PART V:
Available Resource Inventories and Information

9. RESOURCE INVENTORIES

9.1 Forest Inventories

The Aleza Lake Research Forest primarily relies upon the VRI (Forest Vegetation Inventory) datasets maintained by the Province of BC for baseline description and inventory of forest and stand composition. This freely available geospatial polygon-based data set is distributed by the Province of British Columbia through DataBC and associated websites. Various formats of the data can be acquired. Generally, for the research forest, data is downloaded and incorporated into the ALRF's geographic information system. Key attributes from the VRI include forest stand estimates (by inventory polygon) of tree species composition, age, height, basal area, volume, stems per hectare, ecology, and site productivity all of which are useful for forecasting future ALRF timber supply and the long-term sustainable management of the forest lands.

Attributes from this dataset are from a variety of sources. Provincial inventory attributes for mature stands without recorded harvest history are generally based on photo interpretation sources and ground truthing completed by the province. Data for second growth stands generally comes from forest cover data provided by the provincial reforestation database.

However, additional forest land base data, inventories, and descriptive information used for forest planning initiatives such as the the most recent timber supply analysis (2018), also include and consider other sources of land and forest information including aerial orthophotography, remote sensing and LiDAR-derived datasets, administrative boundaries (legal permit boundaries), land leases and authorizations, ecological reserves, spatial visual quality objectives, old-growth management areas, prior land use plans, research installation spatial information, roads and road permits, utility rights of way, waterbodies and wetland delineations, stand harvest history, and *Land Act* tenures.

9.1.1 Forest and Silvicultural History

Beyond the recording of forest cover, British Columbia's Reporting Silviculture Updates and Land Status Tracking System (or RESULTS) database is a data repository for recording specified harvest, reforestation, and stand management activities including but not limited to:

a) Milestone Declarations: previously-harvested areas that have been regenerated to a well-stocked condition defined by regeneration and free growing provisions, and expected to grow to maturity without additional management intervention. These milestone declarations are linked to the legal obligation for reforestation incurred by the ALRF Society as tenure holder, following timber harvesting.

b) Silviculture activities: all management activities relevant to reforestation obligations are recorded in RESULTS (e.g. harvest systems, site preparation, planting, and brushing projects).

c) Updated Forest Cover information required for each activity is reported with both silviculture and inventory labels. Silviculture labels describe the forest stand attributes as they relate to the tenure holder's legal, contractual, and technical requirements with the Province for establishment of well-spaced and free-growing trees. Inventory labels provide a general description of tree species composition and age class within a forest stand.

9.1.2 ALRF Managed Forest Inventories

Under this plan, the ALRF Society as tenure holder commits to submitting data on its forest management activities to the RESULTS database as per standards set by the Province. This commitment ensures transparency between the ALRF and the Province, and ensures that both the ALRF and the Province have access to the best available data for managing for the future, that is, that such data is incorporated in the RESULTS database and migrated to the provincial VRI datasets.

In addition to the provincially managed datasets in the public domain, the ALRF also maintains its own internal data layers of forest management and forest cover. Such local knowledge provides improved detail and interpretation to forest cover data and associated operational planning and can be used to update the ALRF forest inventories database.

9.1.3 ALRF Enhanced Inventories

In May of 2015, the ALRF acquired Light Detection and Ranging (LiDAR) laser-mapped remote sensing data for the full tenured area of the research forest. This data is currently being used or in the process of being adapted for many aspects of ALRF forest lands management. This data is being used to enhance knowledge and stewardship of the ALRF, through improved detail on various forest and land features. Table 2 provides a list of data products that are being used or developed by the ALRF – at time of plan preparation - to improve forest inventories and management decisions.

