Supplementary Material

Supplementary Table S1: A list of vegetation types (fuel types) and their area percent cover mapped from LS + DEM at BCEF.

Vegetation Type	Fuel Type	Percent Cover (%)
Black Spruce Woodland with Tussocks	Black Spruce Woodland w/ Tussocks	28.72
Black Spruce/ Tamarack Forest	Black Spruce-Tamarack Forest	3.32
Bluejoint	Bluejoint	0.73
Post Harvest Bluejoint	Bluejoint	0.39
Bluejoint/Shrub & Bluejoint Herb	Bluejoint-Shrub/Herb	1.62
Closed Black Spruce	Closed Black Spruce Forest and Closed Mixed Black Spruce-White Spruce Forest	15.90
Closed Black/White Spruce Forest	Closed Black Spruce Forest and Closed Mixed Black Spruce-White Spruce Forest	0.96
Closed Tall Alder	Closed Tall Alder-Willow	0.40
Closed Tall Shrub Birch/Willow Shrub	Closed Tall Birch Shrub	0.46
Closed White Spruce	Closed White Spruce Forest	0.54
Open Black Spruce	Open Black Spruce & Open Mixed Black Spruce	11.91
Open Tall Alder	Open Tall Alder-Willow	0.85
Open Tall Shrub Birch Shrub	Open Tall Shrub Birch-Willow	5.39
Open White Spruce	Open White Spruce Forest	1.22
Closed Paper Birch	Paper Birch-Quaking Aspen Forest	2.84
Closed Quaking Aspen Forest	Paper Birch-Quaking Aspen Forest	1.48
Shrub/Bare	Shrub/Bare	4.95

Closed Quaking Aspen/White Spruce Forest	Spruce-Paper Birch-Aspen Forest	2.49
Closed Spruce/Paper Birch Forest	Spruce-Paper Birch-Aspen Forest	0.11
Closed Spruce/Paper Birch/Aspen Forest	Spruce-Paper Birch-Aspen Forest	0.43
Open Quaking Aspen/Spruce Forest	Spruce-Paper Birch-Aspen Forest	1.18
Open Spruce/Paper Birch Forest	Spruce-Paper Birch-Aspen Forest	7.98
Tussock Tundra	Tussock Tundra	0.38
Wet Sedge Meadows	Wet Sedge Meadows	1.48
Wetlands	Wetlands	4.28

Supplementary Table S2: A list of vegetation types (fuel types) and their area percent cover mapped from AVIRIS-NG PCA image + DEM at BCEF.

Vegetation Type	Fuel Type	Percent Cover (%)
Black Spruce Woodland with Tussocks	Black Spruce Woodland w/ Tussocks	18.91
Black Spruce/ Tamarack Forest	Black Spruce-Tamarack Forest	2.37
Bluejoint	Bluejoint	0.34
Post Harvest Bluejoint	Bluejoint	0.14
Bluejoint/Shrub & Bluejoint Herb	Bluejoint-Shrub/Herb	0.36
Closed Black Spruce	Closed Black Spruce Forest and Closed Mixed Black Spruce-White Spruce Forest	16.34
Closed Black/White Spruce Forest	Closed Black Spruce Forest and Closed Mixed Black Spruce-White Spruce Forest	0.80

