Welcome to BIOL 427 (Ornithology and Herpetology)!

This lecture is being recorded, for viewing from home

- Only for the class (no copying / sharing beyond those in the class)
- Be aware that things you say or perhaps your image might be recorded.

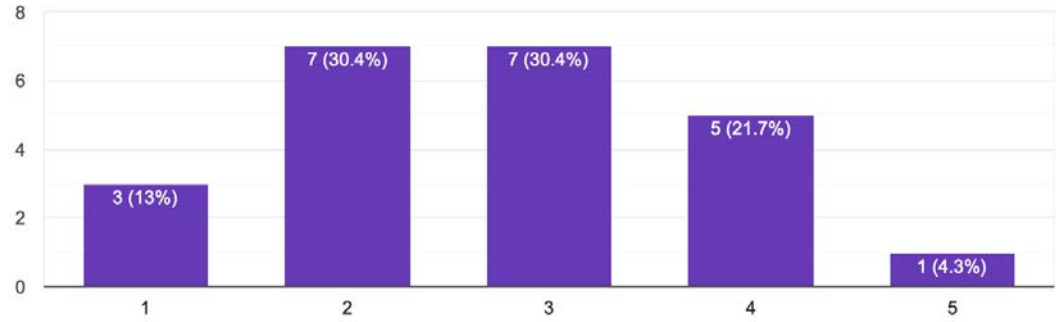
Please watch from home if you have any symptoms, or have been exposed recently to Covid-19.

Thanks for your responses on the survey

On a scale of 1 (not concerned) to 5 (very concerned) how concerned are you about the COVID-related risk to yourself or people you live with this fall?

Copy

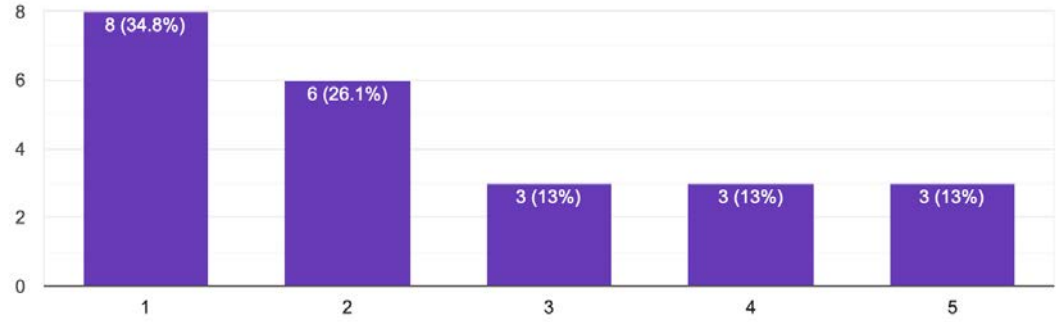
23 responses



On a scale of 1 (no worries) to 5 (very uncomfortable), how do you feel attending live classes with the current COVID safety plan?

Copy

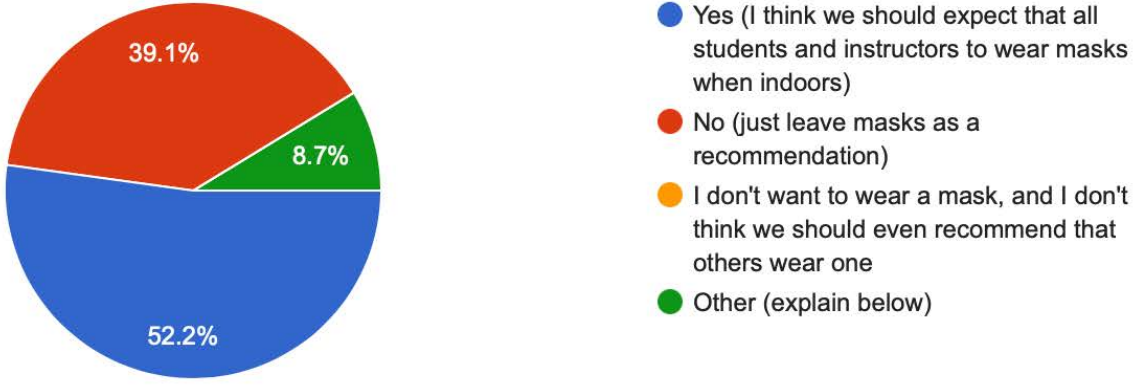
23 responses



Masks are not required at UBC, although they are still recommended in indoor public places (e.g. classrooms). Would you support a statement from me that "masks are expected to be worn during indoor class sessions"?

Copy

23 responses



Class consensus: *Please wear masks during indoor class meetings*

University of British Columbia, Vancouver campus, is located on the traditional, ancestral and unceded territory of the xwməθkwəy̓əm (Musqueam) people.

Sept. 30: National Day for Truth and Reconciliation

I welcome suggestions of ways to make my own teaching more inclusive / aware of First Nations' history & knowledge.

Biology 427: Ornithology

(and Herpetology)

Instructor: Darren Irwin (Professor of Zoology)

TA: Claudie Pageau (PhD student and researcher)

Lab support: Ildiko Szabo (Collections Curator, Beaty Biodiv. Museum)

Lectures: M and W 9:00-9:50 AM, FNH 50.

Labs: M 2-5pm or T 3-6 PM, mostly* in Biodiversity 060.

*first lab is outside, at Jericho (details coming)

BEATY
BIODIVERSITY MUSEUM

Course web site: on Canvas

https://canvas.ubc.ca/courses/101137

All important course info will be put there, and occasional announcements about the course will be there. Make sure you check it regularly and have the notification settings correct so that you receive emails of announcements.

