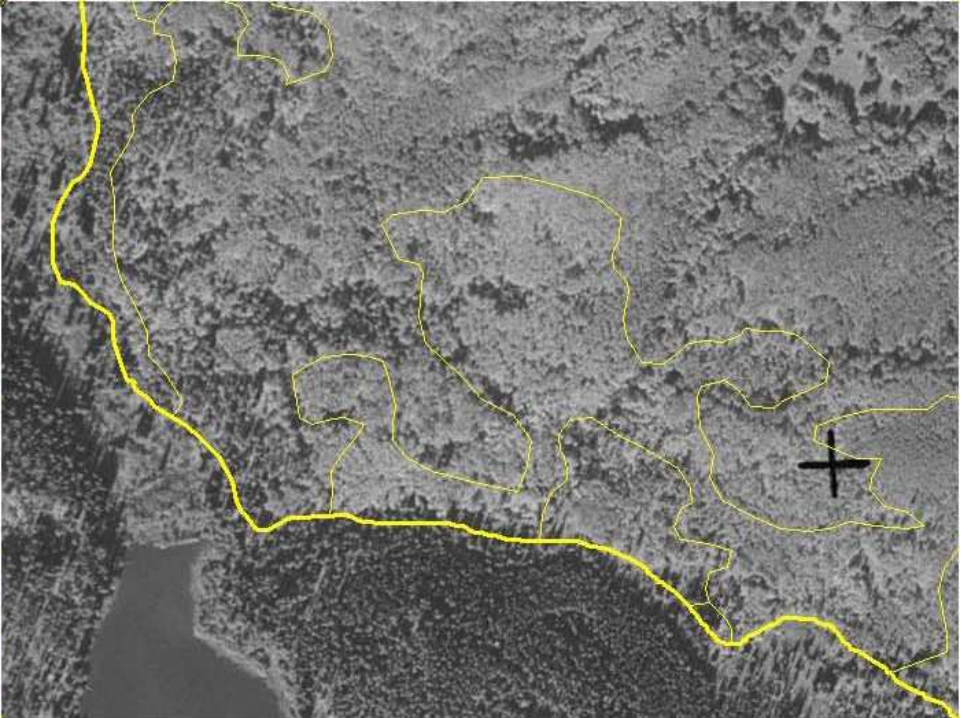
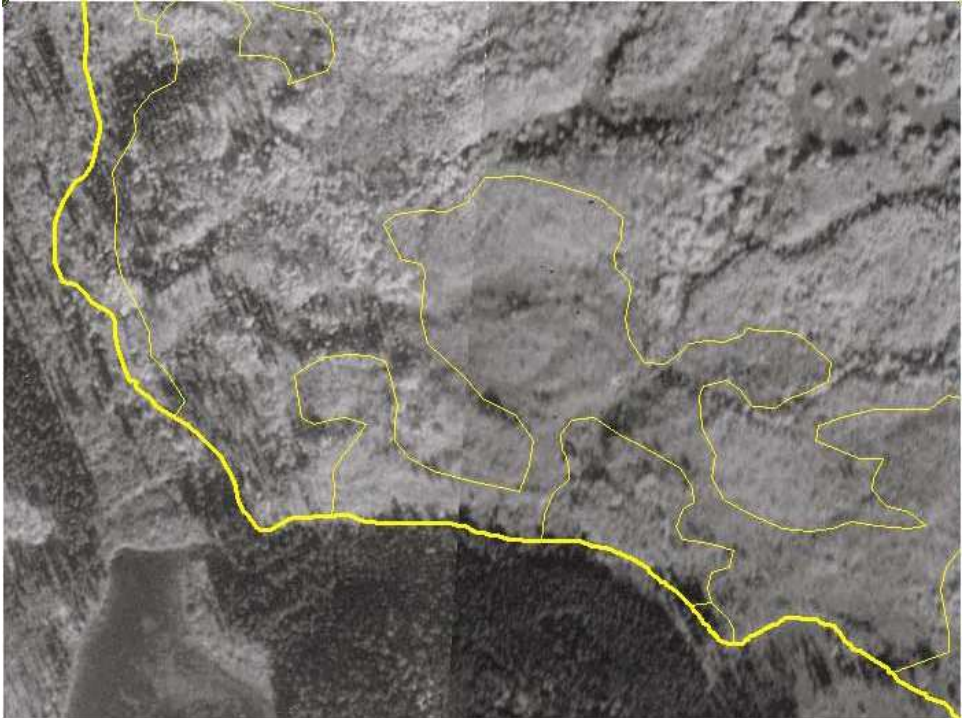
1928



