

APPENDIX A

MAPS

APPENDIX A

MAPS

LIST OF FIGURES

Figure 1.1.b	General Locations of Fort Wainwright, Donnelly Training Area, and Fort Richardson	A-1
Figure 3.3.a	Terrain, Surface Water, and Fishing Areas at Fort Wainwright	A-2
Figure 3.3.b	Terrain, Surface Water, and Fishing Areas at Donnelly Training Area.....	A-3
Figure 3.3.c	Terrain, Surface Water, and Fishing Areas at Fort Richardson.....	A-4
Figure 3.4.a	Soil Properties Yukon Training Area	A-5
Figure 3.4.b	Soil Properties Donnelly Training Area.....	A-6
Figure 3.4.c	Soil Properties Fort Richardson.....	A-7
Figure 3.4.d	Permafrost Yukon Training Area.....	A-8
Figure 3.6.a	Groundwater Fort Wainwright	A-9
Figure 3.6.b	Groundwater Donnelly Training Area	A-10
Figure 3.7.a	Environmental Limitation Areas Fort Wainwright	A-11
Figure 3.7.b	Environmental Limitation Areas Donnelly Training Area.....	A-12
Figure 3.7.c	Environmental Limitation Areas Fort Richardson	A-13
Figure 3.7.d	Wetlands Fort Wainwright Main Post and Tanana Flats Training Area.....	A-14
Figure 3.7.e	Wetlands Yukon Training Area	A-15
Figure 3.7.f	Wetlands Donnelly Training Area.....	A-16
Figure 3.7.g	Wetlands Fort Richardson.....	A-17
Figure 3.8.a	Ecotypes Tanana Flats Training Area	A-18
Figure 3.8.b	Ecotypes Yukon Training Area	A-19
Figure 3.8.c	Ecotypes Donnelly Training Area.....	A-20
Figure 3.8.d	Ecotypes Fort Richardson	A-21
Figure 3.9.a	Game Management Units Overlapping USARAK Lands	A-22
Figure 3.9.b	Moose Concentration Areas in Interior Alaska.....	A-23
Figure 3.9.c	Waterfowl and Raptor Concentration Areas and Trumpeter Swan Nest Sites in Interior Alaska.....	A-24
Figure 3.9.d	Bison and Dall Sheep Concentration and Migration Routes Donnelly Training Area	A-25
Figure 3.9.e	Distribution of Delta and Macomb Caribou Herds Donnelly Training Area...	A-26
Figure 3.9.f	Sandhill Crane Habitat and Migration Routes Donnelly Training Area.....	A-27
Figure 3.9.g	Moose Concentration Areas in Anchorage Area.....	A-28
Figure 3.9.h	Waterfowl Concentration Areas and Trumpeter Swan Nest Sites in Anchorage Area	A-29
Figure 3.11.a	Fire Management Areas Fort Wainwright.....	A-30
Figure 3.11.b	Fire Management Areas Donnelly Training Area.....	A-31
Figure 3.11.c	Fire Management Areas Fort Richardson	A-32
Figure 3.11.d	Fire History Fort Wainwright.....	A-33
Figure 3.11.e	Fire History Donnelly Training Area.....	A-34
Figure 3.11.f	Fire History Fort Richardson	A-35

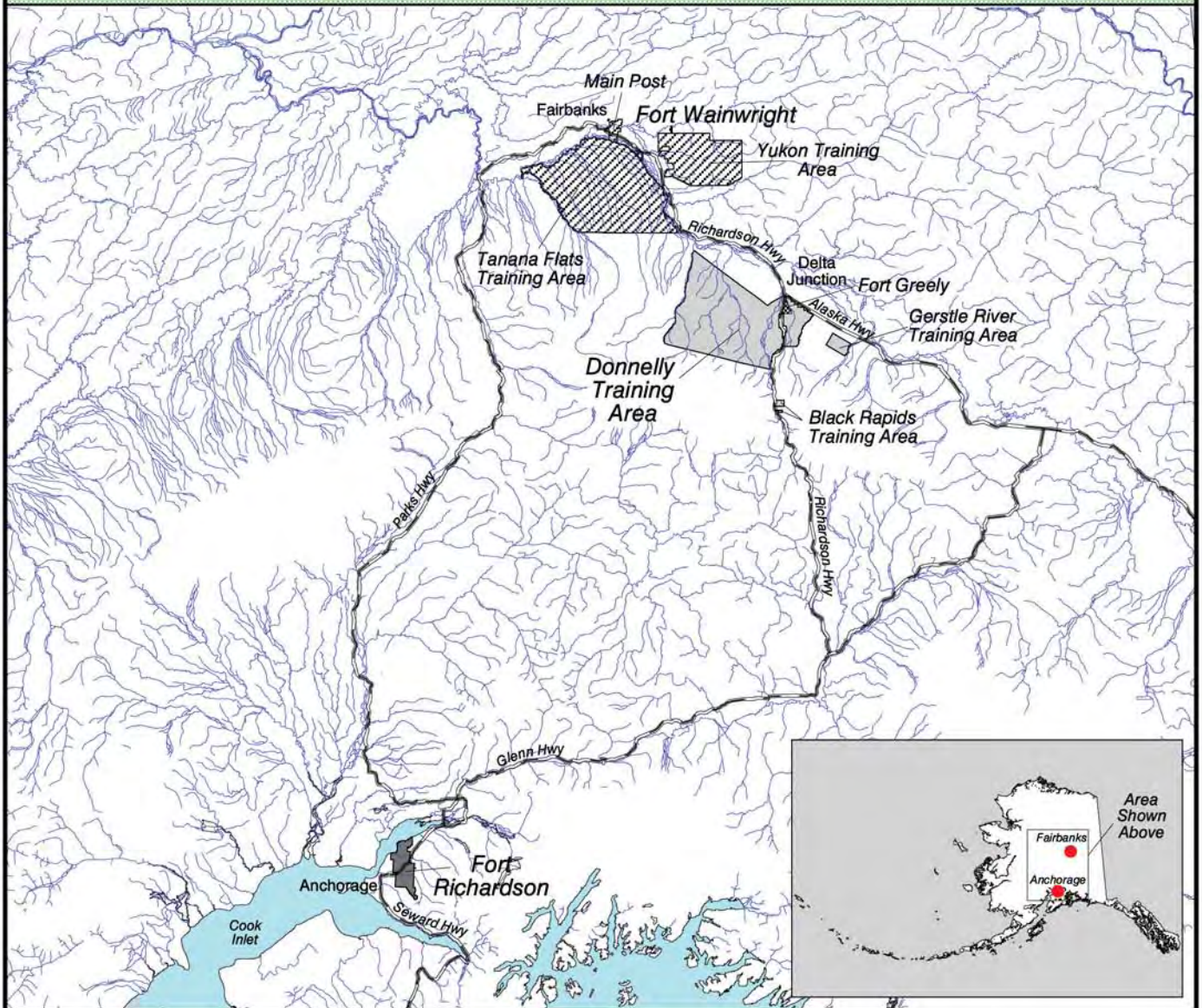
Figure 3.12.a	Cultural Resource Areas Surveyed Fort Wainwright Main Post and Tanana Flats Training Area	A-36
Figure 3.12.b	Cultural Resource Areas Surveyed Yukon Training Area	A-37
Figure 3.12.c	Cultural Resource Areas Surveyed Donnelly Training Area	A-38
Figure 3.12.d	Cultural Resource Areas Surveyed Fort Richardson	A-39
Figure 3.14.a	Recreational Use Areas Fort Wainwright Main Post and Tanana Flats Training Area	A-40
Figure 3.14.b	Recreational Use Areas Yukon Training Area.....	A-41
Figure 3.14.c	Recreational Use Areas Donnelly Training Area.....	A-42
Figure 3.14.d	Recreational Use Areas Fort Richardson.....	A-43
Figure 3.15.a	Subsistence Areas Fort Wainwright and Donnelly Training Area	A-44
Figure 3.16.a	Existing Noise Contours Fort Wainwright Main Post and Tanana Flats Training Area	A-45
Figure 3.16.b	Existing Noise Contours Yukon Training Area.....	A-46
Figure 3.16.c	Existing Noise Contours Donnelly Training Area.....	A-47
Figure 3.16.d	Existing Noise Contours Fort Richardson	A-48
Figure 3.17.a	Contaminated Sites Fort Wainwright.....	A-49
Figure 3.17.b	Contaminated Sites Fort Richardson	A-50
Figure 3.18.a	Fairbanks North Star Borough Communities Fort Wainwright	A-51
Figure 3.18.b	Southeast Fairbanks Census Area Communities Donnelly Training Area	A-52
Figure 3.18.c	Matsunaka-Susitna Borough, Kenai Peninsula Borough and Municipality of Anchorage Communities Fort Richardson.....	A-53
Figure 3.19.b	Special Use Airspace Fort Wainwright and Donnelly Training Area	A-54
Figure 3.19.c	Special Use Airspace Fort Richardson	A-55
Figure 4.4.a	Stryker Summer and Winter Maneuverability Fort Wainwright.....	A-56
Figure 4.4.b	Stryker Summer and Winter Maneuverability Donnelly Training Area	A-57
Figure 4.4.c	Stryker Summer and Winter Maneuverability Fort Richardson	A-58
Figure 4.11.a	Fuel Types Fort Wainwright Main Post and Tanana Flats Training Area	A-59
Figure 4.11.b	Fuel Types Yukon Training Area.....	A-60
Figure 4.11.c	Fuel Types Donnelly Training Area.....	A-61
Figure 4.11.d	Fuel Types Fort Richardson	A-62
Figure 4.16.a	Comparison of Existing and Projected Noise Contours Fort Wainwright Main Post.....	A-63
Figure 4.16.b	Comparison of Existing and Projected Noise Contours Tanana Flats Training Area	A-64
Figure 4.16.c	Comparison of Existing and Projected Noise Contours Yukon Training Area	A-65
Figure 4.16.d	Comparison of Existing and Projected Noise Contours Donnelly Training Area	A-66
Figure 4.16.e	Comparison of Existing and Projected Noise Contours Alternative 3 Fort Richardson	A-67
Figure 4.16.f	Comparison of Existing and Projected Noise Contours Alternative 4 Fort Richardson	A-68
Figure 4.20.a	Interior Alaska Region of Interest Infrastructure.....	A-69
Figure 4.20.b	Interior Alaska Region of Interest Land Ownership.....	A-70
Figure 4.20.c	South-Central Alaska / Anchorage Area Region of Interest Infrastructure	A-71
Figure 4.20.d	South-Central Alaska / Anchorage Area Region of Interest Land Ownership.....	A-72
Figure 4.20.e	Existing Ranges, Mission Essential Projects, and Proposed SBCT Construction Projects at Fort Wainwright.....	A-73

Figure 4.20.f	Existing and Mission Essential Ranges at Yukon Training Area	A-74
Figure 4.20.g	Existing Ranges, Proposed Mission Essential Ranges, Proposed SBCT Construction Projects, and Other Military Construction Projects at Donnelly Training Area	A-75
Figure 4.20.h	Existing Ranges, Mission Essential Projects, and Proposed SBCT Construction Projects at Fort Richardson	A-76

THIS PAGE INTENTIONALLY LEFT BLANK.

