Community Science & Managing for Biodiversity on Parkland

BC Recreation & Parks Association Professional Pathways 2024

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City of Surrey

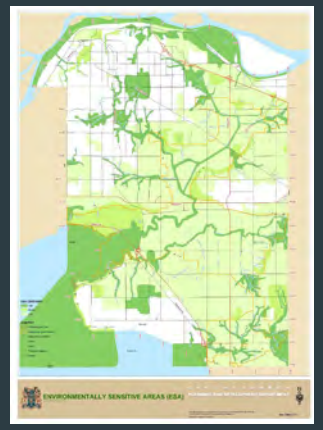
- Biodiversity Conservation in Surrey
- A growing tool for filling in the gaps
- Community Science in Surrey's parks
- Challenges & opportunities

The Biodiversity Conservation Strategy (2014) provided the following:

- Identified and quantified for the first time, current biodiversity and habitat resources in the City
- Established the Green Infrastructure Network (GIN) to preserve biodiversity for the benefit of existing and future residents over time.
- Created a special development permit area (Sensitive Ecosystem DPA), to assess conservation values and environment priorities equally with land development

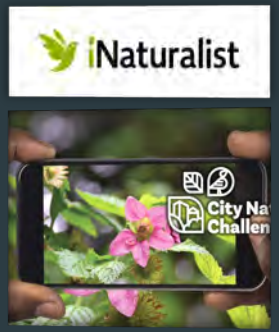
CITY OF SURREY
the future lives here.

Community Science has become part of the BCS continuum in Surrey



- Finding the Balance: 1990
- Surrey's Environmentally Sensitive Areas 1997

- 2011 Ecosystem Management Study
- Green Infrastructure Network defined
- 2014 Biodiversity Conservation Strategy
- OCP amended to include new Development Permit Area 3 - Sensitive Ecosystems
- 2016 Sensitive Ecosystem Development Permit Area Guidelines



2019-2020

- Community science program formally initiated
- First City Nature Challenge (now annual event)

2020-2021

Biodiversity Design Guidelines

- Biodiversity at the site level

GIN Development Cost Charge (Special Parklands Acquisition Fund)

- First DCC in BC for specifically acquiring biodiversity lands
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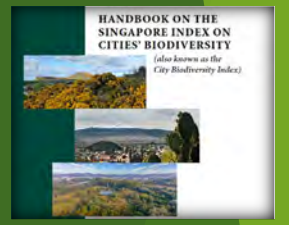
- 2021-2022 Parkland in Surrey's ALR - A Comprehensive Plan for Agriculture
- Pollinator Partnership Certification
- Rodenticide transition



- 2023-2024 Local Government Climate Action Program pilot (Mound Farm Park)
- Pollinator website launched / evolve conservation efforts
- Priority Places Species at Risk Assessment & BMPs project
- Boulevard & yard rewilding guidelines (in progress)
- BCS report card (in progress)

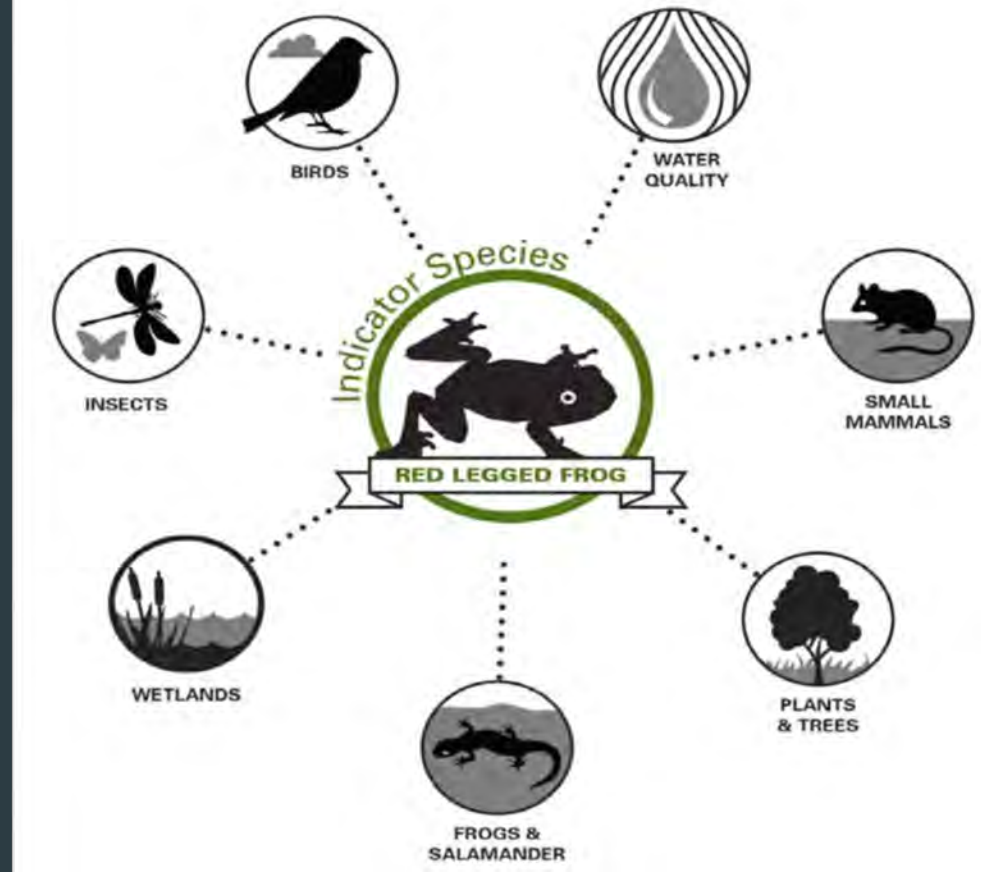
Key BCS Linkages:

Wildlife as a key indicator for management and monitoring

The focus for Surrey's BCS is on management of native species and their habitat associations to help ensure their populations remain healthy and persist over time.