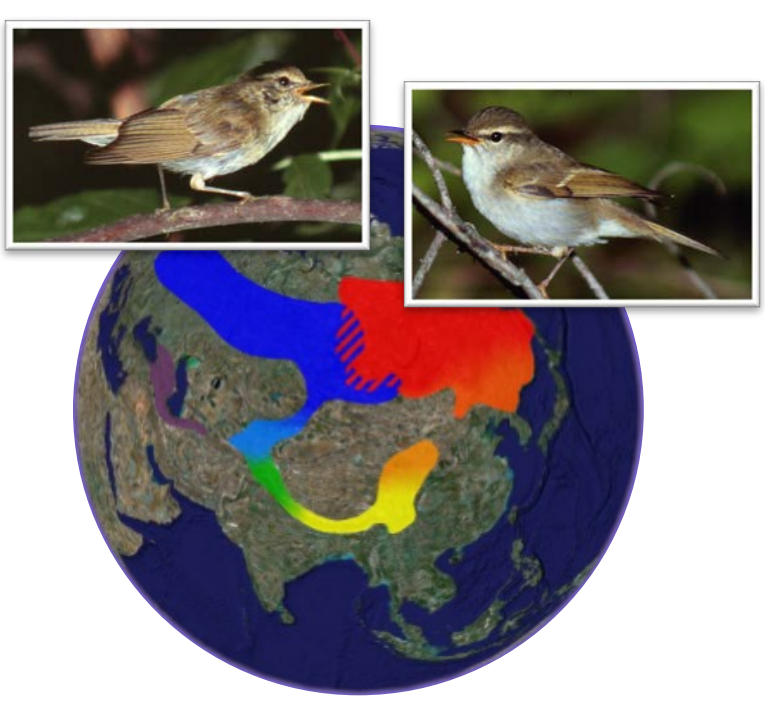
Biology 427: Admission to the Course

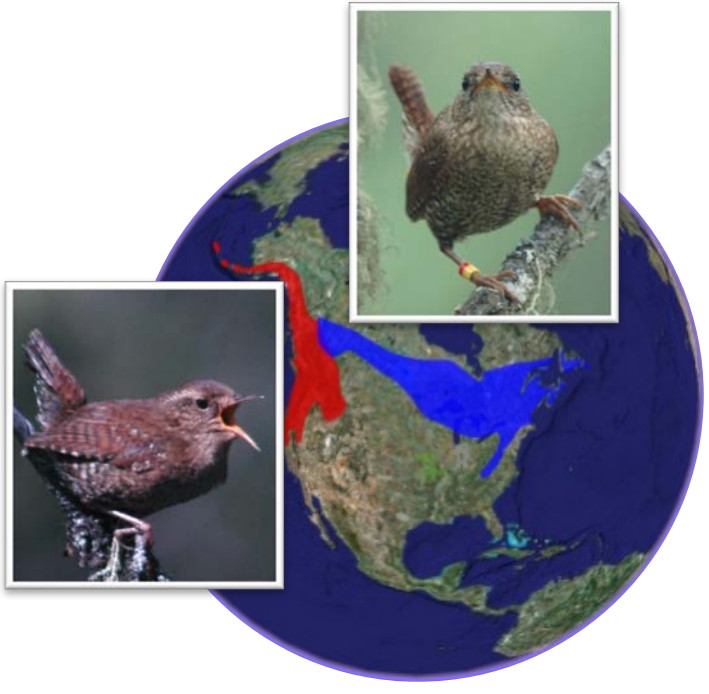
- Space in the course is limited by lab space (20 in each lab) and also seats in this room (43).
- We hope that enough spaces open up in the first week so that all those who wish to take 427 can. (*but this may not happen*)
- If you decide not to take the course, please un-enroll yourself right away.

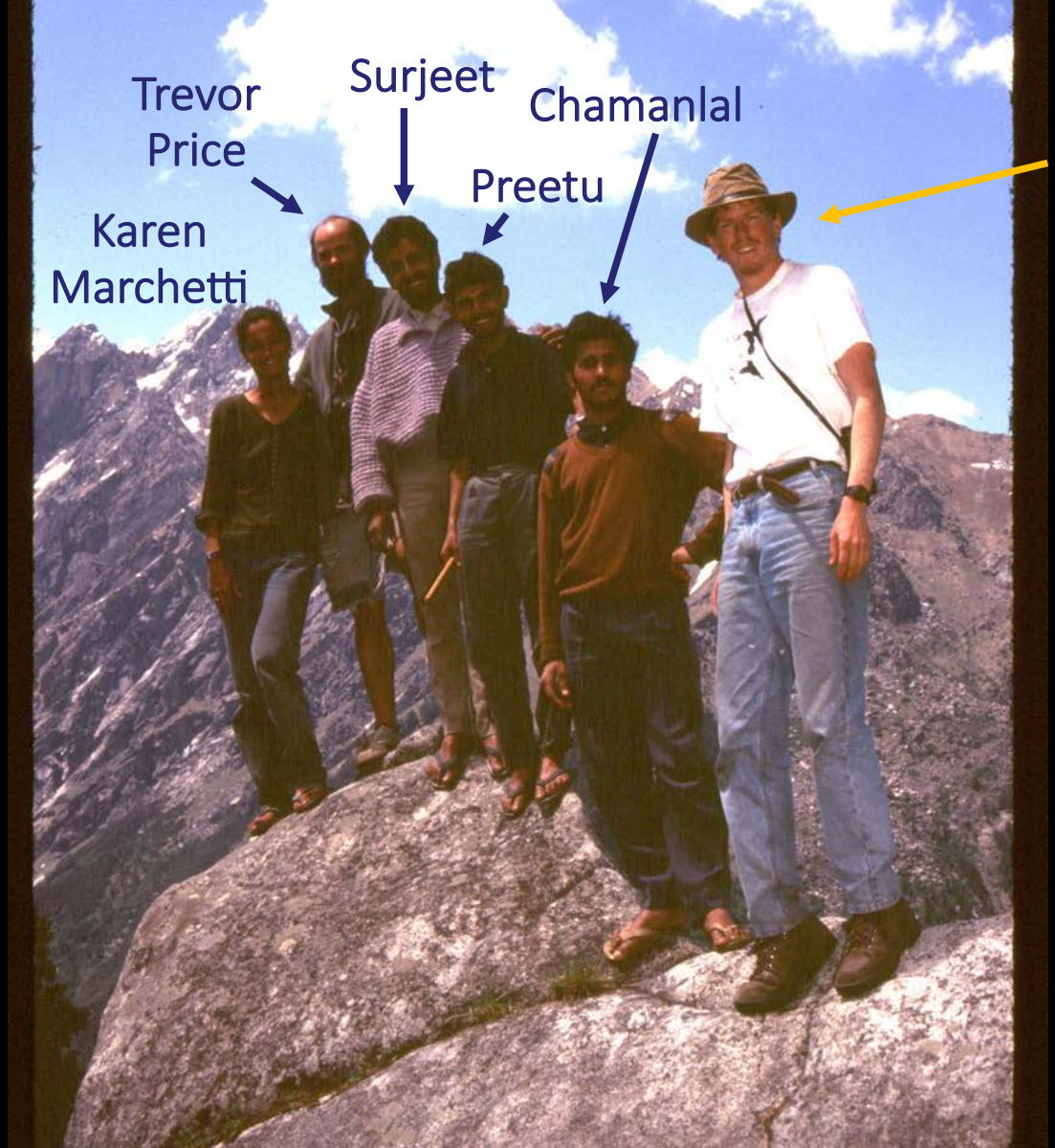
Plan for today

- A bit about myself
- Short discussion of biodiversity and its importance
- Introduction to the course

