

# Community Meeting Notes (Nov 8, 2017) - Biodiversity Research and Climate Monitoring on Galiano Island, BC

## Description

Presenters: Andrew Simon

At this meeting we will be discussing community engagement and citizen science in the context of biodiversity research and local climate monitoring on Galiano Island, BC, Canada.

[iNaturalist site](#)

[biogaliano.org](http://biogaliano.org)

[Google Doc info](#)

## Notes

[Notes from Google Doc](#)

- iNaturalist 2-way flow great - allows learning as well as contributing
- Allows use by larger community
- Undergrad research - create a field guide - Parks Canada report
- Needed a lot of on the ground community engagement to get started on iNaturalist
  - Event-based
- Now - sub-projects on iNaturalist that map to community events
  - Bio-blitz (May)
- A lot of social media (FB) engagement too - majority of contributors come through this
- iNaturalist doesn't "speak for itself" - content getting swallowed up <https://www.inaturalist.org/projects/biodiversity-galiano-island>
  - Started website <http://biogaliano.org/>
  - Citizen scientists, experts,
  - Motivates participation - a lot of diversity but gaps in time - want to confirm the records, plus adding new species to the list
  - Don't want to reinvent the wheel - not content dense but photos, diagrams
  - See your observations alongside those of scientists
- Manually entering the data in a spreadsheet - no scripts - value to do so manually as a curator, but some automation would help
- Making sense of the patterns - grad research - biogeographic trends - add another level of scientific research
- Royal BC Museum
- Surface-temperature modeling
- Protected areas + private properties, agriculture, forestry, other land-use
- Cold adapted bumblebees, foraging and nesting - how it changes over the course of the year, in land-use context (forestry, etc) - create a framework for monitoring that gets at important factors in making land-use decisions
  - Pollinators - ecological and economic benefits
  - Funding from CRD - sustainable food and agriculture strategy
  - Ministry of forests - local climate stations funding
- DIY Arduino chip-set system based - software to visualize, using metrics that are useful to many people
- iNaturalist - great mechanism of engaging people
  - How to develop local community-based activities, infrastructure (e.g. physical signs, other)
  - How to interface with human needs - other incentives
  - How to sustain long-term monitoring projects
  - Deploying, marketing these technologies to generate revenue, make them more sustainable
  - Help in structuring community engagement through technology?
    - Attach signs to trees with name, QR code linked to iNaturalist
    - What vehicles - how to mediate through tech, companies, other economic engines
    - A welcome sign at the ferry on Galiano
    - Tech community on Galiano interested in micro-climate monitoring - get people in touch with the data as a starting point
    - Relationship with devs of iNaturalist? California Academy of Sciences - connected with them about making changes to iNaturalist?
      - Open source - Google Group where you can bring your concerns
      - Fairly responsive
      - Concerned primarily with their objectives - larger scale
      - Go to them with questions relevant to their purposes
      - Spider diagram :) - available through D3/data-driven doc library
        - Modified with help of a friend/dev
        - Not dynamic

- iNaturalist is open source: <https://github.com/inaturalist/inaturalist>
- <http://api.inaturalist.org/v1/docs/>
- The kinds of things you wish you could do if the designs/tech were there?
  - Diagrams?
  - Sensors?
  - People to gather data?
  - One particular D3 library - can dynamically populate with csv data file
- Hardest thing to explain to people about citizen science and how they could contribute
  - Confirming species - Pokemon Live! - not everyone has that drive
  - Didn't want to make a big long list - more interested in deeper things, deep time, relating to species, how it plays out temporally over the year
  - Momentum of project relies on cataloguing - superficial
  - E.g. Algae, collect and press and make artwork - engage a wider audience
  - Biodiversity pinata workshop
  - Big art community in gulf islands
  - It doesn't have to become data in the end
  - Frameworks that pair up mutual goals
- Getting started
  - Existing relationships with people who supported the project
  - Local paper articles - engaged families, but limited, got burnt out
  - Community inventories of natural areas - more freeform
  - Many Bioblitzes - fewer people, no experts
  - Culminated last May in major Bioblitz
- iNat 81 observes, have engaged 100 at this point
- Engaging visitors
  - Not guided right now -
  - Checklist with prizes
  - Other ways of incentivizing
  - Have written Walk-throughs
  - iNaturalist not intuitive
  - Photography - little clickers - on-island photography with kids
  - To inspire others in the role Andrew has been playing over last few years
  - Major advantage of iNaturalist - broad
- iNaturalist - sheer volume of data
  - Visualpedia, Nvidia? - give best guesses to start - will help improve moving observations along - observations get buried
- Biodiversity Squamish, Lantzville Life
- Standardizing the spreadsheet to be able to compare records
- Big databases - GBIF, Canadensys
- Standardized data formats - Darwin core databases
  - Getting dataset published in scientific community
  - Tools are available, haven't had time
  - Global biodiversity information facility
  - Pantaxonomic

Interactive diagram: <https://www.jasondavies.com/coffee-wheel/>

## Q/A

- How could there be help in structuring community engagement through technology or technological activities (e.g. QR codes on trees to identify their species)
  - One solution would be to create a sign for those who get off the ferry, many already have cameras with them.
  - Microclimate monitoring framework (arduino chip sets with sensors, where the nodes are all networked together).
- What relationship do you have with the devs of iNaturalist
  - The program came out of a masters research project. It's an innovation of the California acadamey of sciences.
- Do you communicate with them about improvements to their platform.
  - It is open source, and they communicate over a google group
- Diagram of spider species
  - It was available through D3, but modified with the help of a JavaScript developer
- How do you update the links to in the spider diagram?
  - Manually inputed using Javascript
- Is there something you'd like to do that's just out of reach (e.g. technologically, engagement, etc. )
  - There is a particular D3 visualization ([sunburst](#)), and others that would be helpful to represent the data.
- What is the hardest thing for people to engage with citizen science and how they can be connected to scientific research?
  - People do engage with confirming species. Similar drive to what people have when using Pokemon Go.
  - The momentum of the project is around documenting species, but not everyone is interested in this.
  - Another idea was to use algae to make art work
  - not everything has to become data in the end, should find frameworks to pair up personal goals.
- Are there other art projects
  - There was a piñata project
- How did you first get going?
  - Support by pillars with the community who wanted to support his undergraduate research
  - Was writing regularly in the actives page, encouraged people to explore and learn
  - Community inventories of natural areas

- mini-bioblitzes; fewer people no experts. Culminated last May into a full BioBlitz
- Galiano is a population of approximately 900 people
- How do initially engage people, how do you instruct them on the process.
  - The framework before was with lists. People are already come to the island with cameras but they aren't guided. Signs would help with that.
  - Through community events.
- Does the community model in iNaturalist work for review?
  - There are algorithms to help validate discoveries.
  - There is a movement to use visual algorithms to help pair down the classification, for example by genus.
- Any tools to help with your own research and with others performing similar research?
  - There are a couple other communities in my region (biodiversity squamish, nanaimo?), work to standardized data so that they can more easily compare records.
  - Talking about getting the data set published in the scientific community