Indicator species, specifically fauna are the key element for long-term monitoring:

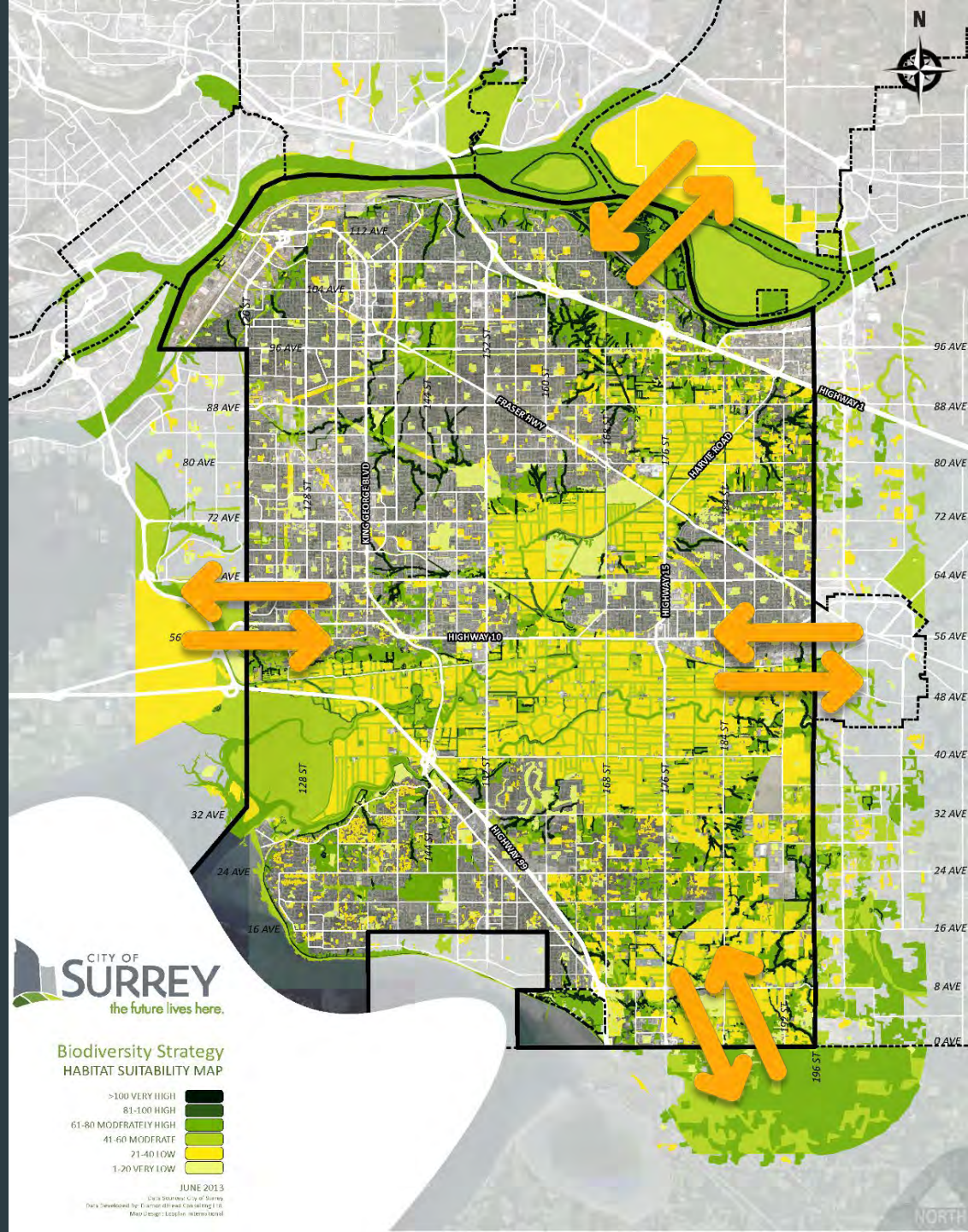
- **Help assess and measure development impacts and evaluate management actions.**
- **Selected based on best representation across the City's diverse land cover and distinct ecological communities**
- **Use a "species guild" approach that includes common species, species at risk as well as invasive species**



Indicator species rely on a well-connected landscape, in turn important to regional and transboundary planning.

Using a 2-dimensional connectivity model like Surrey's GIN is important for informed land use decision making.

There's just one problem, we don't know where many of these indicator species are, or whether they are using the corridors and hotspots we've protected or hope to protect.



A growing tool for filling in the gaps: Biodiversity monitoring in Surrey through Community (aka citizen) science

"the direct participation by members of the public in the production of scientific knowledge." (Miller etal 2022)

With the rapid loss of biodiversity from the local to global scale, Surrey recognizes the significant value of volunteer data in building our knowledge and understanding of biodiversity across the City.

Filling the knowledge gaps on where plants and wildlife occur, including invasive species and species at risk is critical to making informed decisions around how our city grows

