

what is immigration biology

what is immigration biology is a multidisciplinary field that explores the movement of organisms from one location to another, examining the biological, ecological, and environmental impacts of these migrations. This branch of biology investigates the factors that drive immigration, the consequences for both native and introduced populations, and the role of human activities in shaping these patterns. Covering everything from animal migration to the spread of invasive species, immigration biology provides crucial insights into ecosystem dynamics, adaptation, and conservation strategies. Throughout this article, you will discover the definition and scope of immigration biology, key concepts, real-world examples, research methods, and its importance to biodiversity and environmental management. Whether you are a student, researcher, or simply interested in how organisms move and interact across boundaries, this comprehensive guide will help you understand the fundamentals and the latest developments in immigration biology.

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Definition and Scope of Immigration Biology

Immigration biology refers to the scientific study of how organisms move, settle, and integrate into new ecosystems. Unlike emigration, which describes the departure of individuals from an area, immigration focuses on the arrival and establishment of species in new habitats. This discipline encompasses various topics, such as population genetics, species dispersal, ecological adaptation, and the consequences of new arrivals on existing communities. By analyzing patterns and processes of organism movement, immigration biology helps identify the factors that facilitate or hinder successful immigration.

and the broader implications for ecosystem health and biodiversity.

Key Concepts in Immigration Biology

Immigration and Colonization

Immigration involves the movement and successful establishment of individuals or groups in a new area. Colonization occurs when these organisms thrive and reproduce, forming permanent populations in the new environment.

Understanding the distinction between simple arrival and long-term colonization is essential for assessing the impacts of immigration events on ecosystems.

Population Dynamics

Population dynamics in immigration biology examine how the influx of new individuals affects population size, genetic diversity, competition, and survival rates. Changes in population structure due to immigration can lead to shifts in resource availability, predator-prey relationships, and reproductive success.

Habitat Selection and Adaptation

Organisms immigrate to new areas based on habitat suitability and resource availability. The ability to adapt to different environmental conditions is a crucial factor in successful immigration. Immigration biology investigates the physiological, behavioral, and genetic adaptations that enable species to thrive in unfamiliar habitats.

Biological Mechanisms Behind Organism Immigration

Natural Dispersal Mechanisms

Various biological mechanisms drive immigration, including active movement (migration), passive transport (wind, water, or animal carriers), and accidental introductions. Species may disperse naturally in search of food, breeding grounds, or favorable climate conditions. Some rely on innate navigation systems, while others use environmental cues to guide their movements.

Reproductive Strategies and Life Cycles

Reproductive strategies play a significant role in immigration biology. Species with high reproductive rates and short life cycles can quickly establish populations in new areas. Conversely, organisms with specialized breeding requirements may face challenges in integrating into novel ecosystems.

- Active migration (birds, fish, mammals)
- Passive dispersal (seeds, spores, insects)
- Human-facilitated movement (shipping, trade, pet releases)
- Adaptive reproductive strategies

Human Influence on Immigration Patterns

Anthropogenic Factors

Human activities have a profound impact on immigration biology. Globalization, urbanization, and changes in land use modify natural habitats and create new pathways for species movement. Transport networks, agriculture, and commerce introduce organisms to regions outside their native ranges, often resulting in the establishment of non-native or invasive species.

Invasive Species and Ecological Risks

When humans facilitate the immigration of non-native organisms, these species may become invasive, outcompeting native populations and disrupting local ecosystems. Immigration biology studies the ecological risks associated with these introductions, including biodiversity loss, altered food webs, and ecosystem degradation.

Environmental and Ecological Impacts

Effects on Native Species

Immigration can both positively and negatively affect native species. New arrivals may increase genetic diversity or introduce beneficial traits. However, they can also compete for resources, transmit diseases, or prey on native organisms, leading to population declines or extinctions.

Ecosystem Services and Functions

Immigration biology assesses how the movement of organisms influences ecosystem services, such as pollination, nutrient cycling, and habitat formation. The integration of new species can enhance or disrupt these functions, depending on the compatibility of the immigrant species with the existing community.

Research Methods in Immigration Biology

Field Studies and Observational Research

Researchers use field studies to monitor immigration events, track species movement, and assess population changes in real-time. Observational research provides valuable data on behavior, habitat use, and survival rates of immigrants.