Figure 1.1.b

General Locations
Fort Wainwright, Donnelly Training Area, and Fort Richardson



Legend

- | | |
|--|---|
|  Fort Wainwright |  Fort Greely |
|  Donnelly Training Area |  Highways |
|  Fort Richardson |  Streams |

Source:
U.S. Army Alaska 2002e,f,g

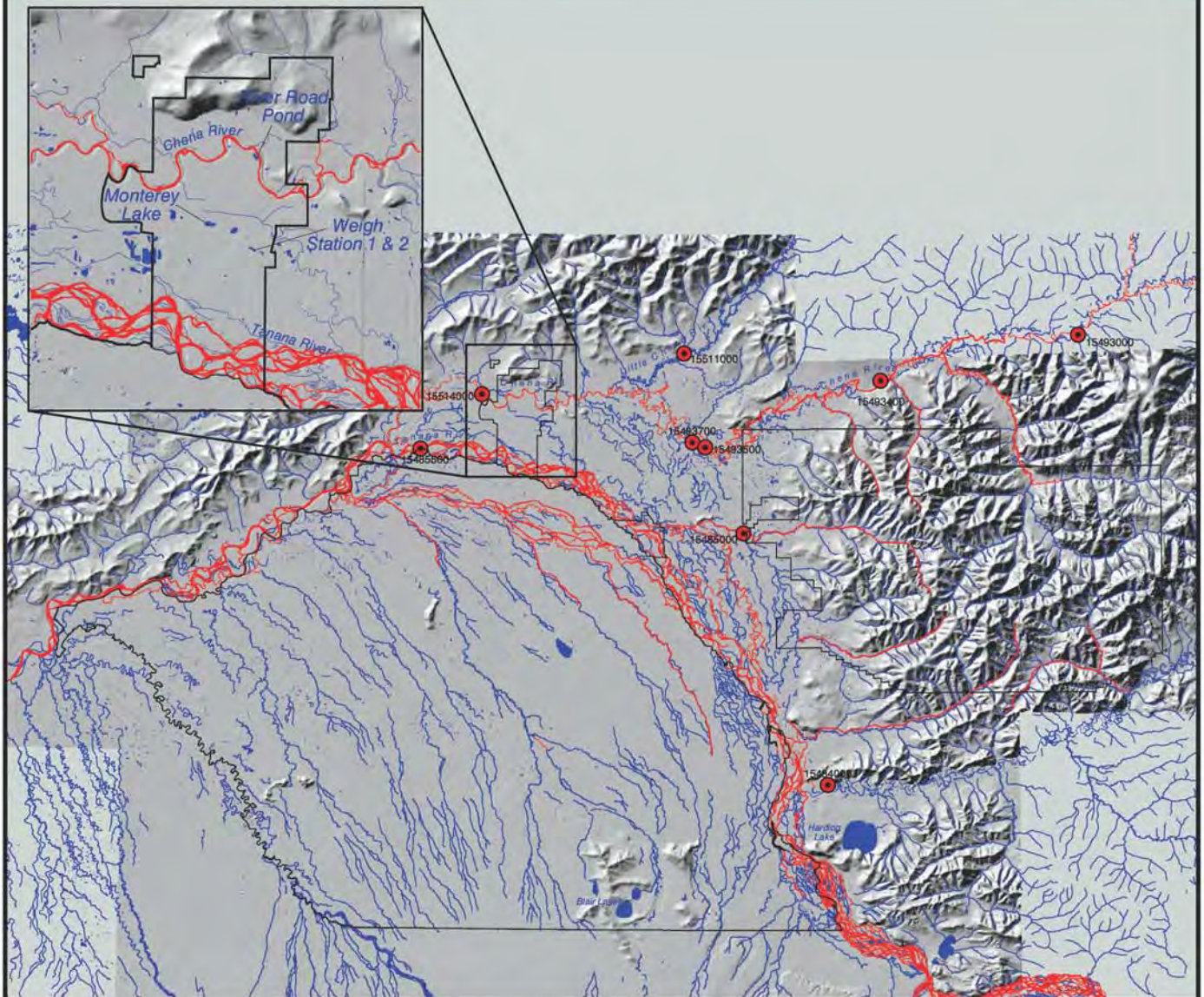
Scale: 1:3500000

100 0 100 Miles



Figure 3.3.a

Terrain, Surface Water, and Fishing Areas at Fort Wainwright



Legend

- | | | |
|---|--|---|
|  Installation Boundary |  Anadromous Streams |  Lakes |
|  Stream Gauging Stations |  Streams | |

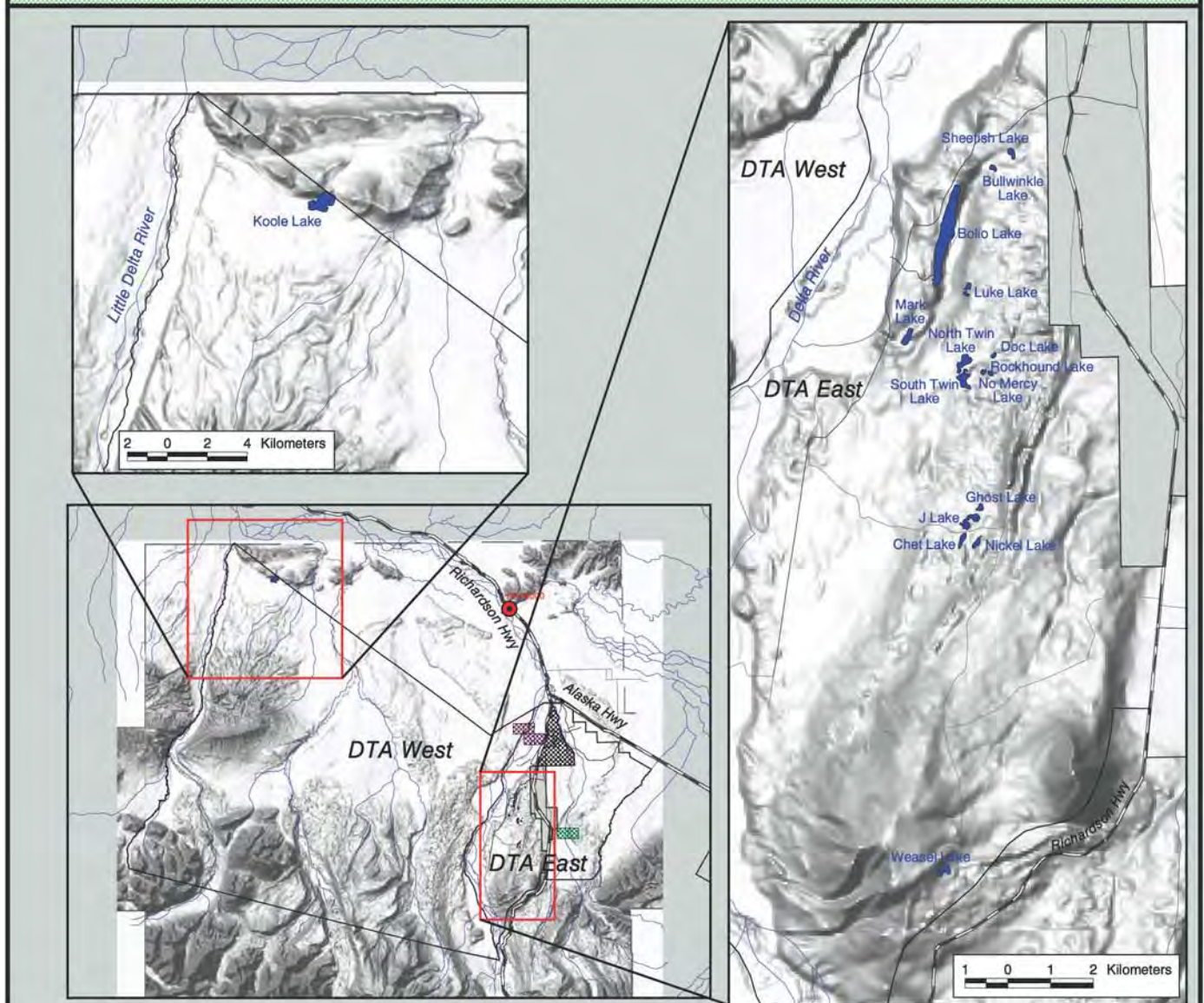
Source:
U.S. Army Alaska 2002g

Scale: 1:700000
10 0 10 Miles



Figure 3.3.b

Terrain, Surface Water, and Fishing Areas at Donnelly Training Area



Legend

- | | | | | | |
|--|--|--|------------------------|--|-------------------|
| | Installation Boundary | | Stocked Lakes | | Highways |
| | Fort Greely | | Stream Gauging Station | | All-Weather Roads |
| | Delta River Bridge
Water Use: 300,000 gal/day
Number of Days in Use: 90 | | | | Light Duty Roads |
| | Jarvis Creek Bridge No.2
Water Use: 40,000 gal/day
Number of Days in Use: 90 | | | | Streams |

Source:
U.S. Army Alaska 2002e

Scale: 1:1000000
20 0 20 Miles



Figure 3.3.c

Terrain, Surface Water, and Fishing Areas at Fort Richardson

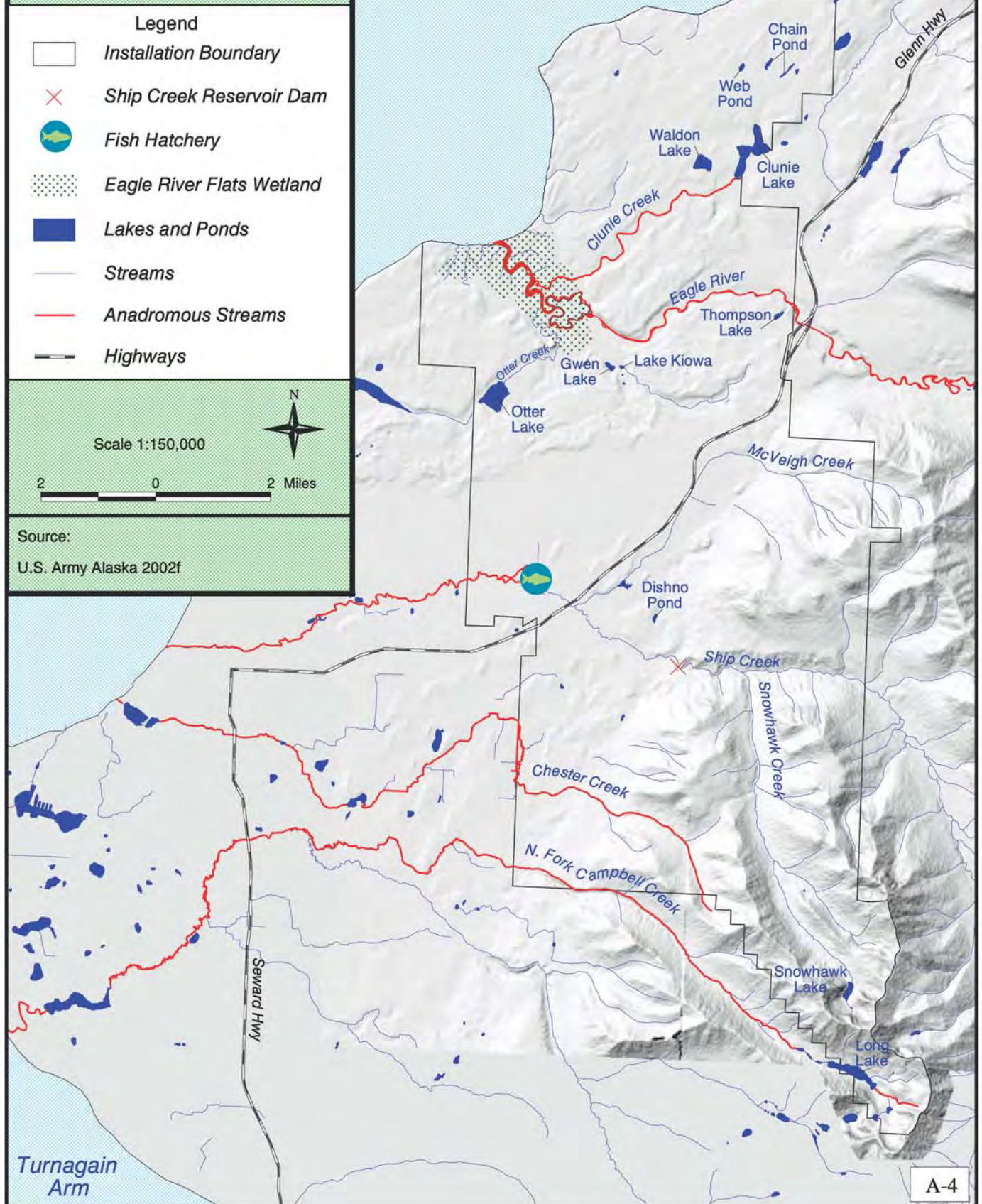
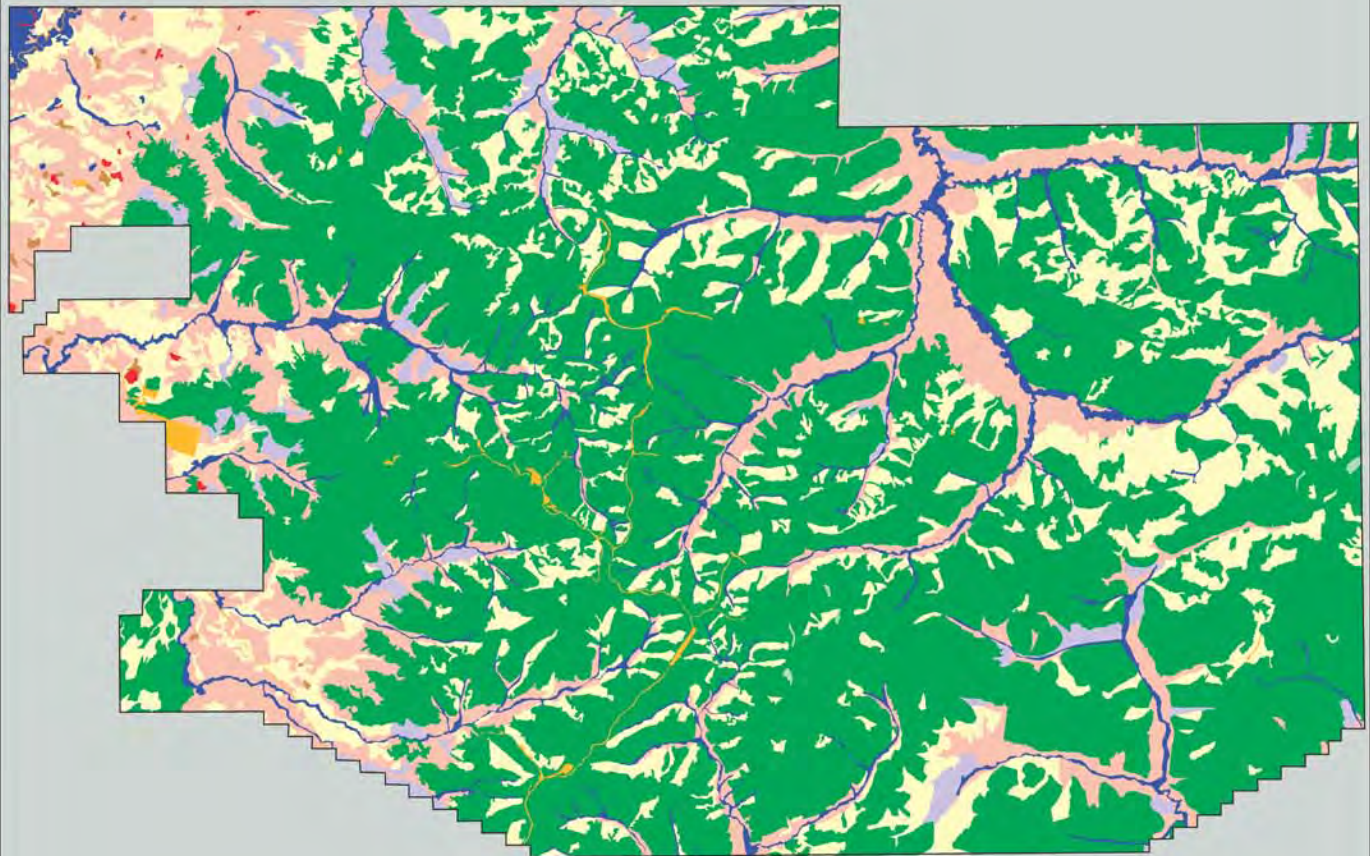