iNaturalist.ca

1. Connect people to nature through going outside and exploring the plants and animals around them.

2. Empower citizen science and generate scientifically valuable data from observations made on iNaturalist

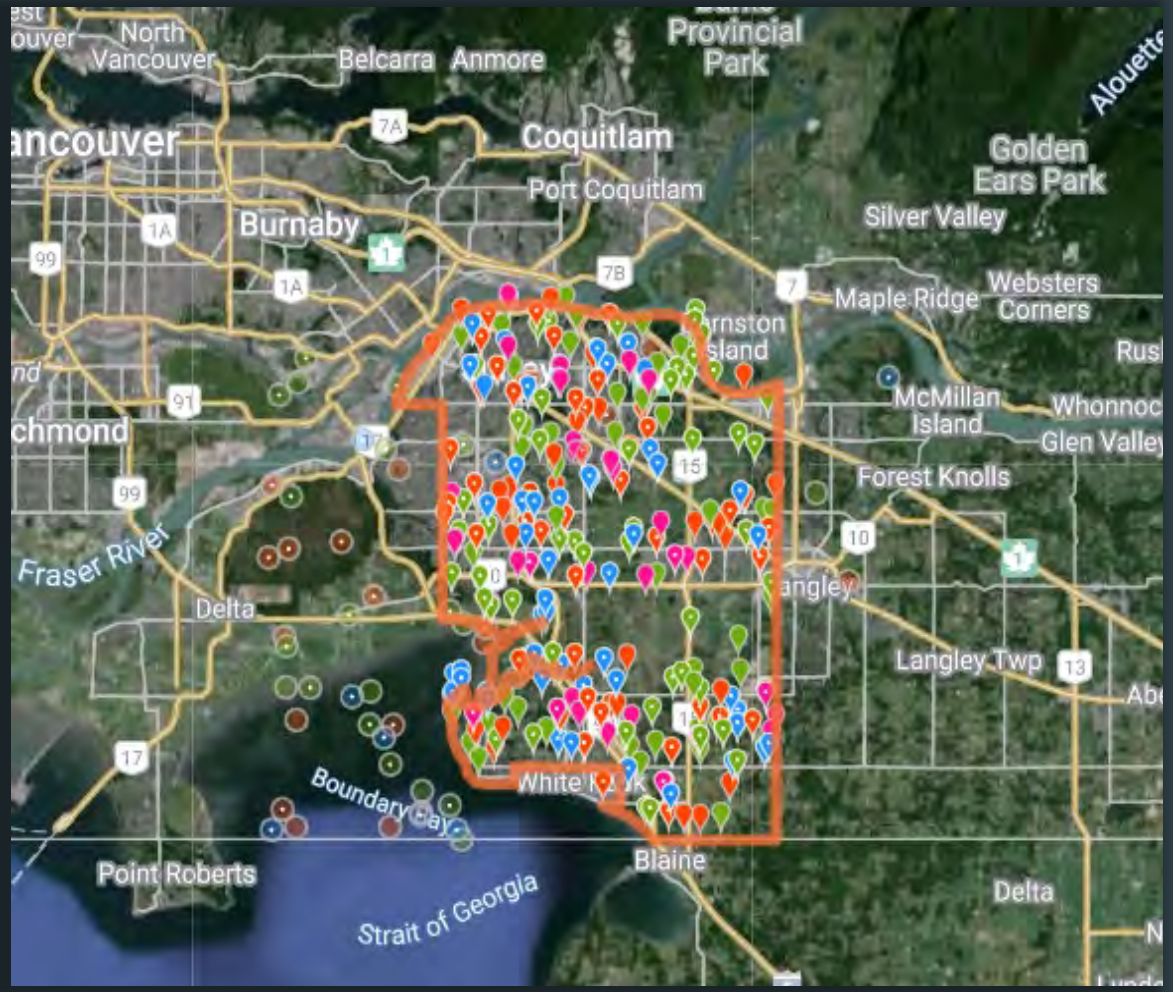
eBird*

From small beginnings to major biodiversity data resource:

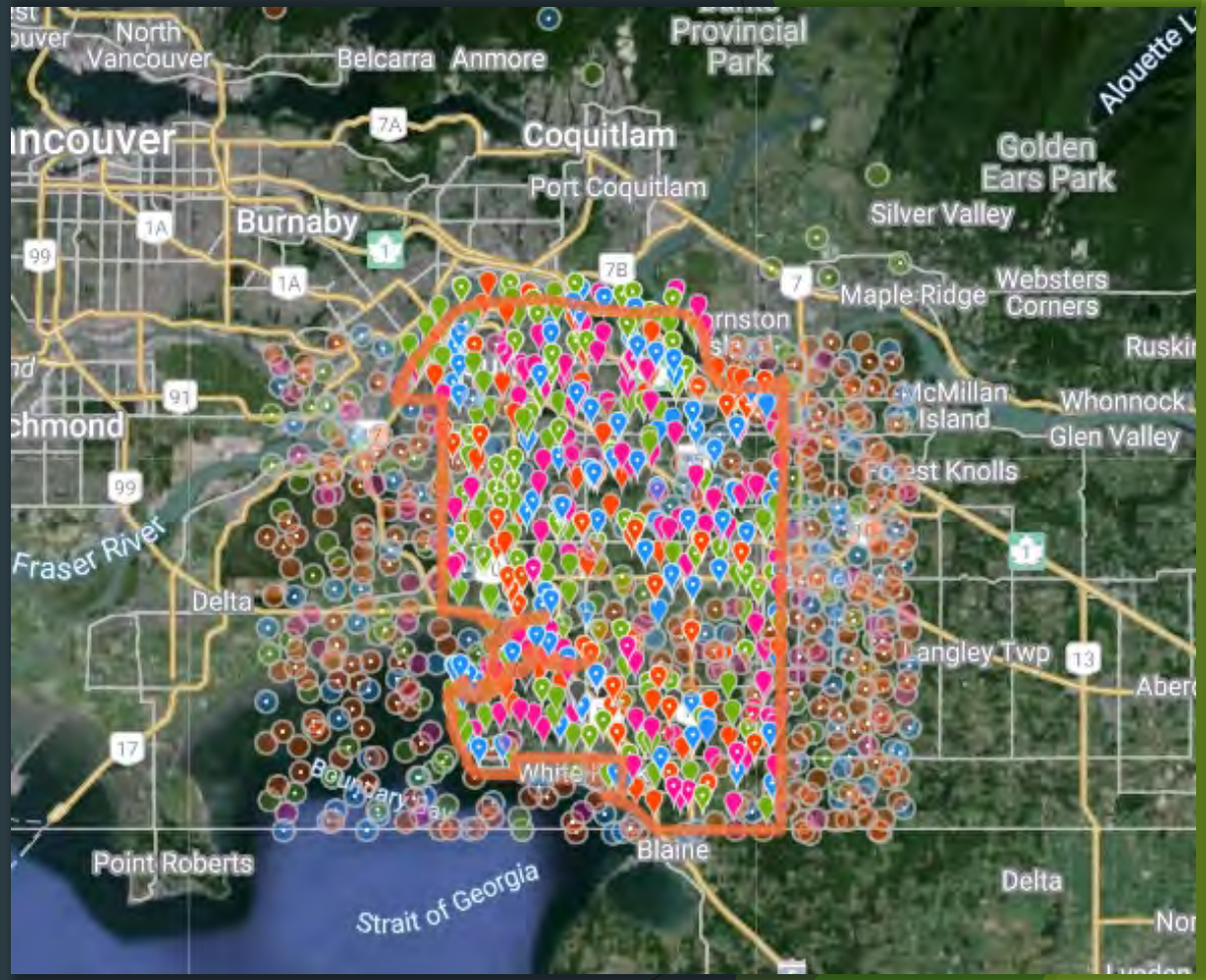
October 2019 (verifiable)	December 2023 (verifiable)
2,028 observations	56628 observations
659 species	2813 species
662 identifiers	3420 identifiers
320 observers	2637 observers

