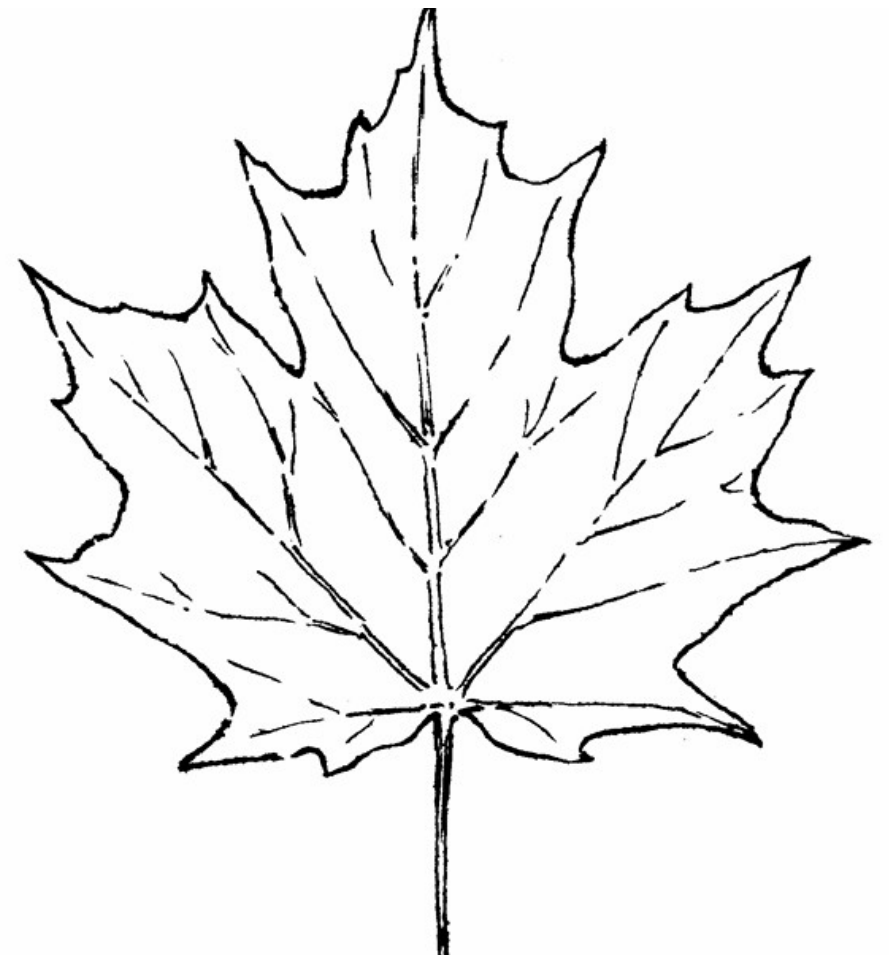


Extracting phenology and life history data from digitized specimens



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Applying Citizen Science Protocols to Digitized Museum Specimens Enables Data Integration and Discovery



Why citizen science protocols?



