

U.S. DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
SUPPLEMENTARY CASE/INCIDENT RECORD

ORGANIZATION (PARK) NAME	CASE/INCIDENT NUMBER
Denali National Park and Preserve	050156

LOCATION OF INCIDENT:

The area of traditional use of off-road vehicles for subsistence hunting in Denali National Park and Preserve for the subsistence community of Cantwell, Alaska, which includes portions of the Windy Creek, Cantwell Creek And Bull River watersheds.

DATE OF INCIDENT

08/01/2005

There are three routes that are specifically exempted from this closure (shown in maps 1 through 6):

- 1) the Windy Creek route from the Park boundary, along the bulldozer trail until the start of the ravine that descends into Windy Creek Also, the spur-trail that leads to the W/SW approximately one half mile (see routes on attached map number 1)
- 2) the northern portion of the old roadbed that extends southward from the Cantwell airstrip towards the Summit airstrip for approximately one mile (see the attached map number 2).
- 3) the route encompassing the active floodplain in the bed of Cantwell Creek, downstream from the Wilderness boundary, including the short section that re-enters the Park from the south (see route on attached maps number 3 through 6).

NATURE OF INCIDENT

Temporary closure of area to all off-road vehicles, with the exception of three specified access routes.

COMPLAINANT'S NAME

COMPLAINANTS ADDRESS

RESULTS OF INVESTIGATION

EFFECTIVE DATE: 08/01/2005; Duration of Closure 120 days.

CLOSURE NAME: Cantwell off-road vehicle traditional use area.

CLOSURE NUMBER: 13.46-001

BACKGROUND:

The community of Cantwell is a subsistence resident zone community for Denali National Park and Preserve (DNP) (36 Code of Federal Regulations (CFR) 13.63(a)) and permanent local residents within the resident zone are eligible for subsistence uses within the ANILCA park and preserve additions. The resident zone for Cantwell has been defined in the Subsistence Management Plan as the area within 3 miles of the Cantwell Post Office. ANILCA section 811(a) states: "...rural residents engaged in subsistence uses shall have reasonable access to subsistence resources on public lands." Subsistence access is further defined by section 811(b) "...the Secretary shall permit on the public lands appropriate use for subsistence purposes of snowmobiles, motorboats and other means of surface transportation traditionally employed for such purposes by local residents, subject to reasonable regulation." DNP's 1986 General Management Plan states: "Authorized means of access for subsistence uses in Denali National Park and Preserve are snowmachines, motorboats and dog teams, and they

are governed by existing regulations (36 CFR 13.46). If another means of surface access is shown to have been traditionally employed in the unit for subsistence purposes, it may be permitted in that unit subject to reasonable regulations. The existing regulations contained in 36 CFR 13.46 do not allow for transportation modes other than snowmobiles, motorboats, and other means of surface transportation traditionally employed. Any additional information about traditional means will be reviewed on a case-by-case basis.”

The NPS has concluded that ORVs are a traditional means of access for subsistence purposes only in the following specific area of DNP, which is shown outlined in red on the attached map (see map number two):

That area of the 1980 Denali National Park additions between Windy Creek and the south bank of the Bull River excluding the portion of the South Fork of Windy Creek drainage in the Foggy Pass area as shown on map number 7 below: “Traditional ORV Use Areas for Subsistence Purposes on Denali National Park Lands in the Cantwell Area by Federally Qualified Subsistence Users”

Use of ORVs within these specific areas is subject to the provisions of 36 CFR 13.46, 50 CFR part 100 and all other applicable laws and regulations.

JUSTIFICATION: This temporary closure is necessary to assure the protection of the vegetation and soils resources of DNP from damage resulting from off-road vehicle (ORV) use during the period that field studies and an Environmental Assessment are undertaken to accomplish the following items:

- 1) An inventory of the location, intensity, and pattern of impacts to Park resources (including vegetation and soils) that has resulted from past use of ORVs in this area of DNP.
- 2) An evaluation of routes within this region where access by ORVs is feasible and sustainable without resulting in unacceptable levels of impact to the resources of DNP.
- 3) The design of a program to monitor and assess the ongoing impacts of ORV use through time, in order to ensure that continuing use of ORVs does not result in adverse impacts to resources of DNP.
- 4) An examination of the alternatives for managing ORV access to subsistence resources in the designated region of DNP.

There is considerable evidence documenting the potential for serious damage to Alaskan vegetation and soils resulting from the use of off-road vehicles in Alaska’s natural landscapes (Happe *et al.*, 1998; Ahlstrand and Racine 1990, Racine & Johnson, 1988, Sparrow *et al.*, 1978, Wooding & Sparrow, 1978). Even quite limited ORV traffic has been found to cause substantial damage to vegetation and disturbance of soils. In fact, a study by Ahlstrand & Racine in Alaska (1990) showed that the majority of impacts to vegetation can occur in the first 20 passes of an ORV. In addition, the severity of resource damage usually increases with the number of passes made by ORVs through an area. In DNP, the effects of a single ORV incursion by three vehicles into the Park in 2003 are still plainly visible in 2005, particularly in sensitive wetland sites, and a few heavily-impacted trails of longer duration show conspicuous vegetation and soil disturbance, even from the air.

ORVs can abrade, break, compress, and shear both vegetation and soils. The most obvious impact to vegetation is a decrease in live plant biomass that results from removal or killing of plants by physical contact with the vehicles. An ORV impact assessment in Wrangell- St. Elias National Park & Preserve (Happe *et al.*, 1998) reported that plots on trails with active use had 41% less vegetation cover than control plots. Damage to plant tissues may kill plants and thereby alter the native vegetation of an area. The cumulative amount of injury to plants is controlled by the amount of traffic, the vegetation type and soil stability (Sparrow *et al.*, 1978). Heavy use by ORVs may result in severe compaction and/ or slicing of the organic mat that supports plant growth. Significant surface depression can occur as a result of ORV traffic, particularly in wet sites, and the soil surface may continue to subside even years after the original impact from ORV traffic (Ahlstrand & Racine, 1990).

