



HAIDA GWAI
HIGHER EDUCATION SOCIETY

Ecology & Management of Island Wildlife

HGSE 357

**** THIS IS A SAMPLE SYLLABUS, GUESTS, FIELD TRIPS AND OTHER COURSE DETAILS MAY VARY FROM YEAR TO YEAR. Contact HGHE for more details.**

Instructor:	Frank Doyle, R.P.Bio, M.Sc.
Credits:	3

Course Description:

This course focuses on unique biological attributes of island wildlife, such as subspecies, isolated populations, habitat niche and the subsequent development of management plans to ensure the long-term viability of focal endemic wildlife species. Topics for this course include; an overview of endemic species on Haida Gwaii and their evolutionary history in the context of island biogeography theory, species interactions between trophic levels and how these interactions are affected by introduced species, and an examination of the parameters that drive populations level outcomes for native and introduced species. Students learn the effects of introduced organisms and other anthropogenic disturbances on interspecific relationships and habitats.

Case studies explored include, the effects of invasive species on sooty grouse, impact of logging practices on the isolated populations of goshawk habitat, and ramifications of introduced deer on forest ecology and subsequent implications for endemic species such as songbirds. Field trips facilitate hands-on learning of field techniques for surveying wildlife and assessing habitat use by different species. The contemporary application of theory and practices discussed in the course explored through species management protocols for rare and endangered wildlife, and for introduced species.

Course Objectives:

By the end of this course, students will be able to:

- Identify the basic habitat need of a suite of focal wildlife management species on Haida Gwaii
- Describe unique attributes of island wildlife populations
- Comprehend ecological concepts of competition, predator-prey relationships, and trophic levels and interactions
- Discuss how anthropogenic disturbances affect island wildlife and their habitats
- Collect, analyze, and report on data from wildlife and wildlife habitat surveys in the field



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- Understand different approaches to conservation of wildlife species and habitats on Haida Gwaii (ex: marbled murrelet, goshawk, and saw-whet owl recovery plans, wildlife management measures in the Haida Gwaii Land Use Plan, Research Group on Introduced Species)
- Understand the challenges facing focal species management in a harvested landscape
- Understand the steps required to develop a recovery-management strategy for focal wildlife species

Course Organization:

This course is comprised of a series of lectures and field exercises and will include guest speakers who will add to their local experience and expertise.

Course Evaluations:

Class Participation – 20%

Active participation in class is essential and will be measured in a variety of ways. Attendance is mandatory. Students must demonstrate their engagement with the course by participating actively in field activities and in class discussions, both through thoughtful contributions to discussions and active listening.

Weekly Quiz – 20%

At the end of the first and second weeks of this course, students write a quiz, summarizing key points from readings and other topics covered in class.

Group Report & Presentation – 30%

In small groups, students write a report examining the applications of the principles of wildlife ecology to a contemporary wildlife management issue (7-10 pages including references). The paper should summarize a management issue/question, incorporate ecological knowledge of the species in question, and make suggestions for solutions to the issue that are biologically relevant. Marks will be awarded for scientific pertinence, thorough research, and creative solutions. A majority of the required reading materials must be cited in the final report. Students are encouraged to engage with community members when researching solutions.

Individual Report Chapter – 30%

As per the group report above, each student will take the lead on the individual chapters/sections (just as typically happens on a report-presentation in a working team environment). Depending on group size, we will identify the relevant sections that may be required, and areas where individual leads are appropriate versus a team approach



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(ex: introductory section on a particular species may include a review of all the pertinent research/publications – the collection of this information will be a team approach, but one student can take the lead on presenting that information). Please note as per above 30% of the mark is for the group, so it's critical to support each other – we all have strengths and weaknesses.

Assigned Readings:

All readings provided.

