

East Kootenay Invasive Species Council Field Operations

Annual Report 2019



Prepared for and by: East Kootenay Invasive Species Council
1902 Theatre Road, Cranbrook, BC
V1C 7G1

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Introduction

The East Kootenay Invasive Species Council (EKISC) is a regional non-profit organization that strives to mitigate the negative environmental, social, and economic impacts of invasive species within the East Kootenay Region. To accomplish this, EKISC employs seasonal and year-round staff to maximize efforts for the control of invasive species that are already established in the region, as well as deliver a robust education and outreach program that aims to limit their introduction and further spread ([EKISC Education and Communications Summary, 2019](#)). EKISC's operational work involves sub-contracting invasive plant management activities to local contractors, who conduct the majority of chemical treatments across the Regional District of East Kootenay (RDEK). However, EKISC field staff participate in a variety of activities, including: mechanical and chemical invasive plant treatments; invasive plant inventories; and conducting lake water sampling for invasive mussel larvae. This report will provide information on various projects EKISC participated in throughout the 2019 field season.

In 2019, EKISC field staff included full time Field Operations Coordinator (FOC) Danny Smart, Field Operations Assistants Katie Grady (returning for her third year) and Emily Markholm, as well as a part time Field Operations Supervisor Pat Wray, returning from retirement. Team members focused on mechanical weed pulls in riparian areas and conservation lands, invasive mussel larvae sampling in lakes across the RDEK, and invasive plant inventories for various funders. The FOC also completed spring and fall treatments of all priority one (P1) invasive plant species across the Region ([East Kootenay Priority Species by IPMA, 2019](#)). Additional projects the EKISC field crew participated in that are discussed in this report include:

- Canadian Wildlife Service Invasive Plant Treatments;
- Dewar Creek Hot Springs Invasive Plant Management;
- TransCanada Trail Treatment; and
- Grassland and Rangeland Enhancement Program Research Trials.

Management Area

Invasive plant inventories, treatments, and all lake water sampling occurred within the East Kootenay Region, which has been divided by EKISC into five primary Invasive Plant Management Areas (IPMAs), as shown in Figure 1. Each IPMA may be sub-divided into sub-IPMAs. The intent of delineating these units is to provide a more localized approach to prioritizing invasive plant species. For example, a certain species may be a P1 in one sub-IPMA due to its extremely limited distribution (where the goal is to eradicate the species), whereas it may be considered a Priority 2 (P2) or 3 (P3) in another sub-IPMA if it has a much broader distribution (and it may be treated for annual control or containment purposes).

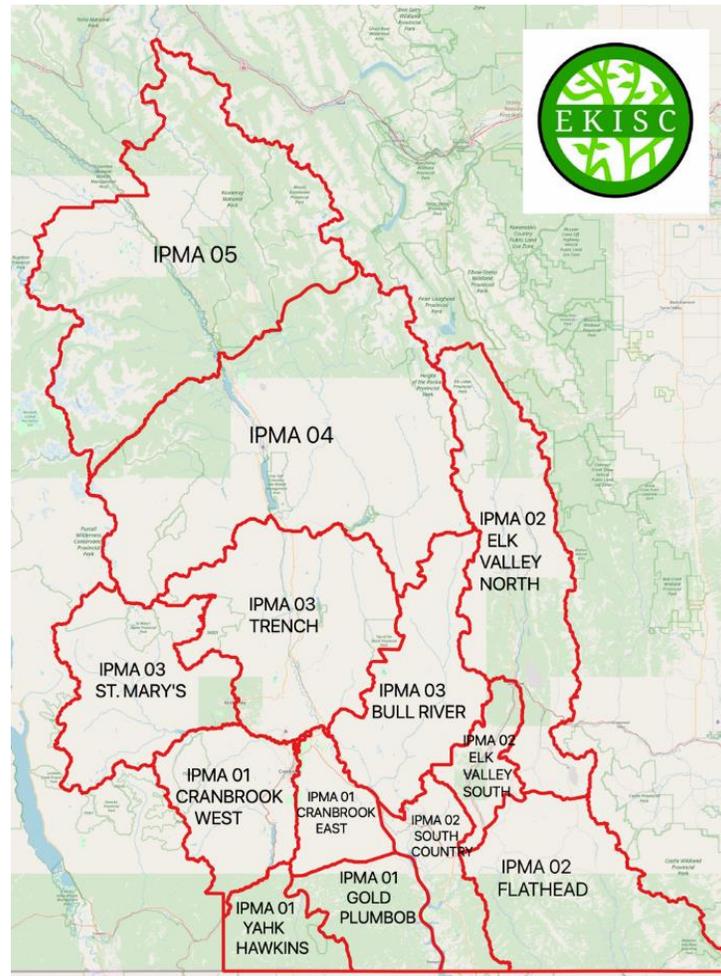


Figure 1. Invasive Plant Management Areas (IPMAs) within the Regional District of East Kootenay. Note that IPMA's 1 through 3 are further divided into sub-IPMAs.

