

HOW TECHNOLOGY CAN HELP WITH MONITORING ON-FARM BIODIVERSITY



Technology and Biodiversity

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Monitoring biodiversity can be challenging. It takes time and expertise to learn how to identify different species. Technological advancements like smartphone apps and automated sensors are making it easier to identify and keep track of biodiversity. Apps are used by scientists and the public for participatory monitoring of biodiversity.

Biodiversity Technologies



SMARTPHONE APPS

<u>iNaturalist</u>

Observe biodiversity (pictures and sounds), share with other naturalists, and identify and catalogue species.



Merlin Bird Identification

Guides users through visual bird identification, and listens to bird songs through your phone's microphone to identify bird species in real time.

Bumble Bee Watch

Assists users in identifying bumble bee species, completing bumble bee surveys, and users can upload any sightings to a centralized public database.

<u>eBird</u>

Allows bird watchers to track, store, and share their bird observations. This data is combined into a central database used for science and conservation.



AUTOMATED MONITORING TECHNOLOGIES



Camera Traps

Motion-sensing automated cameras can be used to take photos or videos of wildlife that pass by. Used by scientific researchers, hunters, and wildlife enthusiasts, there are an increasing number of companies producing these types of cameras (Reconyx, Bushnell, Browning, Spypoint, and others) for the consumer market.



Audio Recorders

Recording bird songs, ultrasonic bat calls, or all the sounds in an area (the 'soundscape') can help monitor biodiversity. Companies like Wildlife Acoustics and AudioMoth produce increasingly small, inexpensive, and user-friendly recorders. Ultrasonic microphones are also available for smartphones and can automatically identify bat species when paired with an accompanying app such as <u>Kaleidoscope Pro.</u>

In Development

Researchers at the University of British Columbia are developing camera trap technology for trapping and automatically identifying insects. <u>StickyPi</u> devices take pictures frequently, allowing researchers to monitor insect response to changes in weather and time of day.



WEBSITES AND DATABASES



GBIF

EFauna BC and EFlora BC

These websites provide detailed accounts of animal and plant species in BC, including photos, occurrence maps, and information on the biology, habitat, distribution, and conservation status of most species present in BC.

NatureWatch

Canadian organization that runs multiple participatory monitoring projects, including Wormwatch, Frogwatch, Plantwatch, and Milkweedwatch.



The Global Biodiversity Information Facility is a free and open global database of biodiversity data, including university samples and data as well as sightings from eBird and iNaturalist. Currently at over 2 billion records.

NatureServe

Provides information on threatened, rare, and endangered species in North America, including maps, models, and metrics. Many maps and datasets are freely available on the NatureServe website.

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