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Biodiversity Mapping Workshop 2023 Report – Executive Summary

Action for Adaptation

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Executive Summary

In November 2023 UBC Botanical Gardens, UBC's Earth Observation and Spatial Ecology Lab and the Coastal Douglas-fir Conservation Partnership (CDFCP) held a Biodiversity Mapping Workshop at the Mary Winspear Centre, Sidney. The workshop was completed to feed into a project called Action for Adaptation. The Project aims to support local governments and First Nations to accelerate climate adaptation and resilience by providing mapping and tools that they have indicated are needed to conserve and restore nature-based solutions (NBS) for climate change.

The goals of the workshop were to;

- share progress on the Biodiversity Atlas and its emerging mapping layers and learn how this work could support local governments and First Nations;
- discuss how the pilot mapping layers could connect to decision making that supports biodiversity; and,
- support planners and decision makers to strengthen the network of knowledge holders on the south-west coast.

To date, the project team has held in-depth interviews and a workshop in October 2022 with planners, decision makers and mappers, to better understand the needs and priorities of spatial data users, identify gaps and deficiencies, and identify potential collaborations and opportunities for filling them (**Figure 3**). This work identified the need for the following six mapping layers;

- Land cover and land cover change
- **Environmentally Sensitive Areas**
- Terrestrial carbon
- **Species at risk and/or of cultural value**
- **Ecosystems connectivity**
- Hydrologically sensitive ecosystems

The Biodiversity Mapping Workshop held in November 2023 focused on the mapping layers that are highlighted in bold. The workshop was structured to share information on local examples of mapping that has been completed / or is ongoing in relation to each of the topic areas; to present pilot options for mapping these layers and to review with attendees, through breakout groups, the challenges and opportunities of the pilot layers. The Sunshine Regional District was the focus area for the pilot layers.

A summary of what was heard during the discussion groups is presented in **Table A**. Table A also presents the next steps for the Atlas team based on the information shared in the workshop.

Table A – A summary of conclusions of breakout groups relevant to the development of the Biodiversity Atlas.

Discussion Group Topic	Opportunities to be consider by the Atlas	Challenges to be considered by the Atlas	How the Atlas will Respond
Species at Risk and of Cultural Value Mapping			
Citizen science species records	-Enables more records to be collected. -Enables increased engagement with the community, planners and decision makers.	-The records are biased by where people live; the species they can see or the species they are interested in. -There is potentially a higher risk of error. -The records may be harder to defend to the public.	The Atlas team will: -include citizen science records in the Atlas, clearly stating the source and level of validation
Culturally valuable species records	-Creates an opportunity for western science and indigenous knowledge to be presented together. -Provides evidence for the protection of sites with culturally valuable species. -Could help to build relationships.	-Data sovereignty / confidentiality of information / miss use of information would need to be considered. -Capacity might be limited for First Nations to engage in this work. -The project needs to work with each Nation to understand their needs. -Places a focus on single species vs whole environment.	The Atlas team will: -continue conversations with each of the First Nations within the project area to understand how these records could/should be presented.
Habitat suitability models for species at risk	-The models alleviate observer bias by drawing on a lot of resources to identify potentially suitable habitat. -Extends beyond jurisdictional boundaries. -Can be used to identify where to complete detailed surveys.	-The quality of the model is impacted by the quality of the information it is based on. -Models could only be completed for a few species. -The models would be difficult to enforce / regulate. -Need a clear indication of assumptions and how to use the models.	The Atlas team will: -consult the province on the use of their habitat suitability models. -use the models to support ecosystem connectivity mapping layers.
Ecosystem Connectivity			
Effect of scale on ecosystem connectivity	-Encourages collaboration, communication, resource sharing between jurisdictions. -Needs to be undertaken at a scale appropriate to the user e.g. local, regional and territory. -Is enforceable through OCP, if supported through zoning. -Provides information for the planning and decision-making process.	-No provincial mandate to protect connectivity. -The existence of jurisdictional boundaries can impact implementation. -Connectivity is different for different species. -Landscape is continually changing due to development, resource extraction and climate change. -Lack of influence on private land.	The Atlas team will: -review approaches to regional and local connectivity mapping. -consult with the provincial biologists on methodology. -review policy supporting implementation
Climate micro-refugia	-Presents climate change adaptation in action and would provide a good communication tool when working with the public. -Could provide incentive for protection, restoration, conservation, and stewardship. -LiDAR could be useful for this approach to mapping. -Need to consider the resolution of mapping e.g. micro-niches. -Mapping could open conversations with people excluded by data.	-Our understanding of climate change and its effects are evolving. -Using TEM (1:20,000) as the basis for this mapping could miss local refugia. -This approach is new and would need to be integrated into planning. -Who would decide on the criteria for climate refugia? -Capacity of local governments and First Nations to use this tool would need to be increased.	The Atlas team will: -consult with the province and academia on methodology/standards. -consider alterative fine scale approaches. -review how this layer could be incorporated into policy. -reflect on how local governments and First Nations can respond with limited capacity.