Invasive Plant Treatment

Noxious and invasive plants can readily colonize disturbed and/or exposed soil, where soil quality is poor, and nutrient levels are low. Specifically, for EKISCs field crew, infestations were primarily surveyed and treated on highways, forest service roads (FSRs), conservation lands, and riparian areas. EKISC conducted a variety of mechanical and chemical treatments in 2019 in order to reduce infestation size, density, and distribution. These activities are summarized below.

Mechanical Treatment

Manual treatment (or “weed pull”) is a vital tool within invasive plant management, specifically in pesticide-free zones (PFZ). For example, manual treatment is required at sites that are close to water such as streams, creeks, and/or wells, where herbicide has the potential to impact water quality. Alternatively, landowners may request herbicide not to be used due to the sensitive ecosystem, or endangered species in close proximity to an infestation. Manual treatment is labor intensive, yet highly valuable for these reasons. Infestations are hand pulled using trowels or shovels prior to the plants going to seed, and trying to capture as much of the root of the plant as possible. This method is most effective on soil that is loose



or moist, and on plants that have a shallow root. Fibrous and/or rhizomatous root systems should ideally not be treated this way as it can be difficult to extract all root fragments, and in some species, growth may be stimulated by disturbance. However, such as when infestations are within the PFZ, as much care as possible is used to reduce disturbance and limit propagation.

In 2019, EKISCs field crew completed 20 invasive plant weed pulls across 8 IPMA's (Table 1). EKISC partnered with the Ministry of Transportation and Infrastructure (MOTI), Ministry of Forests, Lands, Natural Resources and Rural Development (MFLNRORD), Nature Trust of British Columbia (NTBC), and the Nature Conservancy of Canada (NCC) in order to complete all scheduled manual treatments.

Table 1. Mechanical treatments completed during the 2019 field season.

Location	IPMA	Target Species	Funder	Date Completed	Number of days at site	Number of bags of weeds pulled
Monroe Lake Road	01 Cranbrook West	BW, SK, TC	MOTI	June 5	1	1
Big Sand Creek, Jaffray	02 South Country	BW, DT, SK	MOTI	May 14	1	2
Little Sand Creek, Jaffray	02 South Country	SK	MOTI	June 11	0.5	0.25
Dempsey Road	02 South Country	HA, SJ, SK	MOTI	June 11	0.5	2
In Fernie, across from Anderson Rd. (riparian)	02 Elk Valley South	SK, BW	MOTI	June 6	1	3
St. Mary's Lake Rd., Matthew Creek bridge	03 St Mary's	SK	MOTI	May 27	0.5	1
Cherry Creek Bridge	03 Trench	BW, SK, TC	MOTI	May 27	0.5	1
Bummers Dyke	03 Trench	SK	NTBC/ MFLNRORD	July 15, 16	2 x 0.5	6



Wasa Dyke	03 Trench	SK	NTBC	July 15, 16	2 x 0.5	28
Norbury Park	03 Bull River	CT, SK	BC Parks	June 10	0.5	0.5
Premier/Wasa Sheep Junction	03 Trench	BW, SK	MOTI	June 3	0.5	0.5
North Sheep Bridge	03 Trench	SK	MOTI	May 29	1	1
Bull River Bridge	03 Trench	BW, DT, SK	MOTI	June 10	1	2
Skookumchuck Bridge	03 Trench	SK, TC	MOTI	June 3	0.5	2
Bummers Flats	03 Trench	PL	NTBC/ MFLNRORD	July 17	1	18
Timber Ridge Road	04	PP	MOTI	June 25	1	8
Sinclair Creek	05	FS	MFLNRORD	May 8	1	3
			FWCP	May 10	1	Restoration work: 145 native species planted
Marion Creek	04	SK	NCC	August 7	1	1
Bummers Flats – Cherry Meadows	03 Trench	SK	NTBC	July 8, 9	2	13
Total					16.5	93.25

Overall, treatment areas are making slow and steady progress to reduce invasive plant populations. It is important to continue these weed pulls to ensure containment and/or eradication of species, in particular in areas that are adjacent to or within sensitive ecosystems. Although success of management efforts can be difficult to measure for invasive plants, highlights from the 2019 mechanical treatment season include:

