



Invasive Plant Management in Western Arctic National Parklands

2024 Summary Report





ON THE COVER

The IPMT Crew standing in front of a DeHavilland Otter after landing on the Agashashok Airstrip.

IPMT Crew from left to right: SCA intern Tobias (Toby) Fried, SCA intern Samantha (Sam) Vrablic, Crew Lead Yoselyn Ayala, Crew Lead Dustin (Dusty) Reed, and SCA intern Zoe Fornander.

Photography by Golden Eagle Outfitters/Jared Cummings

ON THIS PAGE

Top Left: Sam V. and Dusty R. surveying for invasives at the Kiana Airport. Top right: Zoe F. surveying alongside the Kotzebue Airstrip. Lower left: Toby F., Sam V., and Dusty R. surveying for invasives at Agashashok River Airstrip. Lower Right: Dusty R., Zoe F., and Toby F. driving ATVs full of gear at the Anigaaq Ranger Station.

Photography by NPS/Yoselyn Ayala

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2024 Summary Report

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Abstract

This report serves as an overview of the 2024 invasive plant surveys done within the Western Arctic National Parklands (WEAR) by the Alaska Invasive Plant Management Team's (IPMT) traveling crew based out of the regional office. The IPMT crews involved in this work trip included two biological science technician crew leads, and three Student Conservation Association (SCA) interns. We were able to survey five sites: the town of Kotzebue (includes NPS Administrative building, Kotzebue Airport, and 8-mile Loop Road), (Kiana) Bob Baker Memorial Airport, Herc Airstrip, Agashashok River Airstrip and the Anigaaq Ranger Station and adjacent UTV Coastal Trail. The possibility of surveying more sites was limited due to inclement weather and pilot availability. We observed invasive plant species in two of the locations, Kotzebue and Kiana. These sites each had 6 invasive species inventoried and under Early Detection Rapid Response (EDRR) we manually treated some of the smaller infestations. Overall, we surveyed 20.17 acres and treated 0.048 acres between July 31st and August 4th.

Acknowledgements

The Invasive Plant Management Team would like to thank Annie Carlson for being our point of contact while in the parks, booking accommodations for our crew and managing flights. We would also like to thank Paul Anderson for his assistance with facilitation of flight travel; Adam Babcock and Joe Dallemolle for their work managing flights. The contracted pilot, Jared Cummings, for flying us to the different airstrips and the rest of the Golden Eagle Outfitters staff for doing an amazing job fitting us into their schedule. We would also like to thank Martha Fronstin for working with us on permit and compliance to do this work and Raime Fronstin for being our point of contact while putting together this project. A thank you to Cody Jacobson, the Invasive Plants and Agricultural Pests Lead for the state, for giving us permission to treat on state land. Lastly, we would like to thank the rest of the WEAR employees for helping our crew out during our stay in Kotzebue.

List of Terms

AKRO	Alaska Regional Office
CAKR	Cape Krusenstern National Monument
DOT	Department of Transportation
EDRR	Early Detection and Rapid Response
GNSS	Global Navigation Satellite System
IPMT	Invasive Plant Management Team
KOVA	Kobuk Valley National Park
NOAT	Noatak National Preserve
NPS	National Park Service
PPE	Personal Protective Equipment
SCA	Student Conservation Association
WEAR	Western Arctic National Parklands

Introduction

The Alaska Regional Invasive Plant Management Team (IPMT) is one of 17 established IPMT in the country. Each IPMT serves multiple parks within a specific broad geographic region. They work to identify, develop, conduct, and evaluate invasive species removal projects and undertake appropriate native species restoration efforts. Due to the remote nature of many of the Alaska park units and the associated high cost of travel, the Alaska IPMT does not always have the funding to have a centralized crew that travels to each park in its region like a lot of the lower 48 crews. Historically the teams have worked cooperatively with partner parks to train existing park staff, partially fund seasonal employees, and support in park internship positions.

IPMT Liaison Anna O'Brien received Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA) project funding that allowed the IPMT to hire three term positions beginning in spring 2024. These new hires served as IPMT Crew Leads who managed three separate IPMT field crews for the 2024 field season. These three crews were the Early Detection and Rabid Response for Terrestrial Invasive Plants (Weeds) Crew, the Aquatic Invasive Plants (Elodea) Crew and the Seeds of Success (Seeds) Crew. Each Crew consisted of one crew lead and two Student Conservation Association (SCA) interns. These crews work collaboratively with the 16 National Park units in Alaska. The needs of each park determine the work schedule for the Alaska IPMT crews. While each of these crews have a specialty, they are all cross trained in the other crews' specialties and other niche needs to better serve the parks.

