



Volunteer-assisted Invasive Plants Inventory of Scottie and Desper Creeks at Tetlin National Wildlife Refuge, Alaska

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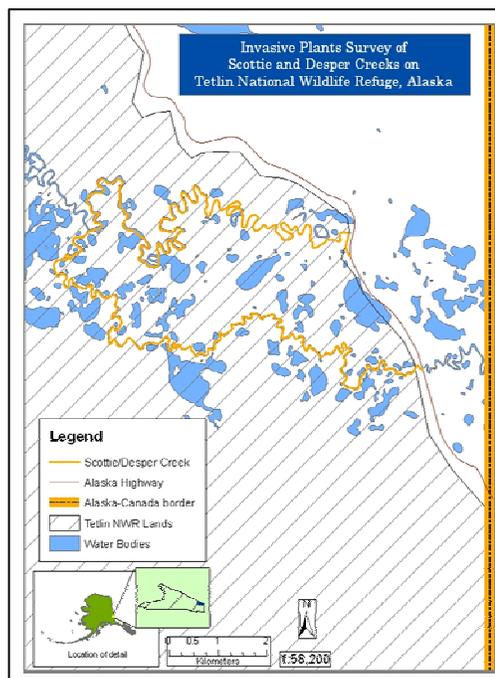
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Invasive plants are a threat to ecological integrity in North America (Bratton 1982, Asher and Harmon 1995, Cole and Landres 1996). Recent surveys (Cebrian and Johnson 2006, Cortés-Burns and Carlson 2006, Cebrian and Johnson in prep) indicate that Tetlin National Wildlife Refuge has few invasive plants species within its boundaries, while documenting invasive plants along the Alaska Highway just outside of Tetlin Refuge borders. Therefore, potential avenues of dispersal from these source populations are surveyed in order to monitor invasive plants spread.

On 25-26 June 2007, we conducted an invasive plants inventory of Scottie and Desper Creeks on Tetlin National Wildlife Refuge. The objective was to map invasive plants found along the creek banks. We started at the intersection of the Alaska Highway and Desper Creek, traveling south at 4.8 kph (3 mph) on two boats equipped with 15-hp motors. We traveled 35 km (22 mi) of the Scottie-Desper creek system and mapped invasive plants encountered. We used a Trimble® Recon GPS receiver unit to record infestation on a segmented line GIS shapefile. We created the shapefile using ESRI® ArcMap with fields for recording infestation and plant species. Assessments of infestation were recorded ca 0.4 km (0.25 mi) for % cover and identified to species. The target plants were white sweetclover (*Melilotus alba*) and foxtail barley (*Hordeum jubatum*). Data were uploaded to an invasive plants geodatabase at the end of the survey. The inventory ended when the team reached the Alaska Highway on Scottie Creek.



We encountered invasive plants within 0.4 km of the intersection of Desper Creek and the Alaska Highway (*M. alba*, alsike clover (*Trifolium hybridum*); <25% cover) and within 0.4 km of the intersection of Scottie Creek and the Alaska Highway (*M. alba*; <25% cover). The invasive plants encountered were in early reproductive phenology stage.

There were no invasive plants beyond 0.4 km from the bridges. This is likely due to the muddy substrate along the creeks in contrast to the gravelly surface along the Alaska Highway. Previous surveys along the Alaska Highway indicate that invasive plants are largely confined to disturbed areas adjacent to the road surface with gravel substrates.

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At the Desper Creek boat launch, we observed a person operating a riding lawn mower along the east bank of the creek. This area appears to have been altered to accommodate recreational vehicles. We assumed that the mowing was an effort to keep a neat appearance of the parking area. At the Scottie Creek bridge, we encountered white sweetclover above the high water mark and on gravelly substrate next to the bridge. None were found on the mud near the water's edge.



Desper Creek was dominated by sedges (*e.g. Carex* spp) that line the banks at the water's edge. The sedges gradually grade into shrubs (*e.g. Rosa aciculares, Salix* spp) and trees (*e.g. Picea glauca, Picea mariana, Betula papyrifera*) within 50m from the water line. The water level on Desper Creek was normal and American widgeon (*Anas americana*) and Green-winged teal (*Anas carolinensis*) with downy young were

observed along the survey route.

Signs of animal activity were abundant on Desper Creek. We encountered beaver dams which we traversed without difficulty. Tracks from various animals can be seen on the banks, and empty freshwater clam shells were seen scattered at the bottom of river otter (*Lontra canadensis*) slides. We also encountered moose (*Alces alces*), beaver (*Castor canadensis*), bald eagles (*Haliaeetus leucocephalus*), and rusty blackbirds (*Euphagus carolinus*). No other human recreationists were seen during the survey although signs of past human activities were abundant.



Desper Creek has had continuous human use by residents of the nearby village of Northway and by other non-local hunters and fishermen. Evidence of their past activities included abandoned cabins, campsites, and debris tossed aside after their usefulness has expired. One such large item that we encountered along the survey was a section of a culvert lying on the bank at the high water mark.

We stopped near High Cache (N62.67417 W141.15664) at the end of the first day, having surveyed the entirety of Desper Creek. The previous occupants of the area left a platform that we used as a cooking table. We examined the area and did not find any invasive plant species in the campsite. We packed all our trash the following morning before leaving the campsite for Scottie Creek.



The second day of the inventory had clear weather with scattered rain showers in the late afternoon. Water level was normal and we encountered four log jams on Scottie Creek. We were able to clear the log jams by moving logs and using a chainsaw except in one area where we had to portage the boats over the obstruction. As with Desper Creek, we

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did not find any invasive plants on the banks of Scottie Creek except at the bridge crossing on the Alaska Highway.

Scottie Creek has similar vegetation composition along its banks as Desper Creek. However, closer to Ayers Hill Scottie Creek has banks that have sloughed off leaving deep cuts that undermine spruce trees causing them to fall into the creek. This activity likely caused the log jams to occur on the creek.



The invasive plants inventory of Scottie and Desper Creeks provided a baseline for future monitoring of invasive plants spread on Tetlin Refuge lands. We have shown that the current limit of infestation was within 0.4 km of the Alaska Highway on both Scottie and Desper Creeks. This information will be incorporated into the Tetlin Refuge Integrated Pest Management (IPM) plan for future management decisions on the control of invasive plants spread.

This project was one of a two-part invasive plants project to survey waterways on Tetlin Refuge. We inventoried 141 acres along the 35 km (22 mi) study area using one biological technician and one volunteer working 40 volunteer hours.

We would like to thank M. Kampshoff and T. Learn for their assistance in conducting this inventory. Kampshoff provided logistical support while Learn created a GIS layer and entered data into the Trimble® unit. Learn was a volunteer from Mansfield University majoring in Geography and Mapping Technology. Her skills complemented this mapping project by working independently and with minimum supervision from the conceptual stage to the implementation of the project. This project was funded by the Invasives and Volunteers Competitive Grants Program.

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