

Donnelly Flats Site Descriptions

This file describes the location of each site sampled within the Donnelly Flats (DF) region as a part of the U.S. Geological Survey project *Fate of Carbon in Alaskan Landscapes*. This region is located near Delta Junction, Alaska, which is ~115 miles southeast of Fairbanks, at the intersection of the Alaska and Richardson Highways (Alaska state highways 2 and 4, respectively). The following text gives general directions to each of our sites and the following data for each profile sampled within the site: general location within the site, person(s) who did the sampling, sampling date, and dominant vegetation. Additional locations within each site were described and not sampled. Similar data for these sites can be found in the Excel (Microsoft, Inc.) file called *Delta_Transects*.

Tower Control (DFTC) and Tower Burn (DFTB)

From Delta Junction take the Richardson Highway south past Jarvis Creek, the main gate of Ft. Greeley, and Pump Station #9. Make a left on Meadows Road. Drive over the pipeline. To get to the Tower Control site (DFTC), take a right at the next intersection (which may look like a fork as it has a large grassy area in the center). Drive ~2.75 miles. The Tower Control site is located on the left at $63^{\circ} 53.322' \text{ N } 145^{\circ} 44.439'$, just before a large grassy area, also on the left. Transects run from the eddy covariance tower at $140\text{-}180^{\circ}$ for 300 m and 90° for 200 m (named south and east transects, respectively). The second site, Tower Burn (DFTB), is also off of Meadows Road. Instead of veering right at the intersection, go straight. Take a left at the next T-intersection. The Tower Burn site will be ~0.5 miles down the road on your right at $63^{\circ} 55.210' \text{ N, } 145^{\circ} 44.355' \text{ W}$. Transects run from the tower at 180° for 300 m and 90° for 200 m.

- DFTC 1 Donnelly Flats Tower Control Profile 1 is located 300 m south of tower. Described and sampled to 44 cm by J. Harden and J. Raymond on 2 Aug 2000. Vegetation: *Picea mariana*, *Ledum* sp., *Hylocomium* sp., *Dicranum* sp. and *Vaccinium vitis-idaea*.
- DFTC 6 Donnelly Flats Tower Control Profile 6 is located 200 m south of the tower. Described and sampled by J. Harden and K.L. Manies on 2 Aug 2000 to 66 cm. Vegetation: *Picea mariana*, *Pleurozium* sp., *Ledum* sp., and *Vaccinium vitis-idaea*.
- DFTC 11 Donnelly Flats Tower Control Profile 11 is located 150 m south of the tower. Described and sampled by K.L. Manies on 3 Aug 2000 to 105 cm. Vegetation: *Picea mariana*, *Cladina* sp., and other lichens.
- DFTC 16 Donnelly Flats Tower Control Profile 16 is located 100 m south of the tower. Described and sampled by J. Raymond and J. Harden on 3 Aug 2000 to 90 cm. Vegetation: *Picea mariana*, *Ledum* sp., and *Pleurozium* sp.; *Cladina* sp. nearby.
- DFTC 20 Donnelly Flats Tower Control Profile 20 is located 20 m south of the tower. Described by J. Harden and K.L. Manies on 4 Aug 2000 to 17 cm. Vegetation: *Picea mariana* and *Cladina* sp. with some *Ledum* sp. and *Hylocomium* sp. nearby.
- DFTC 21 Donnelly Flats Tower Control Profile 21 is located 150 m east of the tower. Described and sampled by J. Harden and J. Raymond on 5 Aug 2000 to 65cm. Vegetation: Closed canopy of *Picea mariana*, with *Vaccinium vitis-idaea*, *Ledum* sp., *Hylocomium* sp., and *Cladina* sp.
- DFTC 22 Donnelly Flats Tower Control Profile 22 is located 100 m south of the tower. Described and sampled by J. Harden and J. Raymond on 7 Aug 2000. Vegetation: *Picea mariana*, *Vaccinium vitis-idaea*, *Ledum* sp., *Betula* sp., *Salix* sp., *Peltigera* sp., and other lichens.