The Western Arctic (WEAR) administrative unit consist of Cape Krusenstern National Monument, (CAKR), Noatak National Preserve (NOAT), and Kobuk Valley National Park (KOVA) (Figure 1). These parks are amongst some of the most remote in the country and still hold a very vital role in the life of the indigenous people who have lived there for thousands of years. Many people living in this remote part of Alaska rely heavily on subsistence activities as it is culturally important and can help offset the extremely high cost of living in the area. These public lands are also essential for various wildlife such as Muskox and migrating Caribou. The infestation of non-native invasive plants poses a risk to their wellbeing and livelihood by out competing native plant species for resources and changing the structure of the ecosystem in which they live.

Due to the remoteness, a primary form of transportation in and around these parks is flying. This results in planes being a vector for invasive plants. Due to this, the IPMT Crew historically has focused on surveying the airports and airstrips used to reach the parks. The IPMT crew last surveyed KOVA and NOAT in 2012 and CAKR in 2013. Most of the airstrips were weed free which is the desired condition of the parks. Invasives were found in the town of Kotzebue, around the Dahl Creek Airport, Kiana Airport and the NPS building in Kotzebue (Table 3); these areas are highly trafficked. This year the Seeds and Weeds Crew were grouped together due to last minute flight complications. These two crews were tasked to survey for invasive plants on various airstrips located within or adjacent to the WEAR parks. The goal of this work trip was to resurvey the sites that had been surveyed in the past and survey areas that had yet to be surveyed.