A bit about my own journey

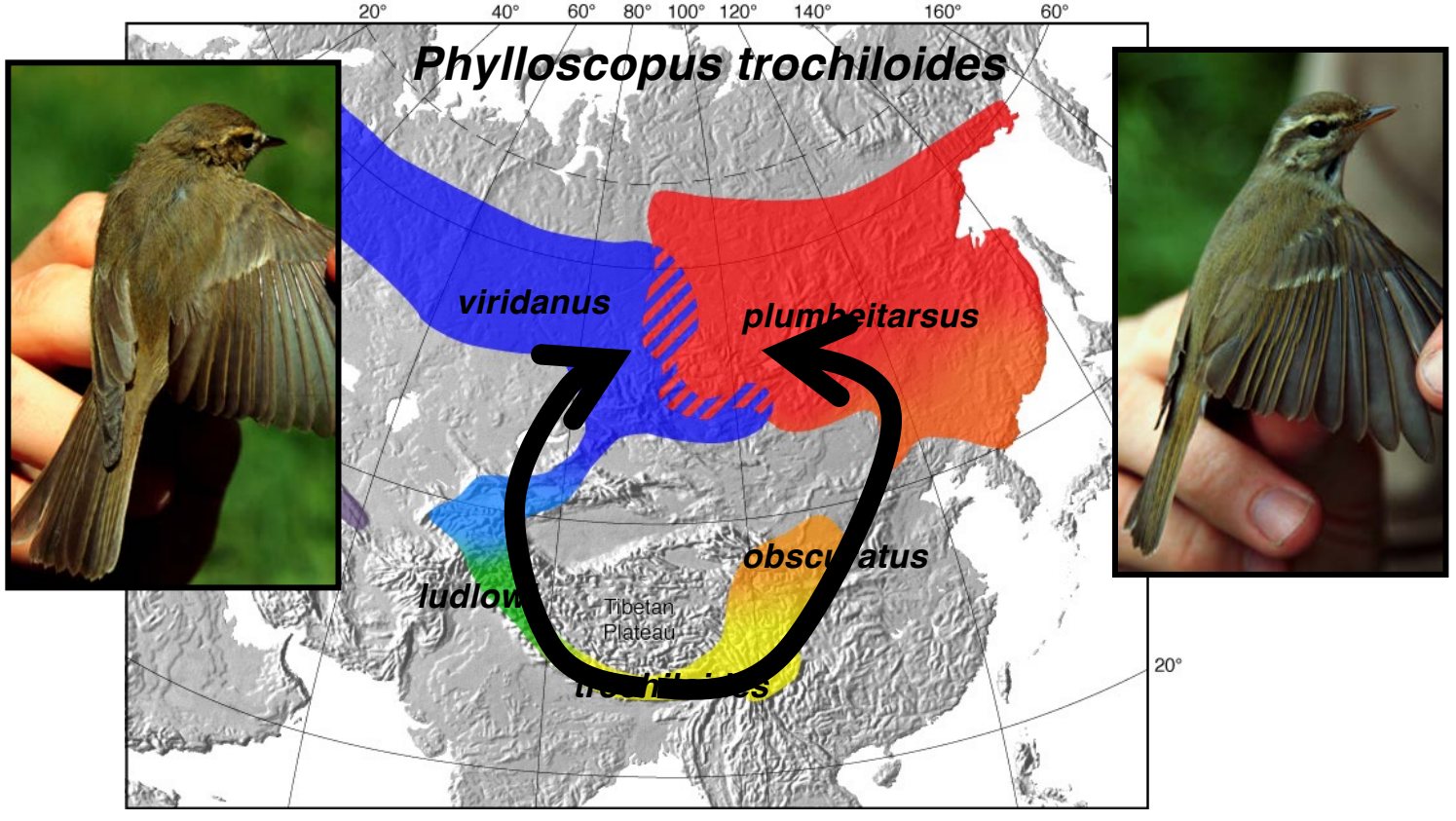





Trevor Price
Surjeet
Chamanlal
Preetu
Karen Marchetti
New grad student at UC San Diego