Figure 3.4.a

*Soil Properties
Yukon Training Area*



Legend

 *Average Wetness*

 *Saturated*

 *Dry Silt*

 *Average Silt*

 *Saturated Silt*

 *Average Organic Silt*

 *Wet Organic Silt*

 *Saturated Organic Silt*

 *Very Saturated Organic Silt*

 *Installation Boundary*

Source:
Shoop et al. 2002

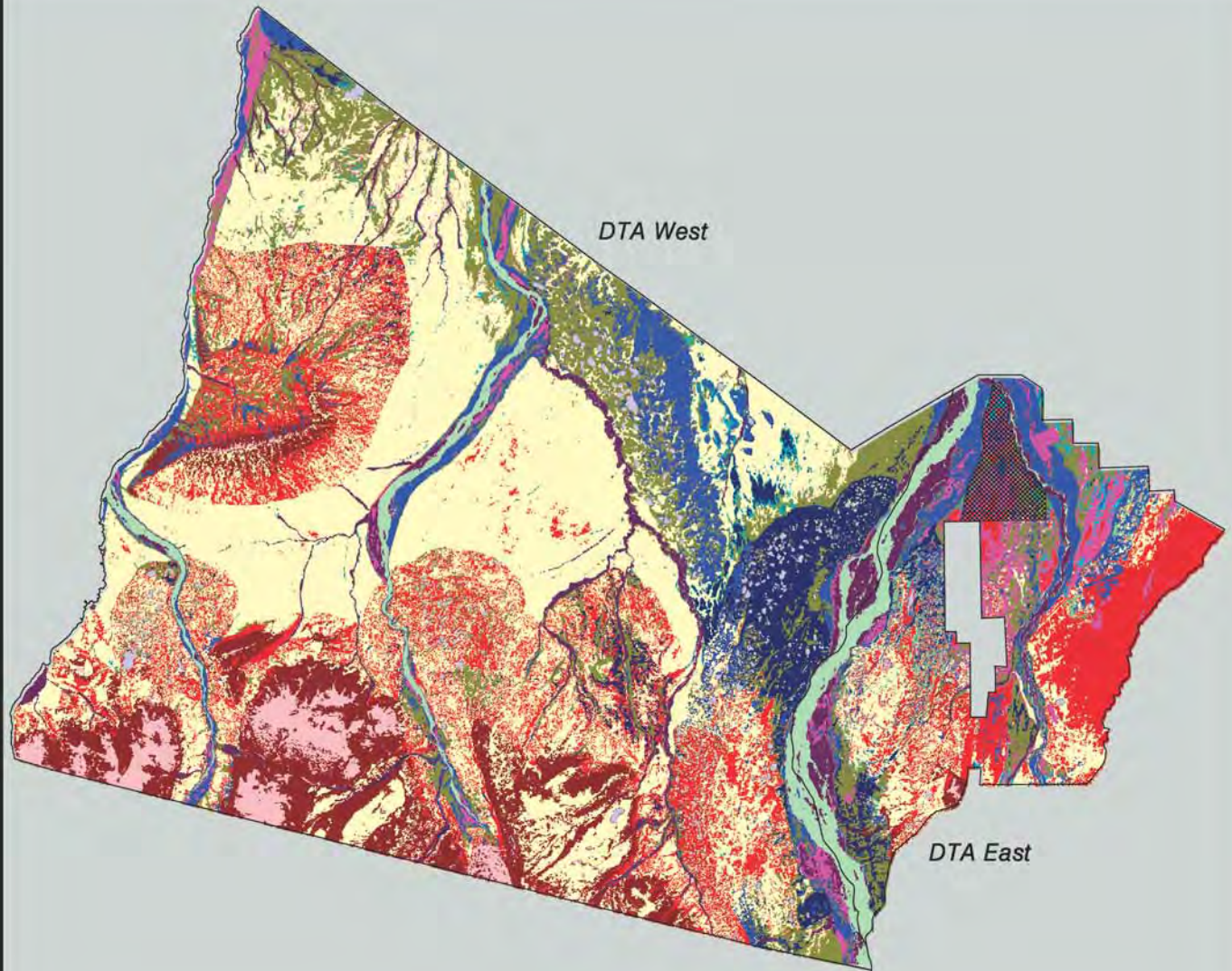
Scale: 1:250000
5 0 5 Miles



A-5

Figure 3.4.b

*Soil Properties
Donnelly Training Area*



Legend

	Installation Boundary		Fort Greely		
	Bedrock		Saturated Silty Gravel		Dry Sand
	Bedrock		Very Saturated Silty Gravel		Average Sand
	Bedrock		Average Silt		Wet Sand
	Bedrock		Wet Silt		Saturated Sand
	Dry Silty Gravel		Saturated Silt		Very Saturated Sand

Source:
Shoop et al. 2002

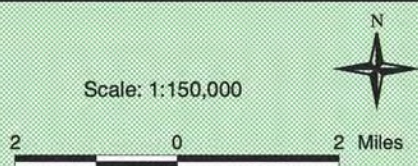
Scale: 1:450000
10 0 10 Miles



Figure 3.4.c

*Soil Properties
Fort Richardson*

Legend



Source:

Shoop et al. 2002

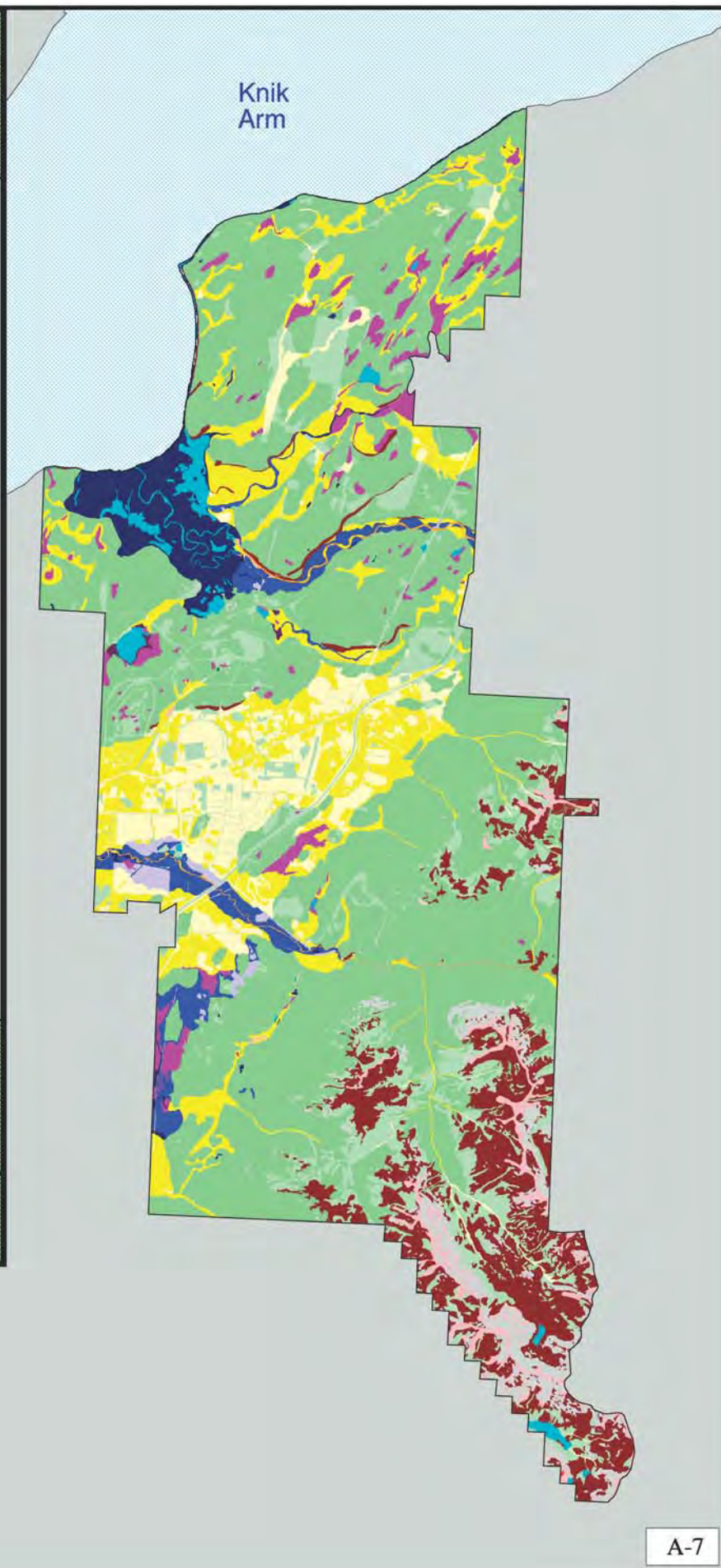
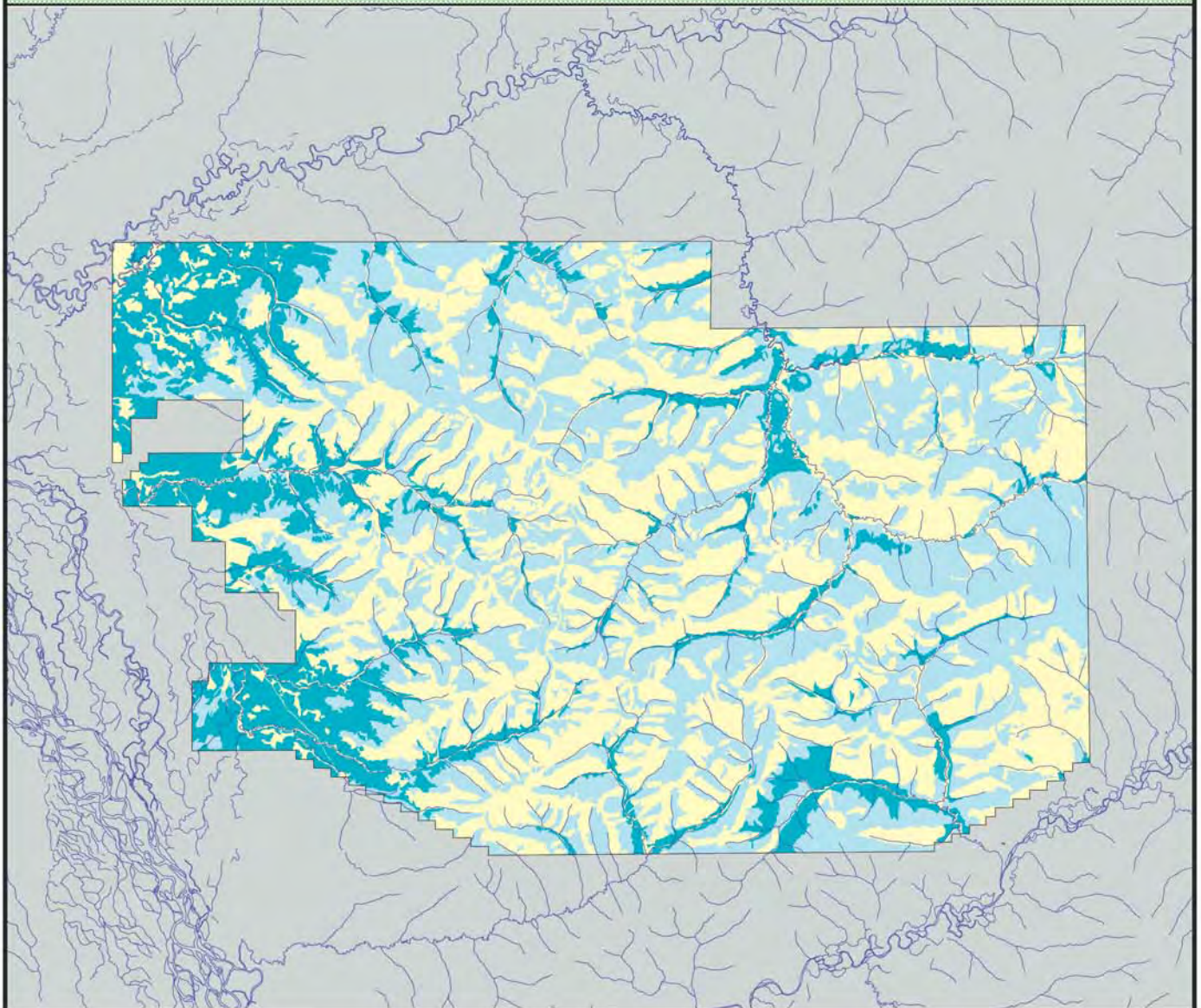


Figure 3.4.d

*Permafrost
Yukon Training Area*



Legend

 Continuous

 Discontinuous

 Permafrost Free

 Installation Boundary

 Streams

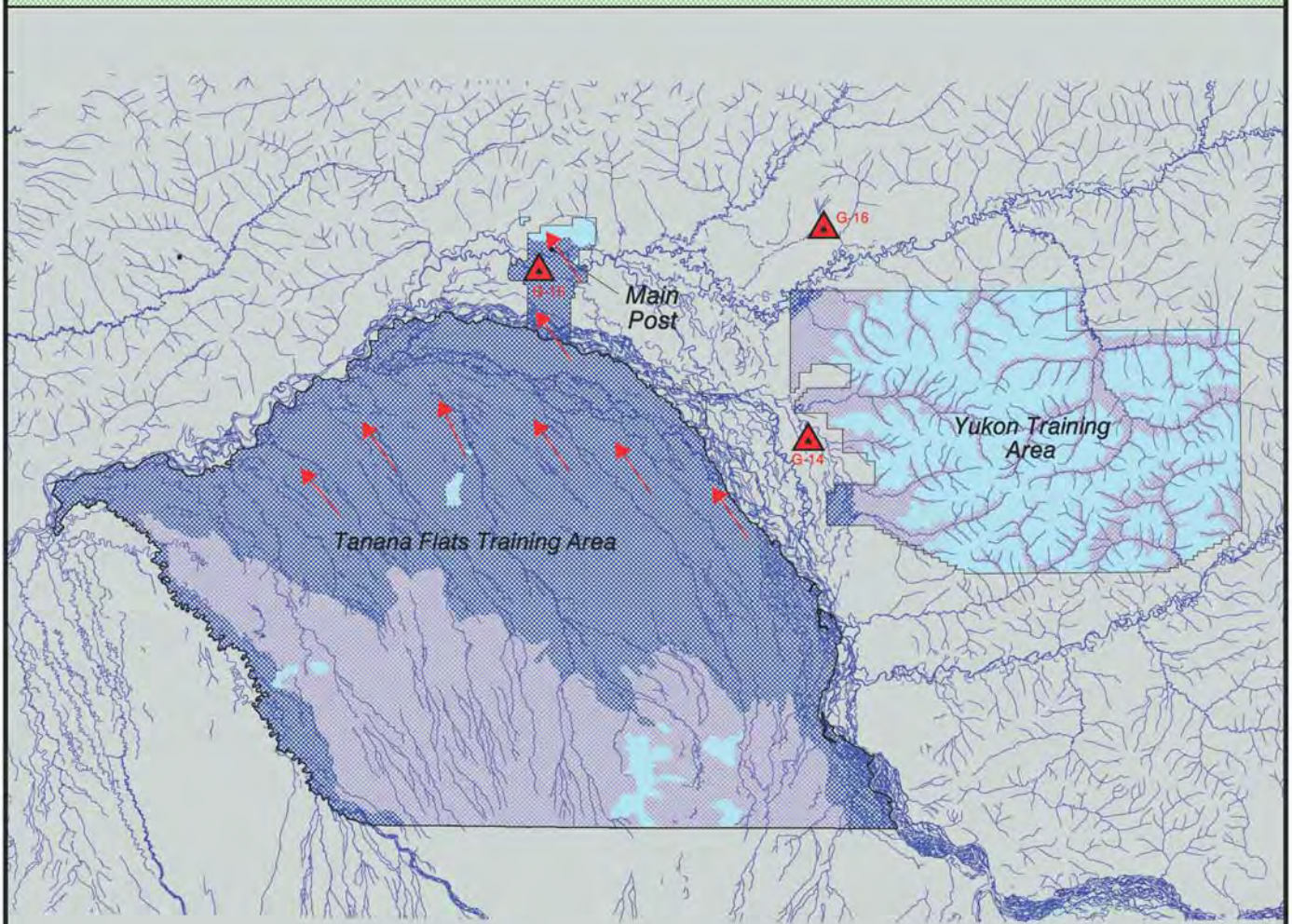
Source:
U.S. Army Alaska 1999a

Scale: 1:300000
 5 0 5 Miles



Figure 3.6.a

Groundwater Fort Wainwright



Legend

Approximate Flow Rates

-  1,000 - 10,000 gpm
Very large quantities available from floodplain deposits of the Tanana and Chena River
-  100 - 1,000 gpm
Large quantities available from alluvial fan and glacial outwash deposits
-  <100 gpm
Moderate to large quantities available from gravel deposits in creek valley bottoms

-  Installation Boundary
-  Groundwater Quality Station
-  Approximate Flow Direction
-  Streams

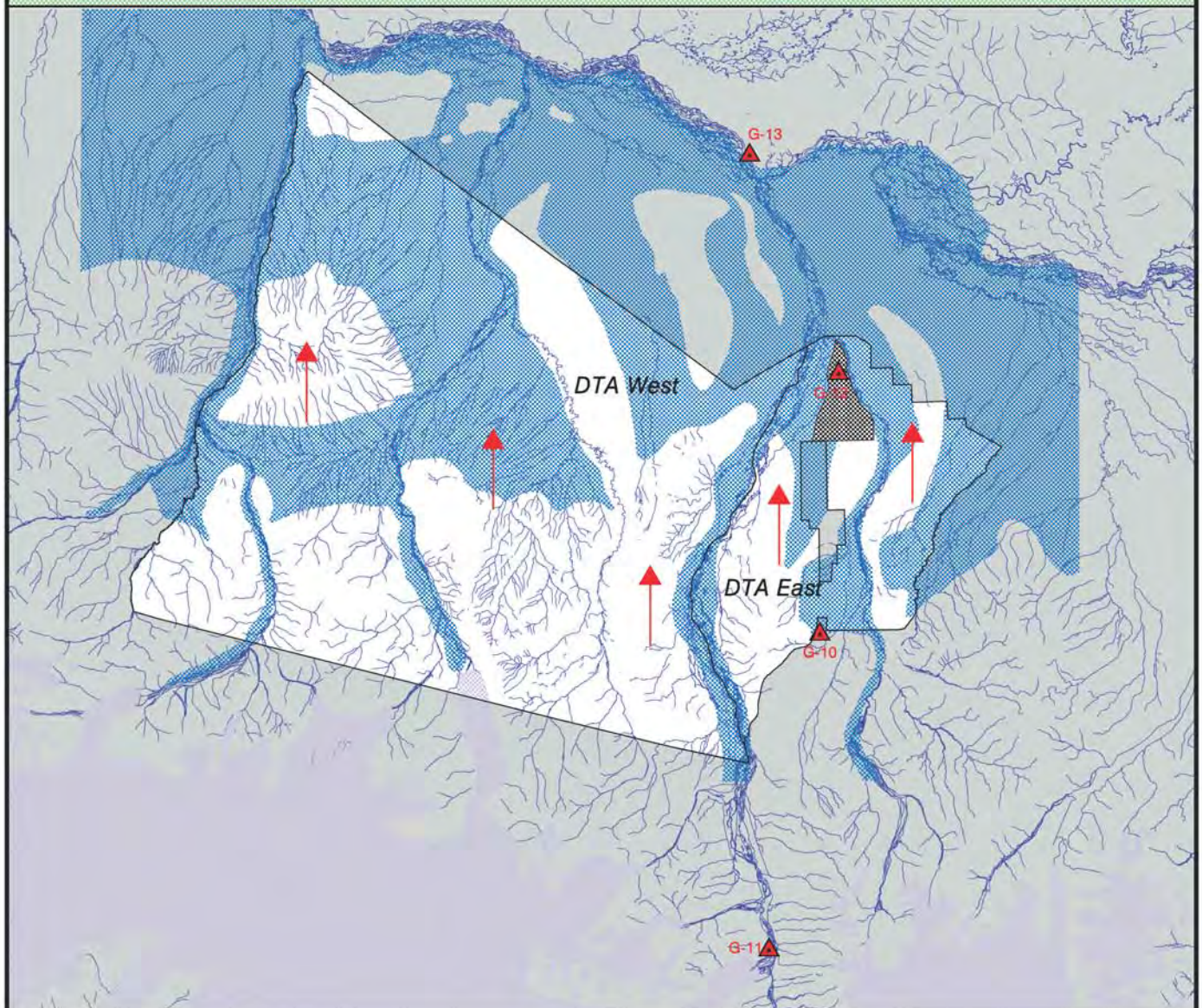
Source:
U.S. Army Alaska 2002g
Defense Mapping Agency
Hydrographic/Topographic Center 1978