Table 2: Enhanced ALRF Forest Inventories from LiDAR, as of December 2017

Product	Description	Status
Digital Terrain Model $1m^2$ resolution	This $1m^2$ terrain model replaces the $25m^2$ model available from government and has been highly effective for Site Planning including road location planning and initial stratification of ecologies	In use
Enhanced Streams Inventory	Hydrology modelling was conducted using the digital terrain model and derivatives to accurately locate streams, non-classified drainages, and seeps.	In use
Stand Height Model	Provide the mean relative heights of stands.	In use
Enhanced Forest Stand Inventory	Using LiDAR to enhance forest timber metrics is well documented in literature (e.g. Basal Area). The ALRF is committed to enhancing its forest inventory from LiDAR	Pending
Predictive Ecosystem Mapping	The ALRF is a pilot site for a Provincial study examining the use of LiDAR data to provide predictive ecosystem mapping, especially on plateau landscapes.	Pending
Site Productivity	Height data from LiDAR in combination with known stand histories can be effectively used to provide growth intercept site indices	Partial Implementation
Habitat Index Modeling	Academic literature suggests that habitat modelling based on LiDAR metrics has potential. This area will be evaluated for potential development	For evaluation

9.1.4 Forest Carbon Dynamics and Inventories

Overview of Past ALRF Forest Carbon Studies and Information Sources

With heightened international and regional concerns of anthropogenic climate change (IPCC, 2000, Foord, 2016 respectively) and its links to global carbon cycles, the inventory and assessment of carbon (C) stocks (or 'pools'), release, and sequestration in forest ecosystems has become of increasing global scientific, environmental, and forest management importance.

A large body of scientific field research on forest carbon dynamics and stocks in sub-boreal forests at the Aleza Lake Research Forest has developed over the last two decades. This body of work greatly informs the current scientific understandings and management perspectives on this issue at the ALRF and in the central BC Interior, and as well, forms a strong foundation for further scientific studies and carbon-management analyses.

The following summary provides a broad overview of this scientific work. The reader is referred to the original publications for additional detail.

Early scientific work by UNBC researchers at the ALRF examined forest carbon dioxide fluxes both below-ground and above-ground. Evans et al (1998) examined winter soil temperatures, carbon dioxide release, and organic matter decomposition under winter snowpacks at the ALRF under the influence three different harvest treatments including clearcut, shelterwood, and uncut (control) stand treatments. A later study (Pypker and Fredeen, 2002a, 2002b; Fredeen et al, 2007) examined regenerating spruce stands after harvesting of mature stands and planting of new even-aged stands, and investigated whether young spruce plantations (< 10 years of age) were a net source or sink for atmospheric carbon dioxide.

In a latitudinal study across a range of BC coastal and Interior ecosystems including sites at the ALRF, Prescott et al (2000, 2005) examined the effect of clearcutting and the role of site and climatic factors on rates of organic litter decomposition in the forest floor.

In the mid 2000's, a team of UNBC researchers led by Dr. Art Fredeen undertook extensive large-scale forest-level examinations of carbon pools and stocks on upland sites at the ALRF, including comparisons of above- and below-ground coniferous carbon stocks between old-growth and young second-growth forests on two soil types at the ALRF (Fredeen et al, 2005), and between ecological site series at the ALRF (Bois et al, 2009). A key enduring feature of this work was the establishment of a network about 140 carbon-monitoring permanent sample plots throughout the ALRF, randomly located across a wide variety of forest types, age classes, and site series. This carbon plot network also provides a strong basis for future systematic re-assessments of forest carbon at a landscape and forest-level at the ALRF.

A parallel UNBC study on the ALRF landbase during this time used satellite-based (Landsat TM and ETM) remote sensing to detect and model above ground carbon stocks at the ALRF for the period from 1992-2003 (Janzen et al, 2010).

Two studies at the ALRF have examined the role of smaller plants, including mosses and bryophytes in carbon and nutrient cycling in northern forests (Campbell and Fredeen, 2007, Botting et al, 2006b).

A pilot study at the ALRF by Sanborn and Jull (2008) examined the timing of peatland initiation, and therefore carbon storage, in 4 sphagnum bogs located in closed depressions underlain by glacial lake sediments. Maximum peat thickness in the ALRF bogs examined ranged from 0.7 to 5.5 metres, with an age of peat initiation (by C14 aging techniques) ranging from 2,400 to 9,100 years before present.

