



# Biodiversity Cohort Briefing

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“Biodiversity is not the property of any one entity. Rather it is an emergent property of collections of entities. More precisely, it is the differences among them.”

– Dr. Paul M. Wood (Professor Emeritus in UBC’s Faculty of Forestry), in *Biodiversity and Democracy: Rethinking Nature and Society*

## Introduction

Our planet contains millions of ecosystems, each of which contain many different kinds of living organisms. Together, these ecosystems make up the planet’s biosphere — defined by the [National Geographic Society](#) as “the parts of earth where life exists”. Within the biosphere, there exists an enormous amount of diversity among its component ecosystems, habitats, species, traits, and genes. This biological diversity — or biodiversity, drives resilience, adaptation and evolution, and is one of the defining traits of a healthy ecological system.

Finding a common definition for biodiversity is no easy task, because there are so many different components that make up the concept. One of the most effective (though longer) definitions of biodiversity is used by the [Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services \(IPBES\)](#). They define biodiversity as:

*“The variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part. This includes variation in genetic, phenotypic, phylogenetic, and functional attributes, as well as changes in abundance and distribution over time and space within and among species, biological communities and ecosystems”*

This definition is especially strong, because it includes the sources of biodiversity (“...terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part...”), the measures of biodiversity (“...variation in genetic, phenotypic, phylogenetic, and functional attributes, as well as changes in abundance and distribution over time and space...”), as well as the scales at which biodiversity is found (“...among species, biological communities and ecosystems”).



## Biodiversity at Risk

Biodiversity loss is one of the defining sustainability challenges of our time — and it is directly tied to other ongoing issues such as the climate crisis. The most recent [IPBES Global Assessment Report](#) on biodiversity estimated that around 1 million species are currently at risk of extinction, because of factors like **climate change, land use change, and ecosystem degradation**. Each species within an ecosystem performs a unique function, and the overall resilience of ecosystems is directly tied to its biodiversity. For this reason, losing any species risks jeopardizing the many benefits that ecosystems provide to their inhabitants around the world.

## UBC Context

Biodiversity is integral to the UBC Vancouver Campus. From the unique views that attract students from around the world, to the food systems at the UBC Farm, to the forest canopies that provide shelter from the summer heat. UBC also has an opportunity to help stop biodiversity loss, by protecting sensitive ecosystems and engaging the campus community with the protection and stewardship of nature. Our campus ecosystem, often referred to as the campus urban forest, is home to hundreds of species of trees, shrubs and other plant forms. UBC Vancouver campus is also located on the Pacific Flyway, a vital migration corridor for hundreds of North American bird species. According to the [Global Biodiversity Information Facility](#), **there are over 5000 unique species that inhabit the UBC Vancouver Campus**. The Sustainability Hub recognizes the importance of protecting biodiversity on campus, and it has identified biodiversity as one of the key components of its [2022 Strategic Plan](#).

## Policy Gaps

UBC has no overall Biodiversity Strategy, or biodiversity targets for campus planning & development actions. However, there are several key components of sustainability plans at UBC that contribute to enhancing biodiversity on campus. One notable example is the [Climate Action Plan \(CAP\) 2030](#), released in December 2021, which outlines adaptation, resilience, and biodiversity as contributors to climate action objectives. Actions supporting these objectives include community-driven development of "a set of campus biodiversity and climate principles to advance climate change mitigation and adaptation, ecological health, and human health and wellbeing" and the need for "a campus natural asset baseline that quantifies the contributions of UBC's natural assets to the range of ecological and socio-cultural services".

Perhaps the biggest opportunity for UBC policy to directly influence biodiversity is through land use planning. [UBC's technical guidelines](#) are the most detailed regulations for planting design on campus — they determine the location and what types of plants may be planted, and provide specific directions for building and landscape design.



[Campus Vision 2050](#), in particular, aims to incorporate ecological principles into the planning process. Among its seven guiding principles, the plan suggests taking “**bold action to address climate change and enhance campus ecology**” by fostering “a climate-adaptive and resilient campus by enhancing and enriching biodiversity and natural systems while incorporating Indigenous ways of knowing”. While this offers promise in UBC’s policy landscape, ongoing tensions between ecological stewardship and urban development remain.

Other UBC policies that support biodiversity include those in the [Green Building Action Plan](#), which outlines strategies to limit bird fatalities from building collisions in tandem with UBC’s [Bird Friendly Building Design Guidelines](#). Together, these policies create program opportunities that leverage citizen science – like the ongoing campus tree inventory in partnership with urban forestry students – to bring together experts and non-experts to better understand the campus ecosystem. Partnerships like the [Campus Biodiversity Initiative: Research and Demonstration \(CBIRD\)](#), the [Climate Crisis in Urban Biodiversity \(CCUB\) Initiative](#), both chaired by the [SEEDS Sustainability Program](#), are also incredibly valuable spaces where interdisciplinary faculty can collaborate with student researchers to support research on the campus ecosystem.

## Program Approach

The biodiversity cohort of Sustainability Ambassadors aims to facilitate engagement and action on the biodiversity crisis, and develop core sustainability competencies among its 10 Sustainability Ambassadors through interdisciplinary education, mentorship, networking and experiential learning opportunities. The 2022 cohort will collaborate to support a series of project objectives that deal with specific topics in biodiversity engagement and policy action. These project objectives will be split into two categories: **Engagement Projects** which seek to educate with impact around critical biodiversity topics like citizen science, urban ecology and global connections; as well as **Applied Research Projects** which tackle specific research questions asked by campus policymakers. Applied research projects will be undertaken with staff partners through the SEEDS Sustainability Program.

In order to navigate the complex landscape of policy outlined above, the Ambassadors will meet weekly with the team lead, and participate in workshops, field trips and guest lectures by practicing professionals that can support them in their learning. The biodiversity cohort has been developed in partnership with key biodiversity champions on campus, including staff at UBC Botanical Garden, UBC Farm, and the SEEDS Sustainability Program.