

Foraging Geese Vegetation Loss And Soil Degradation In An

As scientific understanding about ecological processes has grown, the idea that ecosystem dynamics are complex, nonlinear, and often unpredictable has gained prominence. Of particular importance is the idea that rather than following an inevitable progression toward an ultimate endpoint, some ecosystems may occur in a number of states depending on past and present ecological conditions. The emerging idea of “restoration thresholds” also enables scientists to recognize when ecological systems are likely to recover on their own and when active restoration efforts are needed. Conceptual models based on alternative stable states and restoration thresholds can help inform restoration efforts. New Models for Ecosystem Dynamics and Restoration brings together leading experts from around the world to explore how conceptual models of ecosystem dynamics can be applied to the recovery of degraded systems and how recent advances in our understanding of ecosystem and landscape dynamics can be translated into conceptual and practical frameworks for restoration. In the first part of the book, background chapters present and discuss the basic concepts and models and explore the implications of new scientific research on restoration practice. The second part considers the dynamics and restoration of different ecosystems, ranging from arid lands to grasslands, woodlands, and savannahs, to forests and wetlands, to production landscapes. A summary chapter by the editors discusses the implications of theory and practice of the ideas described in preceding chapters. New Models for Ecosystem Dynamics and Restoration aims to widen the scope and increase the application of threshold models by critiquing their application in a wide range of ecosystem types. It will also help scientists and restorationists correctly diagnose ecosystem damage, identify restoration thresholds, and develop corrective methodologies that can overcome such thresholds.

Rapid increases in air temperature in Arctic and subarctic regions are driving significant changes to surface water. These changes and their impacts are not well understood in sensitive high Arctic ecosystems. This thesis explores changes in surface water in the high Arctic pond complexes of western Banks Island, Northwest Territories, and examines the impacts of this change on vegetation communities. Landsat imagery (1985-2015) was used to detect trends in surface water, moisture, and vegetation productivity, aerial imagery change detection (1958 and 2014) quantified shifts in the size and distribution of waterbodies, and field sampling investigated factors contributing to observed changes. The impact of expanding lesser snow goose populations on observed changes in surface water was investigated using the aerial imagery change detection of 2409 waterbodies and an information theoretic model selection approach, while their impact on vegetation was assessed using data from field surveys. Our analyses show that the pond complexes of western Banks Island are drying, having lost 7.9% of the surface water that existed in 1985. This loss of surface water disproportionately occurred in smaller sized waterbodies, indicating that climate is the main driver. Model selection showed that intensive occupation of lesser snow geese was associated with more extensive drying and draining of waterbodies and suggests this intensive habitat use may reduce the resilience of pond complexes to climate warming. Evidence from field surveys suggests that snow goose foraging is also contributing to patches of declining vegetation productivity within drying wetland areas. Diminishing and degrading high Arctic pond complexes are likely to alter permafrost thaw and greenhouse gas emissions, as well as the habitat quality of these ecosystems. Additional studies focused the mechanisms of surface water loss, the direct impacts of wetland drying on vegetation, and the contributions of snow geese to these processes, are necessary to better understand the changes occurring on Banks Island.

“Salt marshes and mangrove forests, the intertidal wetlands of the world’s coastlines, provide key ecological services to all areas of the globe, and are vital sinks and sources in carbon budgets”-

The World’s Largest Wetlands

Ducks, Geese, and Swans of North America

Canadian Journal of Botany

Biotic Interactions, Ecosystem Processes, and Global Change

Report of the Arctic Goose Habitat Working Group

Arctic, Antarctic, and Alpine Research

Experts share their understanding of the ecology of large wetlands, their significance and their conservation.