Discussion Group Topic	Opportunities to be consider by the Atlas	Challenges to be considered by the Atlas	How the Atlas will Respond
	-Could be used in planning resilience for culturally significant species.		
Restoration of connectivity	-Corridor restoration will enable species to respond to climate change. -Could be used to prioritise land acquisition. -Could be incorporated into Official Community Plans leading to improved decision making.	-The practicality of implementation on private land is a constraint. -It takes a lot of resources to restore a site versus protecting existing high value sites. -Policy may not be able to stop development.	The Atlas team will: -focus on identifying existing connectivity corridors. -identify significant barriers to key connectivity corridors.
Environmentally Sensitive Areas			
Extending SEI	-Would increase coverage and is a viable input in regulatory tools. -LiDAR, satellite and AI could help fill gaps, enable updates in a cost-effective way. -Could support First Nations, as the relationship to archaeological layers is important for Nations. -Would enable planners to look beyond their jurisdiction.	-The province would need to accept the approach as a proxy for the traditional approach to SEI mapping. -TEM has not been completed across the whole province. -The product would need to be verified on the ground. -Doesn't include an indigenous way of knowing. -The scale of mapping will impact its value. -The frequency of updates will affect its value. -Need to include coastal and high elevation ecosystems.	The Atlas team will: -review the approach with the province and look for ways to automate. -look to include coastal ecosystems. -look to verify products on the ground. -consult with First Nations on how to incorporate indigenous ways of knowing.
Grading ESA	-Could provide an easy-to-understand map of values and local priorities. -Could provide a framework for evaluating the value of sites.	-It would be difficult to develop a grading system that reflected everyone's values and that would cross jurisdictional boundaries. -Who would establish the grading system?	The grading of ESAs will not be a focus area for the Atlas team at this time due to the challenges highlighted. We will revisit later in the project.
Frequency of updates	-Some areas have never been mapped. Therefore, map at least once. -Updates should be linked with the planning cycle e.g. at least every five years. -Increase the scale before increasing the frequency of updates.	-Need to reduce the cost of mapping to increase frequency. -Once sensitive ecosystems are identified they should be protected removing the need for regular updates.	The Atlas team will: -consult with the province on guidance / standards on mapping ESA's. -consider frequency of updates / change mapping.
Presentation and Interpretation of Mapping			
Mapping at a parcel scale	-Would improve engagement with the community because it is of relevance to them. -Parcel scale information is useful to planners and decision makers. -Could link to an evaluation framework to provide consistency and transparency.	-Could become political due to the perceived accuracy of information. -Regular updates would be required. -Accuracy of data would have to be high. -Could decrease the value of a property or increase the cost for conservation land acquisition. -Land parcels won't align with ecological features.	The Atlas team will: -review the methods used by Maryland and others to describe value. -undertake consultation with local government and First Nations to understand priorities for presentation.
Prioritisation	-Can translate complicated mapping into useable products. -Can be useful for prioritising areas. -Could provide consistent planning across all levels of government. -Could inform policy and regulation.	-Needs interpretation and supportive material. -Methods would need to have transparency.	The Atlas team will: -review existing prioritisation tools to see if the Atlas layers could be analysed through these.