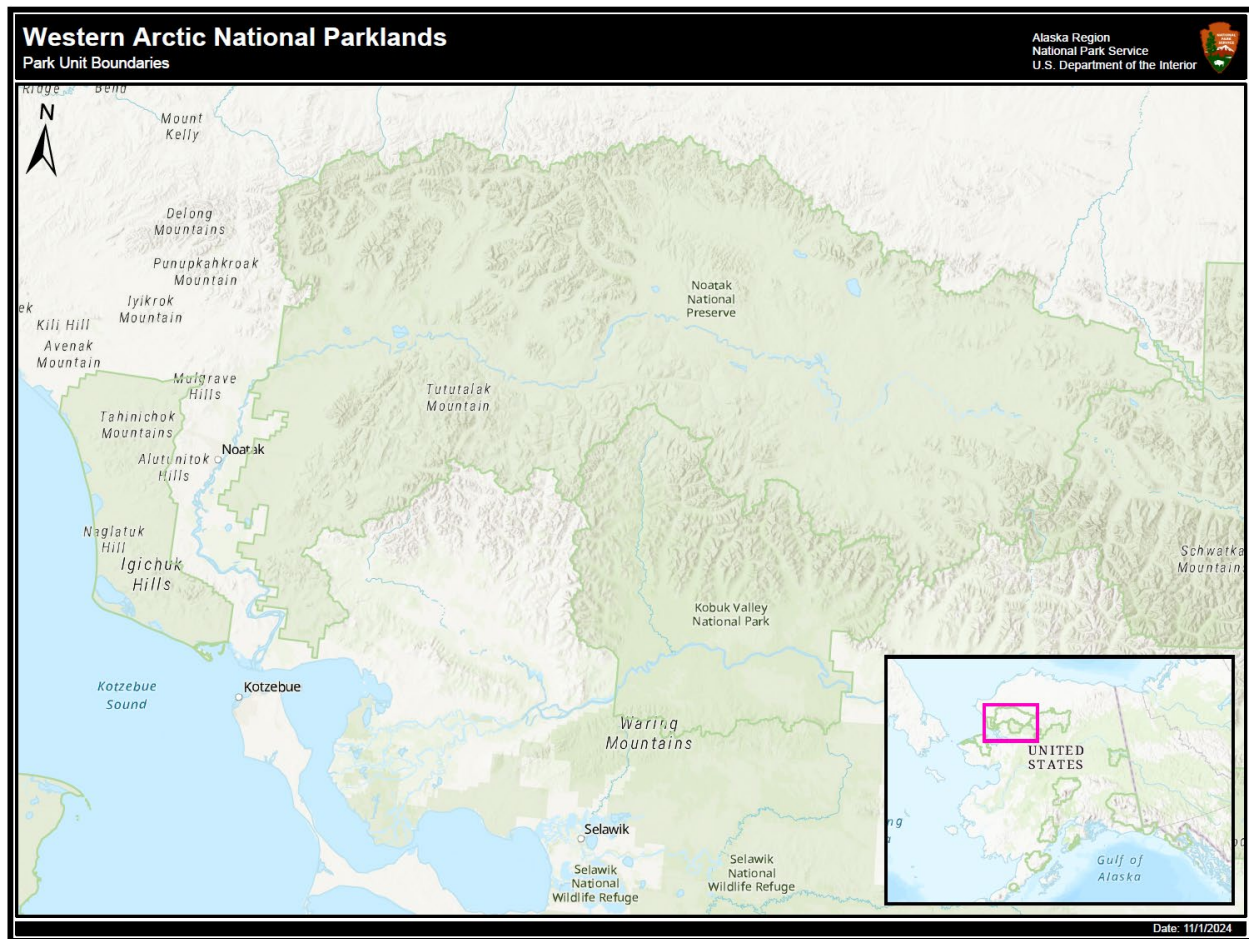


Figure 1. Western Arctic National Parklands- Park Unit Boundaries

Methods

Methods for data collection and processing followed the Alaska Invasive Plant Management Team 2024 Field Protocol (O'Brien 2024) and the Alaska Invasive Plant Management Team 2024 Office Protocol (O'Brien 2024) developed by the Alaska IPMT program. These protocols outline methods for data collection in the field and processing data. We collected data using a Samsung Galaxy Tab Active 3 paired with a Leica GNSS Receiver. Pairing the tablet with the Leica enabled us to have better accuracy when mapping invasive plants in the field. Spatial data and attribute data were collected using Esri's ArcGIS Field Maps.

All work took place between July 31 – August 4, 2024, and was conducted by five members of the Invasive Plant Management Team. The crew was made up of two crew leads Dustin (Dusty) Reed, and Yoselyn Ayala; and three SCA interns Tobias (Toby) Fried, Samantha (Sam) Vrablic, and Zoe Fornander. The crew split up into two groups when surveying to increase efficiency. Surveys were focused near or adjacent to airstrips as they were seen to hold the highest risk of invasive plant infestations. Surveys done were categorized as 'exhaustive species inventory' which means all invasive plants were identified to the best of the ability of IPMT staff. Identifications were done by using several reference books such as Eric Hulten's *Flora of Alaska and Neighboring Territories* and *Identification of Non-native Plants in Alaska* by Cortes Flagstad et al. There was one species that we had some difficulty identifying. We pulled a sample and took some pictures to further identify the species (Figure 2). Ultimately, we decided that the proper identification was wormseed wallflower (*Erysimum cheiranthoides*) (Hulten, 1968).

A few manual treatments were conducted under the principles of EDRR. *Crepis tectorum* and *Erysimum cheiranthoides* were species with small infestations that were not growing continuously along a roadside or airstrip. Due to their small quantity, it was easy to treat them by hand pulling. All plants that were hand pulled were placed in a trash bag that was securely closed and thrown away. Airstrips where no invasive plants were found were later added to the 2024 Invasive Plant Map by crew lead Dusty Reed using Digitized imagery (Figures 6-8). This lets future surveyors know that those areas were surveyed, and no invasive plants were found.

Survey locations were set by IPMT Liaison, Anna O'Brien, earlier that year based on historic sites surveyed by the IPMT and additional sites proposed by WEAR. There was a total of 16 locations on our list of potential survey sites, and they were ranked by priority level (Table 1). Priority was determined on how much visitation the sites receive, how much risk they were perceived to be at of invasion, and how logistically complex accessing the site is. Ultimately our final survey sites were set by Golden Eagle Outfitters, our contracted flight operator, based on weather conditions, and pilot and plane availability during our trip.



Figure 2. Picture of wormseed wallflower (*Erysimum cheiranthoides*).

Table 1. 2024 Scheduled Survey Locations

Survey Site*	Associated Park	Priority Level	Surveyed 2024
Town of Kotzebue	CAKR	High	YES
Kakagrak Hills Airstrip	CAKR	Medium	
Kakagrak Hills Radar Site Airstrip	CAKR	Medium	
Anigaaq Ranger Station and Coastal UTV Trail Airstrip	NOAT	Medium	YES
Dahl Creek Airport	KOVA	Medium	
(Kiana) Bob Baker Memorial Airport	KOVA	Medium	YES
Kagvik Airstrip	NOAT	Medium	
Kelly River Airstrip	NOAT	Medium	
Agashashok River Airstrip	NOAT	Medium	YES
Herc Airstrip	NOAT	Medium	YES
Red Dog Mine Road Airstrip	CAKR	Low	
Red Dog Mine Airstrip	CAKR	Low	
Ambler Airport	KOVA	Low	
Onion Portage Airstrip	KOVA	Low	

*Airport = Stated as an airport by the Alaska Department of Transportation

Airstrip = Off Airport Sites. A strip of land used as a runway but with additional PPE requirements and additional pilot certifications needed.