Milestones – May 2019 first BioBlitz, April 2020 first CNC

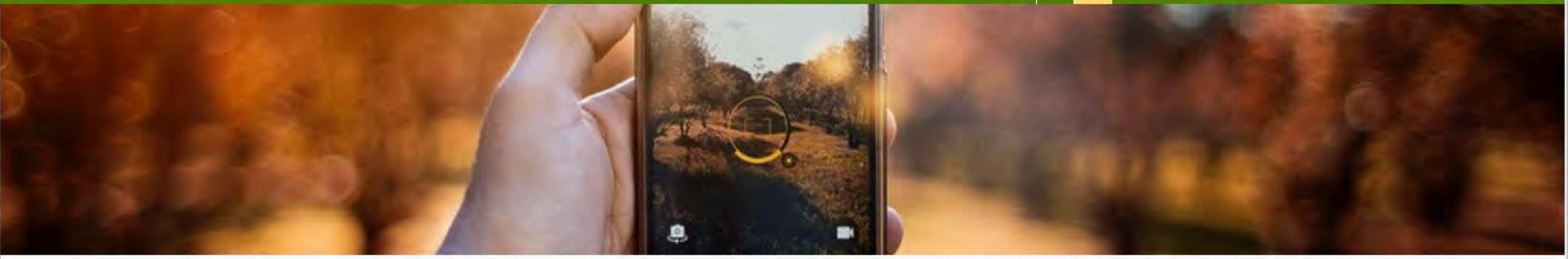
2019



2023



https://inaturalist.ca/people/1797783

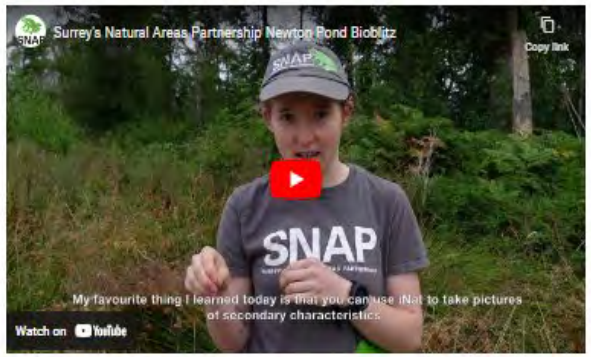


Citizen Science

Biodiversity Design Guidelines
Citizen Science
Pollinator Conservation
Parkland and Agriculture

Learn how to use iNaturalist to contribute to the City's biodiversity conservations goals.

Citizen Science in Action



City Nature Challenge

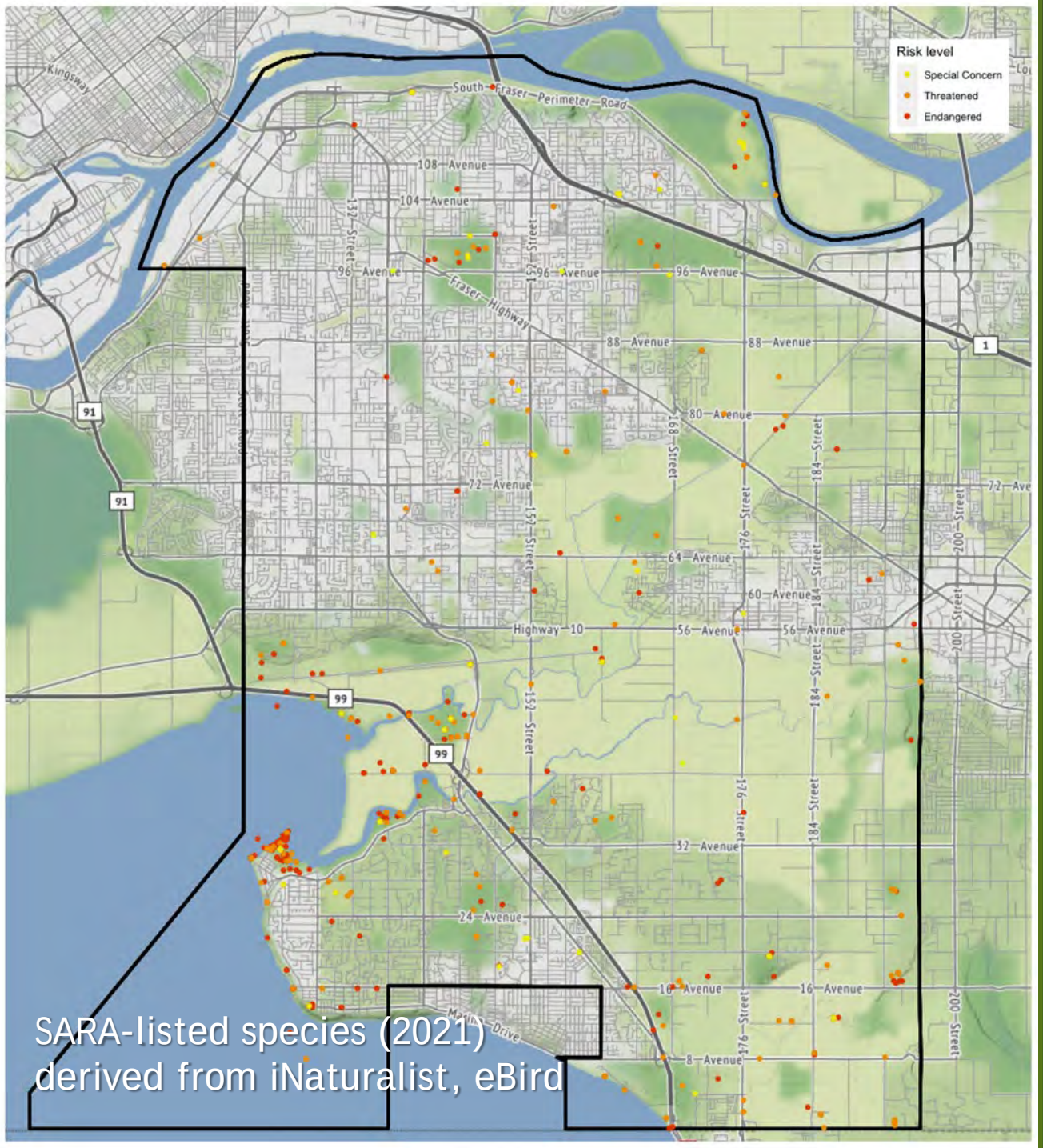
The City Nature Challenge is an annual event in April and May that focuses on growing the citizen science community in Surrey.