An experimental paired field study on both ALRF sub-boreal and BC temperate coastal ecosystems examined the effect of site preparation and fertilization of wet forest sites on soil bacterial and fungal abundance, and on soil carbon dioxide fluxes (Levy-Booth et al, 2016).

And finally, west of the ALRF in northwest BC, in the Smithers area, a study by Kranabetter (2009) examined forest carbon storage across a range of site productivity gradients in late-seral sub-boreal forest, providing a useful cross-comparison to studies within the ALRF landbase.

A roadside pile of logging slash being burned at the ALRF to reduce fine woody fuels and post-harvest fire hazard

Key ALRF Carbon Research Findings and Implications for Management

A complete summary and discussion of forest carbon studies at the ALRF is beyond the scope of this management plan, but certain key learnings from this research warrant specific mention here, due to their significant implications for management of forest carbon at the ALRF. i.e.

1. Carbon stocks and sequestration in the wet sub-boreal forests typical of the ALRF is substantial, and is intermediate between Pacific Northwest temperate coastal forests and drier, colder boreal forests.
2. Above-ground carbon stocks in unharvested old-growth forests at the ALRF substantially exceed those in both clearcut (young even-aged) and partial cut stand types, both in terms of mature trees and woody debris. Based on current data, partial cut stands at the ALRF have carbon stock levels intermediate between old-growth and recently-clearcut stands.
3. Old-growth stands on the most productive (subhygric) ALRF sites had the highest total ecosystem C stocks of all ALRF forest types, having approx. 18% more C stock than low-productivity mesic (drier) and hydric (wetter) sites. This mirrors the findings of Kranabetter (2009) in western sub-boreal forests in the Smithers BC area.
4. Clearcut-harvested sites and resulting young even-aged plantations remain a net source of carbon dioxide for at least 6 years after harvest (due to decomposition carbon fluxes exceeding sequestration), but became net carbon sinks again (i.e. – with positive net carbon sequestration) around 8-10 years post-establishment.
5. Below-ground carbon stocks on ALRF site types are relatively resilient to management, and do not appear to be significantly affected by harvest practices, based on results to date.
6. Further research work is needed on carbon stocks, sequestration, and fluxes in second-growth stands at older ages and later stages of stand development on upland sites, and on the dynamics and carbon stocks of peat bogs that are also widespread in this region.

A UNBC student inspects rainbow trout captured from Hansard Creek

9.2 Streams Inventory

For previous ALRF management plans, stream information on the ALRF land base was necessarily based on the Province's 'Freshwater Atlas' which is accessible through DataBC and associated web interfaces. From this original dataset, the ALRF streams inventory and habitat information has been progressively improved since 2001, by detailed stream surveys and habitat assessments, and more recently since 2015, by LiDAR remote sensing technologies

In 2007, DWB Consulting Services Ltd (DWB) under contract to the ALRF Society, prepared a stream class predictor model to augment a Timber Supply Review Analysis that was being conducted in the Aleza Lake Research Forest (ALRF). The main objective of that project was to develop a model to predict the expected stream classification for all watercourses within the ALRF. The design of the model was based on the use of data obtained from maps, previous stream classification reports, and aerial photographs of the area.

In 2017, using digital hydrology modelling methods and the ALRF's LiDAR dataset acquired in 2015, the location of streams, non-classified drainages, and smaller seeps were re-assessed and remapped using LiDAR digital elevation modelling at a higher level of precision and detail than has been previously possible with Provincial terrain (TRIM) data and traditional survey methods. **Three separated data layers were generated through this process including:**

a) Fish-bearing streams – previously identified as fish-bearing through surveys or through modelling (DWB, 2007) were incorporated into this layer. These were previously known streams with their locations more accurately mapped.

b) Non-classified drainages and larger streams.

c) Soil moisture flows or seepage routes not expected to have any associated channels with them but which provide a strong indication of the direction that water drains across the land.