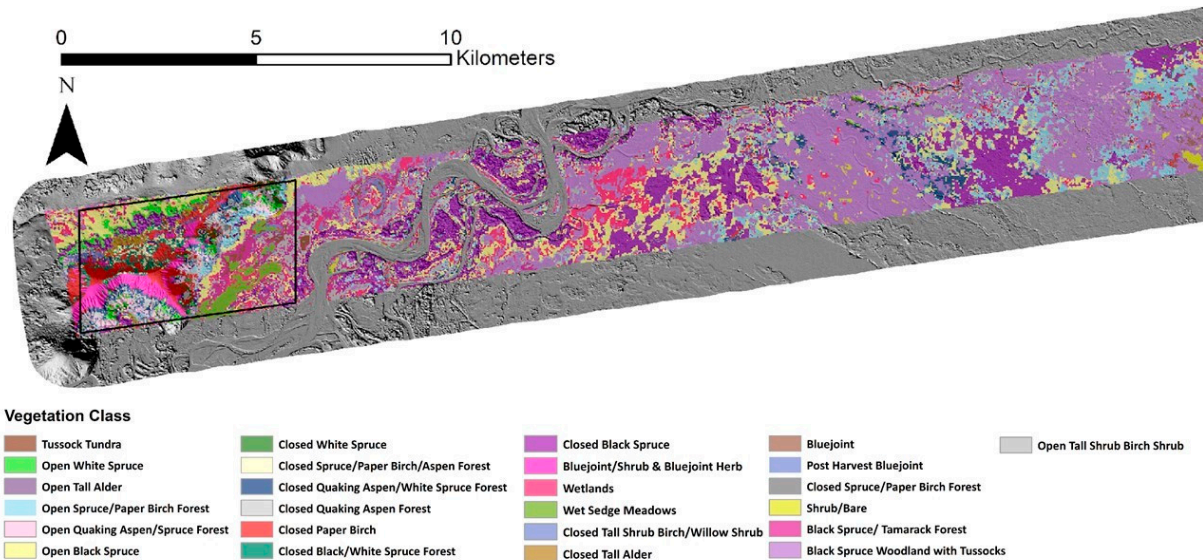|		
Closed Tall Alder	Closed Tall Alder-Willow	1.03
Closed Tall Shrub Birch/Willow Shrub	Closed Tall Birch Shrub	1.00
Closed White Spruce	Closed White Spruce Forest	1.63
Open Black Spruce	Open Black Spruce & Open Mixed Black Spruce	9.74
Open Tall Alder	Open Tall Alder-Willow	0.23
Open Tall Shrub Birch Shrub	Open Tall Shrub Birch-Willow	5.92
Open White Spruce	Open White Spruce Forest	2.15
Closed Paper Birch	Paper Birch-Quaking Aspen Forest	3.55
Closed Quaking Aspen Forest	Paper Birch-Quaking Aspen Forest	0.55
Shrub/Bare	Shrub/Bare	0.15
Closed Quaking Aspen/White Spruce Forest	Spruce-Paper Birch-Aspen Forest	0.30
Closed Spruce/Paper Birch Forest	Spruce-Paper Birch-Aspen Forest	4.32
Closed Spruce/Paper Birch/Aspen Forest	Spruce-Paper Birch-Aspen Forest	0.44
Open Quaking Aspen/Spruce Forest	Spruce-Paper Birch-Aspen Forest	1.44
Open Spruce/Paper Birch Forest	Spruce-Paper Birch-Aspen Forest	25.82
Tussock Tundra	Tussock Tundra	0.35
Wet Sedge Meadows	Wet Sedge Meadows	1.31
Wetlands	Wetlands	0.79

Supplementary Table S3: Classified CPCRW AVIRIS-NG 304 band image percent area by vegetation classes.