1994, India

Speciation in a ring: the Greenish Warblers

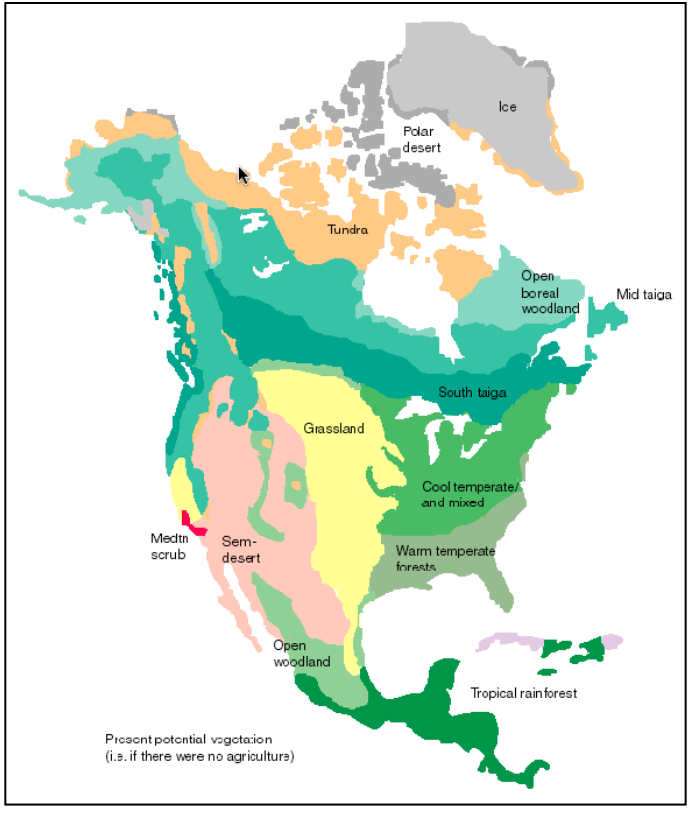


Two Siberian forms (*viridanus* and *plumbeitarsus*)*:*

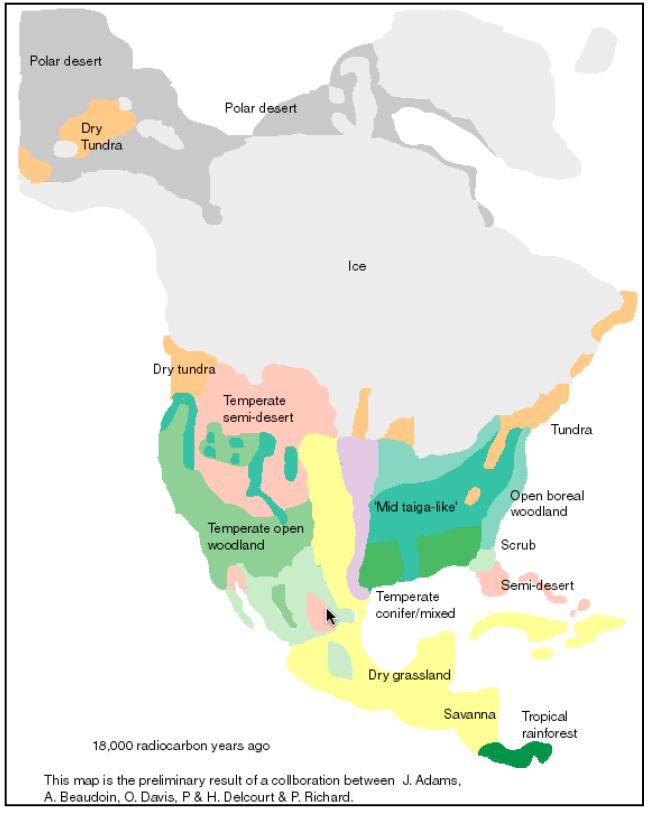
- differ in genes, plumage, and song, with gradient around ring.
- Have similar morphometrics and habitat.

Irwin et al. 2001 *Nature*; 2005 *Science*

North America, now and then

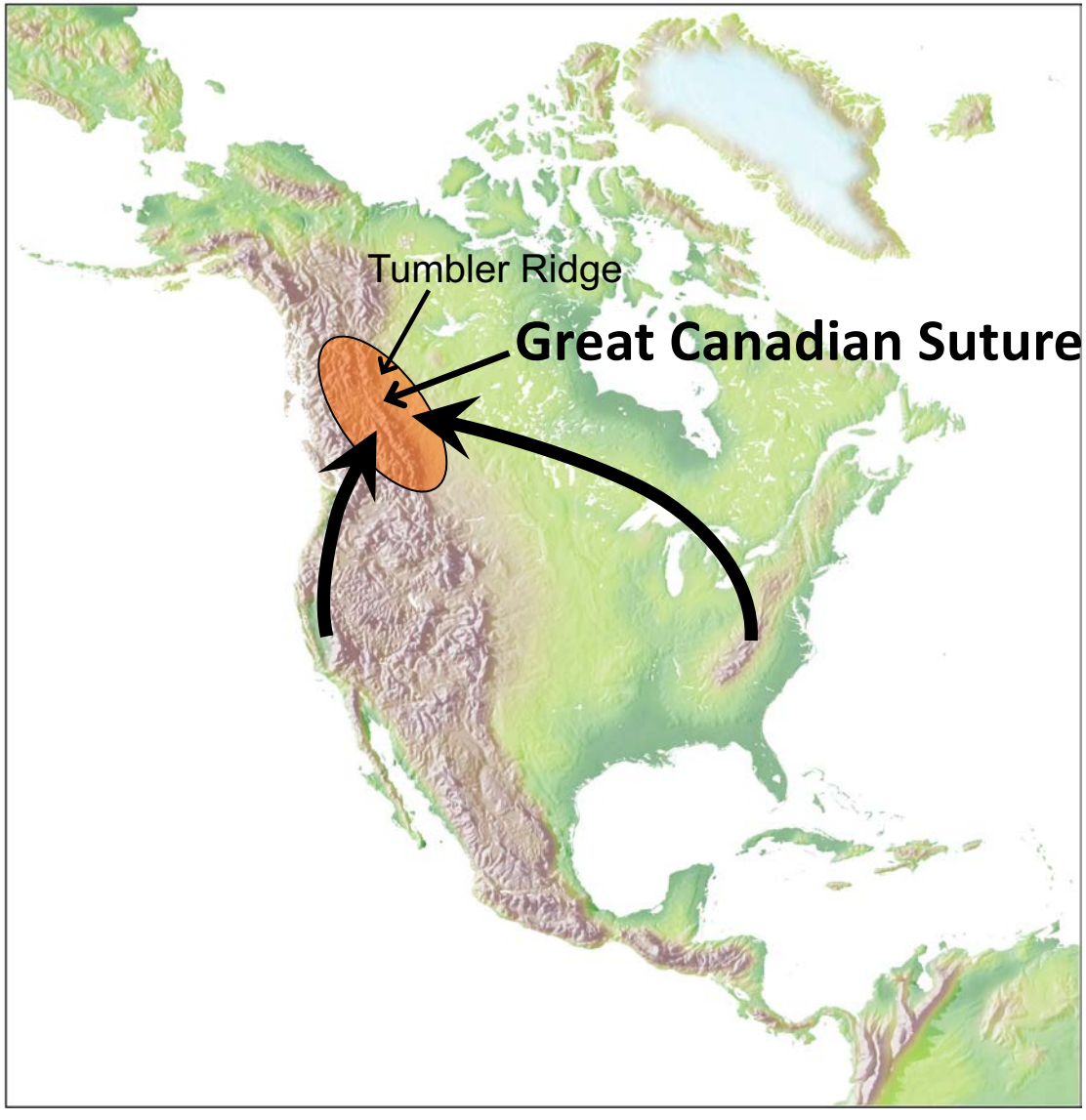


now



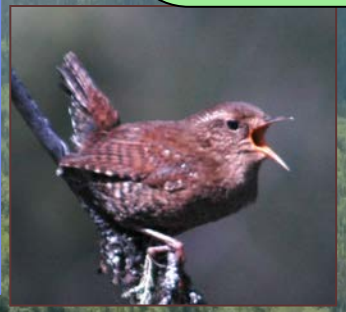
~18,000 years ago

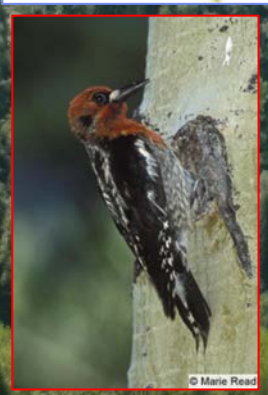
Source: Quaternary Environments Network (http://www.esd.ornl.gov/projects/qen/nerc.html)