Genetic and Molecular Techniques

Advancements in genetic and molecular biology have revolutionized immigration biology. DNA analysis, molecular markers, and population genetics help scientists trace the origins of immigrant populations, assess genetic diversity, and understand evolutionary adaptations.

Modeling and Simulation

Mathematical modeling and computer simulations allow researchers to predict immigration patterns, assess ecological impacts, and evaluate the effectiveness of management strategies. These tools integrate environmental variables, species traits, and human activities for comprehensive analysis.

1. Field surveys and tracking

2. Genetic analyses (DNA barcoding, population genetics)
3. Ecological modeling and simulation
4. Experimental introductions
5. Remote sensing and GIS mapping

Applications and Importance

Conservation and Biodiversity Management

Immigration biology plays a critical role in conservation efforts. By understanding how species move and establish new populations, scientists can develop strategies to protect endangered species, restore habitats, and maintain genetic diversity. Immigration studies inform policy decisions and management plans for biodiversity preservation.

Invasive Species Control

Managing the immigration of invasive species is a major application of immigration biology. Effective control measures depend on identifying pathways of introduction, assessing ecological risks, and implementing targeted interventions to minimize negative impacts.

Climate Change Adaptation

Climate change is altering species distributions and immigration patterns. Immigration biology helps anticipate these shifts, guiding adaptation strategies for wildlife conservation, agriculture, and ecosystem management.

Notable Examples in Nature

Animal Migration

Seasonal migrations of birds, fish, and mammals are classic examples of immigration biology in action. These large-scale movements enable species to exploit resources, avoid harsh climates, and maintain genetic exchange between populations.

Plant Dispersal and Colonization

Plants disperse seeds and spores through wind, water, and animal vectors, resulting in the immigration and colonization of new habitats. This natural process shapes plant community composition and ecosystem structure.

Human-Facilitated Introductions

The global movement of species through trade, agriculture, and pet releases has led to the establishment of non-native populations worldwide. Examples include the spread of zebra mussels, cane toads, and kudzu, all of which have significant ecological consequences.

Future Directions in Immigration Biology

Integrative and Interdisciplinary Approaches

The future of immigration biology lies in integrative research that combines genetics, ecology, climate science, and social sciences. This holistic approach will provide deeper insights into the complex factors influencing species movement and ecosystem responses.

Technological Advancements

Emerging technologies, such as environmental DNA (eDNA), remote sensing, and artificial intelligence, promise to enhance data collection and analysis in immigration biology. These innovations will improve monitoring, prediction, and management of immigration events worldwide.

Policy and Global Collaboration

Effective management of immigration biology issues requires international cooperation and policy development. Collaborative efforts will help address the challenges posed by invasive species, biodiversity loss, and climate-driven immigration changes.

Q: What is immigration biology in simple terms?

A: Immigration biology is the study of how living organisms move into new areas or ecosystems, settle there, and the effects these movements have on native species, habitats, and overall biodiversity.

Q: Why is immigration biology important for environmental science?

A: Immigration biology helps scientists understand changes in species distributions, the spread of invasive species, and the impacts of these movements on ecosystem health, aiding efforts in conservation and environmental management.

Q: How does immigration differ from emigration in biology?

A: Immigration refers to organisms entering and establishing in a new area, while emigration describes individuals leaving their original habitat to move elsewhere.

Q: What are some examples of immigration in nature?

A: Examples include bird migration to new breeding grounds, plant seeds dispersing to new habitats, and human-facilitated introductions of non-native species like zebra mussels into freshwater systems.

Q: How do scientists study immigration biology?

A: Researchers use methods such as field surveys, genetic analyses, ecological modeling, experimental introductions, and remote sensing to monitor species movement and assess impacts.

Q: What role does human activity play in immigration biology?

A: Human activities, such as global trade, agriculture, and habitat modification, can introduce species to new areas, often leading to ecological changes and the spread of invasive organisms.

Q: What are the consequences of species immigration for native ecosystems?

A: Immigration can increase genetic diversity and ecosystem services, but it

can also cause competition, disease transmission, predation, and even extinction of native species.

Q: How is immigration biology connected to climate change?