A single track trail of a typical 4-wheel ORV (with no braids) disturbs approximately 1 acre of vegetation per mile, while on average, a braided track disturbs an average of 4 acres per mile (Meyer, 2002). Severely impacted areas with a large number of braids will disturb much more area than this. An ORV incursion in the Dunkle Hills area of DNP that occurred during September 2003 impacted about 8,405 m² (2.08 acres) of vegetation and soils (Roland & Van Horn, 2005). This footprint was a result of a single incident; therefore future ORV trails into this area would be expected to greatly expand the amount of affected vegetation. In fact,

mapping completed during 2005 has identified large polygons of impacted wetlands within the boundaries of DNP.

The impact of ORV use varies among vegetation types (Happe et al., 1998; Wooding & Sparrow, 1978, Roland and Van Horn 2005). Wetlands are apparently very sensitive to ORV incursions. An assessment documenting ORV damage within DNP showed that a reduction in vegetative cover was a conspicuous result of even limited use of these vehicles in wetland areas of Broad Pass near the ORV use area of the Park (Roland and Van Horn 2005). The vegetation types with the most cumulative impacts of ORVs in Wrangell- St. Elias National Park & Preserve were open low shrub-sedge tussock bog and mesic herbaceous vegetation communities. Vegetation recovery was highest in the spruce woodland and low shrub communities, and lowest in the open spruce forest types (Happe et al., 1998). The Broad Pass region of Denali NP is predominantly covered by herbaceous wetland meadows, riparian corridors dominated by tall willows, and low birch-ericaceous shrub (Roland & Van Horn, 2005); all of these vegetation types have been found to be easily damaged by relatively low levels of ORV traffic (Ahlstrand & Racine, 1990; Sparrow et al., 1978; Racine & Johnson, 1988).

The most consistent impact of ORVs on soils is compaction of surface horizons. Compaction is a common result of soil disturbance in both arctic (Gersper & Challinor, 1975; Abele *et al.*, 1984; Rewa, 2003) and interior Alaska (Sparrow *et al.*, 1976; Happe *et al.*, 1998; Ahlstrand & Racine, 1990). Compaction is the process by which the pore space in soils is decreased due to physical force, and bulk density of the soil is increased. The result of compaction is a reduced permeability of water and gas, which impairs the ability of roots to function. Soil that is saturated with water is highly likely to be greatly impacted by ORV use (Meyer, 2002). These soils are unstable and are have been shown to be susceptible to churning that creates impassible muck holes (Happe *et al.*, 2002, Ahlstrand & Racine, 1990; Sparrow *et al.*, 1978). The creation of impassible areas causes braiding of trails that magnifies the 'footprint' of disturbance over time. The effects on soils in wetlands are conspicuous. These soils are easily compacted, and pushed into ridges, churned and thrown, and lifted on vehicle tracks and tires (Meyer 2002).

The duration of ORV impacts is a crucial question for managers. The passage of a single ORV in some landscapes can leave a visual imprint that lasts indefinitely (Ahlstrand & Racine, 1990; Forbes, 1998). However, the duration of impacts along any specific ORV trail varies, depending on the severity of adverse impacts, and on several environmental variables including slope, aspect, soil moisture, hydrological regime, soil morphology, species composition and vegetation type (Meyer 2002).

In field assessments of ORV trails made in both 2004 and 2005, resource staff from DNP have observed and mapped a variety of impacts resulting from ORV traffic within the Park, ranging from minor surface depressions due to soil compaction along a single track to 15 m wide swaths of severely impacted wetland vegetation that has resulted from extensive trail braiding and degradation of ORV routes over time. The attached photographs show examples of ORV-impacted vegetation and soils in wetlands between Cantwell Creek and the Bull River. It is clear from these observations that damage to vegetation and soil resources within DNP has occurred, and without a closure, these impacts would be exacerbated. Furthermore, the studies cited above suggest that substantial and lasting damage to Park resources is a real potential consequence of unmanaged ORV use, particularly in sensitive areas such as wetlands and alpine tundra. Therefore, it is essential that the designated area be closed to further ORV use while a thorough environmental assessment of the scale and intensity of impacts from ORV use in DNP is made. Furthermore, the EA will identify options for managing ORV access, including specific routes that could support ORV traffic without the creation of unacceptable levels of impact to native vegetation and soils resources. This temporary closure is a necessary action to forestall additional negative impacts to Park resources while a thorough environmental assessment process is accomplished. This is a necessary step towards the development of a sound and sustainable plan for managing use of ORVs to access subsistence resources within Denali National Park and Preserve.

The authority to close this area is exercised under Title 36 13.46 of the Code of Federal Regulations (CFR), which is cited below. The three specific routes that are exempt from this closure are provided to allow reasonable access to subsistence resources for the community of Cantwell.



Photograph One: Photo showing extensive rut-formation and vegetation removal caused by ORV use in a wetland area of DNP, located between Cantwell Creek and the Bull River. This photo was taken during the summer of 2005.



Photograph two: An aerial view of one example of conspicuous braiding of trails and pattern of proliferating impacts resulting from ORV use through sensitive wetland vegetation and soils documented in DNP during summer 2005.