Tumbler Ridge
Great Canadian Suture Zone

Genes (mtDNA and nDNA)
Songs and calls (response too)
Body shape, size, and color
Habitat and ecology
Seasonal migratory behavior





The Team


Dr. Sampath Seneviratne

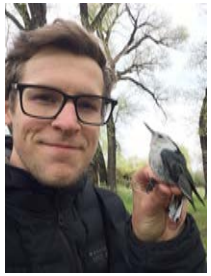

Claudie Pageau


Caleigh Charlebois


Jessica Irwin


Annegret Liederbach


Dr. Saminda Fernando


Kenny Askelson


Rashika Ranasinghe


Libby Natola


Dr. Julie Lee-Yaw


Dr. Armando Geraldes


Dr. David Toews


Dr. Silu Wang


Madelyn Ore


Finola Fogarty


Quinn McCallum


Ellen Nikelski


Else Mikkelsen


Alison Porter


Dr. Miguel Alcaide


Dr. Kira Delmore


Dr. Alex Rubtsov


Haley Kenyon


Dr. Christine Grossen


Dr. Alan Brelsford

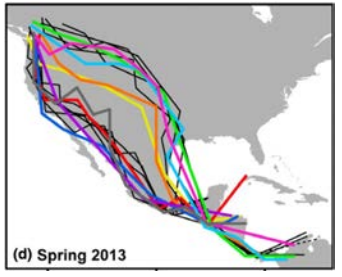
Research in the Irwin Lab

Song & Morphology

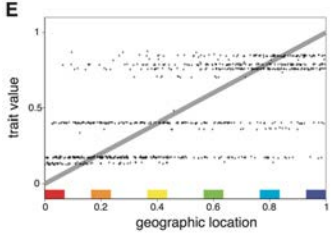
Speciation

↕

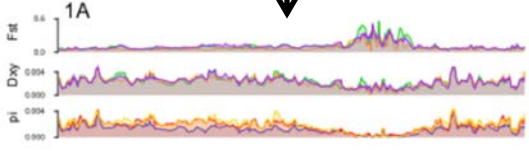
Hybridization



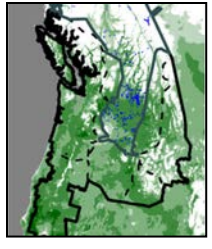
Migration



Simulation



Genomics



Niche modeling

Conservation (COSEWIC, etc.)

Biology 427: Ornithology
(and Herpetology)

What evolutionary group do birds, amphibians, and reptiles belong to?

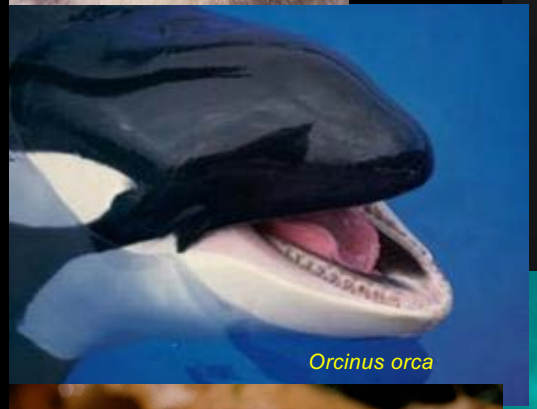
tetrapods

. . . But what is a tetrapod?