Vegetation Type	Fuel Type	Percent Cover (%)
Black Spruce Woodland with Tussocks	Black Spruce Woodland w/ Tussocks	5.27
Black Spruce/ Tamarack Forest	Black Spruce-Tamarack Forest	4.83
Closed Tall Alder	Closed Tall Alder-Willow	8.83
Closed White Spruce Forest	Closed White Spruce Forest	11.76
Dwarf Tree Black Spruce Scrub	Dwarf Tree Black Spruce Scrub	2.01
Open Black Spruce Forest	Open Black Spruce & Open Mixed Black Spruce	13.14
Open Low Shrub Birch/Willow	Open Low Shrub Birch – Ericaceous Shrub Bog and Open Low Shrub Birch – Willow	8.62
Open Paper Birch Forest	Open Paper Birch Forest	1.12
Open Quaking Aspen Forest	Open Quaking Aspen Forest	11.61
Open Tall Alder Shrub	Open Tall Alder-Willow	2.72
Open Tall Willow Shrub	Open Tall Alder-Willow	1.67
Closed Paper Birch Forest	Paper Birch-Quaking Aspen Forest	1.43
Closed Quaking Aspen Forest	Paper Birch-Quaking Aspen Forest	5.83
Closed Spruce/Paper Birch Forest	Spruce-Paper Birch-Aspen Forest	6.68
Open Quaking Aspen/Spruce Forest	Spruce-Paper Birch-Aspen Forest	6.59
Open Spruce/Paper Birch Forest	Spruce-Paper Birch-Aspen Forest	1.90
Tussock Tundra	Tussock Tundra	1.09
Wet Sedge Meadow	Wet Sedge Meadow	4.89

Supplementary Table S4: Vegetation type error matrix table on the random forest 5 band PCA AVIRIS BCEF product

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Supplementary Table S5: Vegetation type error matrix table on the random forest Landsat BCEF product.

Supplementary Table S6: Vegetation type error matrix table on the random forest 304 band AVIRIS BCEF product.

Supplementary Table S7: Vegetation type error matrix table on the random forest 304 band AVIRIS CPCWR product.
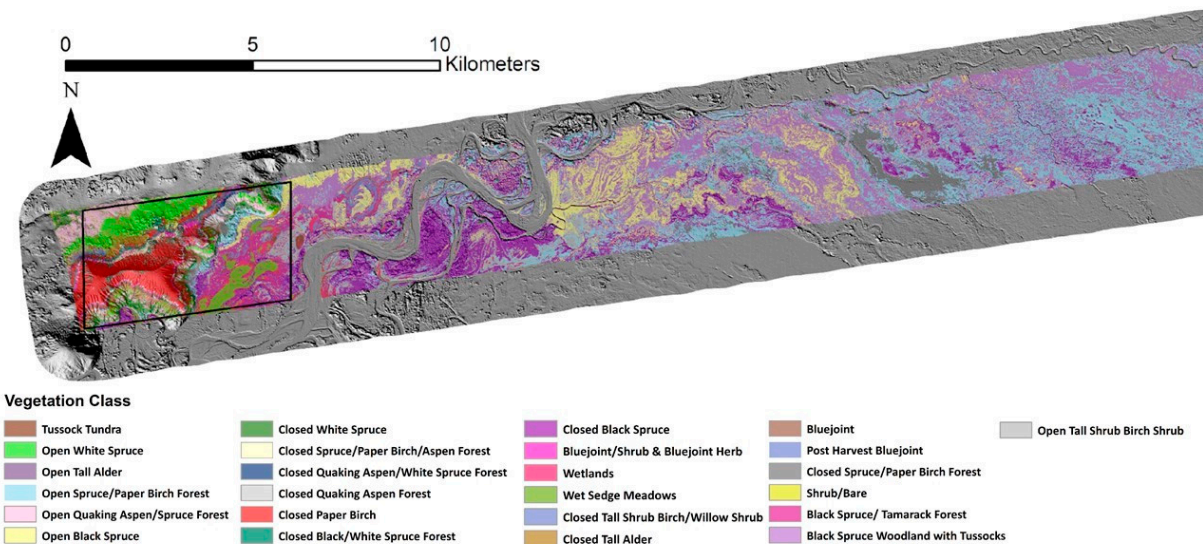
Supplementary Table S8: Vegetation type error matrix table on the random forest 5 band PCA AVIRIS CPCRW product.