- Field Scabious (FS) at Sinclair Creek in IPMA 05. This infestation has reduced in density and size enough to enable restoration work to commence in 2019. Restoration work, funded by the Fish & Wildlife Conservation Program (FWCP), included bank stabilization and planting approximately 145 native plants (Willow, River Alder, Wet grass, White Spruce, Strawberry, Sedge, Hawthorne, and Kinikinick) along the infested part of the trail, adjacent to the creek (Figure 3);
- Marion Creek's Spotted Knapweed (SK) infestation in IPMA 04 did not require any chemical treatment in 2019, rather only a few plants required a hand pulling. Mechanical treatment was followed-up with grass seed application to encourage the reestablishment of favourable species and assist native vegetation in outcompeting invasive plant populations; and
- EKISC's Purple Loosestrife (PL) pull, an annual event that draws EKISC, NTBC, and volunteers together, has seen slight increase in plant density from 2019. However, the increase in infestations size may due to increased survey effort (i.e., increased number of people and boats available to collect and record data). This site has been treated since 2013, and will continue into 2020 with further recording and monitoring of the spread of PL.



Figure 2. EKISC staff at the Field Scabious pull at Sinclair Creek, and Perennial Pepperweed pull at Timber Ridge Road, 2019.



Figure 3. Sinclair Creek before and after restoration work, 2019.



Chemical Treatment

Chemical treatment is an important, cost-effective tool for treating various noxious and invasive species, especially in areas that are large and/or densely infested. Many herbicides contain a residual element, and therefore will impact seed germination and plant growth for subsequent years (the length of residual varies for each herbicide). Although many herbicides are selective to specific plants, damage to surrounding vegetation may occur, therefore a licensed pesticide applicator is essential for safe and effective treatment. EKISC contracts a large portion of chemical treatments to licensed contractors in the RDEK. Rotational treatment of sites is conducted in order to maximize time, efficiency, and funding allocations for invasive species across the region. EKISC's Field Operations Manager monitors at least 10% of contractor treatments for site efficacy and completion. For the purposes of this report, these treatments are not highlighted, and specific treatments and recommendations are provided for individual funders. For EKISC employees, the FOC conducts all chemical treatments using backpack sprayers. Highlights for the 2019 season are described in detail below, other chemical projects that EKISC conducted in 2019 include:

- MFLNRORD Compound – 1902 Theatre Road
 - All species/vegetation were treated at the gated gravel parking lot.
- MFLNRORD Compound – Fire Centre
 - EKISC treated the lower half of the fire centre for Spotted Knapweed. Due to the extent of the infestation, the remainder of treatments were completed by a contractor.
- Bull River Red Barn
 - All species were treated at the parking lot. This site was also seeded in the Fall.
- Dry Gulch Provincial Park
 - A small Spotted Knapweed infestation was treated on the hill and area above the main washroom in the fall.
- Columbia Lake East
 - EKISC monitored and treated remaining Spotted Knapweed and Yellow Hawkweed plants on small roads close to the radio tower.
- NIPP client
 - EKISC completed follow-up treatments for one RDEK Neighbourhood Invasive Plant Program (NIPP) client in 2019.

Priority One Species

In 2019, EKISC's field operations team continued chemical treatment of all P1 species across the RDEK (Figure 4). 298 P1 sites were identified from the Invasive Alien Plant Program (IAPP). This was an increase of 20 sites from 2018 in the RDEK¹. For efficiency, a contractor (RMC enterprises) treated all P1 sites along Highway 93 between Columbia Lake and Spillmacheen (approximately 40 sites). Another 30 sites were not visited in 2019 by EKISC staff due to the site being identified as 'no weed found' (NWF) consecutively for 3-5 years. If/when contractors were in the vicinity of these sites, they would survey the area for the known historic P1 species. Additionally, three UTM site locations identified the site as being incorrectly located on the peak of a mountain, therefore were not visited in 2019. Spring and fall P1 treatments were

¹ Note that species may have changed priority level from 2018 to 2019. Refer to the *East Kootenay Priority Species by IPMA lists from 2018 and 2019* for further information.

conducted at all sites except IPMA 02 Flathead due to the early winter weather when commencing the second round of treatments.