Learn more about local plants and wildlife in Surrey as your observations are confirmed

Applying the data: Example mapping - SARA-listed species

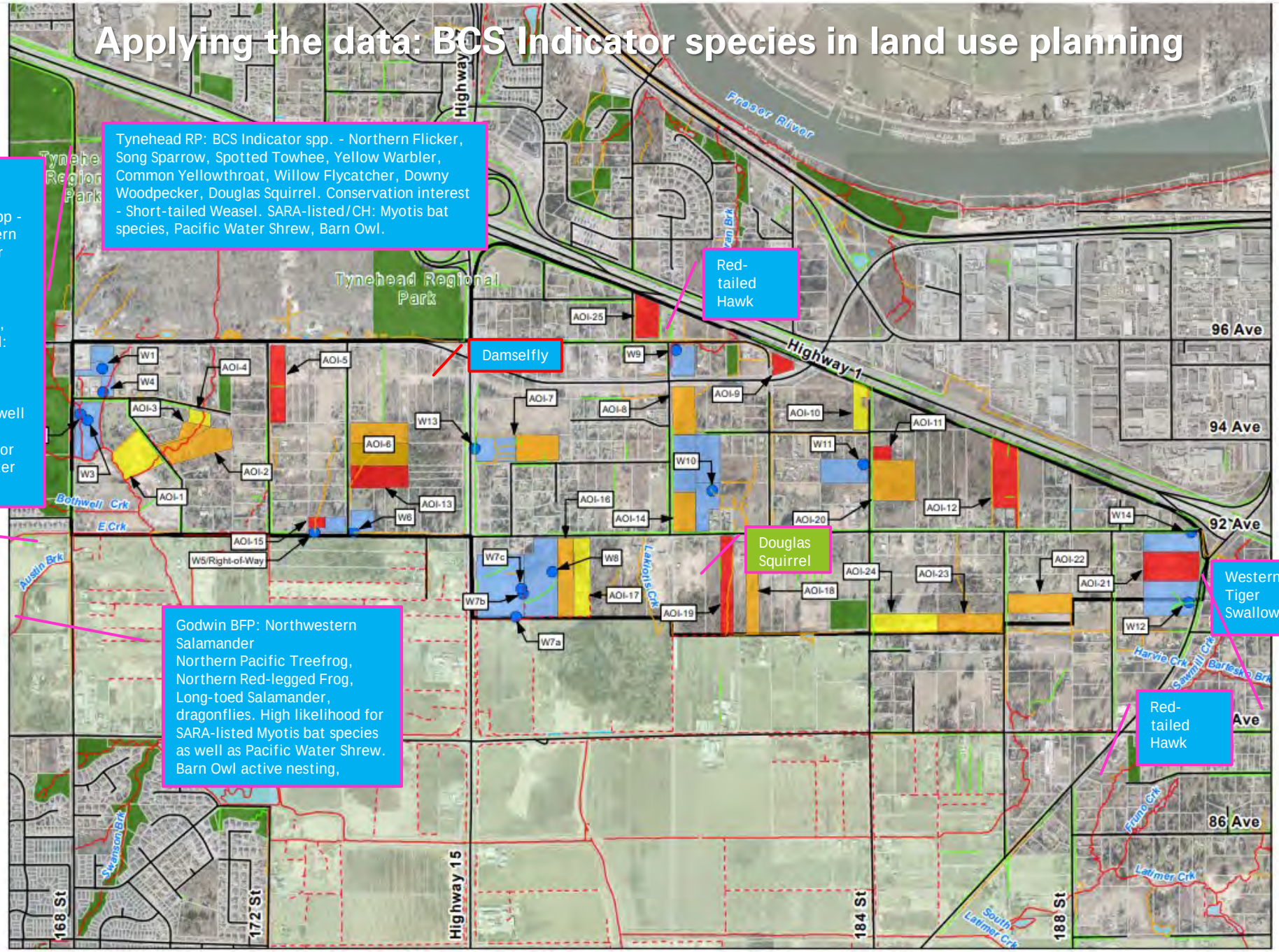
- Endangered
- Threatened
- Special Concern

Threatened & Endangered species have designated critical habitat that must be effectively protected on non-federal lands



SARA-listed species (2021) derived from iNaturalist, eBird

Applying the data: BCS Indicator species in land use planning



CITY OF SURREY

City of Surrey
Anniedale-Tynehead NCP
Area Wetland Inventory and Watercourse Assessment

Figure 2.
Confirmed Wetlands and Areas of Interest

LEGEND

Confirmed Wetlands
- Wetland
- Wetland Property

Area of Interest
- High
- Medium
- Low
- Anniedale-Tynehead - Tynehead NCP Area
- Parcel
- Park
- Agricultural Land Reserve (ALR)
- Road

Fish Classification (Waterbody)
- Class A
- Class A(O)
- Class B
- Class C

Fish Classification (Open Channel)
- Class A
- Class A(O)
- Class B
- Class C
- Unknown