A: Climate change alters habitats and environmental conditions, prompting shifts in species distributions and immigration patterns as organisms seek suitable environments for survival.

Q: What technologies are advancing research in immigration biology?

A: Technologies like environmental DNA (eDNA), remote sensing, GIS mapping, and artificial intelligence are enhancing the study and management of immigration events in biology.

Q: What is the difference between natural and human-facilitated immigration?

A: Natural immigration occurs through processes like migration and seed dispersal, while human-facilitated immigration involves the intentional or accidental movement of species through activities such as trade, travel, and habitat alteration.

What Is Immigration Biology

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What is Immigration Biology? Understanding the Movement of Life

Have you ever wondered how life finds a way to colonize new environments? The seemingly simple act of a plant seed drifting on the wind or an insect hitching a ride on a passing bird holds a fascinating complexity within it. This is the realm of immigration biology, a field that explores the processes and impacts of species moving into new areas. This blog post dives deep into the intricacies of immigration biology, exploring its key concepts, mechanisms, and ecological

significance. We'll unravel the challenges, successes, and far-reaching consequences of biological immigration, providing you with a comprehensive understanding of this vital area of study.

H2: Defining Immigration in a Biological Context

Immigration biology, also referred to as biological invasions or biogeography, focuses on the movement and establishment of organisms in areas outside their native range. This isn't simply about animals wandering into a new territory; it encompasses a multifaceted process involving dispersal, establishment, and ultimately, the potential for population growth and ecological impact. It's crucial to distinguish immigration from migration: migration implies a cyclical or seasonal movement, often with a return to the original location. Immigration, however, refers to a permanent relocation.

H2: Mechanisms of Biological Immigration: How Species Spread

The successful immigration of a species relies on several key mechanisms, each playing a crucial role in its journey to a new habitat.

H3: Natural Dispersal Mechanisms

Nature provides a variety of pathways for species expansion. These include:

Wind dispersal: Seeds, spores, and even small insects can be carried vast distances by wind currents.

Water dispersal: Ocean currents and rivers act as highways for aquatic organisms and buoyant seeds.

Animal dispersal: Animals, either intentionally (e.g., seed dispersal by birds) or unintentionally (e.g., insects clinging to fur), transport organisms across geographical barriers.

H3: Anthropogenic (Human-mediated) Dispersal

Human activities have dramatically accelerated the rate of biological immigration. These include:

Accidental introductions: Species can be transported unintentionally via ballast water in ships, contaminated cargo, or even on clothing and luggage.

Intentional introductions: Humans deliberately introduce species for various purposes, such as agriculture (crops and livestock), horticulture (ornamental plants), and pest control (biocontrol agents). This can have both beneficial and detrimental consequences.

H2: The Establishment Phase: Surviving and Thriving in a New Environment

Successfully establishing a population in a new environment is a significant hurdle. Several factors determine whether an immigrant species will thrive:

Environmental suitability: The new environment must offer suitable climate, resources (food, water, shelter), and the absence of lethal conditions.

Competition: The immigrant species must be able to compete with existing organisms for resources.

Predation and disease: The presence or absence of predators and pathogens in the new environment can significantly impact survival.

Genetic diversity: A greater genetic diversity often increases the likelihood of adaptation and survival in a new environment.

H2: Ecological Impacts of Biological Immigration: Positive and Negative Consequences

Biological immigration can have profound and diverse ecological impacts, both positive and negative.

H3: Positive Impacts

Increased biodiversity: In some cases, immigrant species can enhance biodiversity, adding to the richness and complexity of an ecosystem.

New ecosystem services: Certain immigrant species may provide beneficial services such as pollination or soil improvement.

Economic benefits: Introduced species can contribute to agriculture, fisheries, or other industries.

H3: Negative Impacts

Competition and displacement of native species: Immigrant species can outcompete native species for resources, leading to population declines or even extinctions.

Habitat alteration: Some immigrant species can dramatically alter habitats, making them unsuitable for native organisms.

Disease transmission: Immigrant species can introduce novel diseases to which native species have no immunity.

Economic costs: Controlling invasive species can be extremely expensive, requiring significant resources for management and mitigation.