Results

By the end of the WEAR trip, the IPMT crew finished surveying five of the original planned sites: Town of Kotzebue, Kiana Airport, Herc Airstrip, Agashashok River Airstrip, and the Anigaaq Ranger Station and UTV Coastal Trail (Figure 3). Due to intermittent inclement weather, the crew spent additional time in the town of Kotzebue. This led the team to survey the 8-mile Loop Road, which was not initially a section of our survey site (Figure 4). Only two locations, Town of Kotzebue and Kiana Airport (Figure 5), had invasive plants. Six species of invasive plants were found at each of the locations (Table 2). The total gross acreage of land surveyed was 20.17 acres with 15.06 acres having invasive plant species. Of those 15.06 acres, 0.048 acres were treated manually. The plants treated were Narrowleaf hawkbeard (*Crepis tectorum*) and wormseed wallflower (*Erysimum cheiranthoides*).

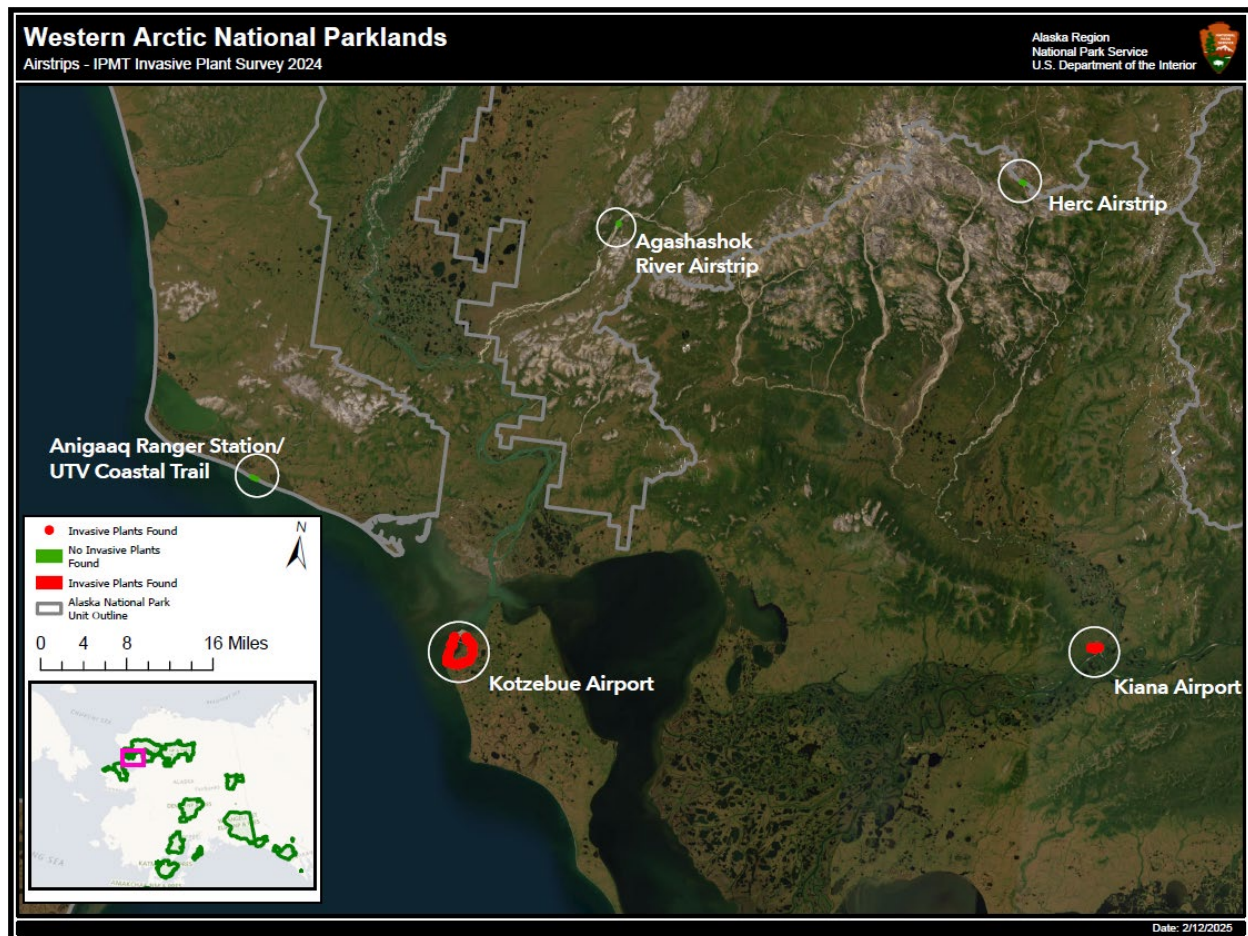


Figure 3. WEAR Sites Surveyed for Invasive Plants. Circled areas are regions surveyed.