9.3 Wildlife Inventory

While some provincial sources of overview information on wildlife occurrence are available, the ALRF's information on wildlife occurrence within its tenure area have augmented substantially by local knowledge and observation (forestry staff, local residents, UNBC researchers, information from licensed stakeholders, and other forest users, ALRF wildlife inventory surveys, trail camera pictures and data from the BC Ministry of Environment). Wildlife surveys at the ALRF started in 2003 and have been conducted on an intermittent or periodic basis over the years. Although somewhat limited in extent, the preliminary wildlife inventory data collected provide a broad picture of species presence and habitats in the Research Forest. Tables 3 and 4 below lists known vertebrate animal species within the ALRF.

Table 3: Known Mammal Species occurring within the Aleza Lake Research Forest

Type	Common Name	Latin Name
Mammals	Moose	*Alces alces*
	Mule deer	*Odocoileus hemionus*
	Black bear	*Ursus americanus*
	Grizzly bear	*Ursus arctos*
	American pine marten	*Martes americana*
	Snowshoe hare	*Lepus americanus*
	Fisher	*Martes pennanti*
	Wolverine	*Gulo gulo*
	Ermine	*Mustela erminea*
	Red-backed vole	*Clethrionomys gapperi*
	Mice	*None – multiple species*
	Grey wolf	*Canis lupus*
	Coyote	*Canis latrans*
	Red squirrel	*Tamiasciurus hudsonicus*
	Red fox	*Vulpes vulpes*
	Elk	*Cervus canadensis*
	White-tailed deer	*Odocoileus virginianus*
	Lynx	*Lynx canadensis*
	Beaver	*Castor canadensis*
	Porcupine	*Erethizon dorsatum*
	River otter	*Lutra canadensis*
	Mink	*Mustela vison*
	Weasels	*Mustela* spp.
	Groundhog	*Marmota monax*
	Chipmunk	*Tamias* spp.
	Bats	*Multiple species – more inventory needed*

Table 4: Known Birds, Reptiles, Amphibians, and Fish Species occurring within the Aleza Lake Research Forest

	Common Name	Latin Name
Birds	Three-toed woodpecker	*Picoides tridactylus*
	Hairy woodpecker	*Picoides villosus*
	Pileated woodpecker	*Dryocopus pileatus*
	Boreal owl	*Aegolius funereus*
	Great grey owl	*Strix nebulosa*
	Great horned owl	*Bubo virginianus*
	Northern goshawk	*Accipiter gentiles*
	Red-tailed hawk	*Buteo jamaicensis*
	Bald eagle	*Haliaeetus leucocephalus*
	Osprey	*Pandion haliaetus*
	Warblers	*Multiple species – more inventory needed*
	Flycatchers	*Multiple species – more inventory needed*
Reptiles & Amphibians	Western boreal toad	*Bofus borealis*
	Wood frog	*Rana sylvatica*
	Columbia spotted frog	*Rana luteiventris*
	Long-toed salamander	*Ambystoma macrodactylum*
	Garter snake	*Thamnophis sirtalis*
Fish	Rainbow trout	*Oncorhynchus mykiss*
	Bull trout	*Salvelinus confluentus*
	White sturgeon	*Acipenser transmontanus*
	Brassy minnow	*Hybognathus hawkinsoni*
	Chinook salmon	*Oncorhynchus tshawytscha*
	Sockeye salmon	*Oncorhynchus nerka*
	Dolly varden	*Salvelinus malma*
	Sucker fish	*Catostomus sp.*
	Northern pikeminnow	*Ptychocheilus oregonensis*

9.3.1 Mammals

There are numerous known mammal species within the ALRF as noted in Table 3. The following information and observations of mammal occurrence in the ALRF focus on several more well-known or prominent species.