- DFTC 23 Donnelly Flats Tower Control Profile 23 is located 150 m east of the tower. Described and sampled by J. Harden and J. Raymond on 8 Aug 2000. Vegetation: *Picea mariana*, *Vaccinium vitis-idaea*, *Vaccinium uliginosum*, and lichens.
- DFTB 1 Donnelly Flats Tower Burn Profile 1 is located 300 meters south of the tower. It was described and sampled to 70 cm by J. Raymond on 5 Aug 2000. Vegetation: dead, burned *Picea mariana* with regrowing, sparse *Ceratodon* sp. and *Polytrichum* sp.
- DFTB 4 Donnelly Flats Tower Burn Profile 4 is located at 63° 55.082' N 145° 44.557' W. Described by J. Harden on 5 Aug 2000 to 58 cm. Vegetation: Burned *Picea mariana* with re-growing grass.
- DFTB 5 Donnelly Flats Tower Burn Profile 5 is located 300 m south of the tower. Note that this profile is at the same location as DFTB 1 but in a different part of the pit. Described and sampled by J. Raymond on 5 Aug 2000 to 65 cm. Vegetation: some *Lupinus* sp. and *Mentha* sp.
- DFTB 7 Donnelly Flats Tower Burn Profile 7 is located 200 m south of the tower. Described and sampled by J. Raymond on 7 Aug 2000 to 88 cm. No live vegetation.
- DFTB 18 Donnelly Flats Tower Burn Profile 18 is located 120 meters east of the tower. Described and sampled by J. Raymond on 7 Aug 2000 to 67 cm. No live vegetation.
- DFTB DB 1 Donnelly Flats Tower Burn is located at 63° 55.223' N 145° 44.687' W. Described and sampled by J. Harden and J. Neff on 7 Jul 2000 to 50 cm. Vegetation: None noted.

Creek Control (DFCC) and Creek Burn (DFCB)

From Delta Junction, head south on the Richardson Highway. Approximately 5 miles past Meadows Road there is a sign indicating a rest stop. Make the next left after this sign. (You will just have started driving downhill.) Follow the dirt road ~0.5 miles, past the military activity

flagpole and down the hill. To get to Creek Control (DFCB), follow the road as it curves right at the bottom of the hill to follow the edge of a large 'meadow.' Park approximately ¼ mile down the straightaway. Cross the meadow into to the burn. The center of the 'L' is approximately 100 feet into the forest (63° 50.932' N, 145° 42.777' W). Transects run from this point at 210° for 300 m and 120° for 100 m. Please note that a walking path has been flagged for the south transect. To reach Creek Control you can follow the second road that crosses DFCB into the unburned forest. A path, marked by pink and black flagging, leaves this road at the large pit in the road and follows the east transect to the center of the L (63° 50.913' N, 145° 43.150' W). Transects run from this point at 210° for 300 m and 120° for 100 m. Alternatively, as you drive down the hill past the military activity flagpole you can park at the grassy road on your right. This road is located along the gravel road where it makes a sharp right at the bottom of the hill. Walk along the grassy road and make a left at the pink and black flagging (the second left?). Follow the flagging through one more right turn (first right?) and into the plot center.

DFCC 12 Donnelly Flats Creek Control Profile 12 is at 63° 50.012' N, 145° 43.190' W. Described and sampled by J. Harden on 2 August 2001 to 40 cm. Vegetation: *Hylocomium* sp. and *Aulacomnium* sp.

DFCC 13 Donnelly Flats Creek Control Profile 13 is located at moss plot 20 m north. Described and sampled by J. Harden, K.L. Manies and E. Langenberg on 4 August 2001 to 36 cm. Vegetation: mature *Picea mariana*, *Salix* sp., *Hylocomium* sp., *Aulacomnium* sp., *Vaccinium vitis-idaea*, and *Rosa* sp.

DFCC 14 Donnelly Flats Creek Control Profile 14 is located at 100 m south along the main transect. Described and sampled by J. Harden, K.L. Manies and E. Langenberg on 5 August 2001 to 30 cm. No vegetation noted.

- DFCC 15 Donnelly Flats Creek Control Profile 15 is located at moss plot 0 m east. Described and sampled by J. Harden, K.L. Manies and E. Langenberg on 5 August 2001 to 44 cm. Vegetation: *Hylocomium* sp., *Pleurozium* sp., *Polytrichum* sp., and *Rhytidium* sp.
- DFCC 16 Donnelly Flats Creek Control Profile 16 is located at moss plot 35 m east. Described and sampled by J. Harden, K.L. Manies and E. Langenberg on 5 August 2001 to 25 cm. Vegetation: *Hylocomium* sp., *Pleurozium* sp., *Vaccinium vitis-idaea*, some *Vaccinium uliginosum*, and lichen.
- DFCB 5 Donnelly Flats Creek Burn Profile 5 is located 100 m south of the L-junction. Described and sampled by J. Harden, J. Raymond on 8 August 2001 to 90 cm. Vegetation: dead *Picea mariana*, *Polytrichum* sp., grasses, *Vaccinium uliginosum*, and *Vaccinium vitis-idaea*.
- DFCB 10 Donnelly Flats Creek Burn Profile 10 is located at 300 m south of the L-junction. Described and sampled by J. Raymond on 7 August 2000 to 53 cm. Vegetation: dead *Picea mariana*, *Vaccinium vitis-idaea*, *Vaccinium uliginosum*, grasses, and *Salix* sp.
- DFCB 11 Donnelly Flats Creek Burn Profile 11 is located 200 m south of the L-junction. Described and sampled by K.L. Manies and E. Langenberg on 8 August 2000 to 15 cm. Vegetation: *Picea mariana*.
- DFCB 12 Donnelly Flats Creek Burn Profile 12 is located 35 m south of the L- junction, near the marked chamber and TDRs. It is tagged with USGS Tag #38. Described and sampled by J. Harden and J. Raymond on 7 August 2000 to 93 cm. Vegetation: dead *Picea mariana*, dead *Betula* sp., and dead *Dicranum* sp.