H2: Studying Immigration Biology: Methods and Applications

Researchers employ various methods to study biological immigration, including:

Field surveys: Monitoring the distribution and abundance of species.

Laboratory experiments: Studying the interactions between immigrant and native species under controlled conditions.

Modeling: Predicting the spread and impact of immigrant species.

Understanding immigration biology is crucial for effective conservation efforts, management of invasive species, and predicting future changes in biodiversity.

Conclusion

Immigration biology is a dynamic and multifaceted field that unravels the complex processes governing the movement and establishment of species in new environments. Understanding these processes is paramount for managing biodiversity, mitigating negative impacts, and harnessing the potential benefits of species introductions. The interplay between natural dispersal mechanisms and anthropogenic influences continues to shape the ecological landscape, emphasizing the need for ongoing research and informed management strategies.

FAQs

1. What is the difference between invasive species and immigrant species? All invasive species are immigrant species, but not all immigrant species are invasive. An invasive species is an immigrant species that causes significant ecological or economic harm.
2. How can I contribute to preventing the spread of invasive species? You can help by cleaning your hiking boots and gear, avoiding the introduction of non-native plants and animals, and supporting responsible management practices.
3. Are all immigrant species harmful? No, many immigrant species integrate into ecosystems without causing significant harm, and some even provide benefits.
4. What role does climate change play in biological immigration? Climate change is altering habitats and creating new opportunities for species to expand their ranges, potentially leading to increased immigration and altered species interactions.
5. What are some examples of successful immigrant species? Many crop plants are successful immigrant species, providing food for human populations. However, the success of an immigrant species is often context-dependent and can have negative consequences.

what is immigration biology: *Population Biology of Plant Pathogens* , 2015

what is immigration biology: Migration : The Biology of Life on the Move Davis Hugh Dingle

Professor in the Department of Entomology and Center for Population Biology University of California, 1996-01-18 Migration is one of the most fascinating and dramatic of all animal behaviors. Historically, however, the study of migration has been fragmented, with ornithologists, entomologists, and marine biologists paying little attention to work outside their own fields. This treatment of the subject shows how comparisons across taxa can in fact illuminate migratory life cycles and the relation of migration to other movements. The book thus takes an integrated ecological perspective, focusing on migration as a biological phenomenon. The work is divided into four parts, each with a brief introductory section. Part I defines migration, gives examples, and places migration in the spectrum of movement behaviors, concluding with a chapter on methods for its study. Part II focuses on proximate mechanisms, including physiology and morphology (and the constraints associated with them), the interactions between migration and wind and current patterns, and the various orientation and navigation mechanisms by which migrants find their way about. Part III on the evolution of migratory life histories addresses the evolutionary and ecological basis for migration and the roles of migration not only in the lives of organisms, but also in the ecological communities in which they live. Part IV is devoted to a brief consideration of migration and its relation to pest management and conservation. As a major contribution to a vital subject, this work will be valued by all researchers and students in the field of animal behavior, ecology, and zoology.

what is immigration biology: *Conceptual Ecology and Invasion Biology: Reciprocal Approaches to Nature* Marc W. Cadotte, Sean M. McMahon, Tadashi Fukami, 2006-07-19 In this edited volume, global experts in ecology and evolutionary biology explore how theories in ecology elucidate the processes of invasion, while also examining how specific invasions inform ecological theory. This reciprocal benefit is highlighted in a number of scales of organization: population, community and biogeographic. The text describes example invaders in all major groups of organisms and from a number of regions around the globe.

what is immigration biology: Migration Hugh Dingle, 2014 Migration, broadly defined as directional movement to take advantage of spatially distributed resources, is a dramatic behaviour and an important component of many life histories that can contribute to the fundamental structuring of ecosystems. In recent years, our understanding of migration has advanced radically with respect to both new data and conceptual understanding. It is now almost twenty years since publication of the first edition, and an authoritative and up-to-date sequel that provides a taxonomically comprehensive overview of the latest research is therefore timely. The emphasis throughout this advanced textbook is on the definition and description of migratory behaviour, its ecological outcomes for individuals, populations, and communities, and how these outcomes lead to natural selection acting on the behaviour to cause its evolution. It takes a truly integrative approach, showing how comparisons across a diversity of organisms and biological disciplines can illuminate migratory life cycles, their evolution, and the relation of migration to other movements. *Migration: The Biology of Life on the Move* focuses on migration as a behavioural phenomenon with important ecological consequences for organisms as diverse as aphids, butterflies, birds and whales. It is suitable for senior undergraduate and graduate level students taking courses in behaviour, spatial ecology, 'movement ecology', and conservation. It will also be of interest and use to a broader audience of professional ecologists and behaviourists seeking an authoritative overview of this rapidly expanding field.