Swamps and marshes once covered vast stretches of the North American landscape. The destruction of these habitats, long seen as wastelands that harbored deadly disease, accelerated in the twentieth century. Today, the majority of the original wetlands in the US have vanished, transformed into farm fields or buried under city streets. In The Marsh Builders, Sharon Levy delves into the intertwined histories of wetlands loss and water pollution. The book’s springboard is the tale of a years-long citizen uprising in Humboldt County, California, which led to the creation of one of the first U.S. wetlands designed to treat city sewage. The book explores the global roots of this local story: the cholera epidemics that plagued nineteenth-century Europe; the researchers who invented modern sewage treatment after bumbling around the insight that microbes break down pollutants in water; the discovery that wetlands act as efficient filters for the pollutants unleashed by modern humanity. More than forty years after the passage of the Clean Water Act launched a nation-wide effort to rescue lakes, rivers and estuaries fouled with human and industrial waste, the need for revived wetlands is more urgent than ever. Waters from Lake Erie and Chesapeake Bay to China’s Lake Taihu are tainted with an overload of nutrients carried in runoff from farms and cities, creating underwater dead zones and triggering algal blooms that release toxins into drinking water sources used by millions of people. As the planet warms, scientists are beginning to design wetlands that can shield coastal cities from rising seas. Revived wetlands hold great promise for healing the world’s waters.

Coastal Wetlands, Second Edition: An Integrated and Ecosystem Approach provides an understanding of the functioning of coastal ecosystems and the ecological services that they provide. As coastal wetlands are under a great deal of pressure from the dual forces of rising sea levels and the intervention of human populations, both along the estuary and in the river catchment, this book covers important issues, such as the destruction or degradation of wetlands from land reclamation and infrastructures, impacts from the discharge of pollutants, changes in river flows and sediment supplies, land clearing, and dam operations. Covers climate change and its influence on coastal wetland form and function Provides a fully updated and expanded resource, including new chapters on modeling, management and the impact of climate change Contains full-color figures of wetlands and estuaries in different parts of the world

The Emu

An Introduction to Environmental Issues

SR 520 Bridge Replacement and HOV Project

An Integrated Ecosystem Approach

The Fight for Clean Water, Wetlands, and Wildlife

The Global Casino

Of some 10000 bird species in the world, 514 are to be found in Europe. Of these, twenty-six European species are globally threatened & risk extinction if their populations are not actively built up. This series of action plans for Europe’s most threatened species is the result of a joint project carried out by BirdLife International, in collaboration with Wetlands International, involving over 370 experts in almost every European country. This book will be of interest to

conservationists at both national & local level, educators & all those interested in the conservation of Europe’s bird heritage.

Soil Mapping and Process Modeling for Sustainable Land Use Management is the first reference to address the use of soil mapping and modeling for sustainability from both a theoretical and practical perspective. The use of more powerful statistical techniques are increasing the accuracy of maps and reducing error estimation, and this text provides the information necessary to utilize the latest techniques, as well as their importance for land use planning. Providing practical examples to help illustrate the application of soil process modeling and maps, this reference is an essential tool for professionals and students in soil science and land management who want to bridge the gap between soil modeling and sustainable land use planning. Offers both a theoretical and practical approach to soil mapping and its uses in land use management for sustainability Synthesizes the most up-to-date research on soil mapping techniques and applications Provides an interdisciplinary approach from experts worldwide working in soil mapping and land management

The Global Casino is an introduction to environmental issues which deals both with the workings of the physical environment and with the political, economic and social frameworks in which the issues occur. Using examples from all over the world, the book highlights the underlying causes behind environmental problems, the human actions which have made them issues, and the hopes for solutions. It is a book about the human impact on the environment and the ways in which the natural environment impacts human society. The sixth edition has been fully revised and updated throughout, with new case studies, figures, and online resources including a complete lecture course for tutors and multiple-choice questions for students. New concepts and topics covered for the first time in this edition include the green economy, the forest transition model, marine microplastic pollution, urban disasters, decommissioning of big dams, and the start of the Anthropocene. Recent international initiatives covered include the Paris Agreement on climate change, the Aichi Biodiversity Targets, and the Sendai Framework for managing disaster risk. New case studies include Morocco’s Noor concentrated solar power plant, desert recovery in Kuwait, and river management on the Huang Ho. Eighteen chapters on key issues follow three initial chapters which outline the background contexts of the physical and human environments and the concept of sustainable development. Each chapter provides historical context for key issues, outlines why they have arisen, and highlights areas of controversy and uncertainty to appraise how issues can be resolved both technically and in political and economic frameworks. Each chapter also contains an updated critical guide to further reading – many of them open access – and websites, as well as discussion points and essay questions. The text can be read in its entirety or individual chapters adopted as standalone reading. This book is an essential resource for students of the environment, geography, earth sciences and development studies. It provides comprehensive and inspirational coverage of all the major global environmental issues of the day in a style that is clear and critical.