1956 Burn (DF56)

From Delta Junction head south on the Richardson Hwy. ~1 mile. Take the left towards the Buffalo Drop Zone immediately before Jarvis Creek. Site is on left ~7.5 miles after road passes through Drop Zone, just after it crosses a creek bed (which may or may not have water in it). Follow pink and black flagging placed just within trees on left side of road to plots. Initially, the path is a two-track road, but turns into a game trail around the first aspen clump. Corner of L is at $63^{\circ} 56.865' N$, $145^{\circ} 36.062' W$. Transects run from this point at 180° for 120 m and 90° for 90 m. Note: If road through Buffalo Drop Zone is closed one may also reach the site from the opposite direction by turning south on Fleet Street. Take 4th “driveway” on left (at curve in road, goes down). Always take rights at forks. Stop just before road crosses creek bed as described above.

DF56 1 Donnelly Flats 1956 Profile 1 is located at moss plot 30 meters north. Described and sampled by J. Harden on 3 August 2001 to depth of 35 cm. Vegetation: *Picea mariana* regrowth, *Vaccinium vitis-idaea*, *Ledum sp.*, *Aulacomnium sp.*, and *Betula sp.*

DF56 2 Donnelly Flats 1956 Profile 2 is located along transect through regrowing *Populus tremuloides*. Described and sampled by J. Harden on 3 August 2001 to depth of 47 cm. Vegetation: *Populus tremuloides*, *Ledum sp.*, and feathermosses.

1987 Burn (DF87)

From the Silver Fox Cabins (Mile 1404 along the Alaskan Hwy.) drive several miles towards Delta Junction (west). Take the first left after Knight Lane (the road to the Agricultural Station). This road also goes to the holding ponds for the drainage project. Approximately 1.1 miles up this road a large white “X” and a small road will be on your right. Walk down this road

~50 m until you reach small trail on left (marked with pink and black flagging). Follow trail south to the corner of L. Transects run from this point at 180° for 120 m and 90° for 120 m.

DF87 1 Donnelly Flats 1987 Profile 1 is located near 50 meters south along the main transect and 20 m south on the moss transect. Described and sampled by J. Harden and K. Harris on 5 August 2001 to depth of 40 cm. Vegetation: dead *Picea mariana*, *Populus tremuloides*, *Salix* sp., grass, *Polytrichum* sp., and *Vaccinium uliginosum*

DF87 2 Donnelly Flats 1987 Profile 2 is located at moss plot 20 meters west. Described and sampled by J. Harden and K. Harris on 6 August 2001 to depth of 50 cm. Vegetation: *Populus tremuloides*, *Vaccinium uliginosum*, *Vaccinium vitis-idaea*, *Dicranum* sp., and *Polytrichum* sp.

1994 Burn (DF94)

From Delta Junction, drive past the Silver Fox Cabins (Mile 1404 along the Alaskan Hwy.) ~7 miles east. Turn right onto dirt road. (Tips to knowing it's the correct right turn: there is also road off to the left and you should not be able to see the Tanana Bridge.) You will pass two roads: the first is on the left only, the second crosses on both sides. At the third intersection (noted by a 50-gal. drum and a large vegetated section in the middle of the intersection), take a right. Drive ~50 m. The plot is ~15 m off the road to your left. The corner of L is at 63° 56.865' N, 145° 36.062' W. Transects run from this point at 180° for 120 m and 90° for 120 m. No sampling occurred at this site.

DFDC

Donnelly Flats cores are located at approximately 63° 48.727' N, 144° 57.070' W in a mature, poorly drained, *Picea mariana* stand. This site was also studied by J. Ruthford of the U.S. Forest Service (site name was Donnelly Flats, Mature *Picea mariana* site) and by K. O'Neill (at the time a student at the University of Michigan).

D1/9 CORE 1 This core was described and sampled on 6 August 2000 by J. Rutherford to 54 cm and by J. Harden to a depth of 60 cm.

D1/9 CORE 2 This core was described and sampled on 6 August 2000 by J. Rutherford to 35 cm and by J. Harden to a depth of 40 cm.

D1/9 CORE 3 This core was described and sampled on 6 August 2000 by J. Rutherford to 43 cm and by J. Harden to a depth of 43 cm.

D1/9 CORE 5 This core was described and sampled on 6 August 2000 by J. Rutherford to 46 cm and by J. Harden to a depth of 54 cm.