Literature Cited

- Abele, G., J. Brown & M.C. Brewer, 1984. Long-term effects of off-road vehicle traffic on tundra terrain. *Journal of Terramechanics*, 21(3): 283-294.
- Ahlstrand, G.M, S.E. Cantor & C.H. Racine, 1988. Effects of all-terrain vehicle use in the vicinity of Anaktuvuk Pass, Gates of the Arctic National Park, Alaska: I. Study of established, recovery, and new trail segments. Natural Resources Final Report AR-88/01, National Park Service, Alaska Region.
- Ahlstrand, G.M. & C.H. Racine, 1990. Response of an Alaskan shrub-tussock community to selected all-terrain vehicle use. Natural Resources Management Report AR-19. National Park Service, Alaska Region.
- Brown, J., 1976. Ecological and environmental consequences of off-road traffic in northern regions. Conference Proceeding, Evans, MN. Anchorage, Alaska, U.S. Department of the Interior, Bureau of Land Management, Alaska State Office.
- Challinor, J.L. & P.L. Gersper, 1975. Vehicle perturbation effects upon a tundra soil-plant system: II. Effects on the chemical regime. *Soil Science Society of America Proceedings*, 39: 689-695.
- Gersper, P.L. & J.L. Challinor, 1975. Vehicle perturbation effects upon a tundra soil-plant system: I. Effects on morphological and physical environmental properties of the soils. *Soil Science Society of America Proceedings*, 39: 737-744.
- Happe, P.J., K.E. Shea & W.M. Loya, 1998. Assessment of all-terrain vehicle (ATV) impacts: within Wrangell-St. Elias National Park and Preserve, Alaska. Unpublished Wrangell-St. Elias National Park and Preserve Research and Resource Management Report No. 98-1. Copper Center, AK: U.S. Department of the Interior, Wrangell-St. Elias National Park and Preserve.
- Meyer, K., 2002. Managing degraded off-highway vehicle trails in wet, unstable, and sensitive environments. USDA Forest Service, Technology & Development Program.
- Racine, C.H., 1979. Tundra disturbance and recovery resulting from off-road vehicle use for summer reindeer herding and a 1974-1975 winter drilling operation in the northern Seward Peninsula, Alaska. USDI-NPS.
- Racine, C.H. & G.M. Ahlstrand, 1991. Thaw response of tussock-shrub tundra to experimental all-terrain vehicle disturbances in south-central Alaska. *Arctic*, 44(1): 31-37.
- Racine, C.H. & L.A. Johnson, 1988. Effects of all-terrain vehicle traffic on tundra terrain near Anaktuvuk Pass, Alaska. U.S. Army Corps of Engineers, Special Report 99-17.
- Rewa, S.P., 2003. Thirty years of recovery from vehicle disturbance in Alaskan arctic tundra. Master of Science thesis, Michigan State University.
- Rosenkranz, D., Geologist, Wrangell- St. Elias National Park & Preserve. May 13, 2005. Personal communication with Patricia Loomis.

Sparrow, S.D., Wooding, F.J. & E.H. Whiting, 1976. The impact of off-road vehicle use on soils and vegetation on Bureau of Land Management lands along the Denali Highway. Report submitted to BLM.

Sparrow, S.D., Wooding, F.J. & E.H. Whiting, 1978. Effects of off-road vehicle traffic on soils and vegetation in the Denali Highway region of Alaska. *Journal of Soil and Water Conservation*, 33(1): 20-27.

Wooding, F.J. & S.D. Sparrow, 1978. An assessment of damage caused by off-road vehicle traffic on subarctic tundra in the Denali Highway area of Alaska. United States Forest Service. Pacific Northwest Region Report.

§13.46 Use of snowmobiles, motorboats, dog teams, and other means of surface transportation traditionally employed by local rural residents engaged in subsistence uses.

(a) Notwithstanding any other provision of this chapter, the use of snowmobiles, motorboats, dog teams, and other means of surface transportation traditionally employed by local rural residents engaged in subsistence uses is permitted within park areas except at those times and in those areas restricted or closed by the Superintendent.

(b) The Superintendent may restrict or close a route or area to use of snowmobiles, motorboats, dog teams, or other means of surface transportation traditionally employed by local rural residents engaged in subsistence uses if the Superintendent determines that such use is causing or is likely to cause an adverse impact on public health and safety, resource protection, protection of historic or scientific values, subsistence uses, conservation of endangered or threatened species, or the purposes for which the park area was established.

(c) No restrictions or closures shall be imposed without notice and a public hearing in the affected vicinity and other locations as appropriate. In the case of emergency situations, restrictions or closures shall not exceed sixty (60) days and shall not be extended unless the Superintendent establishes, after notice and public hearing in the affected vicinity and other locations as appropriate, that such extension is justified according to the factors set forth in paragraph (b) of this section. Notice of the proposed or emergency restrictions or closures and the reasons therefore shall be published in at least one newspaper of general circulation within the State and in at least one local newspaper if appropriate, and information about such proposed or emergency actions shall also be made available for broadcast on local radio stations in a manner reasonably calculated to inform local rural residents in the affected vicinity. All restrictions and closures shall be designated on a map which shall be available for public inspection at the office of the Superintendent of the affected park area and the post office or postal authority of every affected community within or near the park area, or by the posting of signs in the vicinity of the restrictions or closures, or both.

(d) Motorboats, snowmobiles, dog teams, and other means of surface transportation traditionally employed by local rural residents engaged in subsistence uses shall be operated (1) in compliance with applicable State and Federal law, (2) in such a manner as to prevent waste or damage to the park areas, and (3) in such a manner as to prevent the herding, harassment, hazing or driving of wildlife for hunting or other purposes.

(e) At all times when not engaged in subsistence uses, local rural residents may use snowmobiles, motorboats, dog teams, and other means of surface transportation in accordance with §§13.10, 13.11, 13.12, and 13.14, respectively.