Black bears are common in the ALRF, and grizzly bears, though more dispersed in range, also make seasonal use of the area. Results of ALRF bear den surveys reveal excavated black bear dens along major drainages in upland areas and cottonwood tree dens in the Bowron Floodplain (Hodder and Rea, 2005). At the ALRF, black bears have been observed to find refuge and denning in cavities high up in cottonwood trees in floodplain and upland sites especially in Fall months, coinciding with the arrival of Grizzly bears into the floodplain. Large Douglas-fir trees or 'veterans' also appear to be important habitat features for black bears, as claw marks are regularly observed on large stems (approximately > 50 cm). Spring bear hunt activity occurs on the Research Forest by the guide-outfitter within the Bowron Floodplain and by the general public typically in the upland areas. Local observations and sightings suggest that grizzly bears pass through the Research Forest most frequently in Spring and Fall, and occasionally grizzlies will frequent ALRF areas throughout the summer season where favourable habitat conditions and cover permits.

Wolf tracks are found extensively on the ALRF along the Bowron River, on many roads, and on wildlife trails.

River otter tracks have been observed along the Bowron River in the summer and in the lower reaches of Hansard Creek in the winter indicating healthy fish populations in these systems.

Wolverines (including a female and two cubs were observed on the Bear Road in summer 2012 by ALRF staff), and in other instances, wolverine tracks were found in the West Bear Management Unit.

Small mammal prey species widely documented at the ALRF during winter tracking surveys include snowshoe hare, red squirrel, mice, and voles. Squirrel middens are abundant in mature, old, and in partially cut stands older than 40 years.

A porcupine escapes up a spruce tree in the northwest ALRF

Biophysical ratings and mapping of ungulate carrying -capacity is available for the ALRF. Biophysical ratings are based on photo-interpretation of landforms, surficial materials, and climate, with a limited amount of ground information to supplement the former (Personal communication, Dave King (retired), formerly with the Ministry of Environment, Prince George, BC). These ratings do not take into account factors such as access, forest cover disturbance, or economics. The ALRF has a low capacity for smaller ungulate species. For mule deer, this Low rating indicates a carrying capacity of fewer than 3 animals/km^2 /year due to high winter snowpacks. This is consistent with the lack of mule deer sightings in the ALRF thus far. For moose, carrying capacity is rated as High (5-8 animals/km^2 /yr) on the alluvial floodplains of the Bowron River, Moderate (3-5 animals/km^2 /yr) on the slopes adjacent to the floodplain as well as the rolling hills and creeks of the northern part of the forest, and Low on the rest of the forest area. The ALRF area, as with most of the surrounding plateau, is heavily used for moose-hunting from early September through early November each year.

9.3.2 Birds

A list of observed bird species for the mid-elevational SBSwk1 plateau forests around the ALRF and adjacent forest types (adapted from Lance and Phinney (2001) is summarized in Appendix C2. Lance and Phinney's bird research sites were partially on the ALRF landbase as well as in directly adjacent SBSwk1 forest types to the west, so are therefore fairly representative of typical SBSwk1 forest types in and around the ALRF.

Cavity-nesting birds including the three-toed woodpecker (*Piciodes tridactylus*), hairy woodpecker (*Picoides villosus*) and pileated woodpecker (*Dryocopus pileatus*), and secondary nesters including passerine birds such as warblers and flycatchers have all been recorded at the ALRF. Larger birds including boreal owls, great grey owls, and great horned owls, and raptors, such as northern goshawks and red-tailed hawks have also been confirmed at the ALRF.

Bald eagles (*Haliaeetus leucocephalus*) and ospreys (*Pandion haliaetus carolinensis*) nest in and near riparian areas and adjacent ridges near the Bowron River. While there is currently limited information on waterfowl species on the ALRF, species have been observed in Ecological Reserve #84 on Loup Lake including the Common Goldeneye (*Bucephala clangula*), and mergansers (*Mergus* spp.). Loons (*Gavia artica*) have been sighted on other lakes within the ALRF.