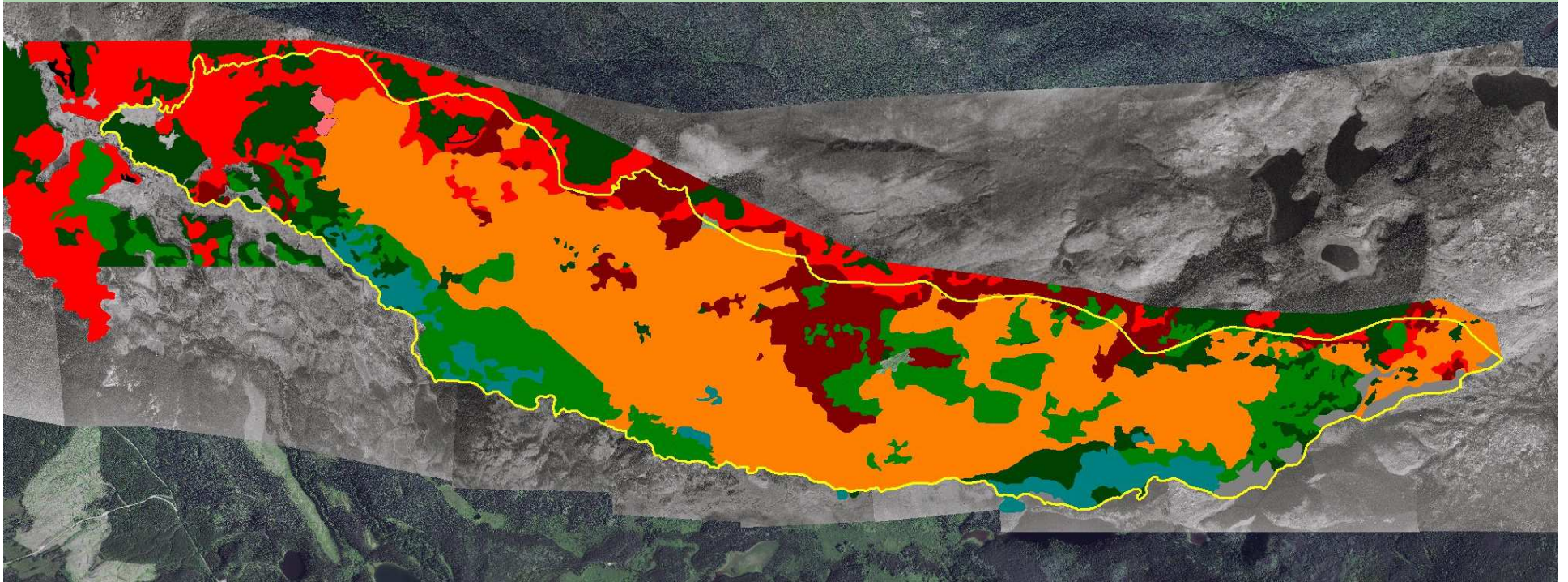
1960




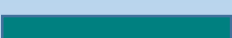

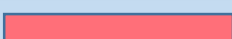
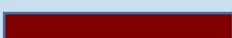


2012



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To say it one more time... The 1928 photography suggests that fire was being used on a ~decadal basis to maintain, reinvigorate, or create new brush and grassland areas in a complex with aspen and other tree species.