Landsat and DEM Random Forest Results

Vegetation Class

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Tussock Tundra	Closed White Spruce	Closed Black Spruce	Bluejoint	Open Tall Shrub Birch Shrub
Open White Spruce	Closed Spruce/Paper Birch/Aspen Forest	Bluejoint/Shrub & Bluejoint Herb	Post Harvest Bluejoint	
Open Tall Alder	Closed Quaking Aspen/White Spruce Forest	Wetlands	Closed Spruce/Paper Birch Forest	
Open Spruce/Paper Birch Forest	Closed Quaking Aspen Forest	Wet Sedge Meadows	Shrub/Bare	
Open Quaking Aspen/Spruce Forest	Closed Paper Birch	Closed Tall Shrub Birch/Willow Shrub	Black Spruce/ Tamarack Forest	
Open Black Spruce	Closed Black/White Spruce Forest	Closed Tall Alder	Black Spruce Woodland with Tussocks	

Supplementary Figure S1: Vegetation Map created from Landsat 8 using the Random Forest classifier. This product had a ~65% accuracy at Viereck level IV; ~74% accuracy at Alaska Fuel Model Guide Task Group (2018) fuel type.

PCA Random Forest Results

Vegetation Class

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Tussock Tundra	Closed White Spruce	Closed Black Spruce	Bluejoint	Open Tall Shrub Birch Shrub
Open White Spruce	Closed Spruce/Paper Birch/Aspen Forest	Bluejoint/Shrub & Bluejoint Herb	Post Harvest Bluejoint	
Open Tall Alder	Closed Quaking Aspen/White Spruce Forest	Wetlands	Closed Spruce/Paper Birch Forest	
Open Spruce/Paper Birch Forest	Closed Quaking Aspen Forest	Wet Sedge Meadows	Shrub/Bare	
Open Quaking Aspen/Spruce Forest	Closed Paper Birch	Closed Tall Shrub Birch/Willow Shrub	Black Spruce/ Tamarack Forest	
Open Black Spruce	Closed Black/White Spruce Forest	Closed Tall Alder	Black Spruce Woodland with Tussocks	

Supplementary Figure S2: Vegetation Map created from AVIRIS PCA bands using the Random Forest classifier. This product had a ~64% accuracy at Viereck level IV; ~72% accuracy at Alaska Fuel Model Guide Task Group (2018) fuel type.

PCA Random Forest Results
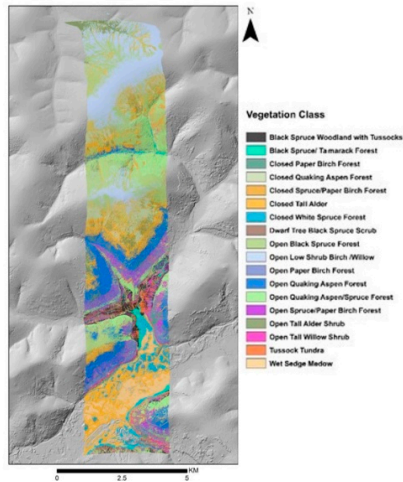
Supplementary Figure S3: Vegetation Map created from AVIRIS PCA bands using the Random Forest classifier. This product had a ~69% accuracy at Viereck level IV; ~74% accuracy at Alaska Fuel Model Guide Task Group (2018) fuel type.

304 Bands Random Forest Results
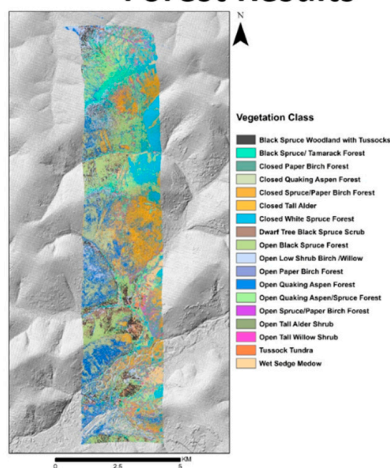
Supplementary Figure S4: Vegetation Map created from 304 AVIRIS bands using the Random Forest classifier. This product had a ~56% accuracy at Viereck level IV; ~61% accuracy at Alaska Fuel Model Guide Task Group (2018) fuel type.