9.3.3 Amphibians and Reptiles

Several species of frogs and toads common to the sub-boreal spruce zone occur and appear to be abundant within the ALRF. Numerous tadpoles and juvenile frogs can be observed between June and August in upland and floodplain habitats on the ALRF, though overall density and population dynamics need more study. One species of toad, the Western Boreal Toad (*Bufo boreas*), and two species of frog, the Columbia spotted frog (*Rana luteiventris*) and the wood frog (*Rana sylvatica*) are known to exist in the area. One species of salamander, the long-toed salamander (*Ambystoma macrodactylum*), is relatively abundant in areas with rotten downed wood.

9.3.4 Fish

On the ALRF, most low-gradient perennial streams with sufficient summer flows and lower water temperatures contain trout and in some cases, some other fish species. Aleza and Hansard Lakes north of the Research Forest contain rainbow trout (*Oncorhynchus mykiss*), sturgeon (*Acipenser transmontanus*), northern pikeminnow (*Ptychocheilus oregonensis*), and suckers (*Catostomus* spp.). Stream sampling within the ALRF between 2002 and 2017 indicates that most major stream systems (and in some cases, stream-connected beaver ponds) within the ALRF have resident populations of fish. Fish habitat in these streams ranges from good in the larger stream reaches and moderate to marginal in smaller streams. Slaney and Hansard Creeks have rainbow trout populations, while Firebreak Creek has Rainbow Trout and Brassy Minnow (*Hybognathus hankinsoni*) populations. Chinook juveniles have periodically been recorded in lower to middle reaches of Hansard Creek, as identified by qualified aquatic biologists undertaking stream sampling.

The Bowron River has resident populations of Rainbow Trout, Dolly Varden (*Salvelinus malma*), and Bull Trout (*Salvelinus confluentus*), as well as Rocky Mountain whitefish (*Prosopium williamson*). The Bowron River has important runs of chinook (*Oncorhynchus tshawytscha*) and sockeye salmon (*Oncorhynchus nerka*) which travel through the ALRF into the upper reaches of the river. The lower Bowron River is also known to have white sturgeon, especially in river reaches close to its confluence with the Fraser River (McKenzie, 2000).

Loup Lake within Ecological Reserve 84 is not known to have resident fish populations, but is abundant habitat for amphibian and aquatic insect species (DWB Consulting Ltd, 2006a, 2017)

9.4 Bowron River Hydrometric Station

The federal Water Survey of Canada (WSC) maintains an active hydrometric station on the Bowron River just south of the ALRF boundary. The hydrometric station has been monitoring continuous water flow and level of the Bowron for 41 years (ECCC, 2017), and near "real-time" data is available from the Water Survey of Canada website.

9.5 Threatened and Endangered Species

Provincially- and federally-identified species of special concern in the ALRF and surrounding region are identified from provincial and national initiatives such as the Conservation Data Centre (CDC), the British Columbia Identified Wildlife Management Strategy (BC IWMS), the *Species at Risk Act* (SARA), and the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). and those identified as locally important (via the previous Prince George Land and Resource Management Plan or LRMP). Table 5 and Appendices C3 through C5 present a list of plant and animal species and ecological communities deemed to be at risk in the Prince George District as identified by the Province of BC.

This list comprises species whose range may overlap with the ALRF but whose presence in the Research Forest is known in some cases (Table 5), but not known or confirmed in others. Code definitions are provided in Appendix C6.

Table 5: List of known Red and Blue listed plant and animal species at the ALRF.

Scientific Name	Common Name	Status			
		Provincial	BC Status*	COSEWIC	Global
Acipenser transmontanus	White Sturgeon (Upper Fraser River population)	S1 (2010)	Red	E (2012)	G4T1 (2001)
Asio flammeus	Short- eared Owl	S3B,S2N (2015)	Blue	SC (2008)	G5 (2014)
Contopus cooperi	Olive-sided flycatcher	S3S4B (2015)	Blue	T (2007)	G4 (2008)
Gulo gulo luscus	Wolverine	S3 (2010)	Blue	SC (2014)	G4T4 (1996)
Pekania pennanti	Fisher	S3 (2015)	Blue		G5 (2005)
Salvelinus confluentus	Bull Trout	S3S4 (2011)	Blue	SC (2012)	G4 (2011)
Ursus arctos	Grizzly Bear	S3? (2015)	Blue	SC (2002)	G4 (2000)
Usnea glabrescens	Spotted beard	S3 (2010)	Blue		G5 (2015)