LOCATION: Cantwell ORV traditional use area of Denali National Park and Preserve, including the relevant portions of the drainages of Windy Creek, Cantwell Creek and the Bull River, with the exception of three routes that are specifically exempted from this closure, which are described above and are shown in attached map number one.

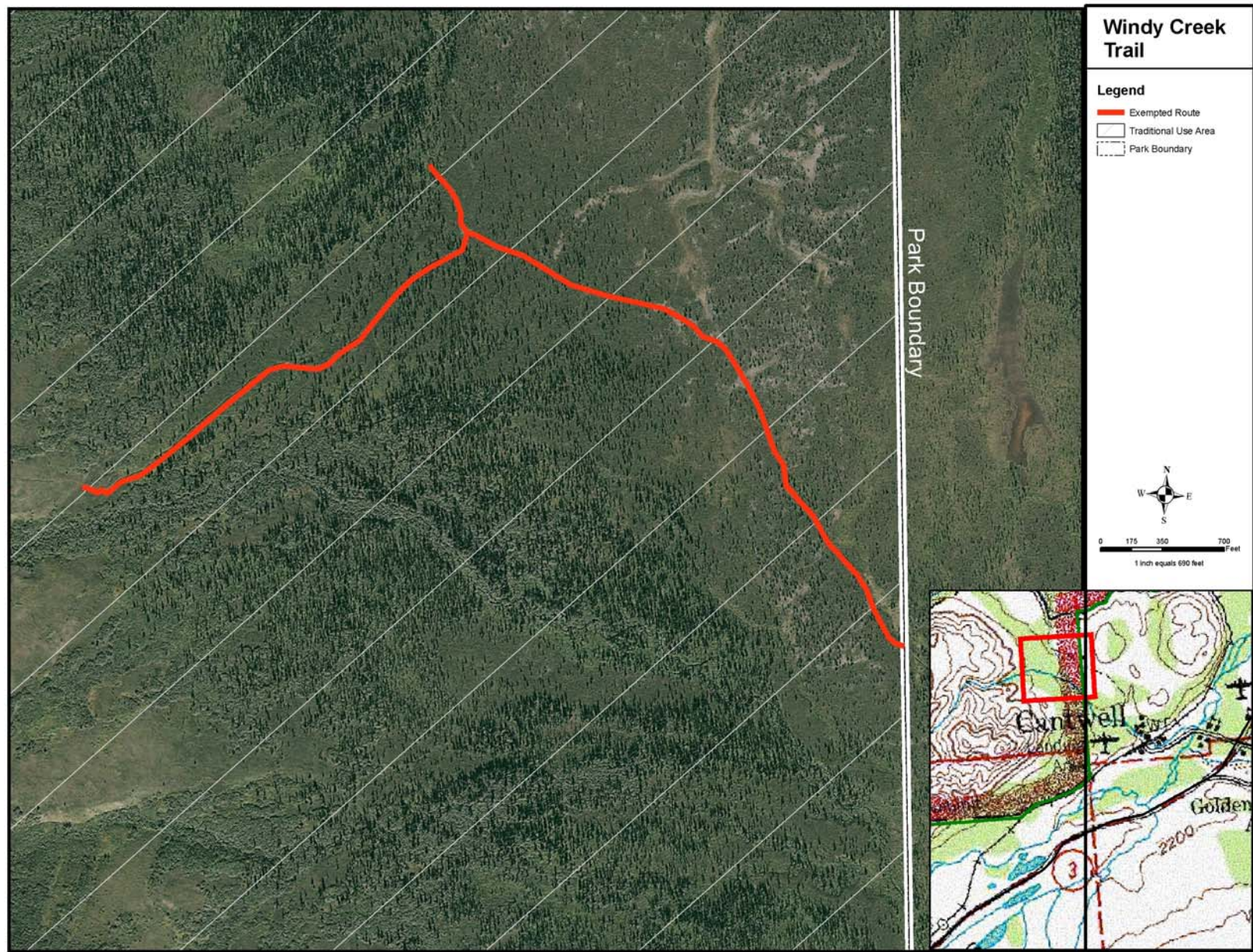
PREPARATION: Carl Roland

NOTIFY COMM. CENTER: Carl Roland

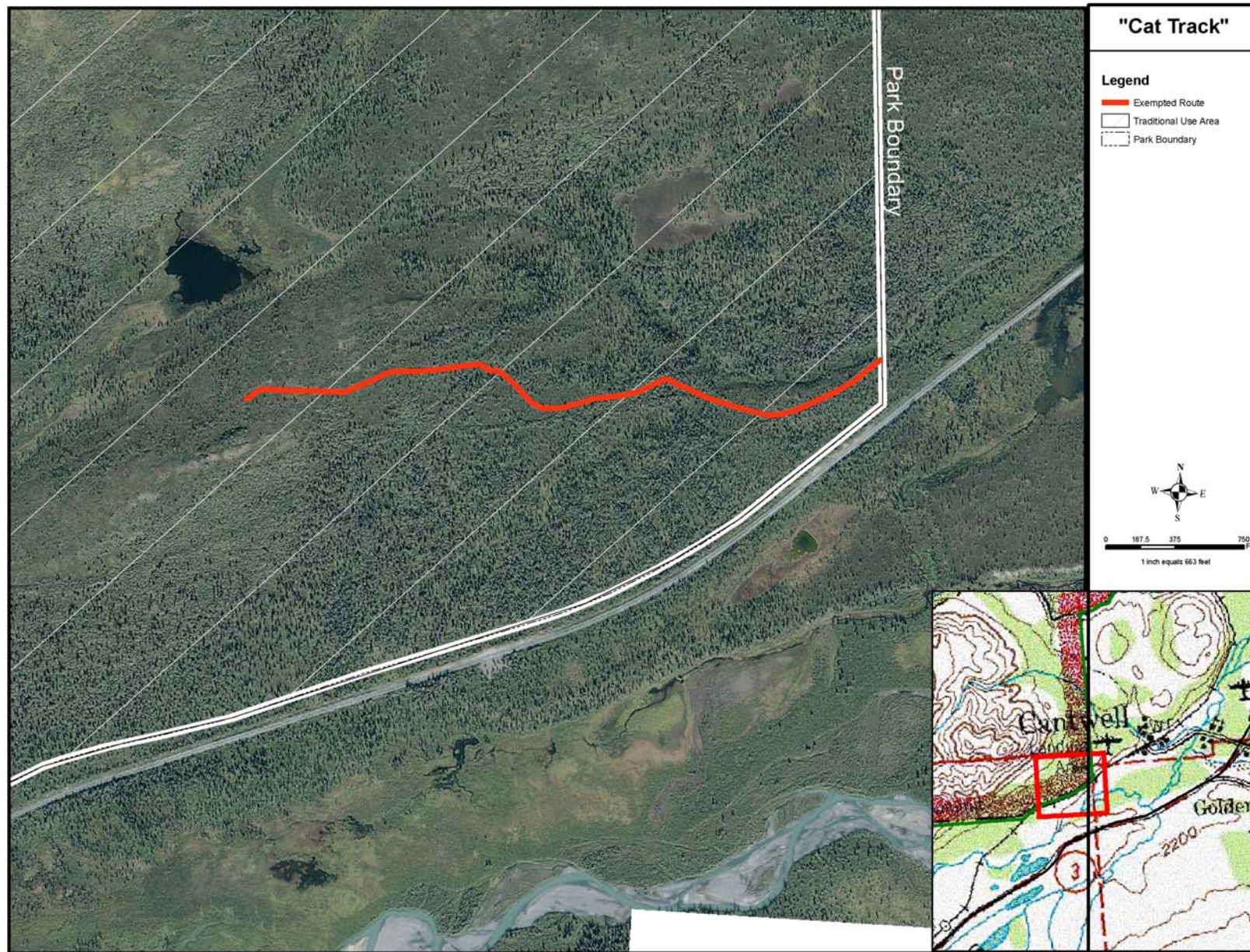
MONITORING: Backcountry LE staff.; Botany program staff

SUBMITTED BY (SIGNATURE AND DATE)