Canis lupus

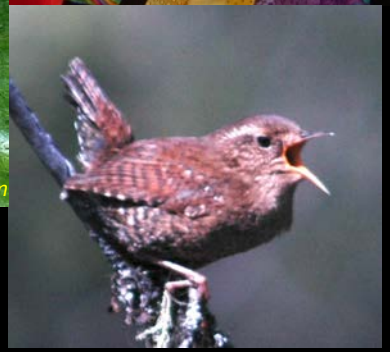

Bubo virginianus


Thamnophis sirtalis


Orcinus orca


Plecotus townsendii


Ambystoma macrodactylum

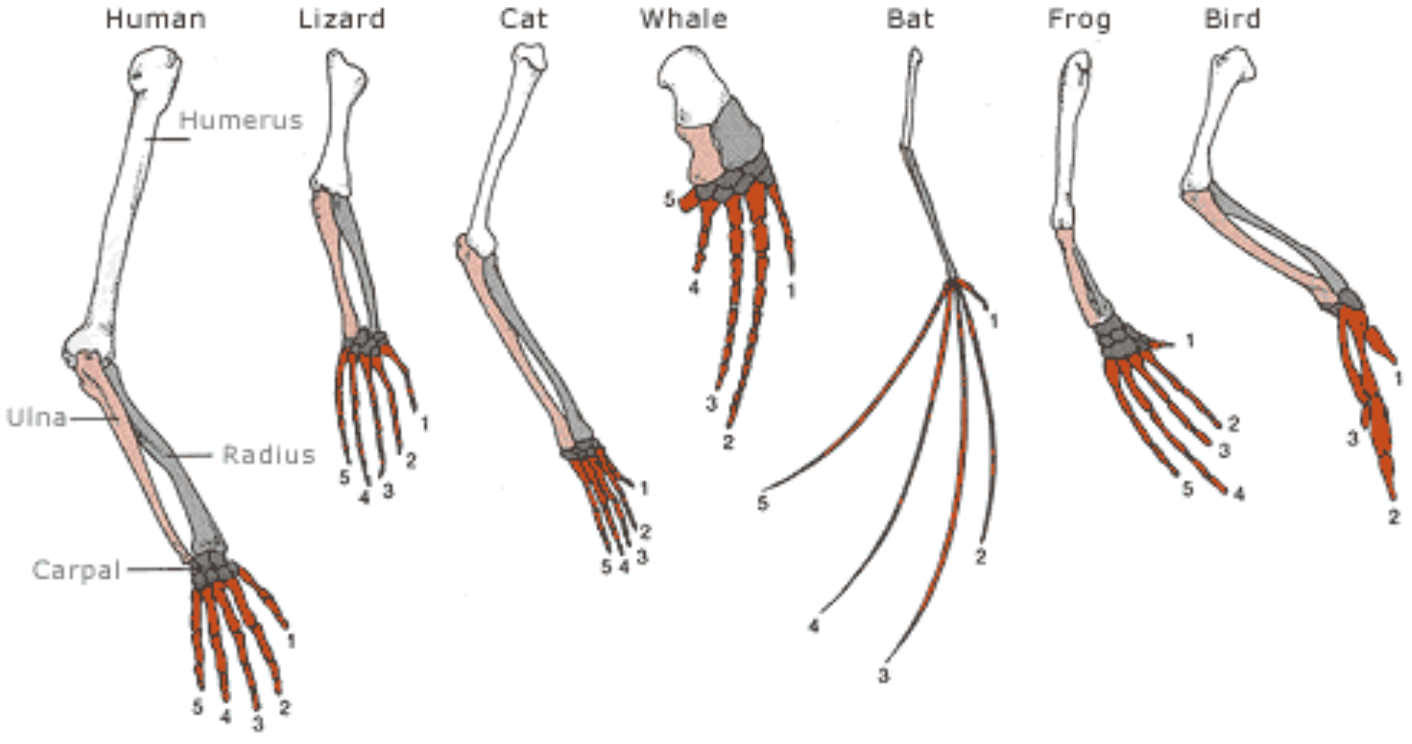



Rana sylvatica


Chelonia mydas

www.washington.edu/burkemuseum/
www.snowcovered.it
www.bcreptiles.ca
www.bcadventure.com
museum.gov.ns.ca/mnh
www.enature.com
D. Irwin

Tetrapod forelimbs



What about snakes?

M. W. Strickberger (2000) *Evolution*, Third Edition. Jones and Bartlett Publishers, Sudbury, MA.

Tetrapod

A member of a group that is united by common descent from an early land-colonizing vertebrate.

This class is really about how tetrapods contribute to

Biodiversity

- What is biodiversity?
- Why is it important?

Video of lyrebird

From BBC’s “The Life of Birds”

This class is really about how tetrapods contribute to

Biodiversity

- What is biodiversity?
- Why is it important?
- How do we study it?

The study of biodiversity:

Taxonomy (*How are organisms related? How are they grouped? Which groups are most unique?*)

Ecology (*How do organisms survive in their environment? How do species interact?*)

Evolutionary Biology (*How does biodiversity arise? How do evolutionary processes affect the survival of a species?*)

Paleontology (*What is the history of life?*)

Biogeography (*How are organisms distributed? What explains these patterns?*)

Behavioral Ecology (*How does an organism's behavior affect its survival and reproduction? How do species differ in behavior?*)

Physiological Ecology (*How does the physiology of an organism affect its survival and reproduction?*)

Conservation Biology (*How can human-caused loss of biodiversity be minimized?*)

Why take Biology 427?

- You have passion for natural history
  - Vancouver and UBC are excellent places for urban wildlife watching.
  - Birding: A new life interest?
- You want to learn potentially useful field skills.
  - After taking this course, quite a few students have found employment as environmental consultants, research technicians, or field naturalists.
- You want to learn about evolution and ecology.
- You have a desire to work with other students as a team.
- *You are a dedicated learner.*

BIOL 427: Three main components of the course

- Field project
  - Objective: Learn to conduct field surveys of birds, to compare communities, to work together with other students, to think creatively and critically, and to present scientific results.
- Laboratory
  - Objective: Learn species of birds that are common in British Columbia.
- Lectures
  - Objective: Learn evolutionary history, taxonomy, ecology, behavior, and conservation of tetrapods.

The field project

- Choose one to three partners (group size 2-4).
- Choose at least two areas of interest that your group wants to survey (preferably three or more). Your goal is to describe and compare their bird communities.
- Develop a hypothesis for how the communities may differ in species composition and richness.
  - If you have three or more areas, you can also hypothesize which areas will be more similar to each other.
- Generate a basic map and description of each area (e.g., describe habitat, human impacts, elevation, etc.).
- Design a method to survey each area for:
  - Presence/absence of all bird species
  - Their relative abundances and distributions
- Analyze your results and present your results in a talk to the class and in a written report.

We will discuss the project in more detail later.

PACIFIC SPIRIT REGIONAL PARK

2006/05

Lab sessions

- Start 2nd week of term (Sept. 12 / 13), although first session will be a field trip.
- Learn to identify about 134 bird species of BC using specimens, photographs, and field observations.
  - Learn standard English names (or scientific, if you wish).
  - Learn Orders and Families of these species.
- Display your growing knowledge in a lab quiz and a lab exam.
- Lab provides a basis for field identification, although some traits useful in field identification (e.g., behaviour) are learned best in the field.

Lectures

- Designed to put the species of B.C. into a broad context
- Deep evolutionary history of birds, amphibians, and reptiles
- Recent evolutionary history, ecology, behavior, physiology, and conservation of birds
- Current research on birds
- Survey methods to use in the field project

Off-campus trips

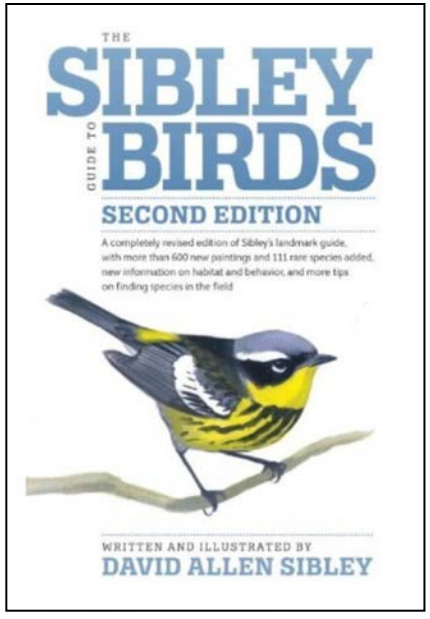
- Lab session Sept. 12/13 (next week!): Birding at Jericho
- Optional: Sept. 24th (Saturday) morning: Iona Island Bird Observatory
- ***Dress appropriately for the weather***
- Learn appearance and calls of birds so that you can census them more effectively.
- Birding by ear is one of the most difficult skills to learn, but also one of the most satisfying.

Field Notebooks

- You will want to record your observations of nature during the introductory birding trips, while working on your group project, and during your own field excursions.
- Recording data is an important skill that takes practice.
- Field excursions are an excellent time to make observations in your notebook.
- Make it your own--you can include sketches, photos, anecdotes, poems, etc.