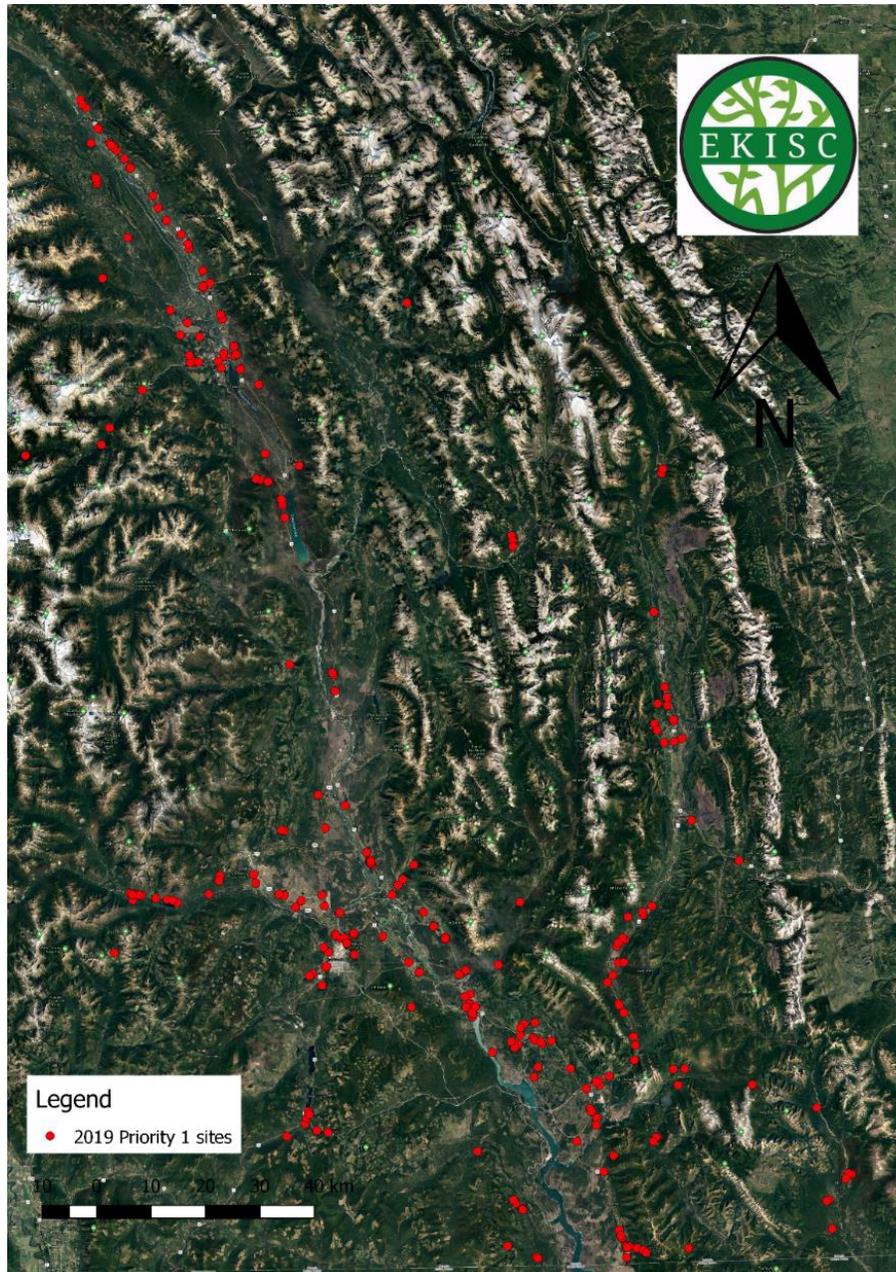


Figure 4. 2019 Priority 1 sites in the RDEK.

A significant amount of time was spent in 2018 and 2019 to treat P1 species, with extensive travel and resources required. Several sites have received effective treatment with two passes, and many sites have had NWF for an increasing number of years. Due to the large number of sites, many of which are difficult to access, this program will not be continuing for the 2020 season, and some species may change priority to accommodate the workload for contractors to take over priority treatments.

Canadian Wildlife Service – Wilmer Unit

EKISC works with Environment and Climate Change Canada to provide noxious and invasive weed control activities in the Wilmer Unit of the Columbia National Wildlife Area, located close to the communities of Wilmer and Invermere. Due to the proximity of residential areas to this wildlife area, trespassing of the property has been an ongoing problem for many years. The use of dirt bikes and ATV's has created unwanted trails in the area, causing habitat disturbance and ecological degradation. Specifically, the noxious weed Leafy Spurge (LS) has been introduced at Ritchie's Point in the Columbia Wetlands Wildlife Management Area (CWWMA). LS is a difficult plant to manage due to its complex and extensive root system that exceeds up to 5 meters horizontally, and 9 meters vertically, therefore successful treatment requires a slow and steady approach. In 2019, EKISC conducted their third year (of a six-year contribution agreement) of treatment. Biannual herbicide application is conducted each year. The cooler temperatures of 2019 enabled the first treatment to happen on July 29, 2019, and the second in the Fall on October 7, 2019. At these times during the season the plant is either in true flower or preparing to shut down for winter, both of which are optimum stages for successful treatment. A total of four sites that were identified in 2018 were either chemically treated by backpack sprayers, monitored, and/or surveyed in 2019. A combined total of 12.6 L of Tordon 22K and 1.5 L of Milestone, resulting in a total 0.173 Kg of undiluted herbicide, were applied to cover a total treatment area of 0.043 ha in the CWWMA.



Figure 5. Map of 2019 treatment locations at the Wilmer Unit of the Columbia National Wildlife Area. Note site '0' is a new location of SK.