Action Plans

The Effects on Lowland Habitat, Breeding Shorebirds and Songbirds in the Banks Island Migratory Bird Sanctuary Number 1 by the Growing Colony of Lesser Snow Geese (Chen Caerulescens Caerulescens)

Consequences for Theory and Management

Wetlands and Natural Resource Management

Globally Threatened Birds in Europe

Arctic Ecosystems in Peril

This book provides a broad and well-integrated overview of recent major scientific results in wetland science and their applications in natural resource management issues. The contributors, internationally known experts, summarize the state of the art on an array of topics, divided into four broad areas: The Role of Wetlands for Integrated Water Resources Management; Putting Theory into Practice; Wetland Science for Environmental Management; Wetland Biogeochemistry; Wetlands and Climate Change Worldwide.

Summary: Discusses coastal sand dune, shingle beach, and salt marsh ecosystems, communities based upon relatively unconsolidated granular deposits which frequently rest upon solid rock or, much more rarely, on peat.

Issues in Global Environment: Climate and Climate Change: 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Global Environment—Climate and Climate Change. The editors have built Issues in Global Environment: Climate and Climate Change: 2011 Edition on the vast

2011 Edition has been produced by the world’s leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>.

Aboveground-Belowground Linkages

A Global Perspective

Hearing Before the Subcommittee on Fisheries Conservation, Wildlife, and Oceans of the Committee on Resources, House of Representatives, One Hundred Fifth Congress, Second Session, April 23, 1998, Washington, DC.

Contemporary Principles and Practices

Issues in Global Environment: Climate and Climate Change: 2011 Edition

Columbia River System Operation Review (SOR)

*New Models for Ecosystem Dynamics and Restoration*Island Press

“Human Impacts on Salt Marshes provides an excellent global synthesis of an important, underappreciated environmental problem and suggests solutions to the diverse threats affecting salt marshes.”—Peter B. Moyle, University of California, Davis

This edition of Ducks, Geese, and Swans consists of two volumes, printed in full color, and packaged in a slipcase, along with a CD containing references and additional maps.

Vegetation Ecology

Coastal Wetlands of the World

Oversight Hearing on Arctic Snow Geese

The New Frontier

Arctic Climate Impact Assessment - Scientific Report

Herbivore Optimization by North American Elk

Enlarged, enhanced and internationalized edition of the first restoration ecology textbook to be published, with foreword by Dr. Steven Whisnant of Texas A&M University and Chair of the Society of Ecological Restoration. Since 2006, when the first edition of this book appeared, major advances have taken place in restoration science and in the practice of ecological restoration. Both are now accepted as key components of the increasingly urgent search for sustainability at global, national, and community levels hence the phrase ‘New Frontier’ in the title. While the first edition focused on ecosystems and landscapes in Europe, this new edition covers biomes and contexts all over the world. Several new chapters deal with broad issues such as biological invasions, climate change, and agricultural land abandonment as they relate to restoration science and ecological restoration. Case studies are included from Australia, North America, and the tropics. This is an accessible textbook for senior undergraduate and graduate level students, and early career scientists. The book also provides a solid scientific background for managers, volunteers, and mid-career professionals involved in the practice of ecological restoration. Review of the first edition: “I suspect that this volume will find its way onto the shelves of many restoration researchers and practitioners and will be used as a key text in graduate courses, where it will help fill a large void. My own copy is already heavily bookmarked, and will be a constant source of research ideas and lecture material.” (Environmental Conservation) Companion Website: A companion website with downloadable figures is available at www.wiley.com/go/vanandel/restorationecology