Scale: 1:700000
10 0 10 Miles



Figure 3.6.b

*Groundwater
Donnelly Training Area*



Legend

- | | | | |
|---|--|--|-----------------------|
|  | Groundwater Quality Station |  | Installation Boundary |
|  | Approximate Flow Direction |  | Fort Greely |
|  | Groundwater Potential of
1,000-3,000 Gallons per Minute |  | Streams |
|  | Glaciers | | |

Source:
U.S. Army Alaska 2002e

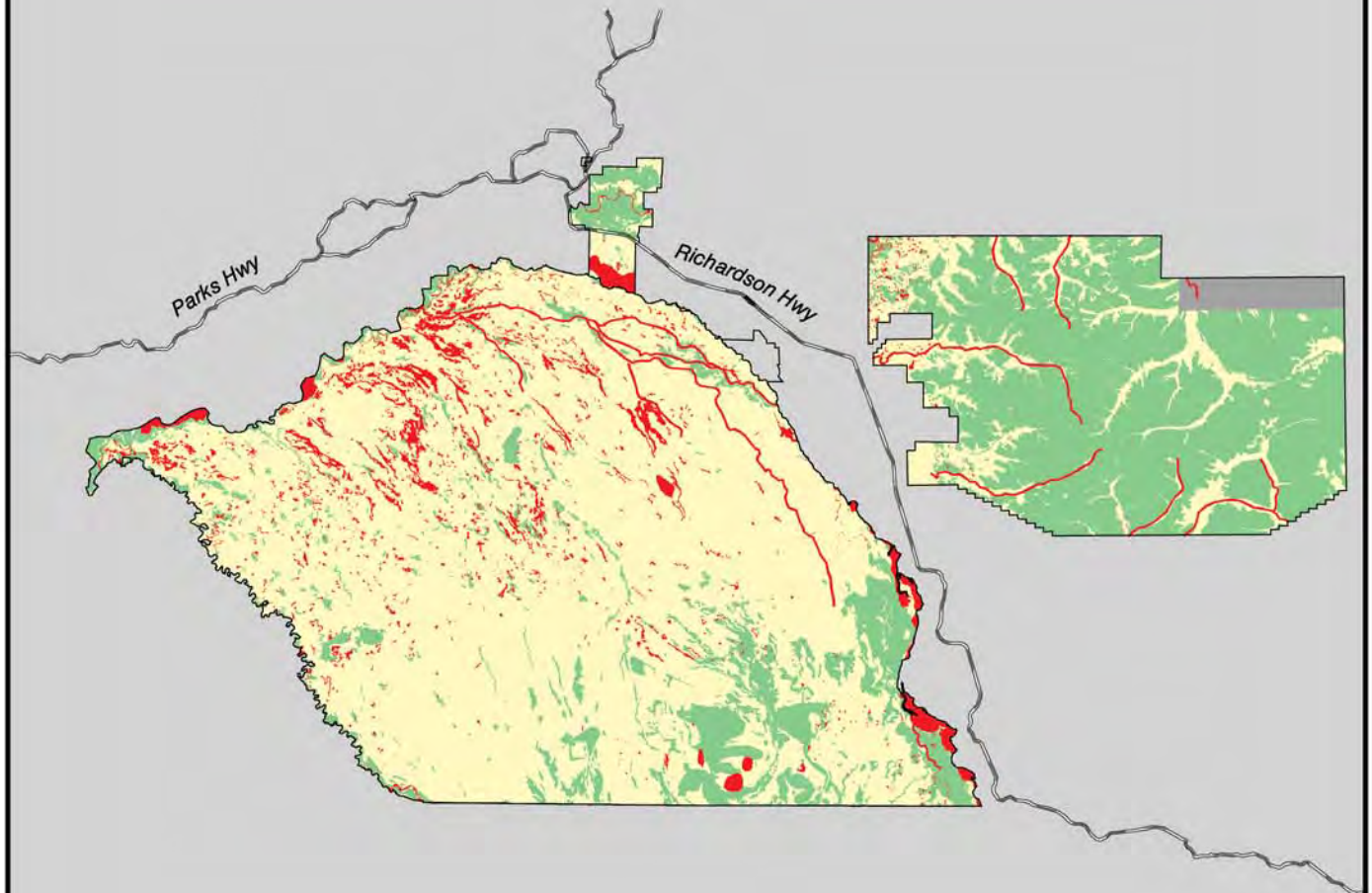
Scale: 1:600000
10 0 10 Miles



A-10

Figure 3.7.a

*Environmental Limitation Areas
Fort Wainwright*



Legend



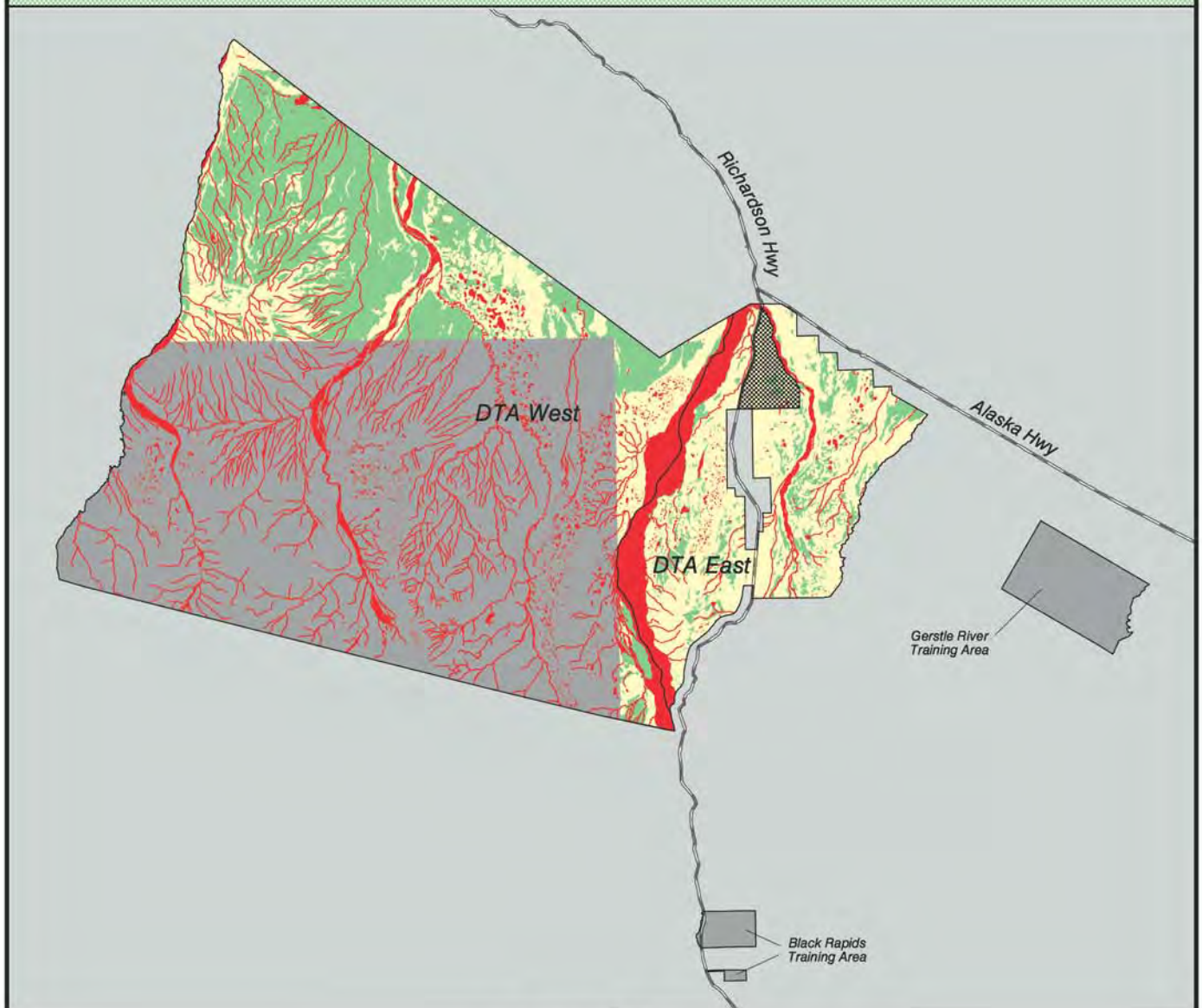
Source:
USARAK Natural Resources 2003

Scale: 1:700000
10 0 10 Miles

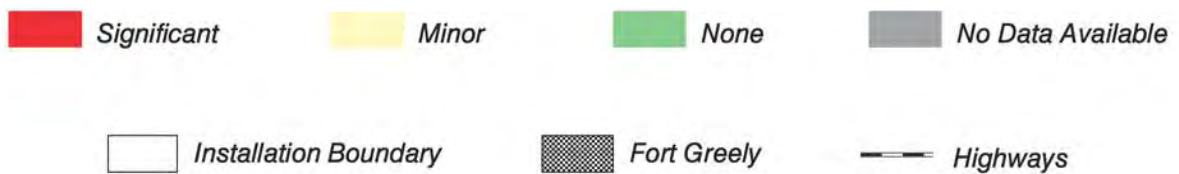


Figure 3.7.b

*Environmental Limitation Areas
Donnelly Training Area*



Legend



Source:
USARAK Natural Resources 2003

Scale: 1:600000
10 0 10 Miles



Figure 3.7.c

*Environmental Limitation Areas
Fort Richardson*

Legend

-  *Installation Boundary*
-  *Significant*
-  *Minor*
-  *None*
-  *No Data Available*
-  *Highways*

Scale: 1:150,000

1 0 1 Mile



Source:

USARAK Natural Resources 2003

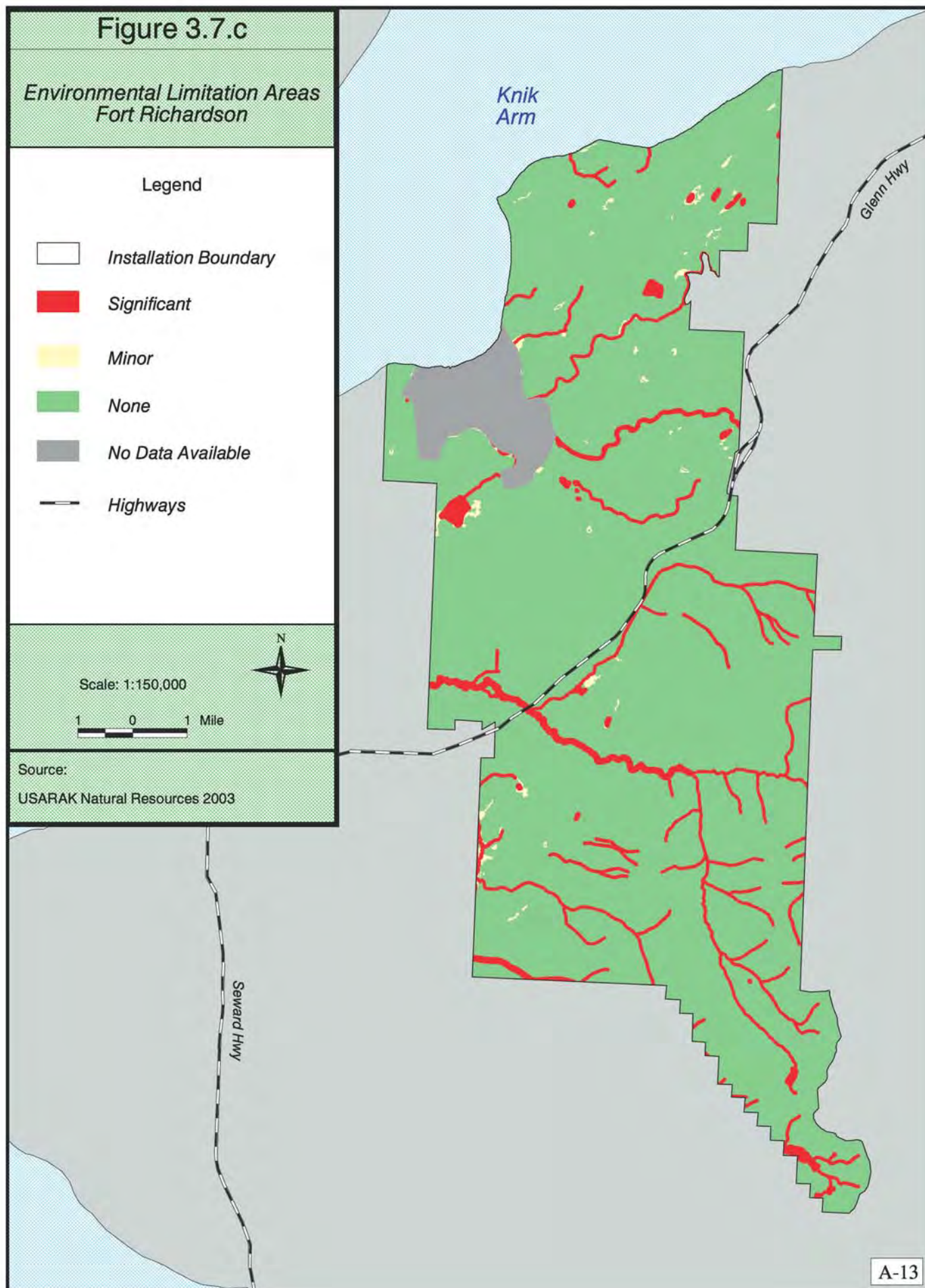
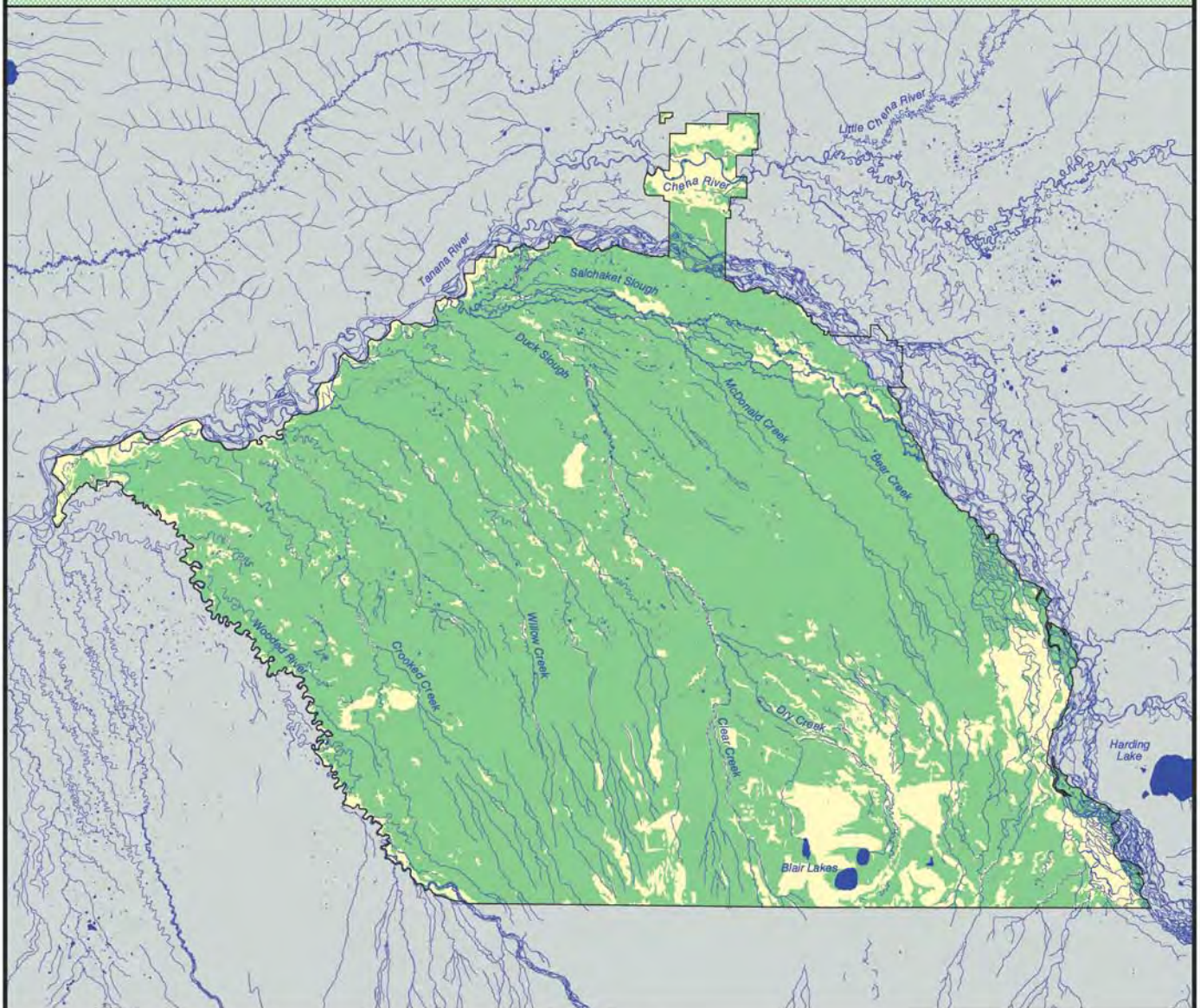


Figure 3.7.d

Wetlands
Fort Wainwright Main Post and Tanana Flats Training Area



Legend

Upland

Wetland

Streams

Installation Boundary

Lakes

Source:
U.S. Army Alaska 2002g

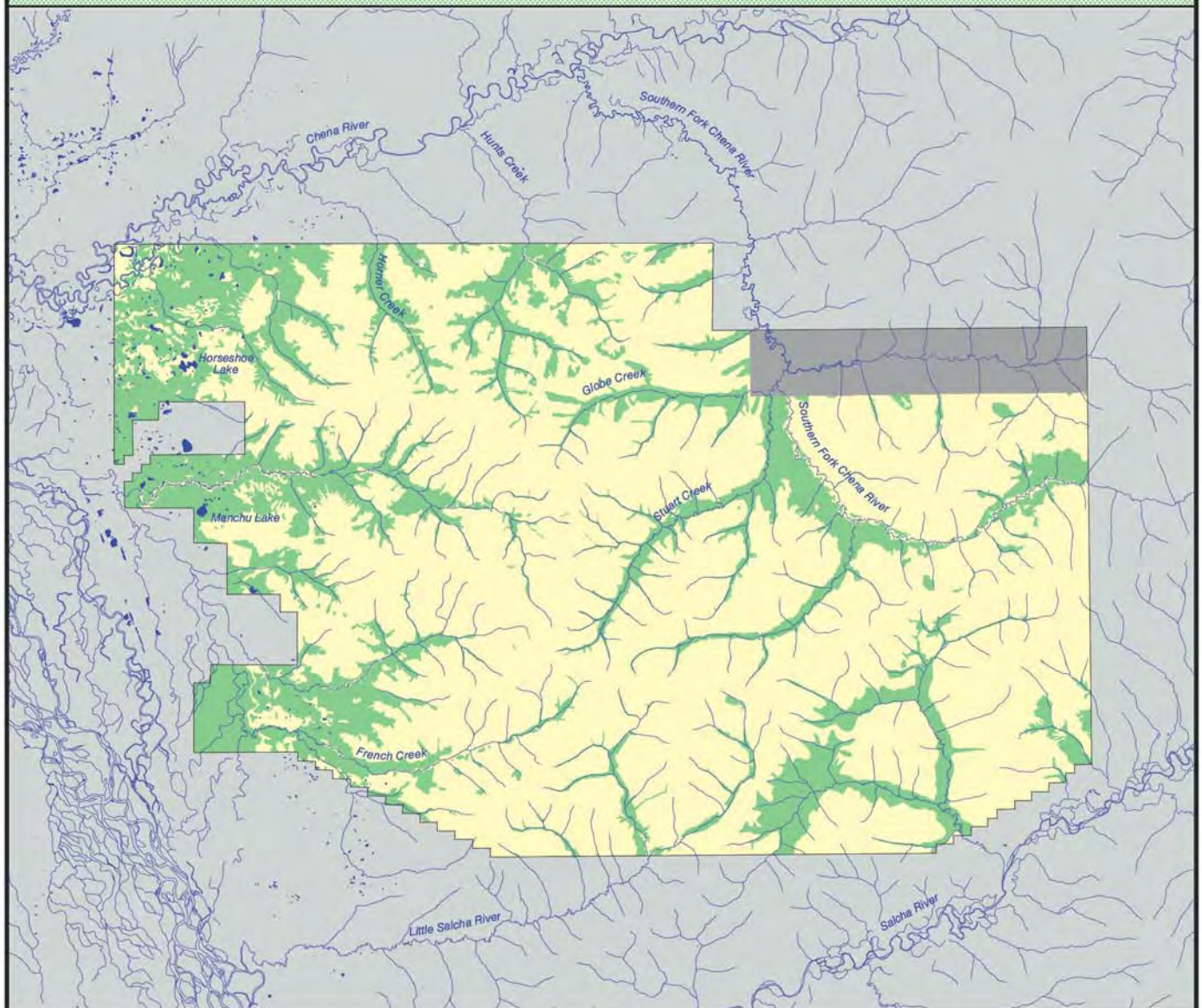
Scale: 1:500000
10 0 10 Miles



A-14

Figure 3.7.e

**Wetlands
Yukon Training Area**



Legend

- | | |
|---|--|
|  Upland |  Installation Boundary |
|  Wetland |  Lakes |
|  No Data Available |  Streams |