*Red = Extirpated, Endangered, or Threatened, Blue = Special Concern

9.6 Threatened and Endangered Ecological Communities

The BC Conservation Data Centre (CDC) and the NatureServe network use the term "Ecological Community" to capture the full range of ecosystems in BC at a variety of levels. The term "ecological" is a direct reference to the integration of non-biological features such as soil, landform, climate and disturbance factors. The term "community" reflects the interactions of living organisms (plants animals, fungi, bacteria, etc.), and the relationships that exist between the living and non-living components of the "ecological system" (CDC).

Currently, the most common ecological communities that are known in BC are based on the Vegetation Classification component of the Ministry of Forests and Range Biogeoclimatic Ecosystem Classification, which focuses on the terrestrial plant associations of BC's native plants. Additional ecological communities are documented from inventory projects, theses, and other reports. Although not currently available from the CDC, the CDC notes that their future work will incorporate levels of aquatic and marine ecological communities as well as various other levels of ecosystems (CDC).

A site series as per these definitions is a location on the ground that has the potential to produce a particular plant association. It can be identified even when there is no vegetation present. However, in order to identify the CDC ecological community, the characteristic vegetation and physiognomic structure must be present. In the BEC system, each plant association can potentially occur on one or more site series, but each site series has the potential to produce only one mature plant association (CDC).

There are several ecological communities and site series that are Red and Blue listed within the BEC ecological zone and variant SBSwk1 that encompasses the ALRF. See Appendix C5 for more details.

9.7 Inventory of Noxious Weeds and Invasive Plants

9.7.1 Definitions

In British Columbia, a "noxious weed" means a plant species designated by provincial regulation under the *Weed Control Act* to be a noxious weed or pest species, and includes the seeds of the noxious weed. Therefore, the Province has legal authority to direct the control of these species. Under the *Weed Control Regulation*, noxious weeds may be designated at a provincial level, or regionally within BC (by specified Regional District).

An invasive species is defined as an organism (plant, animal, fungus, or bacterium) that is not native and has negative effects on our economy, our environment, or our health. Invasive species may spread rapidly to new areas and may out-compete native species as there are no predators or diseases to keep them under control (Invasive Species Council of BC, 2014).

Invasive plant species may be designated by the Province as noxious weeds under the regulation. However, not all invasive plants are "noxious weeds" unless designated by regulation.

(TOP) False Solomon's Seal (*Maianthemum racemosum*) is common to many moist to rich ALRF forest sites, and is an important berry source for wildlife in the Fall (ABOVE) Thicket of Marsh Plume Thistle (*Cirsium palustre*) on a wet site at the ALRF

9.7.2 Inventory and Presence of Noxious / Invasive Plants at the ALRF

The most current and detailed information and report on the inventory and presence of invasive plant species for this area is provided by an area-wide inventory of "invasive" plants at the Aleza Lake Research Forest (Northwest Invasive Plant Council, 2010), as per Appendix C7.

Two invasive plant species at the ALRF are also designated as noxious weeds under BC regulation, including:

- Canada Thistle (*Cirsium arvense*)
  – a provincially designated noxious weed
- Marsh Plume Thistle (*Cirsium palustre*)
  – a regionally designated noxious weed.

Four additional invasive plant species that are known to occur within the ALRF are not currently designated as noxious weeds under BC regulation. These are:

- Oxeye Daisy (*Leucanthemum vulgare*)
- Orange Hawkweed (*Hieracium* spp.)
- Scotch Thistle (*Onopordum acanthium*)
- Hemp Nettle (*Galeopsis tetrahit*)