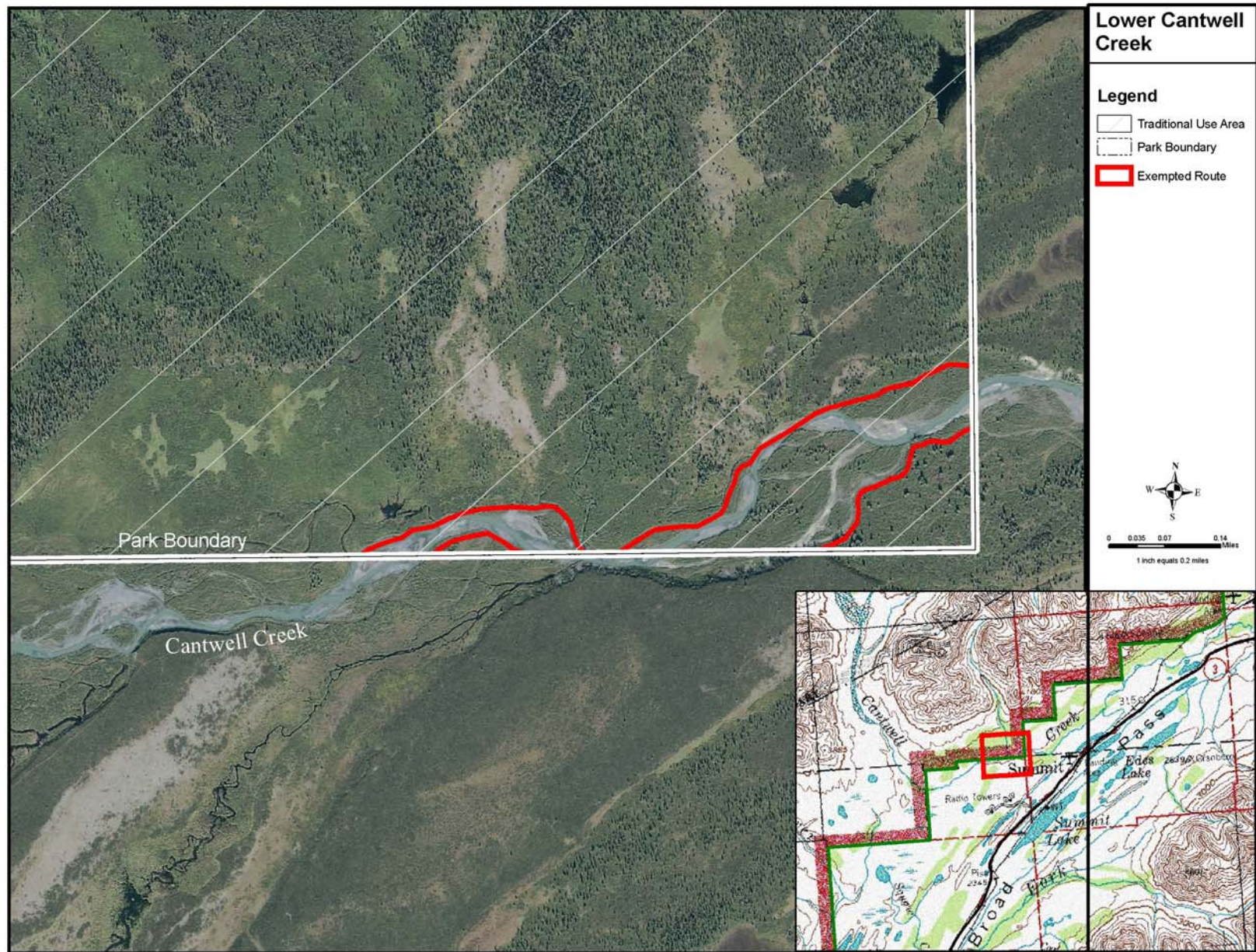
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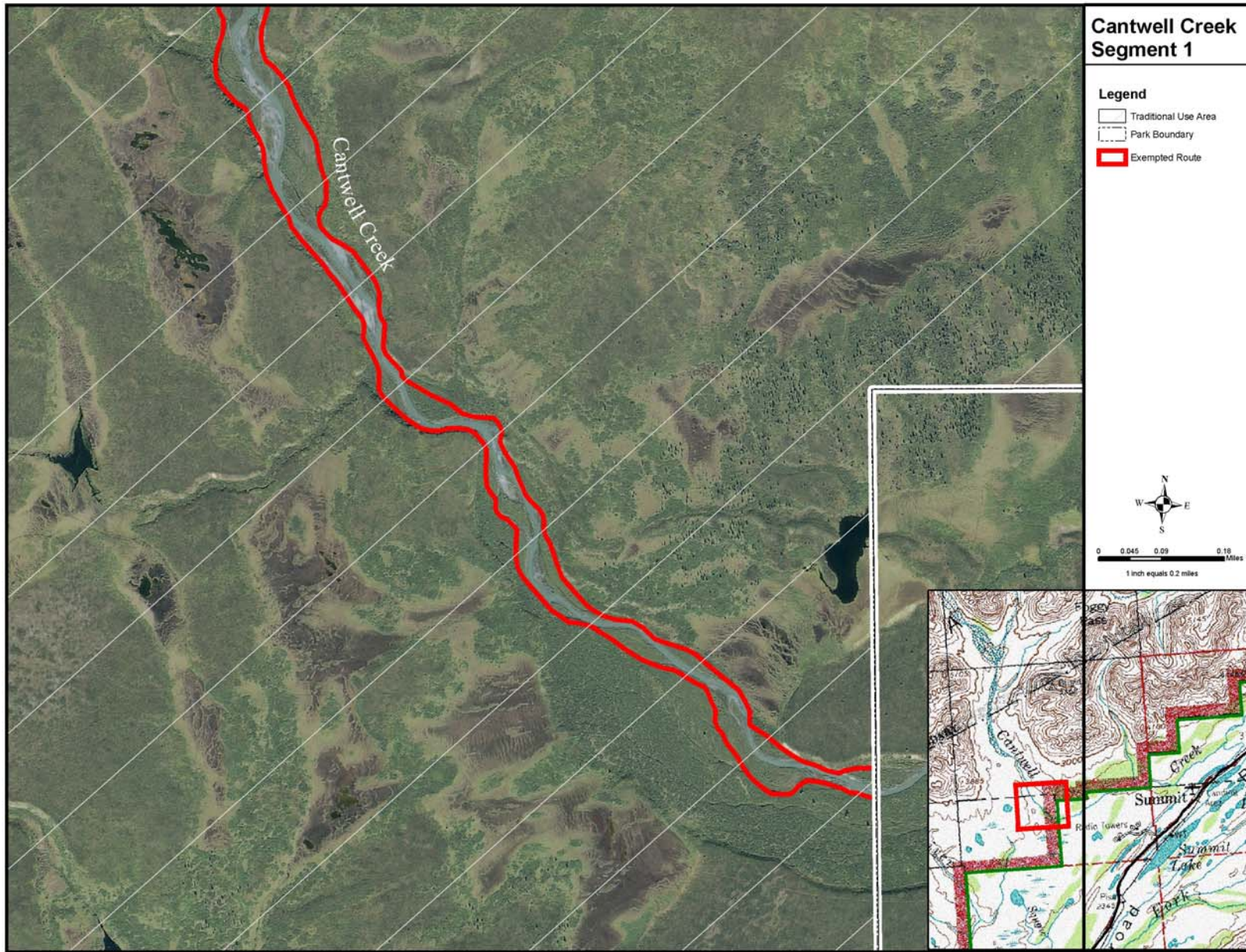
Map 1. Windy Creek trail route in DNP that is specifically exempted from the temporary closure of the traditional use area to ORV traffic.