Coastal wetlands are under a great deal of pressure from the dual forces of rising sea level and the intervention of human populations both along the estuary and in the river catchment. Direct impacts include the destruction or degradation of wetlands from land reclamation and infrastructures. Indirect impacts derive from the discharge of pollutants, changes in river flows and sediment supplies, land clearing, and dam operations. As sea level rises, coastal wetlands in most areas of the world migrate landward to occupy former uplands. The competition of these lands from human development is intensifying, making the landward migration impossible in many cases. This book provides an understanding of the functioning of coastal ecosystems and the ecological services that they provide, and suggestions for their management. In this book a CD is included containing color figures of wetlands and estuaries in different parts of the world. * Includes a CD containing color figures of wetlands and estuaries in different parts of the world.

Scientists rely on food webs—complex networks that trace the flow of nutrients and energy between species and through ecosystems—to understand the infrastructure of ecological communities. But given the complexities of food webs—think of following the flow of nutrients through the microbes, fungi, roots, worms, ants, and birds that pass over or through a single cubic meter of prairie soil—it’s not difficult to see why most experiments on food-web dynamics focus on small, local habitats. Yet as this book convincingly shows, important insights come when scientists expand the temporal and spatial scope of their research to look at the ways energy, organisms, nutrients, and pollutants flow not just at the local level, but across whole landscapes—between and among food webs in a wide variety of habitats. Paying special attention to the fertile boundaries between terrestrial, freshwater, and marine ecosystems, Food Webs at the Landscape Level not only shows what this new methodology means for ecology, conservation, and agriculture but also serves as a fitting tribute to Gary Polis and his major contributions to the field.

The Wetlands Handbook, 2 Volume Set

Environmental Impact Statement

Écoscience

Sport Hunting of Migratory Birds, Issuance of Annual Regulations

New Models for Ecosystem Dynamics and Restoration

Wildlife Management and Conservation

“Understanding herbivore optimization has implications for theories underpinning ecosystem processes, management of large herbivores, and the landscapes they inhabit. We designed an experiment to examine interactions related to density dependence of North American elk (Cervus elaphus) and resulting plant responses to herbivory in the Blue Mountains of Oregon, USA, from 1999 to 2001”--Page 1.

Forty-two chapters by international experts from a wide range of disciplines make The Wetlands Handbook the essential tool for those seeking comprehensive understanding of the subject. A departure from more traditional treatises, this text examines freshwater wetland ecosystem science from the fundamentals to issues of management and policy. Introductory chapters address the scope and significance of wetlands globally for communities, culture and biodiversity. Subsequent sections deal with processes underpinning wetlandfunctioning, how wetlands work, their uses and values for humansand nature, their sensitivity to external impacts, and how they may be restored. The text is illustrated by numerous examples, emphasising functional and holistic approaches to wetlandmanagement, including case studies on the wise use andrehabilitation of wetlands in farmed, urban, industrial and otherdamaged environments, highlighting the long-term benefits ofupholing use. The Wetlands Handbook will provide invaluable reference for researchers, managers, policy-makers andstudents of wetland sciences.