Dewar Creek Hot Springs Invasive Plant Management Plan

Dewar Creek Hot Springs, located in the Purcell Wilderness Conservancy Provincial Park at the base of the Purcell Mountains in the East Kootenay's, remains a significant wilderness area for wildlife and the public to enjoy. In the Summer of 2018, EKISC was contracted to conduct an invasive plant inventory of Dewar Creek Hot Springs, including the hot springs area, bugle basin, horse accessible camping area, hiking trail, and access road to the trail head. Proceeding the 2018 visit, a comprehensive invasive plant management plan (IPMP) was developed focusing on the dense Orange Hawkweed (OH) infestation. The IPMP was implemented in 2019, and BC Parks contracted EKISC to conduct chemical treatment. Two EKISC staff members, alongside four BC Parks Student Rangers, and BC Parks Area Supervisor Marika Welsh, visited to the hot springs to conduct treatments during July 8 – 10, 2019. Chemical treatment was conducted where the ground was dry, and outside of the pesticide free zone (PFZ), spraying a total of 48L of Milestone. Mechanical treatment was conducted on the east side of the creek in water-saturated soil, where multiple small streams feed into the hot springs. The team also hand-pulled on the west side of the creek where the plants were in a dense mat on compact soil. Following treatment, an Annual Rye seed mix was distributed to assist with re-establishing non-invasive plant populations by providing competition to the invasive species.

Additionally, EKISC collected data from permanent vegetation monitoring plots established in 2018. The Daubenmire method was used, collecting a total of 18 plots across three different 50 m transects. Results indicate that between 2018 and 2019, OH increased in percent cover by an average of 4.7% across all plots. Grass and bare ground cover did not change substantially, whereas forb percent cover increased by 12.3%, and woody percent cover increased by 4.5%. Changes in percent cover could be the result of 2018 treatments, slightly different plot locations due to the challenging terrain, or different observers collecting the data (human/observer error). Although this comparison shows an increase in OH and slight decrease in bare ground, it is too early to indicate any relationship between the two. EKISC hopes to continue partnering with BC Parks on this project.



Figure 6. Team members hand-pulling Orange Hawkweed on the east side of Dewar Creek.

TransCanada Trail Treatment

The East Kootenay section of the Trans Canada/Great Trail (TCT) begins in Cranbrook, and continues east toward Wardner along the Chief Isadore Trail, located in IPMA 01 CRANBROOK EAST. The trail is a total of 43.5 km and winds through the Cranbrook Community Forest, grasslands, as well as active forest and range areas. EKISC inventoried and treated the trail in 2018, and completed treatments for a second year in 2019. Approximately 20 km of the trail was accessed using bicycles in late May as requested by Trails BC. Treatment began at the Chief Isadore parking lot adjacent to the Government of BC fire centre, and continued east along the main trail to Wardner. Observations demonstrate that infestations appear to have reduced in size, density, and distribution, yet this may be due to the early survey and treatment date of the area; therefore, field crews did not observe a second flush of plants. EKISC hopes to continue partnering with Trails BC to continue treatment along the East Kootenay portion of the TCT.

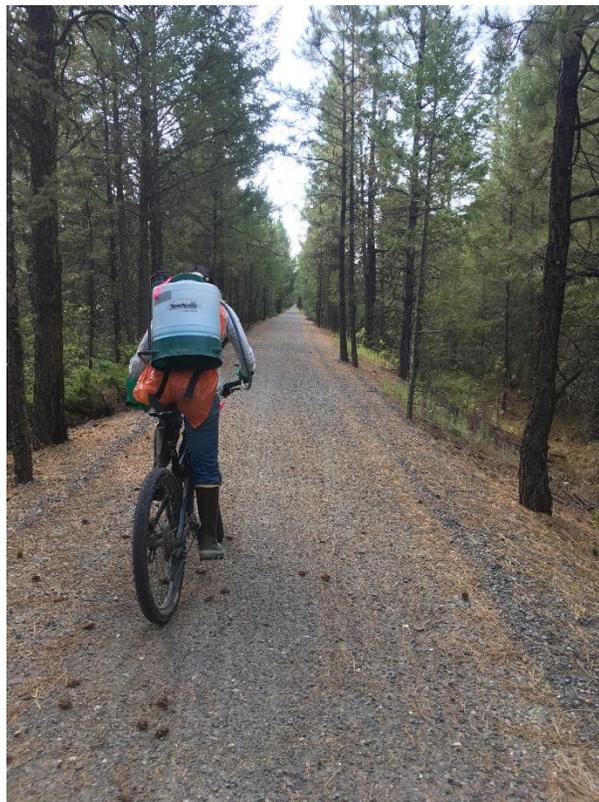


Figure 7. TransCanada Trail Treatment conducted on bicycles.