Citizen science data is often spatially extensive, but temporal limited



Herbarium-derived data products can be difficult to validate



Citizen science protocols often rely only on visual information



National Phenology Network

nature's notebook

A project of the USA-NPN



Leaves

Leaf buds

Breaking
leaf buds

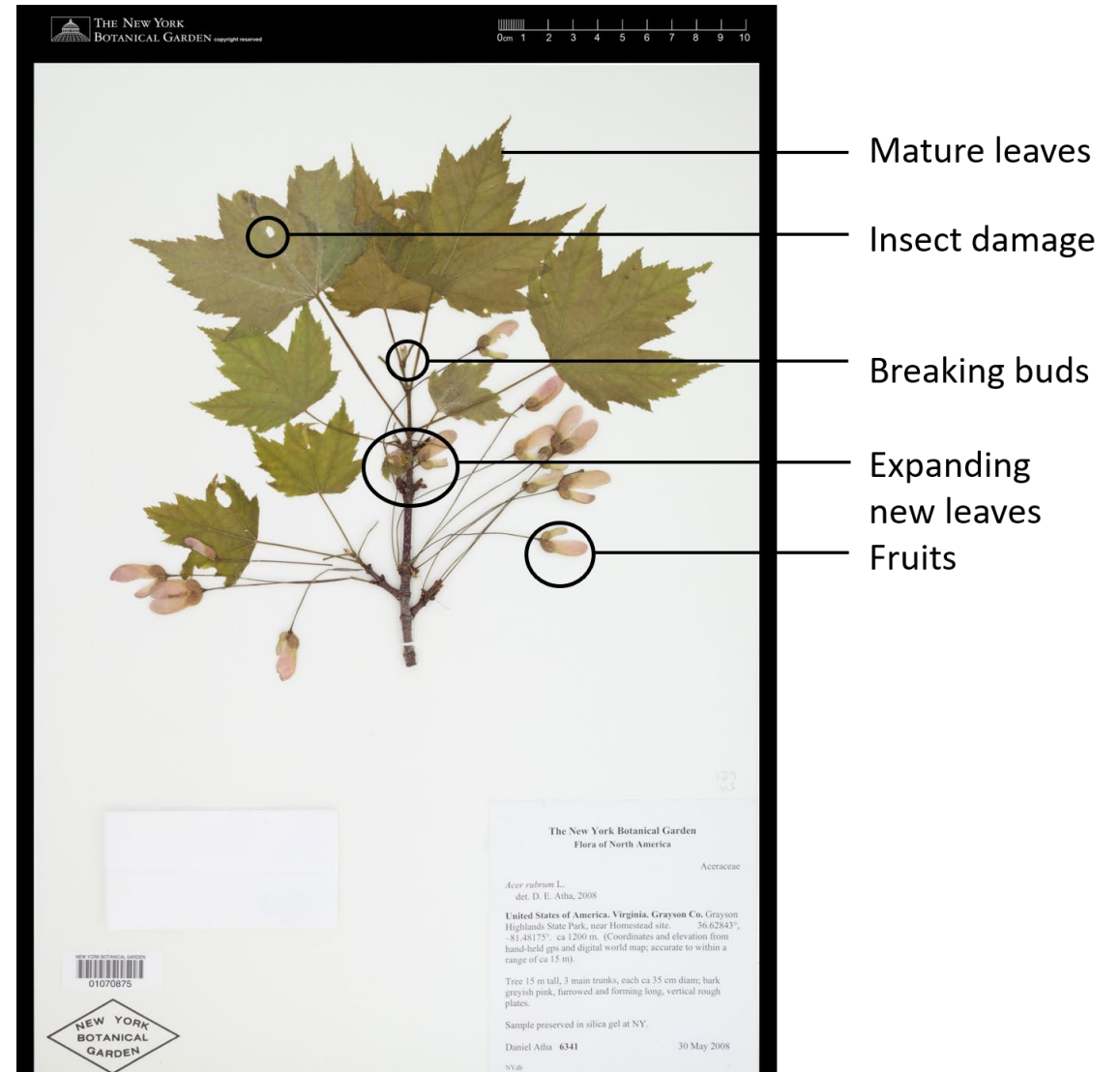
Increasing
leaf size

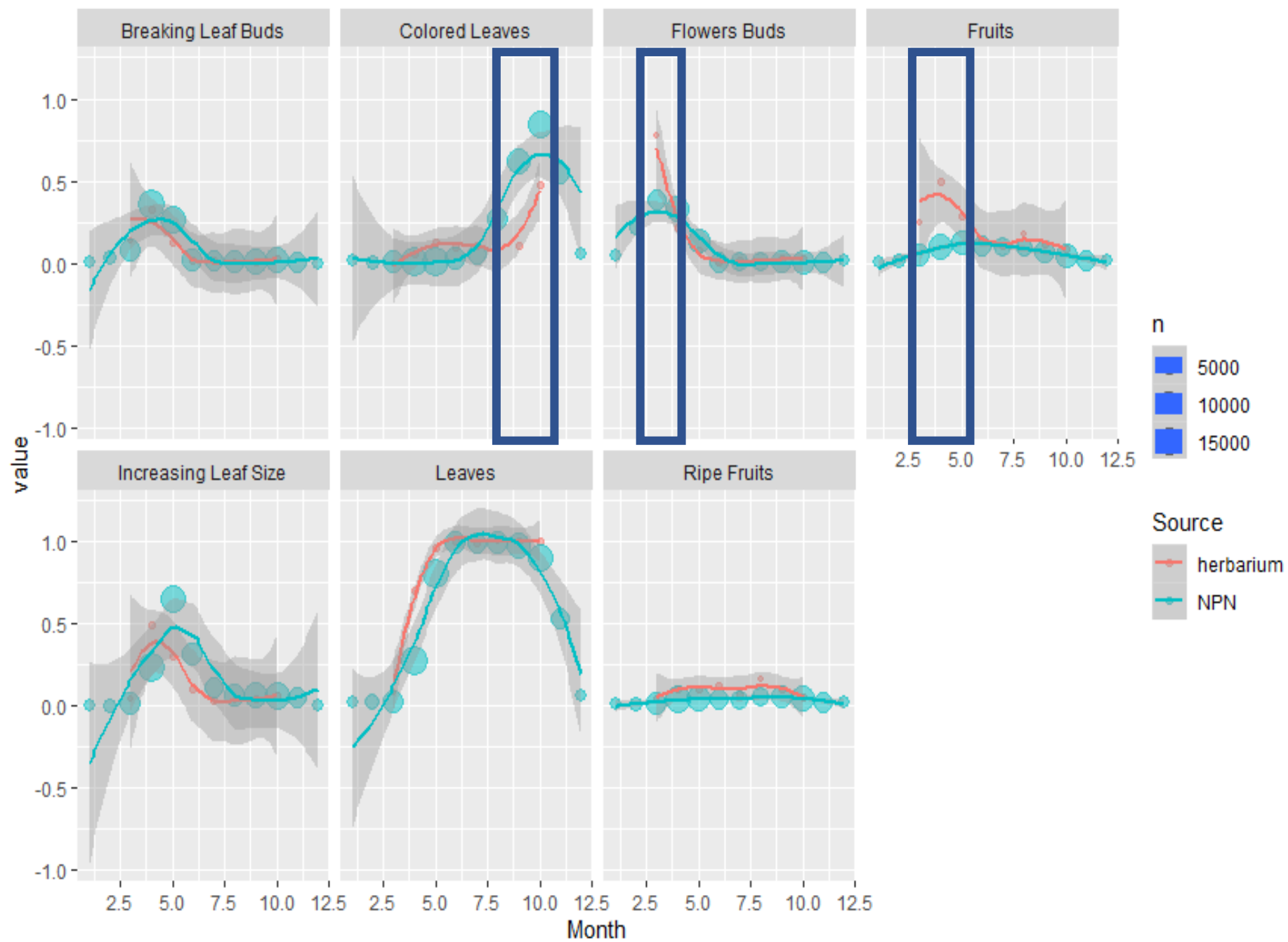
Colored
Leaves

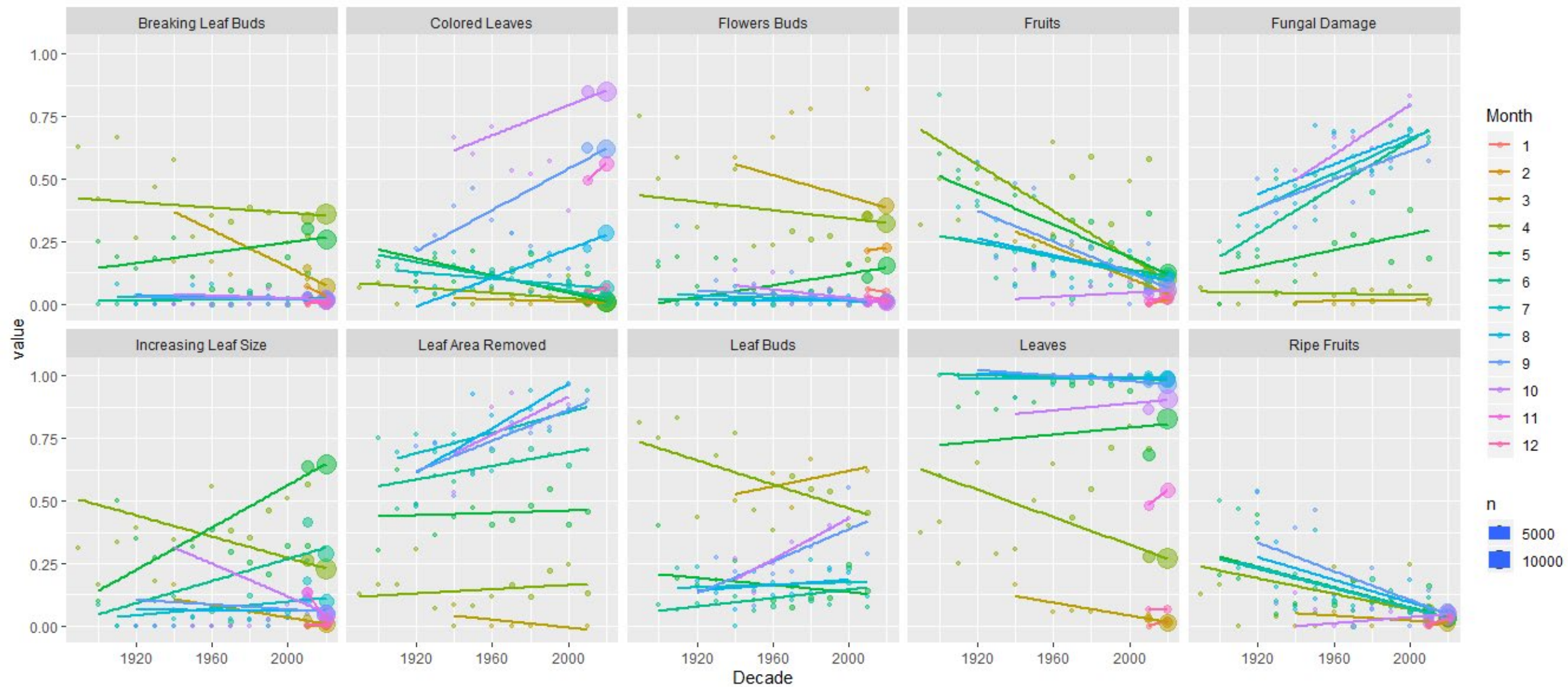
Flowers or
Flower buds

Fruit or
seeds

Ripe fruit





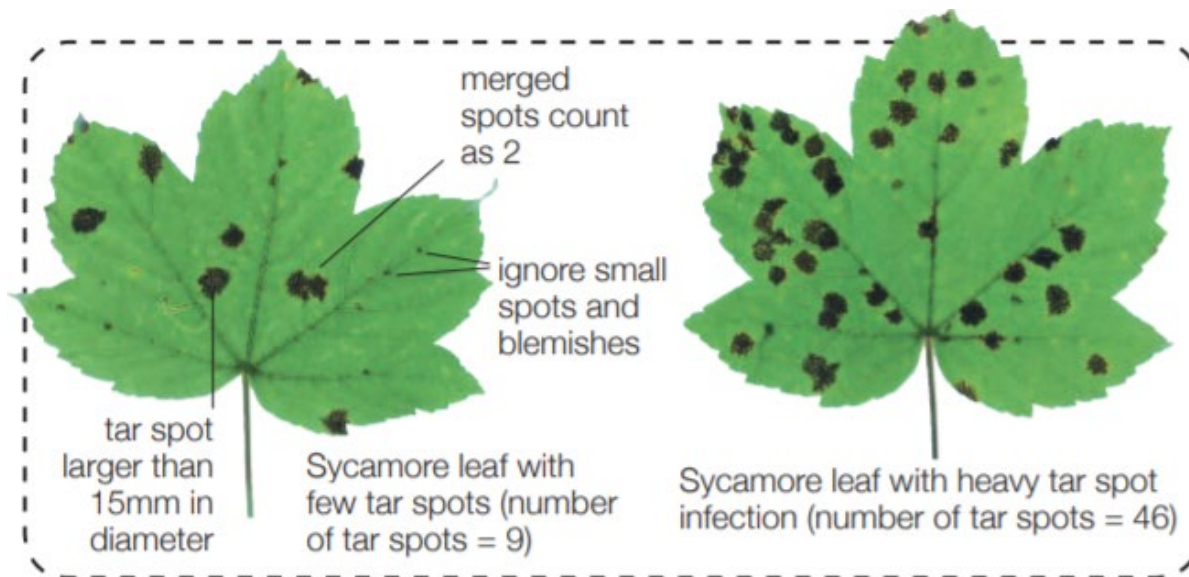




EXPLORE
NATURE

OPAL Air Quality Survey





The number of projects and opportunities are growing

budburst

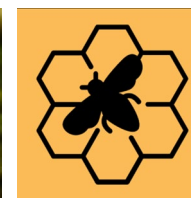
a project of the Chicago Botanic Garden



**Monarch Larva
Monitoring Project**



**Hawaii Bottomfish
Heritage Project**



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Questions?