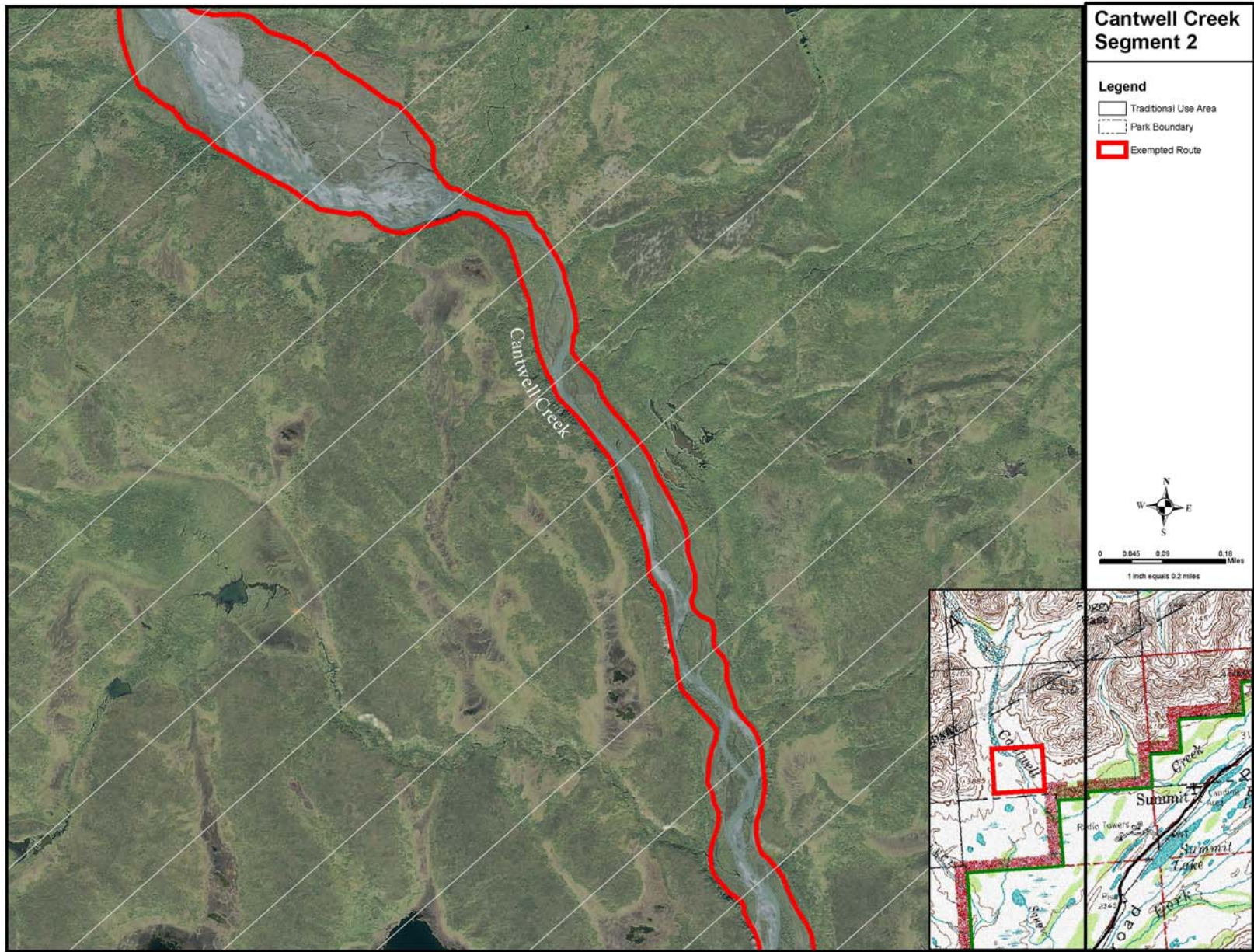
Map 2. Exempted ORV route number two - the northern portion of the old roadbed that extends southward from the Cantwell airstrip towards the Summit airstrip.



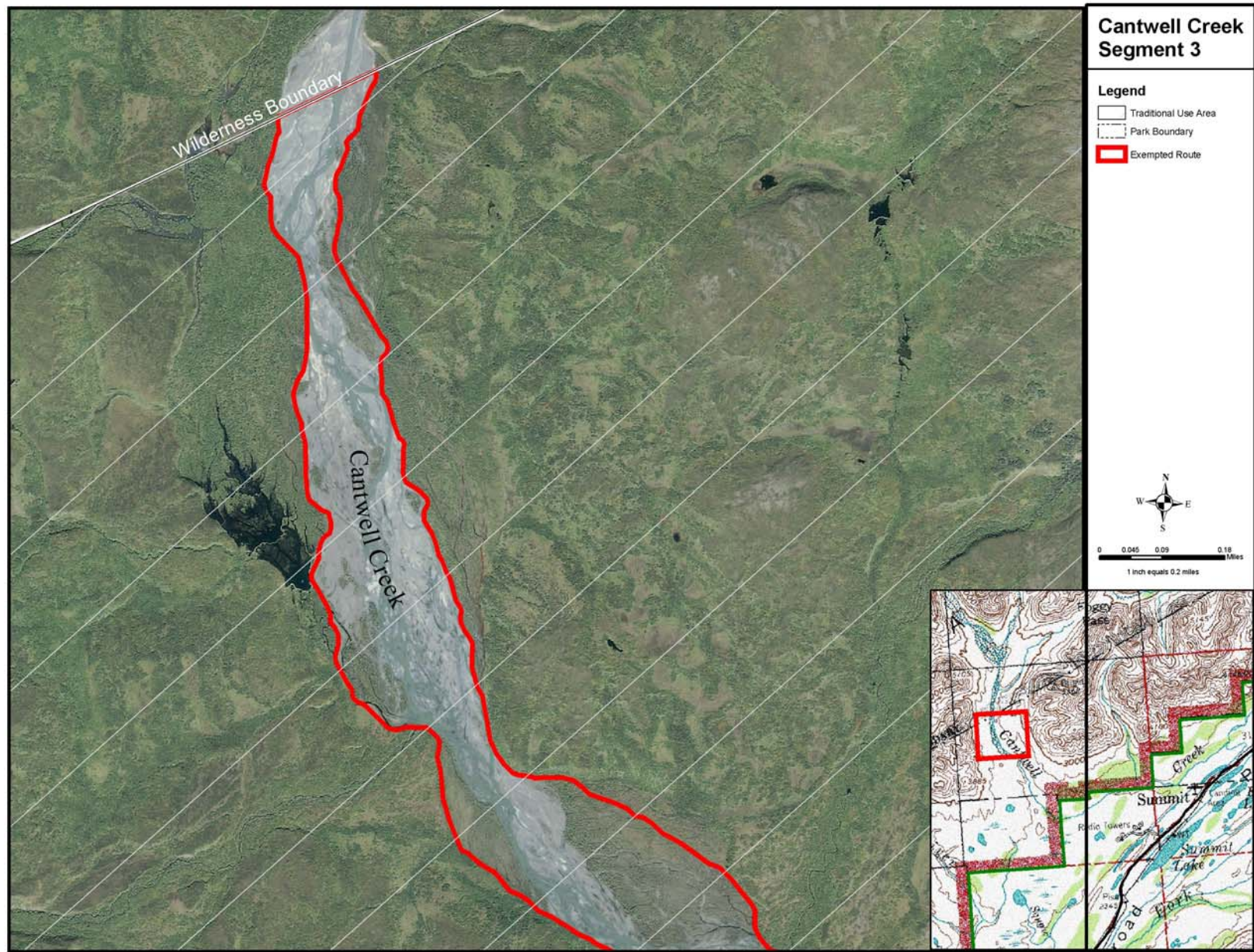
Map 3. Southeastern portion of Cantwell Creek floodplain exempted from temporary closure of traditional use area to ORVs.