Table 2. List of Invasive Plants found and treated at 2024 Survey Sites

Survey Site/Airstrip	Where Invasives Found?	List of Invasives Found	Invasives Treated (acres treated)
Town of Kotzebue	Yes	<i>Taraxacum officinale</i> (common dandelion) <i>Hordeum jubatum</i> (foxtail barley) <i>Matricaria discoidea</i> (pineappleweed) <i>Crepis tectorum</i> (narrowleaf hawksbeard) <i>Poa pratensis ssp. irrigata</i> (Kentucky bluegrass) <i>Erysimum cheiranthoides</i> (wormseed wallflower)	<i>Crepis tectorum</i> (0.042 acres) <i>Erysimum cheiranthoides</i> (0.003 acres)
Kiana Airport	Yes	<i>Plantago major</i> (common plantain) <i>Trifolium repens</i> (white clover) <i>Trifolium hybridum</i> (Alsike clover) <i>Hordeum jubatum</i> (foxtail barley) <i>Matricaria discoidea</i> (pineappleweed) <i>Crepis tectorum</i> (narrowleaf hawksbeard)	<i>Crepis tectorum</i> (0.003 acres)
Agashashok River Airstrip	No		
Anigaaq Ranger Station and Coastal UTV Trail	No		
Herc Airstrip	No		