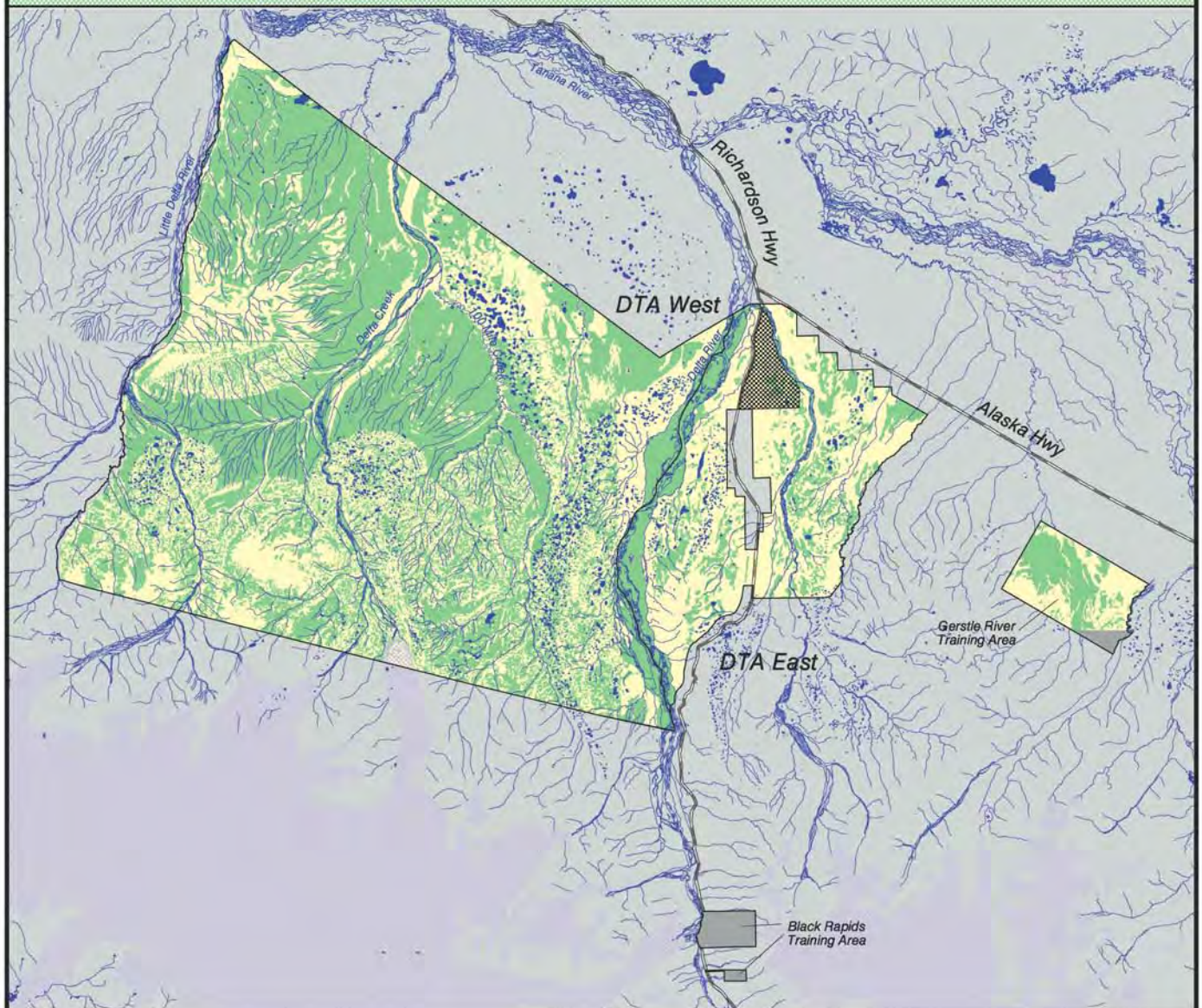
Source:
U.S. Army Alaska 2002g

Scale: 1:300000
5 0 5 Miles



Figure 3.7.f

*Wetlands
Donnelly Training Area*



Legend

- | | | |
|---|---|--|
|  Upland |  Installation Boundary |  Glaciers |
|  Wetland |  Fort Greely |  Lakes |
|  No Data Available |  Highways |  Streams |

Source:
U.S. Army Alaska 2002e

Scale: 1:600000
10 0 10 Miles



Figure 3.7.g

Wetlands Fort Richardson

Legend

-  Installation Boundary
-  Upland
-  Wetland
-  Lakes and Ponds
-  Streams

Scale: 1:150,000

2 0 2 Miles



Source:

U.S. Army Alaska 2002f

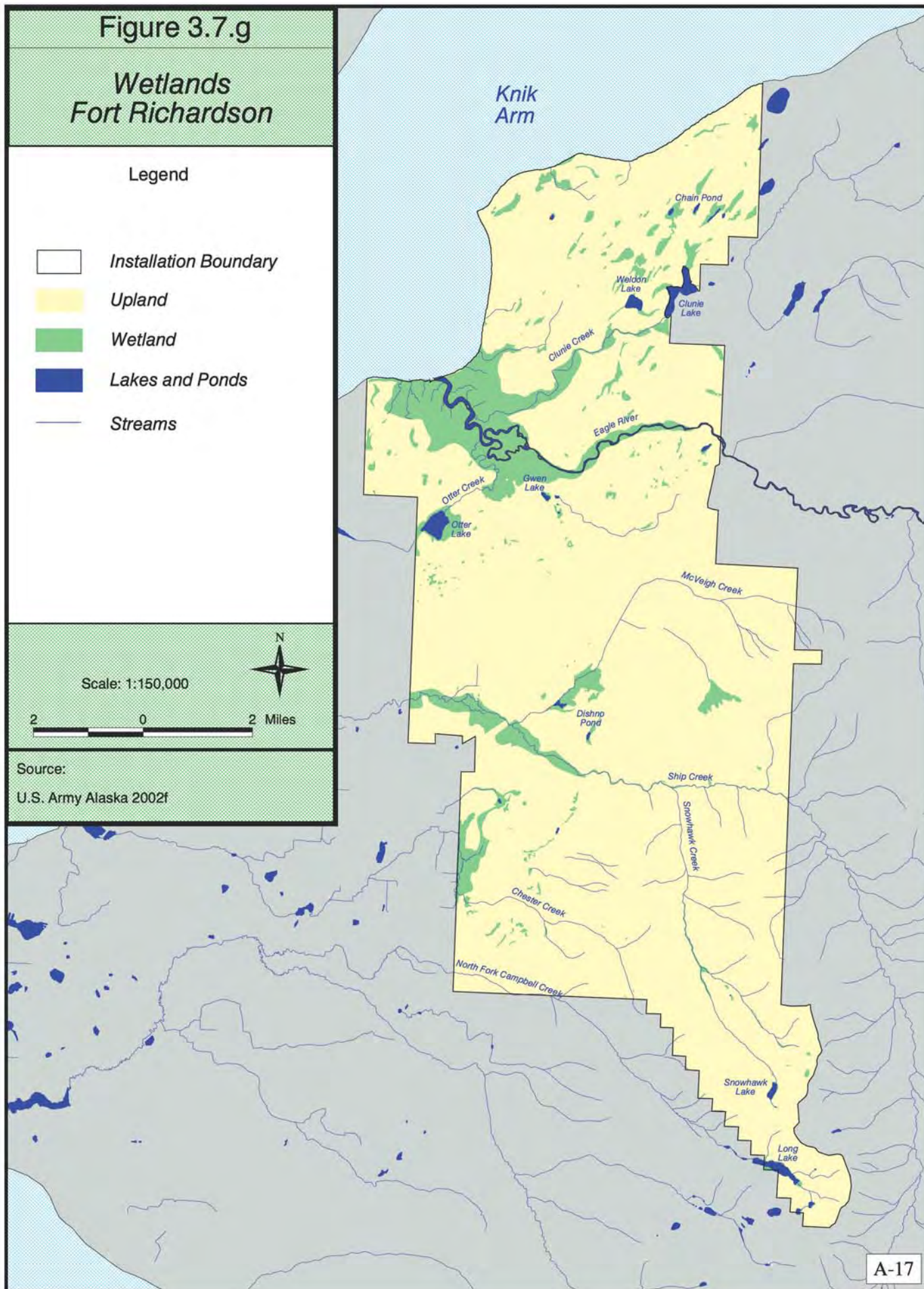
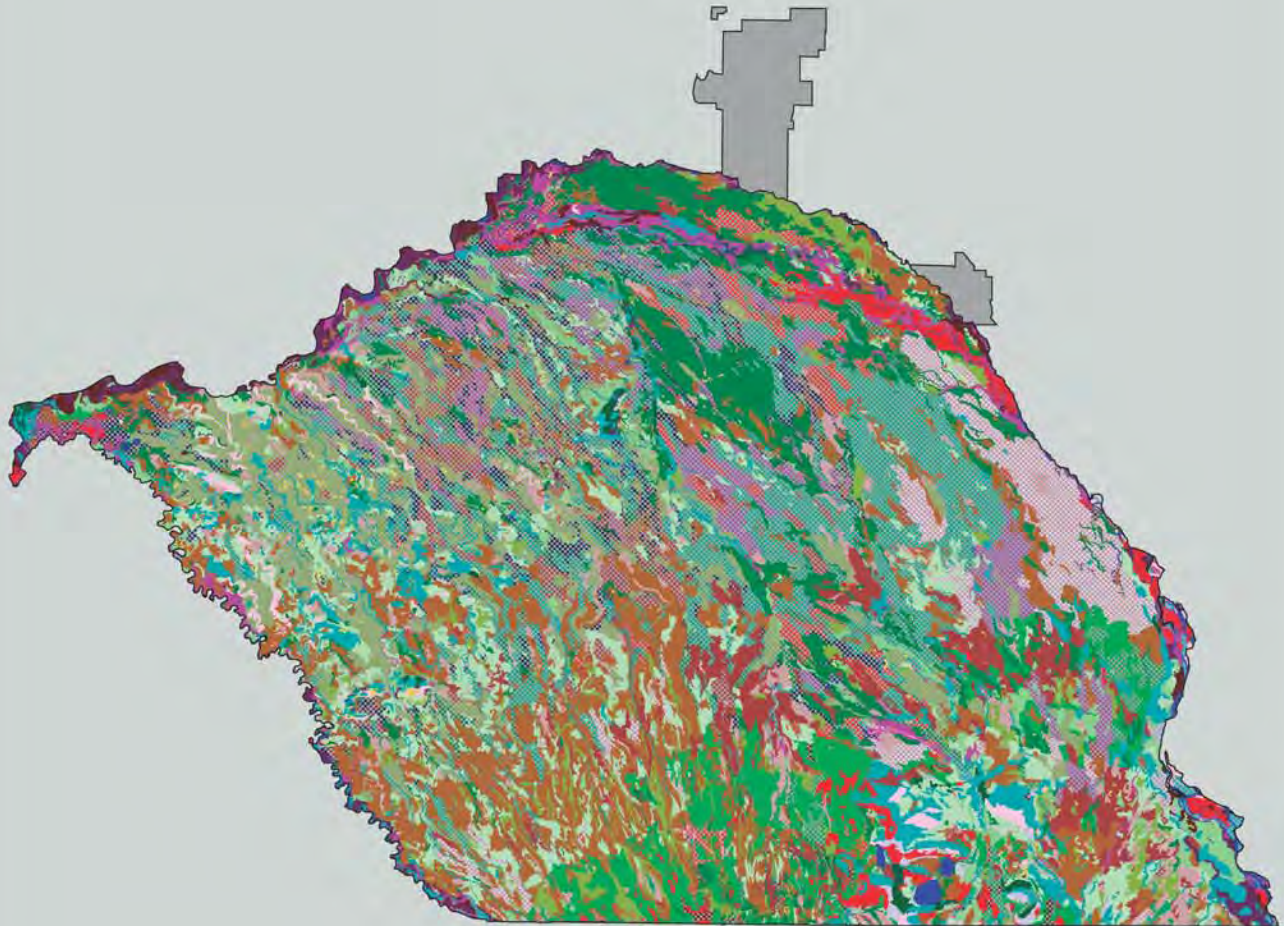


Figure 3.8.a

Ecotypes Tanana Flats Training Area



Legend

- | | | |
|--|--|---|
| Installation Boundary | Closed White Spruce Forest | Partially Vegetated |
| Barren | Midgrass-Shrub | Riverine Complex |
| Bluejoint Meadow | Mixed Conifer Woodland | Slope Drainage Complex |
| Broadleaf-Scrub Woodland | Open Black Spruce Forest | Subarctic Lowland Herb Bog Meadow |
| Closed Balsam Poplar Forest | Open Black Spruce-Tamarack Forest | Subarctic Lowland Sedge Wet Meadow |
| Closed Balsam Poplar-White Spruce Forest | Open Black Spruce-White Spruce Forest | Subarctic Lowland Sedge-Herb Bog Meadow |
| Closed Black Spruce Forest | Open Low Mixed Shrub-Sedge Tussock Bog | Subarctic Lowland Sedge-Moss Bog Meadow |
| Closed Black Spruce-White Spruce Forest | Open Low Scrub (post burn, disturbance) | Thermokarst Complex, black spruce-collapse scar |
| Closed Low Scrub | Open Low Willow-Graminoid Shrub Bog | Thermokarst Complex, closed paper birch-collapse |
| Closed Low Shrub Birch-Ericaceous Shrub | Open Paper Birch Forest | Thermokarst Complex, mixed spruce-paper birch-bog |
| Closed Paper Birch Forest | Open Paper Birch-Quaking Aspen Forest | Thermokarst Complex, open birch-shrub birch-fen |
| Closed Paper Birch-Quaking Aspen Forest | Open Quaking Aspen-Spruce Forest | Thermokarst Complex, open birch-shrub-bog |
| Closed Quaking Aspen Forest | Open Spruce-Paper Birch Forest | Thermokarst Complex, open birch-shrub swamp-fen |
| Closed Spruce-Paper Birch Forest | Open Tall Shrub Swamp | Water |
| Closed Spruce-Paper Birch-Quaking Aspen Forest | Open White Spruce Forest | No Data Available |
| Closed Tall Alder-Willow Shrub | Paludification Complex, (wet forb-sedge fen) | |

