	Northwest Boreal LCC: Prioritized Information Needs by Category	Information Needs Categories ("Bins")
B1	High resolution **land cover imaging** to strategically focus geospatial data collection within the LCC with the following properties: Ability to distinguish among plant species (e.g., black spruce from white spruce, willows from alder)	B - **Baseline.** These are information needs that support or enhance the LCC's understanding of current system states. They may use existing data or involve new ways of using existing data. They may require collection of new data, or require synthesis of multiple existing datasets. They may be spatial or non-spatial in nature. Fundamentally, this bin includes information needs that define "Where we are, today."
B2	Map the location of existing **anthropogenic disturbances** (e.g., transportation infrastructure, trails, land use conversion, recreational development, timber extraction, gravel extraction, mining activity, and reclamation efforts.)	
B3	Consistent **hydrological dataset** for all of the LCC, across international border. Uses include the following: Salmon management, Pollutant transport studies and Investigating the spread of invasive species	
B4	Assemble and develop **Ecological Land Classification and mapping** at multiple geographic scales (e.g. wetlands, soils)	
B5	In the face of changing land uses, obtain **baseline data on life histories, species habitat associations and suitability models** for plant and animal species of concern (e.g., identify critical anadromous and freshwater habitat, migratory routes, spawning areas, and overwintering habitats).	
M1	**Monitor changes in plant and animal species distribution, abundance/density, productivity and survivorship**, including invasives, as a result of growing-season length changes (e.g., tree line migration; shrubification of alpine tundra habitats; greening/browning of vegetation; and impacts to subsistence species and resources).	M - **Monitoring**. These are information needs that support or enhance the LCC's understanding of changes in system states over time. They may involve coordination or standardization of protocols or minimum data standards. They may reflect improvements to existing measurement systems or development of new measurement systems. Fundamentally, these are information needs that allow the LCC to track real world change in order to evaluate the accuracy of projections of future states and modify adaptation planning and best management practices. These information needs tell us "How systems are performing" and provide an essential feedback loop for landscape conservation.
M2	Collect **standardized stream information** (including glacial melt and glacial stream discharge) on a sufficient number of watersheds to determine the impacts of temperature and precipitation change on flow and water quality at the landscape scale	
M3	Improve mapping, modeling, and monitoring of **permafrost** location, depth, and freeze/thaw rates	
M4	**Increase weather station (and SnoTel, etc.) coverage** to improve biome/climate association	
R1	**Assess the vulnerability of forest species and communities to climate change**, including vulnerability of species throughout food webs	R- **Understanding Relationships**. These are information needs that support or enhance the LCC's understanding of relationships within current systems. These may involve experimentally-derived conclusions or analysis of existing empirical data. This information is necessary to project future states (based on anticipated changes). This bin also includes information needs that explain "How or why systems function."
R2(a)	**Impact of climate change on vegetation composition and on subsistence resources** (e.g., harvested vegetation, ungulates, freshwater fish, etc.)	
R2(b)	Investigate the **effects of fire on ecosystems processes** (e.g., severity, frequency, and timing), including the following: permafrost dynamics, Water temperature and quality (turbidity, sedimentation, etc.), fish and wildlife habitats and populations, stand dynamics and vegetation change, Changes in carbon storage and plant biomass, and subsistence and other consumptive uses of fish and wildlife	
P1	**Predict and map the impacts of changing permafrost dynamics** on the following: Hydrology-surface and subsurface, Wetlands, Lakes, rivers, streams (including connectivity), Biochemistry, Land use management, Species habitat and populations, Water quality and quantity, Terrestrial plants (forests), and Human use; public safety/health	P - **Projecting Future System States**. These are information needs that support or enhance the LCC's understanding of potential changes in system states, based on modeling future conditions. They may include impact models, distribution models and downscaled climate information. Model products may be spatial or non-spatial in nature. Fundamentally, this bin includes information needs that predict "Where we are headed" given various future scenarios.
P2	**Project changes in plant species, community composition/biomes, and ecosystem processes** as a result of climate change	
P3(a)	**Project future vulnerability to land-use change**, including projected changes to human access and resource exploitation (e.g., recreation, mining, timber extraction), and effects of cumulative disturbances in a changing climate on ecosystems, cultural resources, and focal species (e.g., habitat fragmentation, location/spread of invasives)	

P3(b)	**Investigate how changes in temperature and precipitation regimes may affect vegetative productivity** via temperature-induced drought stress, longer growing seasons, less water availability (higher evapotranspiration)	
A1	**Best management practices for protecting/informing landscape scale conservation, ecosystem function** (e.g., wildlife corridors, road placement, buffers)	A - **Adaptation Planning and Best Management Practices**. These are information needs that support or enhance the LCC's understanding of the actions needed to move toward a desired future system state or condition, given current knowledge of "Where we are, today," "How and why systems work" and "Where we are headed." The information needs in this bin pertain to the conception or implementation of local to regional adaptation strategies. This includes the creation of Best Management Practices or alternative management scenarios, and decision support to identify "Where do we want to go, and how do we get there."
A2	**Develop management protocols for potential future invasive species**	
A3	**Develop inclusive decision-making processes for managing new or expanding land uses**	