Figure 4. Invasive Plants found in the town of Kotzebue, AK

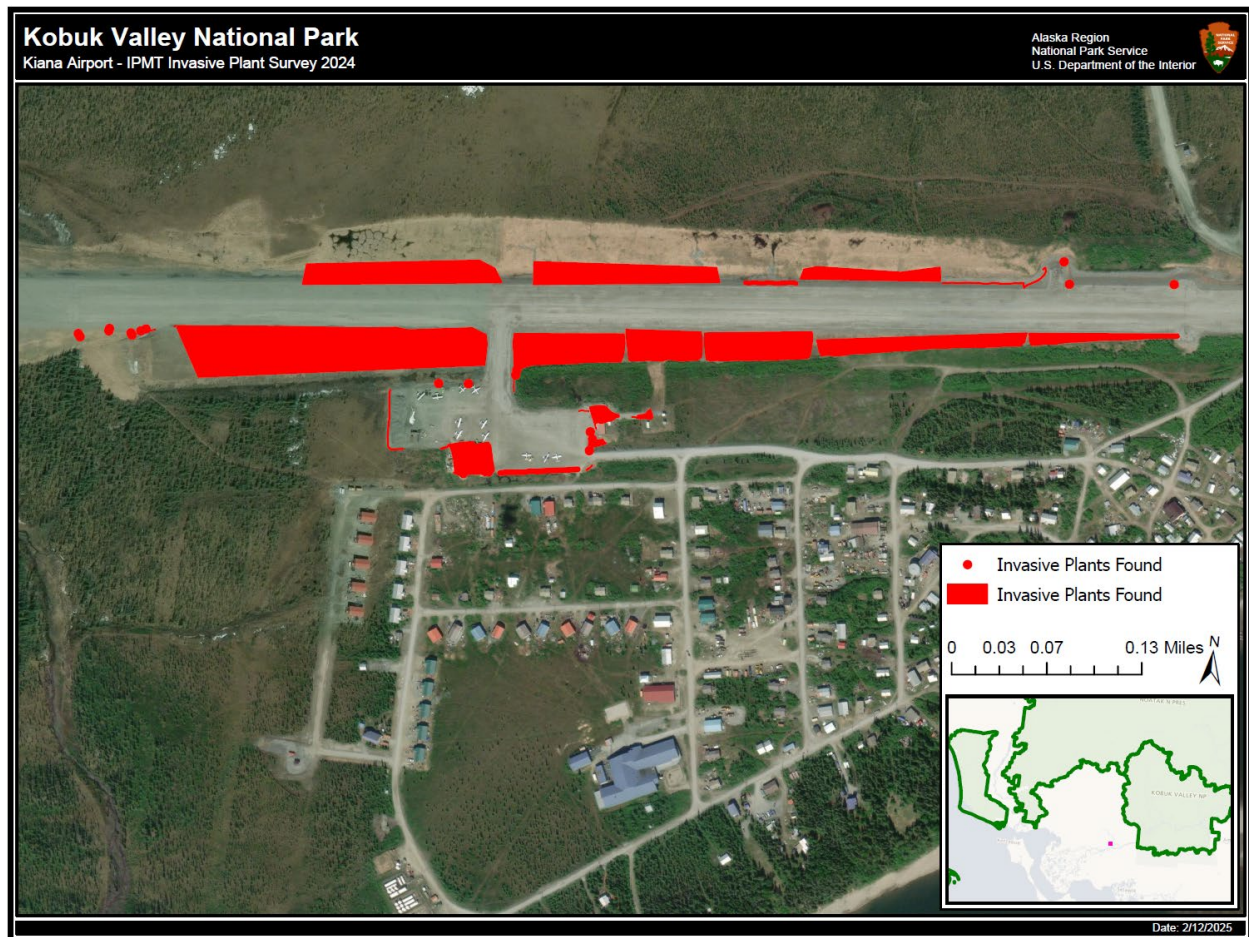


Figure 5. Invasive Plants found at the Kiana Airport

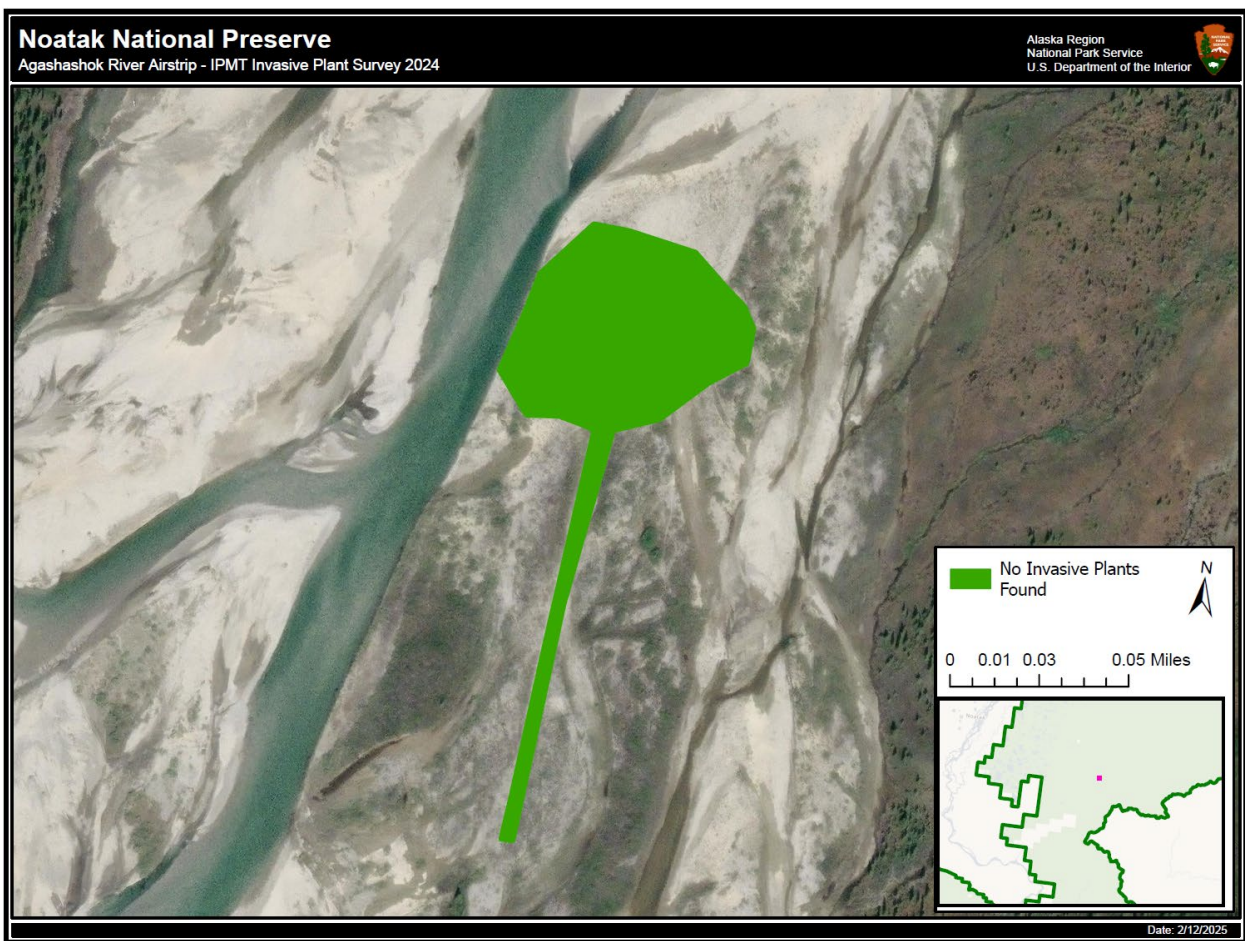


Figure 6. No Invasive Plants found on