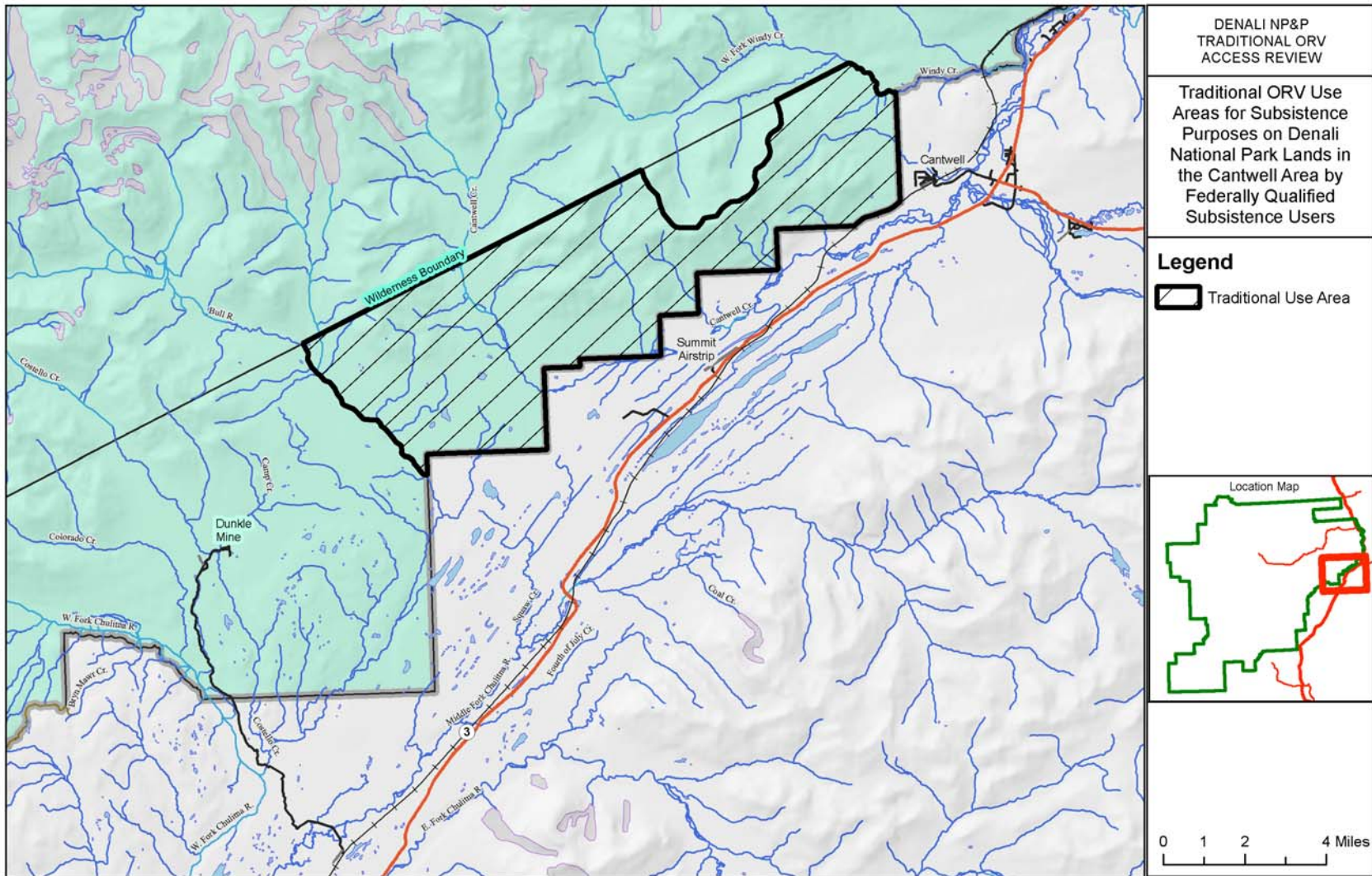
Map 4. Southern portion of Cantwell Creek floodplain exempted from temporary closure of traditional use area to ORVs.



Map 5. Middle portion of Cantwell Creek floodplain exempted from temporary closure of traditional use area to ORVs.



Map 6. Northern reach of Cantwell Creek floodplain exempted from temporary closure of traditional use area to ORVs.



Map 7: Traditional ORV Use Areas for Subsistence Purposes on Denali National Park Lands in the Cantwell Area by Federally Qualified Subsistence Users.