SCALE 1:15,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY DILLON CONSULTING LIMITED, CITY OF SURREY

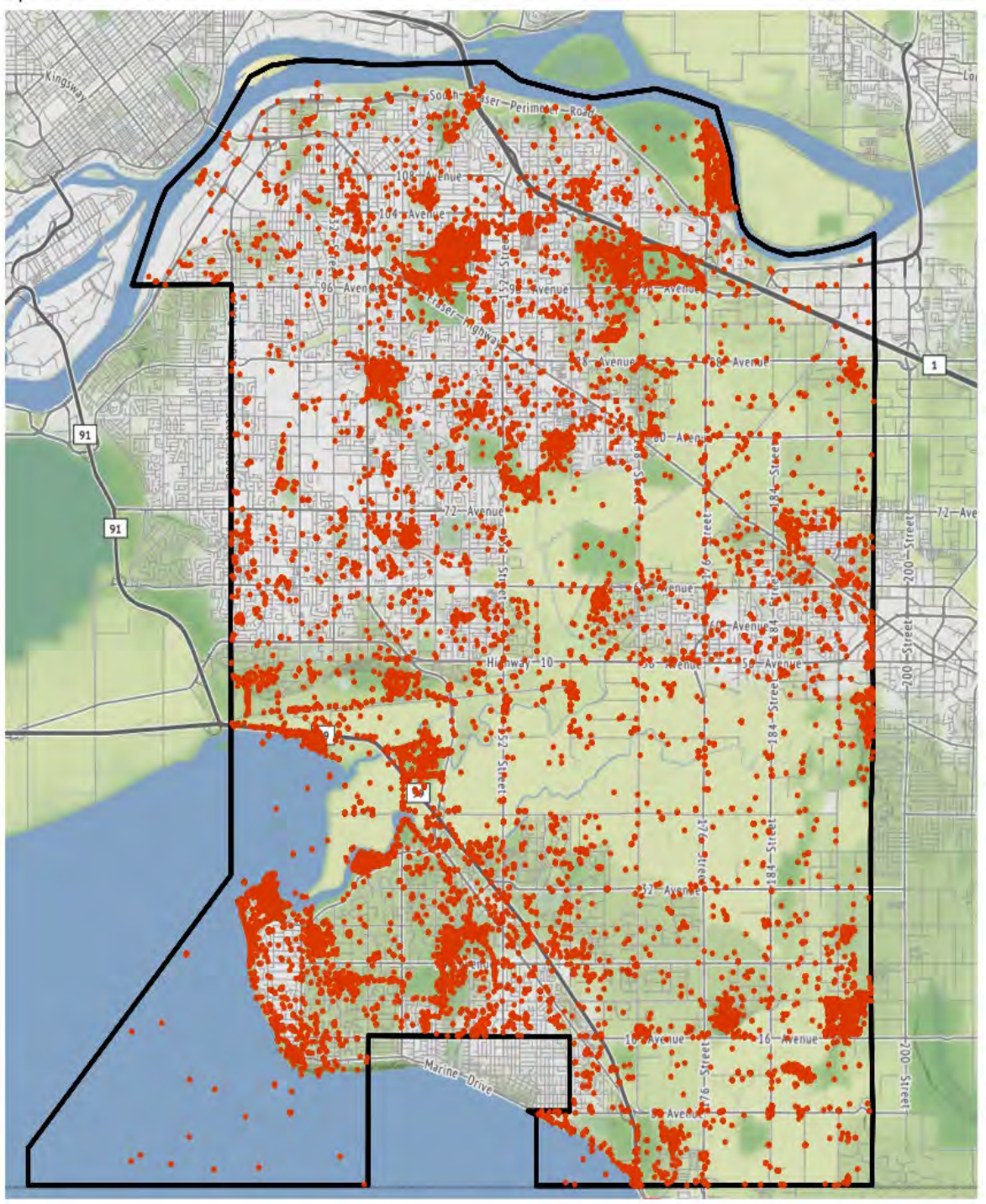
MAP CREATED BY: RBB
MAP CHECKED BY: SW, LKD
MAP PROJECTION: NAD 1983 UTM Zone 10N