Agashashok River Airstrip and surrounding impacted area.



Figure 7. No Invasive Plants on UTV Coastal Trail near Anigaaq Ranger Station.

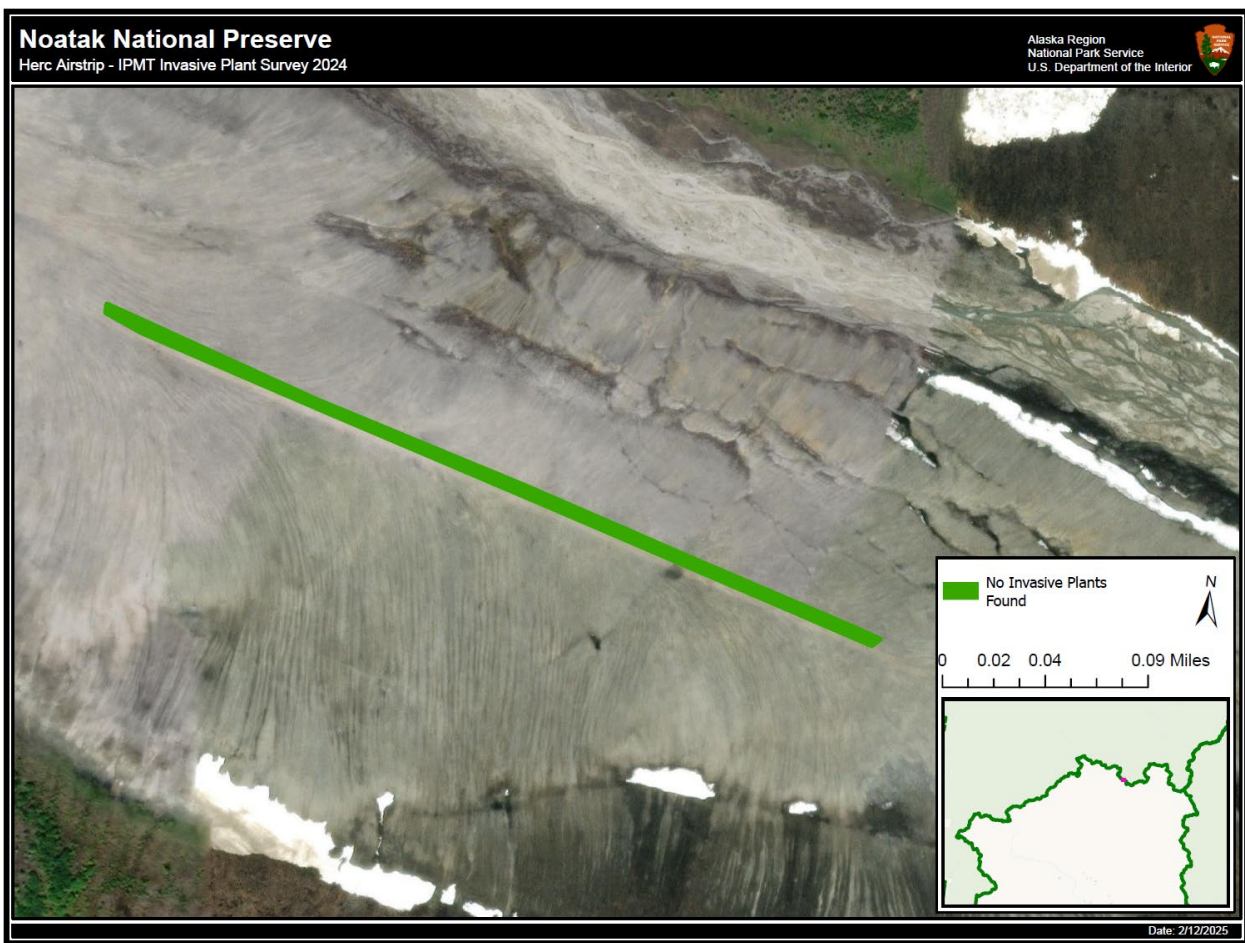


Figure 8. No Invasive Plants found on Herc Airstrip.