Aquatic Invasive Species

EKISC manages a small Aquatic Invasive Species (AIS) program. Supported primarily through the Habitat Conservation Trust Foundation (HCTF), field crew members conducted invasive mussel larvae sampling, aquatic invasive plant surveys (using rake tosses), and installed Clean, Drain, Dry behavior change campaign signs in 2019.

Invasive Mussel Sampling

Lake monitoring across British Columbia is important for early detection of invasive species, specifically Zebra and Quagga freshwater invasive mussels. These two species pose significant economic and environmental risks to BC if they were to become introduced. Conducting water samples in efforts to detect the first stage of the mussel's lifecycle (veligers) targets an early detection monitoring effort. In 2019, EKISC completed four rounds of lake monitoring following the [British Columbia Dreissenid Mussel Lake Monitoring Field Protocol](#) prepared by the Ecosystems Branch BC of the Ministry of Environment and Climate Change Strategy (Dreissenid Mussel Field Protocol, 2019). This protocol identified 12 critical and high-risk lakes within the RDEK for EKISC to monitor monthly between June through to September; this was an increase from 8 lakes in 2018. For a second year, EKISC partnered with MFLNRORD. MFLNRORD staff provided water quality monitoring equipment, a small motorboat, transport to and from monitoring sites, and personnel. Lakes sampled include:

- Columbia Lake
- Lake Kooacanusa
- Lillian Lake
- Moyie Lake
- Premier Lake
- St. Mary's Lake
- Surveyors Lake
- Tie Lake
- Wasa Lake
- Whiteswan Lake
- Whitetail Lake
- Windermere Lake

A combined total of 145 water samples were collected at various locations such as high-use boat launches, open-water or near-shore habitat types with a focus on popular day-use areas. Due to logistics, weather, MFLNRORD equipment, and staff availability, some lakes and/or locations were missed during August and September sampling. BC's Invasive Mussel Defence Program has confirmed all samples in BC sent for analysis have returned negative for invasive mussels. EKISC is looking forward to continuing to monitor lakes across the RDEK in 2020.

Aquatic Invasive Plants

In 2019, Lake Windermere Ambassadors (LWA) joined EKISC staff for an aquatic invasive plant course with Rachel Darvill from Goldeneye Ecological Services. Rachel assisted staff in aquatic plant identification in preparation for completing AIS surveys throughout the summer. EKISC conducted AIS survey's using a rake toss at all lakes sampled for veligers. Rake tosses were completed once in either July or August at all lakes, in up to four locations per lake. Surveys took place at high-use areas including boat launches, shorelines, and docks where invasive plants would be most likely to be introduced. In 2019, no aquatic invasive plants were identified.



Figure 8. Field assistant, Katie Grady, performing a horizontal plankton tow on Tie Lake, 2019.



Figure 9. EKISC and LWA staff identifying aquatic plants (left), Bladderwort (right), a native aquatic plant found in the RDEK.

Clean, Drain, Dry Sign Installation

In 2019, EKISC became a partner of the National *Clean, Drain, Dry* Pilot Program initiated by the Invasive Species Council of BC. By becoming a partner, EKISC received new signage to install at lakes sampled for veligers and aquatic plants. Old signs were removed, and new signs were installed at high-use boat

launches across the RDEK in varying jurisdictions. The goal of this pilot program is to increase outreach efforts within our region regarding the spread of aquatic invasive species. Columbia Power also supported this initiative. 2019 is year two of the pilot program.



Figure 10. Installing new Clean, Drain, Dry sign at Whitetail Lake, 2019.

Invasive Plant Inventories

Throughout the 2019 field season, EKISC worked with ʔaᓄam Community, BC Parks, MOTI, and the Rocky Mountain Ecological Restoration Program (RMTERP) to provide noxious and invasive plant inventories at various locations across the RDEK (Table 2). The objective of these inventories was to provide organizations with vegetation data to help inform ecosystem restoration planning (including pre and post burn treatments), decisions regarding risk mitigation, and treatment of invasive for proposed future activity². All properties followed a cursory style of inventory, meaning the entire area was inventoried with an observatory approach, rather than implementing linear transects. This style of inventory allowed EKISC staff to cover entire properties within the total allocated time. Field staff focused on vectors of spread which included roads, trails, disturbed areas, or large open areas as identified on GIS Pro, the programming software EKISC uses to collect data. The field crew hiked a combined total of approximately 600 km, identifying over 2,500 inventory points, lines, and/or polygons, and 20 different listed noxious and invasive species across the 13 properties within a 6-week time frame.

² Complete data, maps, and recommendations are highlighted in individual reports for each organization.



Table 2. 2019 inventoried properties.