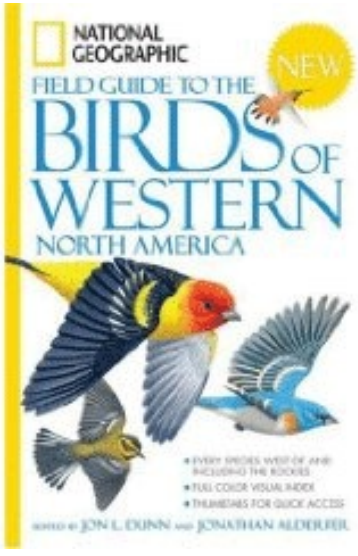
Texts for the course

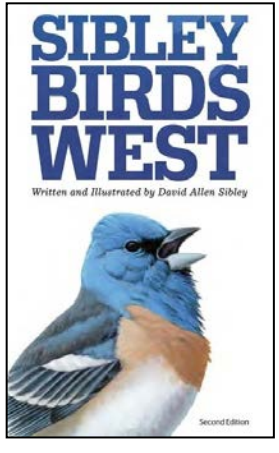
- A field guide to the birds of western North America. The guide should cover all of the birds of our region. My top recommendation (best for the course):
  - ***National Geographic Field Guide to the Birds of North America, Seventh Edition*, by Jon L. Dunn and Jonathan Alderfer (2017):** Includes all species in North America, in a compact and easy-to use book, with relatively recent changes.
- Optional suggested textbook for those who wish: *The Handbook of Bird Biology*, edited by Irby Lovette and John Fitzpatrick, 2016. (there is an e-book version, and a physical version)

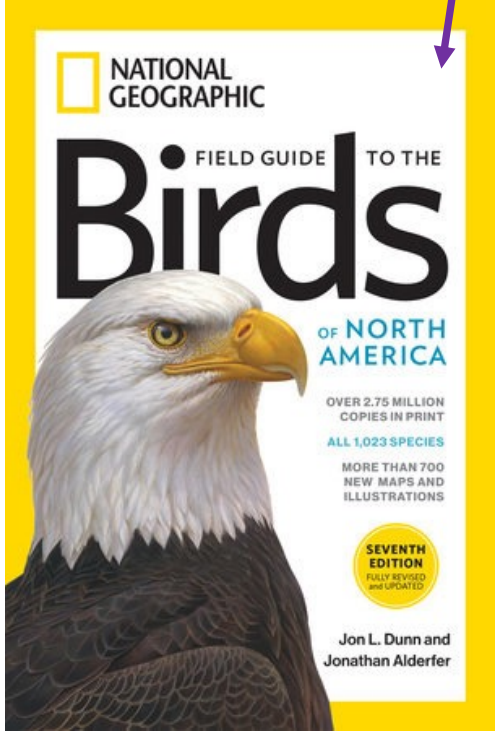


These are all excellent guides.

Page #'s in lab materials will refer to NatGeoV7)







Evaluation

Group project	35% (15% presentation, 20% report)
Lab exams	35% (15% quiz, 20% exam)
Lecture exam	30%

✓ I may modify the above slightly during the course. In particular, I may adjust grades slightly based on how actively and considerately each student participates in the course.

Note on Academic Integrity:

- It is essential that scientists give credit where credit is due. **You must not take credit for something that you did not produce.** This principle applies to all aspects of the course (e.g., written work, exams, group projects)
- Academic dishonesty could result in failure of the course and suspension from the university. **If you have questions about what is OK and what is not OK, please ask.**
  - For details, see:
    - http://www.calendar.ubc.ca/Vancouver/index.cfm?tree=3,54,111,959

Binoculars

Many students may borrow a binocular for the term.

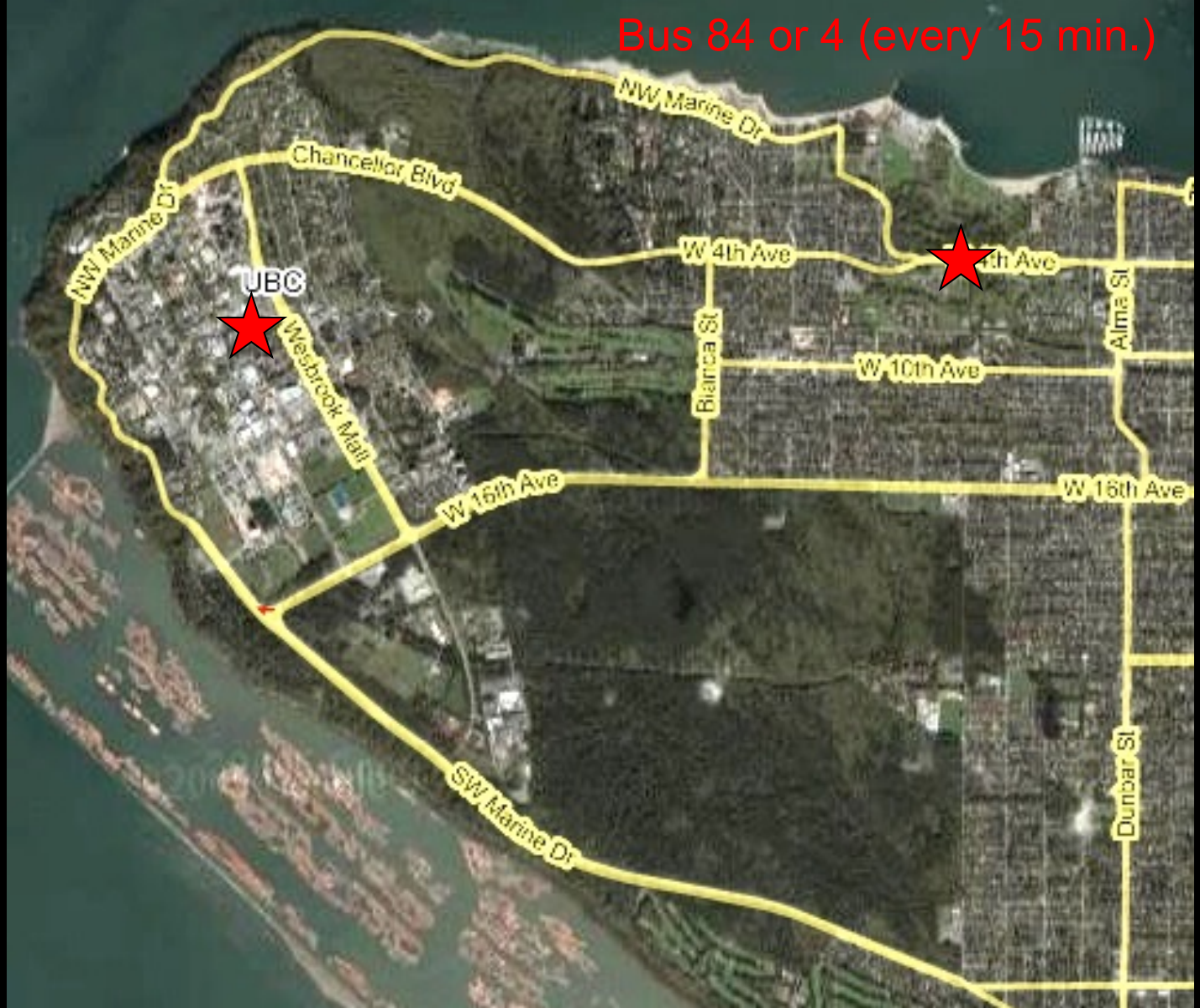
- You must return it in good shape or pay $200 replacement cost.
- You can pick these up after class on Monday.