Week	Theme	Readings
One	Island biogeography theory, isolated and unique individuals and populations, species on Haida Gwaii	<p>Topp, C. M. and K. Winker. 2008. Genetic Patterns of differentiation among five landbird species on the Queen Charlotte Islands, British Columbia. <i>The Auk</i> Vol 125:461-472.</p> <p>Sonsthagen, S. A., E. L. McClaren, F. I. Doyle, K. Titus, G. K. Sage, R. E. Wilson, J. Gust, S. L. Talbot. 2010 Identification of Metapopulation Dynamics among Northern Goshawks of the Alexander Archipelago, Alaska, and Coastal British Columbia. 2012. <i>Conservation Genetics</i>. Volume 13, Issue 4, pp 1045-1057.</p> <p>Northern Goshawk Status and Future Research 2002: Doyle.</p> <p>Development and Implementation of the Provincial Identified Wildlife Management Strategy in British Columbia, Canada. https://www.for.gov.bc.ca/hfp/values/wildlife/erickson_edited_final_feb_7.pdf.</p> <p>Ermine Recovery Strategy http://www.env.gov.bc.ca/wld/documents/recovery/rcvrystrat/ermine_haidarum_subsp_rcvry_strat_031209.pdf</p>
Two	Endangered species, invasive species, interspecific interactions and	<p>Daufresne, T., and Martin, J.L. (1997) Changes in vegetation structure and diversity as a result of browsing by large herbivore: The impact of introduced black tail deer in the primary forest of Haida Gwaii, British Columbia. <i>Laskeek Bay Res.</i> 7:2- 26.</p>



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	competition, populations effects	<p>Donlan, C.J. and Martine, P.S. (2004) Role of ecological history in invasive species management and conservation. <i>Conservation Biology</i> 18(1):267- 269.</p> <p>Martin, J.L., Gaston, A.J., and Hitier, S. (1995) The effect of island size and isolation on old growth forest habitat and bird diversity in Gwaii Haanas (Queen Charlotte Islands, Canada). <i>Oikos</i> 72:115- 131.</p> <p>Haida Gwaii Sooty Grouse Habitat Use, Seasonal Habitat Requirements, Distribution, and Population Trends 2012-2013: Doyle.</p> <p>Northern Saw-whet Owl Brooksii Summer Home Range and Habitat: Doyle.</p>
Three	Wildlife management	<p>Northern Goshawk Recovery Strategy: http://www.env.gov.bc.ca/wld/documents/recovery/rcvrystrat/northern_goshawk_rcvry_strat_200508.pdf.</p> <p>Stroh, N., Baltzinger, C. and Martin, J.L. (2008) Deer prevent western redcedar (<i>Thuja plicata</i>) regeneration in old-growth forests of Haida Gwaii: Is there potential for a recovery? <i>Forest Ecology and Management</i> 225(12):3973-3979.</p> <p>Maintenance of habitat suitability for Northern Goshawks (<i>Accipiter gentilis laingi</i>) and Marbled Murrelets using Heli-select harvesting on Haida Gwaii: Years 2-3 Post Harvest: Doyle.</p> <p>When do naturally regenerating and pre-commercially thinned second growth forests attain attributes that will support Northern Goshawks (<i>laingi</i> subspecies) and Marbled Murrelets on Haida Gwaii? Doyle.</p>



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Course Schedule:

Week 1	9-12	1-4
Monday	Lecture: Course introduction Guest Lecture: Haida Gwaii's unique island ecology	Open Lecture
Tuesday	Lecture: Wildlife management for species' ecological requirements in a changing landscape	Field trip: Second growth forest and species management
Wednesday	All day field trip: visit to protected breeding area, survey methodology and habitat assessment & cultural forest features with local educator	
Thursday	Lecture: Northern Saw-whet Owl ecology and research methodology; 1st quiz	Guest Lecture
Friday	Lecture: Seminar	Independent Study
Week 2		
Monday	Guest Lecture: The role of GIS as a management tool	Lecture: Sooty Grouse ecology and research methodology habitat validation-verification
Tuesday	Lecture: The use of cameras to monitor sooty grouse nests Guest Lecture: Automated Recording Unit deployment	Lecture: Student led presentation research plan – survey methodology for focal species Evening: Design and Implement an evening owl survey (weather



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		dependent)
Wednesday	All day field trip: radio telemetry of tagged birds	
Thursday	Guest Lecture: Second growth management strategies for focal forest species and commercial stewardship challenges 2 nd weekly quiz	In-class working session
Friday	Lecture: Seminar	Independent Study
Week 3		
Monday	All day field trip: second growth trial sites on Moresby Island, look at pre commercial trial sites, thinned sites and a range of site types	
Tuesday	Lecture: Recovery management: implementation and recovery objectives	Guest Lecture
Wednesday	Lecture: TBD	Open afternoon: TBD
Thursday	Final Presentations	
Friday	Remembrance Day – No Classes	