Property Name	Size of Property	Property Name	Size of Property	Invasive Species Observed
ʔaǰam: Airport Pasture	1358ha	RMTERP: Cherry Tata/China North	135ha	Baby's Breath, Blueweed, Bull Thistle, Canada Thistle, Caraway, Cheatgrass, Common Burdock, Common Mullein, Common Wormwood, Dalmatian Toadflax, Diffuse Knapweed, Hounds Tongue, Orange Hawkweed, Oxeye Daisy, Russian Thistle, Saint John's Wort, Sulphur Cinquefoil, Spotted Knapweed, Yellow Hawkweed, Yellow Toadflax
MOTI: Corbin to Coal Mountain	N/A	RMTERP: Cherry Tata/Lost Springs	205ha	
MOTI: Fording Mine Road	N/A	RMTERP: Cherry Tata/Miller Road	167.5ha	
MOTI: Kimpton Windermere Pit	N/A	RMTERP: Fussee North	306.7ha	
MOTI: Radium Golf Course Road/McIntosh Loop Road	N/A	RMTERP: Fussee West/Alpha	375ha	
MOTI: Mile High/Radium Pit	N/A	RMTERP: Old Kimberley Airport	733ha	
BC Parks: Wasa Provincial Park	154ha	RMTERP: St Mary's Prairie	365ha	
RMTERP: Cemetery Pasture	565ha			
Total hectares inventoried			4,352.2 ha	

Grassland and Rangeland Enhancement Program (GREP) Research Project

EKISC continued two research projects that were designed in 2016 and implemented in 2017. These projects have provided EKISC with a greater ability to assess the efficacy of invasive species management. By utilizing permanent survey plots, they provide insights into which invasive plants are roadway invasive species and which invasives will encroach on undisturbed grasslands, and how effective current herbicide control practices are in the long term.

Treatment Efficacy Trial

52 plots across five IPMA's were visited for data collection. Sites were selected semi-randomly using considerations such as frequency of treatment, site access, and style of data collection. Each plot has a wooden stake marking the center of the plot, with a 2-meter radius survey area. Percent cover of each invasive plant species, grasses, forbs, shrubs, and other (includes dirt, moss, bare ground etc.) were recorded for analysis and complete observations and interpretations are presented in the 2019 Grass and Rangeland Enhancement Program Annual Report.



Figure 11. Treatment efficacy trial research plot established in IPMA 02 South Country.

Road Transect Surveys

Two road transects (Burton Lake Road and the Galloway strip) were again monitored in 2019. Transects follow a stratified random line sample design, with surveys sites at 5-metre intervals along a 100-metre transect line. The same data is collected as the permanent survey plots, yet a 0.5 m² frame is used.

Observations

Both research trials are still young, with data collected for the past three years (2017, 2018, 2019). Permanent survey plots or road transects may have only been chemically treated once within this period of time due to the expanse of invasive species treated across the RDEK and limited funding. Therefore, although over 150 samples have been collected over a three-year period, analysis and interpretation of the results may not demonstrate accurate trends. However, a broad assessment of permanent survey plots indicates that in areas that have received treatment in 2017 or 2018, grass cover is increasing, and invasive species densities are declining. For Burton Lake Road, Blueweed (BW) populations decreased in 2018 following the treatment in 2017, however due to the rotational system used for treatment in order to cover as large an area as possible over a two- or three-year period, 2019 saw a flourish in BW populations (Figure 11).

