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Lecture 1	Why population and community ecology?		Course structure
Lecture 2	Spatial and temporal distributions of organisms		
Lecture 3	Density-independent population growth		
Lecture 4	Density-dependent population growth 1		
Lecture 5	Density-dependent population growth 2		
Lecture 6	Age structured population growth		Single species
Lecture 7	Population sampling	\geq	
Lecture 8	Calculating vital rates		population dynamics
Lecture 9	Maximum sustainable yield		
Lecture 10	Spatially structured populations :movement and migration		
Lecture 11	Source sink populations		
Lecture 12	Metapopulations		
Lecture 13	Population viability analysis	J	
Lecture 14	Predation: Lotka-Volterra models]	
Lecture 15	Parasitoids and hosts		Creation internetions
Lecture 16	Disease and SIR		Species interactions
Lecture 17	Population cycles and other dynamics	J	
Lecture 18	Island Biogeography		
Lecture 19	Community composition		
Lecture 20	Community structure and dynamics		
Lecture 21	Succession	\geq	 Community ecology
Lecture 22	Management of populations and communities 1		
Lecture 23	Management of populations and communities 2		
Lecture 24	Review: Why population and community ecology		

Tutorials		
	Tutorial 1	Population modeling project
	Tutorial 2	Population Growth
Ask question, elaborate on lecture material	Tutorial 3	Life Tables
	Tutorial 4	Population size estimates
Evaluate population and community ecology papers	Tutorial 5	Movement
	Tutorial 6	Metapopulations
Introduce analysis frameworks	Tutorial 7	Predation
	Tutorial 8	Population cycles
	Tutorial 9	Island biogeography
	Tutorial 10	Community metrics
	Tutorial 11	Final exam preparation







• Exams	e evaluatio	on	
– Midterm 25%	What	Date	week
– Final 35%	Assignment 1	Oct. 8	41
	Model part 1	Oct. 15	42
Problem sets	Midterm	Oct. 22	43
 – 5 questions, 4 sets 	Assignment 2	Oct. 29	44
- 20% (4 x 5%)	Model part 2	Nov. 5	45
	Assignment 3	Nov. 12	46
 Population model 	Model part 3	Nov. 19	47
– 4 components	Assignment 4	Nov. 26	48
- 20%	Model part 4	Dec. 3	49



Why population and community ecology?

- Conservation?
- Management? (Resource, ecosystem)
 - Population management
 - Disease control
 - Impact assessment
- Exploitation?



Conservation



What information is needed to determine why the species is at risk?

- Habitat?
- **Reproduction?**
- Mortality?

Ministry of Environment

Species and Ecosystems at Risk in B.C.

British Columbia is home to tens of thousands of plant and animal species living in a rich diversity of habitats. Many of these species and their habitats are at risk of extinction or extirpation.

This site is a gateway to information about species and ecological communities (ecosystems) at risk in B.C.

What is B.C.'s approach to managing species at risk in B.C.? British Columbia has developed a <u>Five-Year Plan</u> for species at risk. This plan is a strategic document that sets out those high-level management actions that British Columbia plans to take to improve management of species at risk in B.C.

How do we determine what species and ecological communities are at risk? The <u>British Columbia Conservation Data Centre</u> systematically collects and disseminates information on plants, animals and ecosystems (ecological communities) at risk in British Columbia.

How can I find information on species and ecological comm risk? BC Species and Ecosystems Explorer is a source of authoritative conservation information on plants and animals, and ecological communities (ecosystems) in British Columbia.

How do we determine priorities for conservation action? The <u>Conservation Framework</u> is British Columbia's approach for guiding effective conservation actions in the province.

What do we do once we know a species is at risk? <u>Recovery planning</u> is a process to identify and facilitate the implementation of priority actions to ensure the survival and recovery of species and ecosystems at risk.

How do we provide legal protection for species at risk in B.C.? This page provides information about legis risk in British Columbia. tion pertaining to species at

http://www.env.gov.bc.ca/atrisk/

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<section-header><section-header>

- Assisted migration?
- Resettlement?
- Increased food?
- Decreased predation pressure?

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Population management Invasive aquatic organisms BC FLNRO, Controlled Alien Species High risk invasive species Snakeheads (Family Channidae) Dreissenid mussels (zebra, quagga , and Conrad's false mussels) Gobies (round, monkey, tubenose and Amur gobies) Oriental weatherfish Bullhead and channel catfishes (Family Ictaluridae) Western mosquitofish Asian carps (specifically grass, silver, bighead and black carps) Bitterlings White cloud mountain minnow



























model = simplified version of reality

Verbal model

Qualitative model

Quantitative model

Complex quantitative model



Marmot populations increase when food is abundant.

