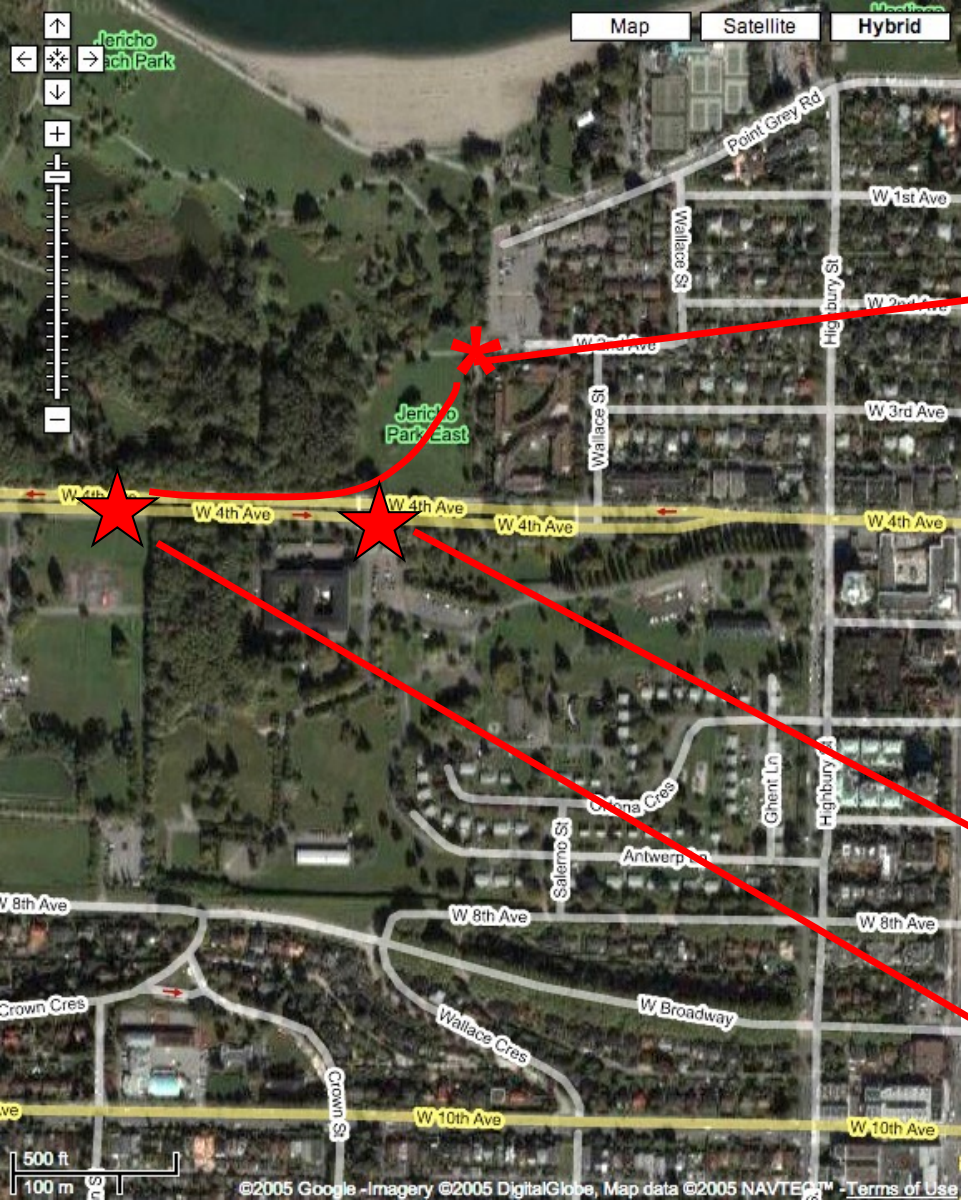
How many of you have a class at 10am Monday?

Lab next week: birding at Jericho

- Dress for the weather. Bring your bird books, binoculars (if you already have), and notebooks. Three choices of where to meet:
  - **Meet at the SW corner of the Jericho parking lot (the east one, near the duck ponds) at 2:45pm Monday or 3:45pm Tuesday.**
  - You can get there by riding Bus #84, leaving UBC Exchange Bay 2 every 15 minutes, getting off at "EB W 4th Ave @ 4100 Block" 10 minutes later; then walk NE for about 5 minutes.
  - Or: Bus #4, leaving UBC (University Blvd.) every 15 min, getting off at "EB W 4th Ave @ Dieppe Lane" 11 min. later; then cross street and walk across field.
- Done at Jericho after about 1.75 hours, so you can be back on campus within the 3-hour block.

These details will be shown again at Monday's lecture.


Bus 84 or 4 (every 15 min.)
NW Marine Dr
Chancellor Blvd
NW Marine Dr
W 4th Ave
UBC
Wesbrook Mall
Blanca St
W 10th Ave
Alma St
W 16th Ave
W 16th Ave
SW Marine Dr
Dunbar St



Lab trip to Jericho

(next week, Monday or Tuesday)

- Meet at this corner of the Jericho parking lot (the east one, near the duck ponds) at 2:45pm Monday or 3:45pm Tuesday

- Bring your notebook, bird book, binocular

- Rain or shine! (dress appropriately for weather)

"EB W 4th Ave @ Dieppe Lane" stop of Bus 4

"EB W 4th Ave @ 4100 Block" stop of Bus 84