Research on Akimiski Island, Nunavut, indicates declining numbers of nesting Southern James Bay Population (SBJP) Canada Geese (Branta canadensis interior) while increases have been documented for number of breeding Lesser Snow Geese (Chen caerulescens caerulescens). Low direct recovery rates of goslings is suggestive of late-summer mortality which may be limiting recruitment for Canada geese on Akimiski Island. This study was designed specifically to (1) compare Canada Goose reproductive performance, incubation and brood-rearing behavior in areas of allopatry and sympatry and with Lesser Snow Geese, (2) determine if there are differences in diets of Canada Geese in areas of allopatry and sympatry, and (3) determine if there are differences in diets of Canada and Lesser Snow Geese in the area of sympatry. I documented annual variation for all and spatial variation for some reproductive parameters measured. Results of between-area comparisons of reproductive performance tended to suggest that in some years, Canada Geese nesting in the area of sympatry contribute little towards the maintenance of the island segment of this population. During incubation when females were on nests, male behavior varied as a function of year, area, time-of-day, and incubation stage. Overall, male Canada Geese allocated their time primarily to vigilance, feeding, and resting when females were on the nest. Males in the area of allopatry were more vigilant and fed less compared to males in the area of sympatry. When females were on the nest, their behavior varied relative to time-of-day, incubation stage, and temperature. Females in the area of allopatry were more vigilant than females in the area of sympatry, but overall, females on the nest allocated their time primarily to resting and maintenance. Reces behavior of Canada Geese varied relative to sex, incubation stage, and temperature, but not area, though pairs in the area of allopatry tended to spend more time alert and less time feeding compared to pairs in the area of sympatry. During recesses, males allocated their time primarily to vigilance, whereas females allocated nearly equal proportions of time to feeding and maintenance. Overall, brood-rearing behavior varied relative to year, area, time-of-day, sex/age class, days since peak hatch, brood size, brood density, and temperature. Overall, results are indicative of exploitation competition and I suggest that present foraging conditions are insufficient to meet the energetic demands of breeding Canada Geese, as well as breeding and staging Lesser Snow Geese, multi-migrant Giant Canada Geese, and staging Atlantic Brant. Such an energy deficit is particularly detrimental to the growth and development of Canada Goose goslings resulting in locally poor recruitment which presumably will lead to a much depressed breeding population of Canada Geese on Akimiski Island. (Abstract shortened by UML).

Ecology and Conservation

Coastal Wetlands

Journal Canadien de Botanique

Ecology of Dunes, Salt Marsh and Shingle

Official Organ of the Australasian Ornithologists’ Union

Report to Accompany H.R. 2454 (including Cost Estimate of the Congressional Budget Office).

Widow and screamers belong to a highly diverse family of birds, confined to watery habitats. They are amongst the most attractive of birds and are very well-known to man, who has domesticated them, used their feathers for warm clothing and ornamentation, admired their flight, courtship and migration, caught them for food, maintained them in captivity for pleasure, and written about their doings in delightful children’s stories, from Mother Goose to Jermina Puddleduck and Donald Duck. They occur throughout the world except Antarctica. Some are faithful to the same partner for life, others for only the few minutes of copulation. In some species, male and female make devoted parents, and yet there is one within the group whose female lays her eggs in the nests of others and never incubates. Diving as a method of obtaining food has evolved many times within the family. Most nest in the open but others in the tree-hole nests of woodpeckers and some in the ground burrows of rabbits or badgers. They may be highly social or solitary, defending a large territory. Ducks, Geese, and Swans begins with eight chapters giving an overview of the family, their taxonomy and evolution, feeding ecology, breeding strategies, social behavior, movements and migrations, population dynamics, and conservation and management, followed by accounts of 165 species, written by a team of expert widowl specialists, describing each bird in its natural state and summarizing the published literature and recent research. Complementing the accounts are thirty specially commissioned color plates by Mark Hulme, along with numerous black and white drawings illustrating behaviors, plus distribution maps for each species.

Arctic Climate Impact Assessment was prepared by an international team of over 300 scientists, experts, and knowledgeable members of indigenous communities, and is the most comprehensive volume on Arctic climate change available. Illustrated in full color throughout.

*Additional resources for this book can be found at: <http://www.wiley.com/go/vandemaarefranklin/vegetationecology> www.wiley.com/go/vandemaarefranklin/vegetationecology/a. *Vegetation Ecology, 2nd Edition is a comprehensive, integrated account of plant communities and their environments. Written by leading experts in their field from four continents, this second edition of this book: covers the composition, structure, ecology, dynamics, diversity, biotic interactions and distribution of plantcommunities, with an emphasis on functional adaptations; reviews modern developments in vegetation ecology in ahistorical perspective; presents a coherent view on vegetation ecology whileintegrating population ecology, dispersal biology, soilbiology, ecosystem ecology and global change studies; tackles applied aspects of vegetation ecology, includingmanagement of communities and invasive species; includes new chapters addressing the classification and mappingof vegetation, and the significance of plant functional types* *Vegetation Ecology, 2nd Edition is aimed at advancedundergraduates, graduates and researchers and teachers in plantecology, geography, forestry and nature conservation. VegetationEcology takes an integrated, multidisciplinary approach and will be welcomed as an essential reference for plant ecologists the worldover.**