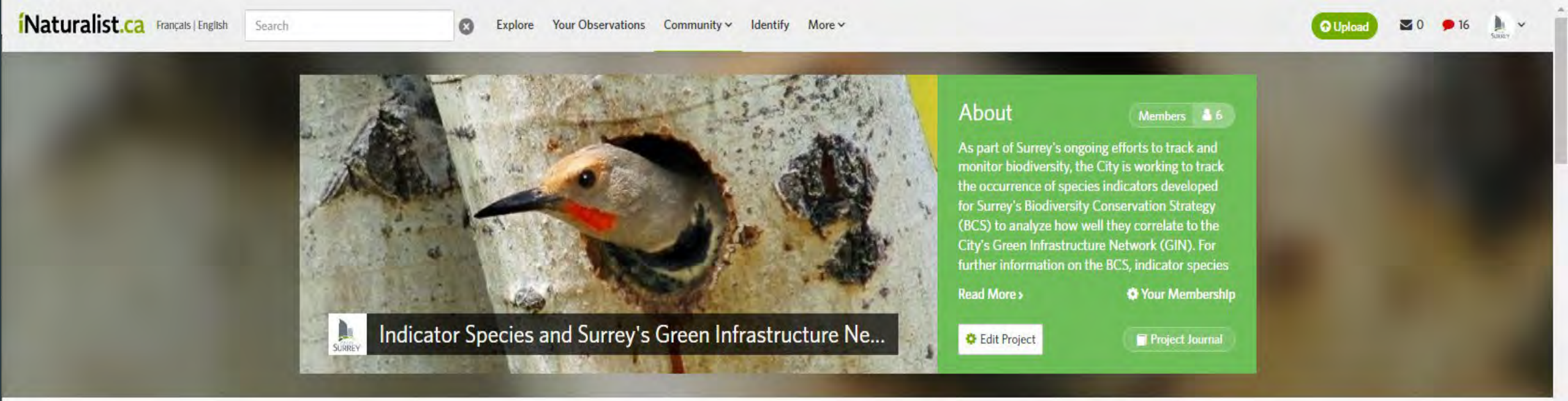
DILLON CONSULTING

PROJECT: 20-2331
STATUS: FINAL
DATE: 2020-08-20

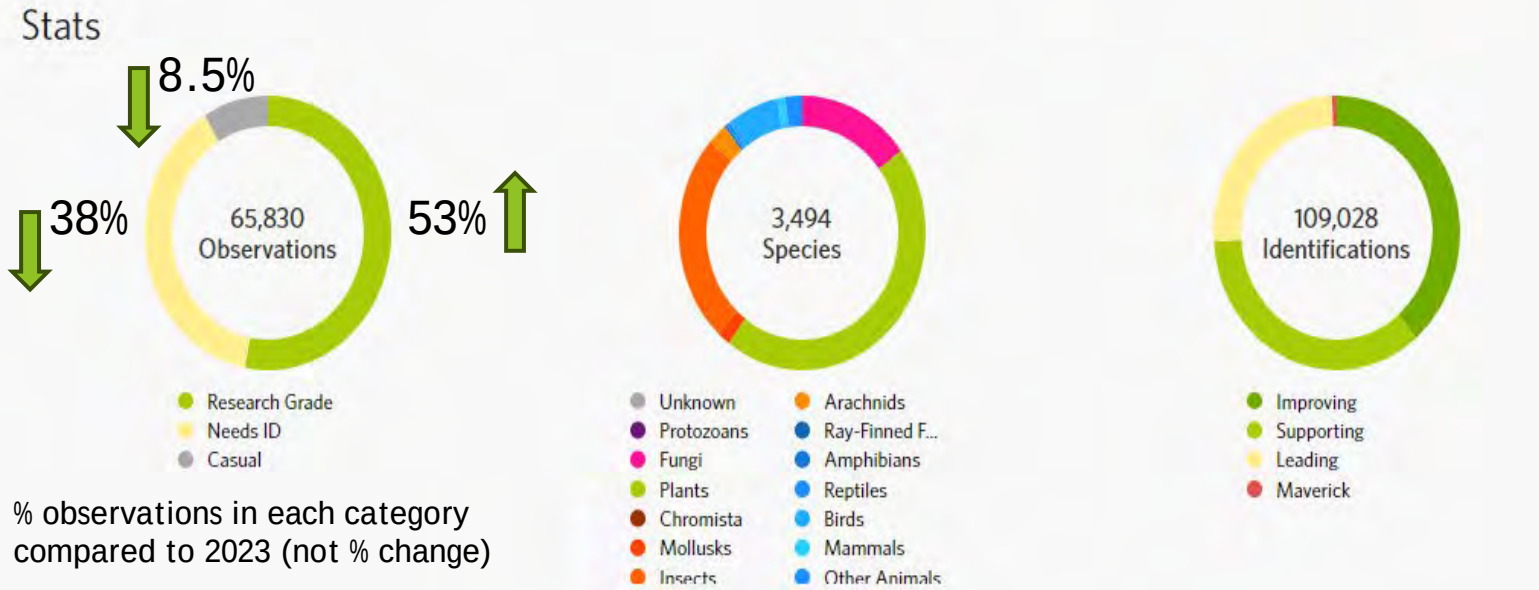
Challenges and opportunities:

- Most observations are concentrated in certain areas around the city, most notably in parks, greenspaces, along beaches and waterways.
- Sampling bias, users tend to frequent parks and green-spaces to look for wildlife, more so than making observations in their neighbourhoods or backyards.
- Many of these observations can also be redundant as multiple individuals record the occurrence of the same organism in the same place (e.g., “birding life list” affect).
- Things that don’t move (plants and fungi), and daytime observations are most frequent data captured
- Species may be misidentified, but still become “research grade” in iNaturalist
- Capacity and $$$ to effectively curate, analyze and archive data (a big issue)!





Desired outcome: The amount of "Casual" and "needs ID" observations are decreasing compared to past years.



% observations in each category compared to 2023 (not % change)

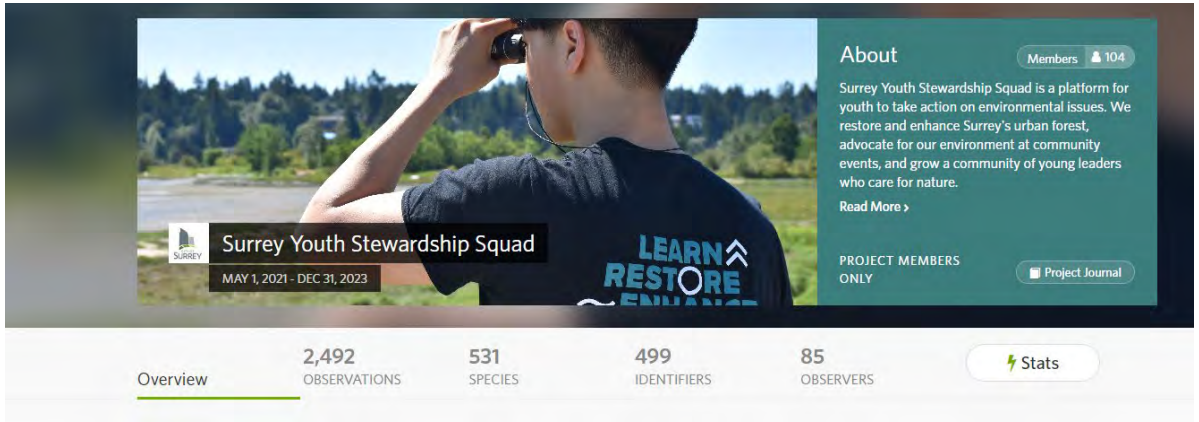

Community Science
Surrey Parks

Surrey Youth Stewardship Squad (SYSS)

Surrey **Parks**

Using iNaturalist

- Tool for learning and connecting youth with nature
- SYSS project in iNaturalist
- ~5 scheduled walks per year
  - Mentorship opportunity (SNAP, UF staff)



"I had lots of fun working with SYSS! It was great doing the iNaturalist observations. I loved walking around the peaceful places and observing insects and different species."

Surrey **Parks**

iNaturalist Surrey Parks

Invasive Species Monitoring

- European Green Crab monitoring – July 2023
- Worked with local community group Friends of Semiahmoo Bay Society
- Youth completed online training module and quiz
- Participate again in July 2024

Surrey **Parks**

Blackie Spit Park

Surrey **Parks**

Bird Counts

- Great Backyard Bird Count – February 17, 2024
- Bear Creek Park
- Volunteers observed 12 species (59 individuals)
- Observations uploaded to eBird

Surrey **Parks**

Bat Box Building & Counts

- Rocket box built by local Scout group and installed in Godwin Farm Biodiversity Preserve Park in 2023.
- SYSS to participate in BC Annual Bat Count in summer 2024.