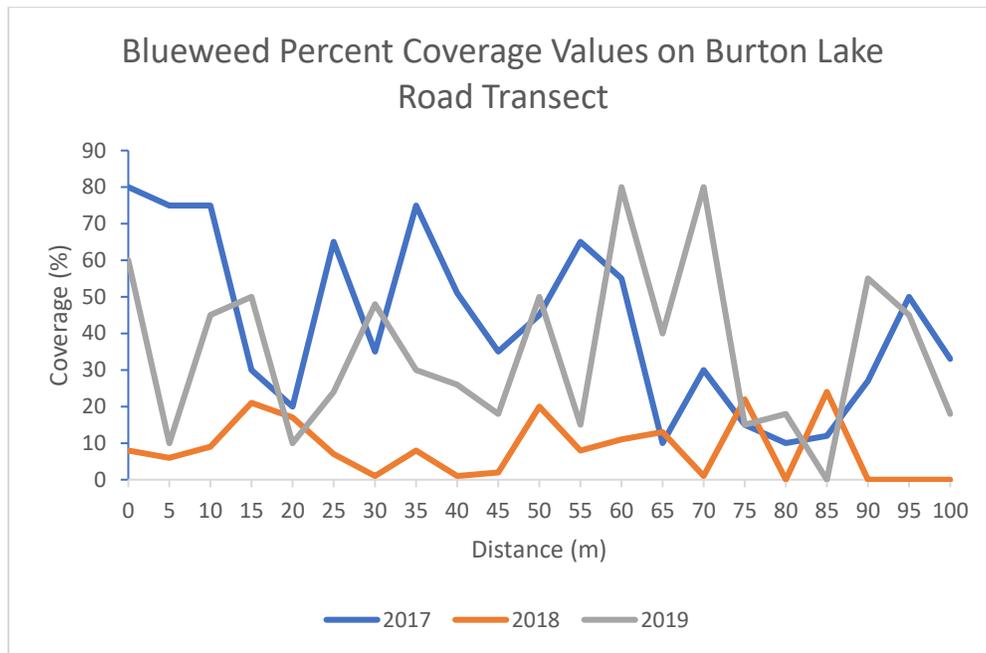


Figure 12. Blueweed Percent Coverage Values on Burton Lake Road 2017 - 2019.

2020 Workplans/Recommendations

In order to continue improving EKISCs field operations, the following outlines specific actions that will enable EKISC to continue fighting against the introduction and spread of invasive species. Recommendations are summarized according to specific field operations programs.

Invasive Plant Treatment

Mechanical Treatment

Continue collaboration efforts with MOTI, MFLNRORD, BC Parks, TNBC, and NCC for mechanical treatment of invasive plants at riparian areas, and conservation lands. Maintaining similar, or extended funding parameters, will be essential to gain further control of existing infestations. If funding becomes limited, some sites may become retroactive in the current control measures in place. Additionally, large treatment areas (such as the Purple Loosestrife pull at Bummers Flats) could be extended to incorporate EKISC members and/or additional volunteers. This will allow the general public to learn information about invasive species management directly from on-the-ground work.

Chemical Treatment

Over the two years that EKISC treated all P1 species across the RDEK in-house, it has proven to be a higher financial cost than anticipated. For the 2020 field season, EKISC has decided to ask contractors to treat P1 sites in addition to the lower priority species. EKISC's Field Operations Manager will monitor 100% of P1 site treatments in addition to the current 10% of contractor treatment. Reallocating the P1 treatments to contractors will allow EKISC to focus on other projects.

In 2020 EKISC will continue to work with Environment and Climate Change Canada for the treatment of Leafy Spurge and Russian Thistle within the Wilmer Unit of the Canadian Wildlife Service in Invermere. Bi-annual treatment and monitoring will commence in the spring and fall. To ensure species are not



spreading further into the CWWMA, EKISC has recommended a complete inventory of the area every three years.

The Dewar Creek Hot Springs Invasive Plant Management Program entered its second year in 2019. Although EKISC would like to continue working on this project, it is funding dependent. If EKISC is not hired to retreat this location, EKISC will help assist training for BC Parks employees to complete.

Aquatic Invasive Species

Invasive Mussel Sampling

The Ministry of Environment and Climate Change Strategy has released the 2020 Dreissenid Mussel Lake Monitoring Field Protocol (Dreissenid Mussel Field Protocol, 2020) which has highlighted an increase (total of 22 lakes and 1 river) in the number of waterbodies for EKISC to monitor for invasive mussels throughout the summer. In order to efficiently complete this work, EKISC will conduct monitoring from docks and shorelines, rather than using a small motor-boat for most lakes. EKISC hopes to partner with additional lake quality groups (e.g. Lake Windermere Ambassadors, Columbia Lake Stewardship Society) in order to increase support and monitoring parameters for the 2020 season. Further, six large lakes have been identified as high priority, therefore sampling is required bi-monthly.

Aquatic Invasive Plants

In 2020, EKISC hopes to continue to monitor for aquatic invasive plants at all lakes sampled for invasive mussels. Monitoring should happen once a year in July or August. Additional project funding may be required in order to complete this work.

Grassland Rangeland Enhancement Program

For the 2020 field season, EKISC has been asked to modify their research program. With guidance from GREP and MFLNRORD, EKISC will conduct a simplified efficacy monitoring initiative. A research program will be implemented to determine if herbicide application at the site level is an effective means of controlling target invasive species. The initiative will be in year 1 of 5 in the 2020 season.



Appendix I

Table 3. Invasive Species Acronym List.

Acronym	Invasive Plant
BT	Bull Thistle
BU	Burdock spp
BW	Blueweed
BY	Baby's Breath
CA	Caraway
CT	Canada Thistle
TC	Common Tansy
DK	Diffuse Knapweed
DT	Dalmatian Toadflax
FS	Field Scabious
HA	Hoary Alyssum
HT	Hound's Tongue
LS	Leafy Spurge
MU	Mullein
OD	Oxeye Daisy
OH	Orange Hawkweed
PP	Perennial Pepperweed
PL	Purple Loosestrife
RT	Russian Thistle
SC	Sulphur Cinquefoil
SH	Scentless Chamomile
SJ	St John's Wort
SK	Spotted Knapweed
YH	Yellow Hawkweed species