Discussion

Due to inclement weather and limiting funds we were unable to survey more airstrips this year. The IPMT crew should plan to come back next year and survey any sites that were not surveyed in 2024. Several of the sites that were historically visited by IPMT, such as the Kakagrak Hills Radar Site and Kagvik Airstrip, are no longer accessible or very difficult to access due to increased brush and consequently are now at lower risk for invasion. Additionally, several locations that have never been historically surveyed but are at higher risk for invasion due to higher visitation were identified by Joe Dallemolle and should be visited. Some of the sites identified were Promise Creek, Copter Peak, Feniak Lake, and the Great Kobuk Sand Dunes. Some other sites that should also be considered for surveying are the public use cabins in the Noatak and CAKR areas. There may also be new sites that are of concern to the WEAR administrative unit that IPMT has not identified yet. We are currently working with the Commercial Services department in AKRO to better understand where commercial outfitters and pilots are most heavily visiting the park to expand our knowledge of which areas are the highest priority for monitoring. If we want to get a better picture of the invasive species problem in Alaska, it is important to continue this work. It is recommended that conversations with pilots happen earlier in the year to be able to reserve planes specifically for the crew that is working out of Kotzebue next year. The original plan was to have two separate crews with each crew surveying different airstrips. If funds are available this would be the more efficient way to survey.

The WEAR parks, because of their low invasion, are prime parks for EDRR. Surveying these parks gives us the ability to catch these infestations at the beginning of their establishment. Invasive Plants in Alaska are ranked by the system outlined in *Invasiveness Ranking System for Non-Native Plants of Alaska* by Matthew Carlson et al. These ranking are evaluated in four categories: ecological impacts, biological characteristics and dispersal ability, distribution, and feasibility of control. Each plant is scored on each category and given a final total number which serves as the plant's invasiveness ranking. Invasiveness rankings range from zero to 100 points, with 100 being the most detrimental. Per the NPS Alaska Region Invasive Plant Management Plan Environmental Assessment all species ranked above 60 are high-risk species, those between 50-59 are medium risk species and those below 50 are low-risk species. The National Parks in Alaska generally treat species ranked 50 and above, although high risk species are given priority (Rice, 2024). The species inventoried this year ranged from low to high priority (Table 3). *Crepis tectorum* is ranked as a medium priority species and *Erysimum cheiranthoides* is unranked, however both species were treated due to their small quantity. With that in mind, treating species with manageable infestations regardless of ranked priority would be worthwhile and could help diminish the spread of these invasives to new sites. However, most of the airports/airstrips used are state-run so we need permission from the state for treatment. This year we had verbal permission by the states Invasive Plants and Agricultural Pests Lead Cody Jacobson.

Table 3. Invasive Species Distribution based on 2024 and 2012 surveys.

Plant Scientific Name (Invasiveness ranking)	Plant Common Name	2024 – Kotzebue (NPS Building)	2024 – Kotzebue (Airport)	2024 – Kotzebue (8-mile Loop Road)	2024 – Kiana Airport	2012- Kotzebue (NPS Building)	2012 – Kotzebue (Airport)	2012 – Dahl Creek Airport
<i>Poa annua</i> (69)	annual bluegrass					X		
<i>Hordeum jubatum</i> (63)	foxtail barley	X	X	X	X	X	X	X
<i>Trifolium repens</i> (59)	white clover				X			
<i>Taraxacum officinale</i> (58)	common dandelion	X				X		
<i>Trifolium hybridum</i> (57)	Alsike clover				X			
<i>Crepis tectorum</i> (56)	narrowleaf hawksbeard	X		X	X	X		
<i>Poa pratensis</i> ssp <i>irrigata</i> (52)	Kentucky bluegrass	X	X					
<i>Plantago major</i> (44)	common plantain				X			
<i>Silene noctiflora</i> (42)	Nightflowering Silene					X		
<i>Descurainia sophia</i> (41)	Flixweed					X		
<i>Capsella bursa-pastoris</i> (40)	Shepherd's purse					X		
<i>Chenopodium album</i> (37)	Lambsquarters					X		
<i>Matricaria discoidea</i> (36)	Pineappleweed	X	X	X	X	X	X	X
<i>Cerastium fontanum</i> (36)	Big chickweed						X	
<i>Erysimum cheiranthoides</i> (unranked)	wormseed wallflower			X				

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