Source:
Jorgenson et al. 1999

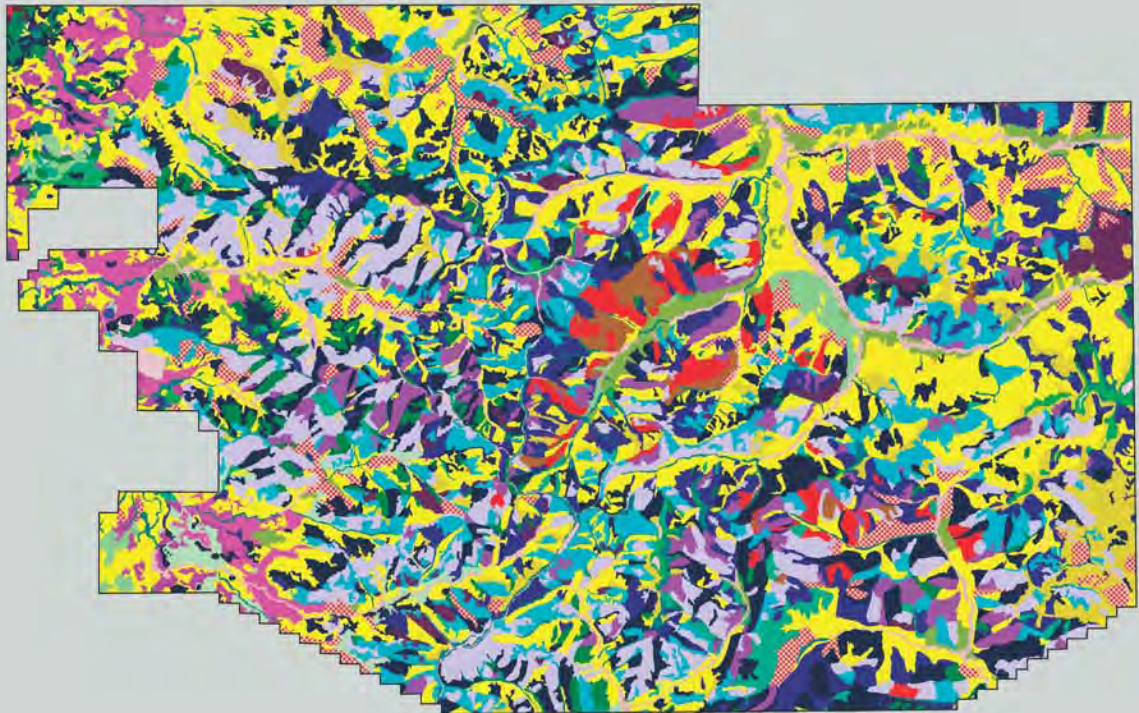
Scale: 1:500000

10 0 10 Miles



Figure 3.8.b

Ecotypes Yukon Training Area



Legend

- Installation Boundary - Barren - Bluejoint Meadow - Broadleaf-Scrub Woodland - Closed Balsam Poplar Forest - Closed Balsam Poplar-White Spruce Forest - Closed Black Spruce Forest - Closed Low Scrub - Closed Low Shrub Birch-Ericaceous Shrub - Closed Paper Birch Forest - Closed Paper Birch-Quaking Aspen Forest	- Closed Spruce-Paper Birch Forest - Closed Spruce-Paper Birch-Quaking Aspen Forest - Closed Tall Alder-Willow Shrub - Dryas-Lichen Dwarf Shrub Tundra - Lowland Eolian Complex - Mixed Conifer Woodland - Open Black Spruce (South-facing) - Open Black Spruce Forest - Open Black Spruce-White Spruce Forest - Open Low Mixed Shrub-Sedge Tussock Bog - Open Low Scrub (post burn, disturbance)	- Open Paper Birch Forest - Open Paper Birch-Quaking Aspen Forest - Open Spruce-Paper Birch Forest - Partially Vegetated - Riverine Complex - Slope Drainage Complex - Subarctic Lowland Sedge Wet Meadow - Subarctic Lowland Sedge-Herb Bog Meadow - Subarctic Lowland Sedge-Moss Bog Meadow - Water
---	---	--

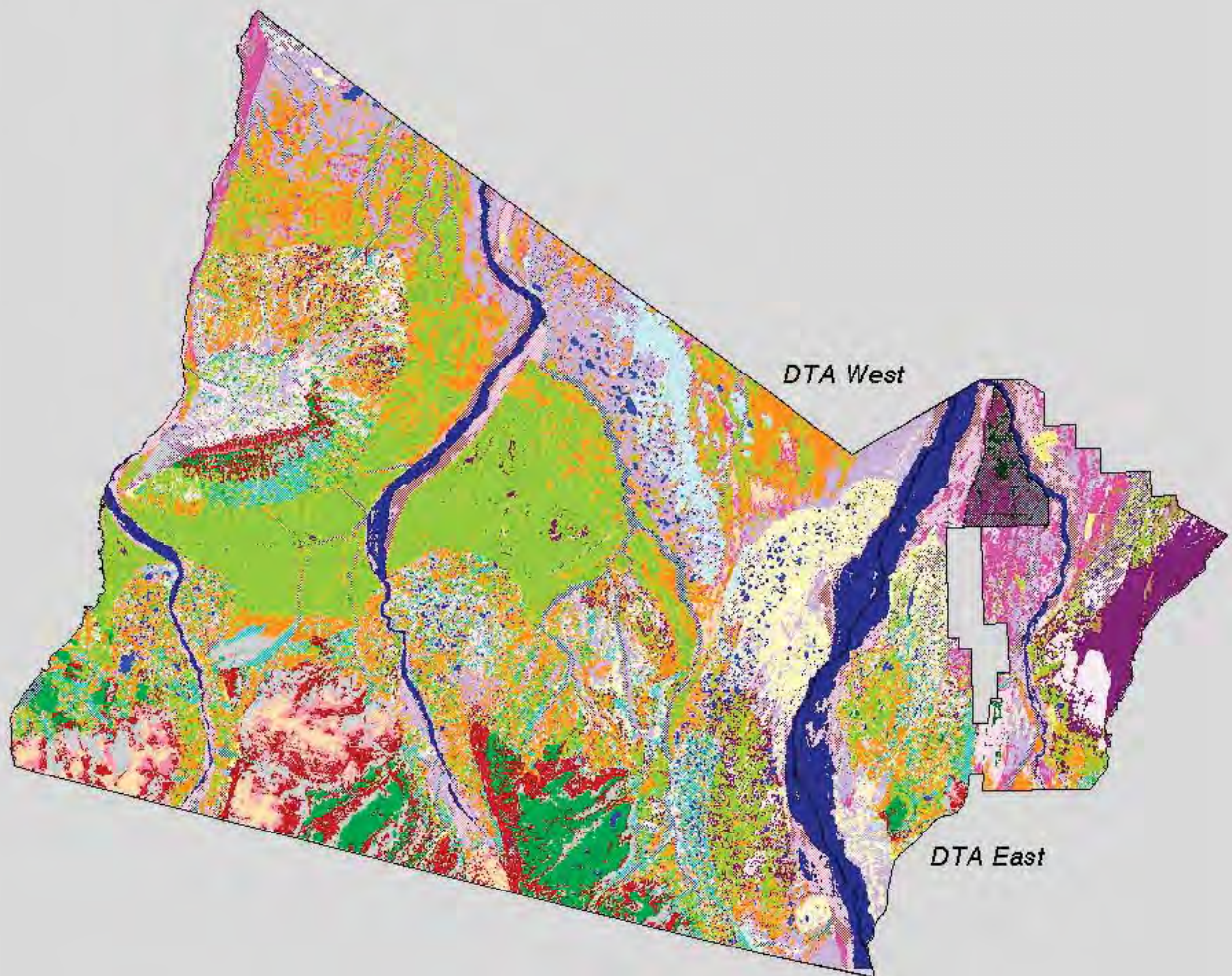
Source:
U.S. Army Alaska 1999a

Scale: 1:300000
5 0 5 Miles



Figure 3.8.c

Ecotypes Donnelly Training Area



Legend

Installation Boundary	Lowland Low Scrub - Disturbed	Riverine Moist Low and Tall Scrub
Fort Greely	Lowland Moist Tall Scrub	Riverine Moist Mixed Forest
Alpine Rocky Dry Barrens	Lowland Tussock Scrub Bog	Riverine Moist Needleleaf Forest
Alpine Rocky Dry Dwarf Scrub	Lowland Wet Broadleaf Forest	Upland Moist Broadleaf Forest
Alpine Rocky Moist Low Scrub	Lowland Wet Low Scrub	Upland Moist Low and Tall Scrub
Alpine Wet Low Scrub	Lowland Wet Mixed Forest	Upland Moist Low and Tall Scrub - Disturbed
Alpine Wet Tussock Meadow	Lowland Wet Needleleaf Forest	Upland Moist Mixed Forest
Human Disturbed Barrens	Ponds and Lakes	Upland Moist Needleleaf Forest
Human Disturbed Scrub	Riverine Gravelly Barrens	Upland Rocky Dry Broadleaf Forest
Lacustrine Moist Meadow	Riverine Gravelly Dry Broadleaf Forest	Upland Rocky Dry Low Scrub
Lowland Gravelly Dry Broadleaf Forest	Riverine Gravelly Dry Dwarf Scrub	Upland Rocky Dry Meadow
Lowland Gravelly Moist Low Scrub	Riverine Gravelly Needleleaf Forest	Upland Wet Needleleaf Forest
Lowland Gravelly Needleleaf Forest	Riverine Moist Broadleaf Forest	Upper Perennial River

Source:
U.S. Army Alaska 1999a

Scale: 1:500000

10 0 10 Miles



Figure 3.8.d

Ecotypes Fort Richardson

Legend

- Installation Boundary
- Alpine Lake
- Alpine Rocky Dry Barrens
- Alpine Rocky Dry Dwarf Scrub
- Alpine Rocky Moist Dwarf Scrub
- Alpine Rocky Moist Low Scrub
- Coastal Lake and Sedge Marsh
- Coastal Loamy Wet Barrens
- Coastal Loamy Wet Low Scrub
- Coastal Loamy Wet Meadow, brackish
- Coastal Loamy Wet Meadow, slightly brackish
- Coastal Sandy Moist Meadow
- Human Modified Barrens
- Human Modified Complex
- Human Modified Forest
- Human Modified Meadow
- Human Modified Scrub
- Human Modified Waterbodies
- Lowland Bog Meadow
- Lowland Gravelly Moist Broadleaf Forest
- Lowland Gravelly Moist Mixed Forest
- Lowland Gravelly Moist Needleleaf Forest
- Lowland Gravelly Moist Tall Scrub
- Lowland Lake and Aquatic Forb
- Lowland Loamy Moist Meadow
- Lowland Needleleaf Forest Bog
- Lowland Scrub Bog
- Nearshore Water
- Riverine Gravelly Moist Barrens
- Riverine Gravelly Moist Broadleaf Forest
- Riverine Gravelly Moist Mixed Forest
- Riverine Gravelly Moist Needleleaf Forest
- Riverine Gravelly Moist Tall Scrub
- Riverine Loamy Wet Tall Scrub
- Rivers and Streams
- Subalpine Rocky Moist Broadleaf Forest
- Subalpine Rocky Moist Low Scrub
- Subalpine Rocky Moist Meadow
- Subalpine Rocky Moist Needleleaf Forest
- Subalpine Rocky Moist Tall Scrub
- Upland Rocky Barrens
- Upland Rocky Dry Broadleaf Forest
- Upland Rocky Dry Mixed Forest
- Upland Rocky Moist Broadleaf Forest
- Upland Rocky Moist Mixed Forest
- Upland Rocky Moist Needleleaf Forest
- Upland Rocky Moist Tall Scrub

Scale: 1:150,000

2 0 2 Miles

Source:

Jorgenson et al. 2002