Surrey **Parks**

Surrey Natural Areas Partnership (SNAP)

Surrey **Parks**

Pollinator Monitoring & Tree Well Maintenance

Pilot Project 2022– Tree Well Pollinator Planting 24 Avenue between 165 and 168 Street (inc. Orchard Grove Park). Included 33 tree wells, 8 species of native plants.

Spring/Summer 2022 and 2023 SNAP Field Teams:

- observed and recorded pollinator presence using iNaturalist
- maintained tree wells including weeding and watering

Summer 2023 SNAP Outreach Team:

- delivered pollinator-themed education to promote importance of pollinators and park pollinator initiatives

Surrey **Parks**

Orchard Grove Park & Neighbourhood

Surrey **Parks**

Purple Martin Box Monitoring

Population of Purple Martins at Blackie Spit Park

New nest box structure constructed to replace existing rotting structures in 2023

SNAP supported monitoring by observing purple martin activity near new and existing boxes; counted pairs.

Benefits to both **SNAP** (bird ID, observation skills, connection to partner park) and **Surrey Parks** (valuable data on species at risk).

Surrey **Parks**

Blackie Spit Park

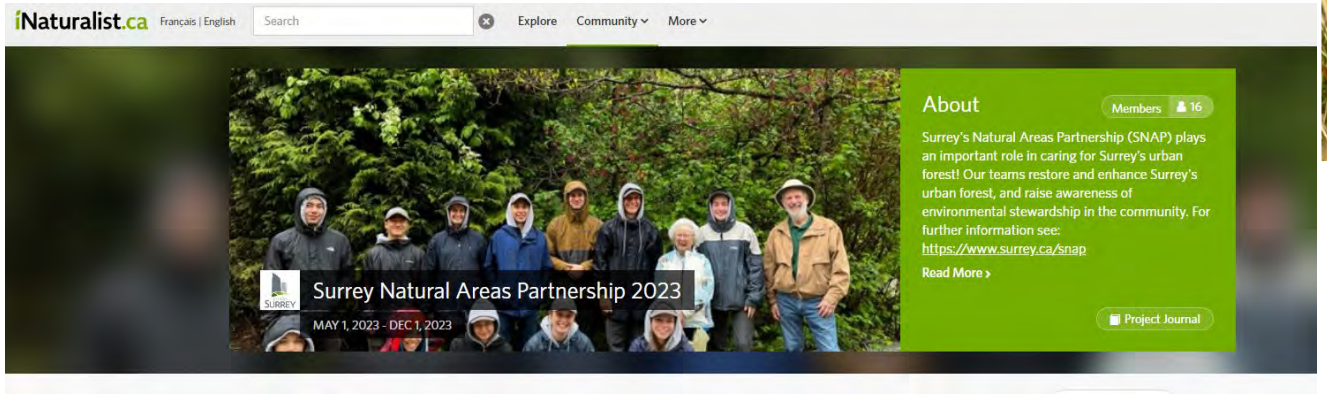
Surrey **Parks**

BioBlitzes & iNaturalist

BioBlitzes at Newton Pond Park- twice annually since 2021 (summer and fall)

- Work with Natural Areas Technicians and Registered Biologists (mentoring and training opportunity)

SNAP Project in **iNaturalist**



Surrey **Parks**

Newton Pond Park

Surrey **Parks**

Urban Forest Stewardship

Surrey **Parks**

BioBlitzes

Godwin Farm Biodiversity Preserve Park – May 25, 2019

- public, local scientists, parks staff

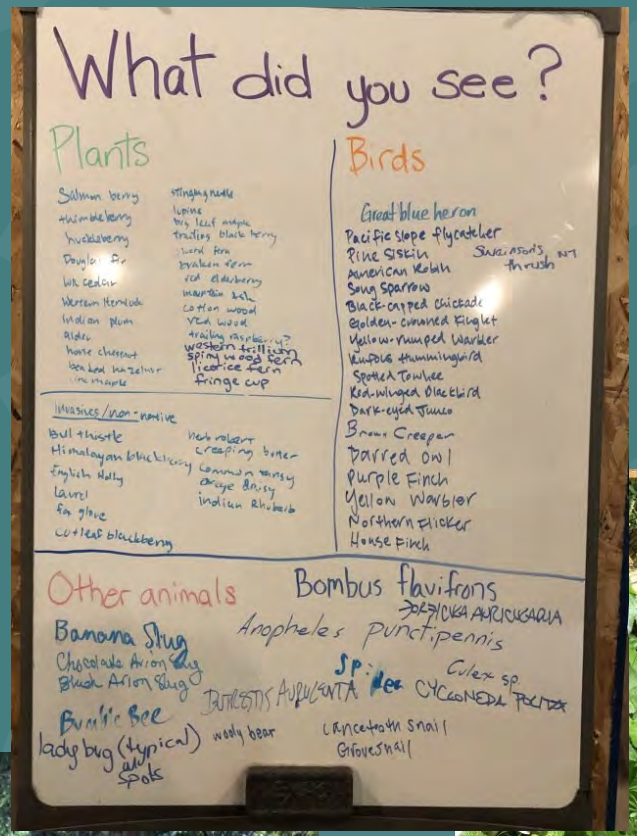
South Meridian Park – May 1, 2023

- public, community groups, parks staff

Green Timbers Urban Forest – May 24, 2024 !

Surrey **Parks**

Godwin Farm Biodiversity Preserve Park



Surrey **Parks**

South Meridian Park

Surrey **Parks**

iNaturalist

iNaturalist Bingo – April-June 2022

Public workshop– April 2023

To promote use of iNaturalist as data collection tool and public participation in City Nature Challenge

Guest Presenter: John Reynolds

Surrey **Parks**

Community Science:

Benefits & Challenges

- **Community Science in Surrey engages staff, residents and visitors in monitoring Surrey's biodiversity through a safe, socially rewarding, interactive process.**
  - **Even when the data isn't telling us a positive story.**

- **The biggest challenge is how well we track and integrate the data and whether we can consistently invest in growing the program.**

SNAP
SURREY'S NATURAL AREAS PARTNERSHIP

Surrey **Parks**

Thank you!

Share your experiences? Any questions? Collaboration Ideas?

www.surrey.ca/citizenscience

www.surrey.ca/biodiversity

https://www.surrey.ca/parks-recreation/parks/park-programs

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