Mount Hope Pumped Storage Hydroelectric Project

Ducks, Geese and Swans

Columbia and Lower Willamette River Federal Navigation Channel Maintenance (WA,OR)

The Marsh Builders

Light Goose Management

The definitive textbook for students of wildlife management, now updated to cover the latest techniques, tools, and topics. Wildlife Management and Conservation presents a clear overview of the management and conservation of animals, their habitats, and how people influence both. The relationship among these three components of wildlife management is explained in chapters written by leading experts and is designed to prepare students for careers in which they will be charged with maintaining healthy animal populations. To be successful wildlife professionals, they will need to find ways to restore depleted populations, reduce overabundant, introduced, or pest species, and manage relationships among various human stakeholders. This book gives them the basic knowledge necessary to accomplish these goals. This second edition, which is updated throughout, features several new and expanded topics, including community in the wildlife profession, fire science, Indigenous models of management and conservation, plant-animal interactions, quantitative analysis of wildlife populations, and a detailed glossary. The book also covers:

- Human dimensions of wildlife management
- Animal behavior
- Predator-prey relationships
- Structured decision making
- Issues of scale in wildlife management
- Wildlife health
- Historical context of wildlife management and conservation
- Hunting and trapping
- Nongame species
- Nutrition ecology
- Water management
- Climate change
- Conservation planning

The most widely used foundational text in the field, this is the perfect resource not only for students but also for early career professionals and those in related fields who need to understand the core tenets and tools of wildlife conservation and management. Contributors: C. Jane Anderson, Bart M. Ballard, Warren B. Ballard, John A. Bissonette, Clint Boal, Scott B. Boyle, Leonard A. Brennan, Robert D. Brown, James W. Cain III, Tyler A. Campbell, Michael J. Cherry, Michael R. Conover, Daniel J. Decker, Randall W. DeYoung, Jonathan B. Dinkins, W. Sue Fairbanks, Selma N. Glasscock, James B. Grand, Michael J. Haney, James R. Haffelfinger, Scott E. Henke, Fidel Hernandez, Davie G. Hewitt, C. L. Hoving, David A. Jessup, Heather E. Johnson, Winifred B. Kessler, John L. Koprowski, Paul R. Krausman, William P. Kuvlesky, Jr., Roel R. Lopez, R. W. Mannan, Scott Mills, Michael S. Mitchell, Michael L. Morrison, Anna M. Muñoz, John F. Organ, Katherine L. Parker, William F. Porter, Shawn J. Riley, Steven S. Rosenstock, Michael C. Runge, Susan P. Rupp, William F. Siemer, Robert J. Steidl, Kelley M. Stewart

Aboveground-Belowground Linkages provides the most up-to-date and comprehensive synthesis of recent advances in our understanding of the roles that interactions between aboveground and belowground communities play in regulating the structure and function of terrestrial ecosystems, and their responses to global change. It charts the historical development of this field of ecology and evaluates what can be learned from the recent proliferation of studies on the ecological and biogeochemical significance of aboveground-belowground linkages. The book is structured around four key topics: biotic interactions in the soil; plant community effects; the role of aboveground consumers; and the influence of species gains and losses. A concluding chapter draws together this information and identifies a number of cross-cutting themes, including consideration of aboveground-belowground feedbacks that occur at different spatial and temporal scales, the consequences of these feedbacks for ecosystem processes, and how aboveground-belowground interactions link to human-induced global change.

Impacts of Climate Change and Intensive Lesser Snow Geese (Chen Caerulescens Caerulescens) Activity in High Arctic Pond Complexes – Banks Island, Northwest Territories

Food Webs at the Landscape Level

Human Impacts on Salt Marshes

Restoration Ecology

Influence of Sympatric Lesser Snow Geese (Chen Caerulescens Caerulescens) on Reproductive Performance, Behavior, and Food Habits of Canada Geese (Branta Canadensis Interior) on Akimiski Island, Nunavut

Soil Mapping and Process Modeling for Sustainable Land Use Management