what is immigration biology: The Theory of Island Biogeography Robert H. MacArthur, Edward O. Wilson, 2001 Population theory.

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what is immigration biology: Chronobiology: the Biology of Time Juan Moises de la Serna, 2018-04-08 It would be great if we could govern ourselves, according to our own time, which displays the optimum rhythm for any performance; therefore, as we will see throughout the book, to follow it will provide health. Each of us is a unique being, so it would be convenient if we could learn to listen to our own organism's clock, in order to live in attunement with its functioning. Thereby, by adjusting to it, we will be able to perform any task with ability and calmness. To perform daily activities more quickly than this time, will only bring stress and diseases associated with it. Similarly, performing them slower than the optimum time will cause despair and boredom. This present book addresses a theme of great relevance for personal self-discovery and for social relations, as it will enable us to approach others under a new enriching perspective. It would be great if we could govern ourselves, according to our own time, which displays the optimum rhythm for any performance; therefore, as we will see throughout the book, to follow it will provide health. Each of us is a unique being, so it would be convenient if we could learn to listen to our own organism's clock, in order to live in attunement with its functioning. Thereby, by adjusting to it, we will be able to perform any task with ability and calmness. To perform daily activities more quickly than this time, will only bring stress and diseases associated with it. Similarly, performing them slower than the optimum time will cause despair and boredom. This present book addresses a theme of great relevance for personal self-discovery and for social relations, as it will enable us to approach others under a new enriching perspective.

what is immigration biology: *Vector Biology, Ecology and Control* Peter W. Atkinson, 2009-12-12 Mir S. Mulla joined the faculty of the Entomology Department at the University of California, Riverside in 1956, only two years after the Riverside campus was established as an independent campus within the University of California system. Prior to his appointment, Mir received his B.S. from Cornell University and then moved to the University of California, Berkeley to pursue his graduate studies. His Ph.D. from Berkeley, awarded in 1955, completed his formal American education which was the purpose of his immigration from his native Kandahar in Afghanistan. In his over 50 years at Riverside, Mir has made an incalculable impact on vector

biology both within the United States and in developing countries throughout the world. Within Southern California, Mir's basic and applied research led to the rapid and sustainable control of mosquitoes and eye gnats in the Coachella Valley and so directly enabled this region to grow to the thriving, large community it is today. In 2006 his efforts in facilitating the development of the low desert of southern California were recognized through the dedication of the Mir S. Mulla Biological Control Facility by the Coachella Valley Mosquito and Vector Control District. His success has been so profound that it remains somewhat cryptic to the many who now reside in, visit, and enjoy, this region of California, oblivious to the insect problems that severely restrained development until Mir and his students first applied their expertise many decades ago.

what is immigration biology: *Traveling Cultures and Plants* Andrea Pieroni, Ina Vandebroek, 2009-10 The tremendous increase in migrations and diasporas of human groups in the last decades are not only bringing along challenging issues for society, especially related to the economic and political management of multiculturalism and culturally effective health care, but they are also creating dramatic changes in traditional knowledge, beliefs and practices (KBP) related to (medicinal) plant use. The contributors to this volume – all internationally recognized scholars in the field of ethnobiology, transcultural pharmacy, and medical anthropology – analyze these dynamics of traditional knowledge in especially 12 selected case studies. Ina Vandebroek, features in Nova's Secret Life of Scientists, answering the question: just what is ethnobotany?

what is immigration biology: Biotic Borders Jeannie N. Shinozuka, 2022-04-20 This timely book reveals how the increase in traffic of transpacific plants, insects, and peoples raised fears of a biological yellow peril beginning in the late nineteenth century, when mass quantities of nursery stock and other agricultural products were shipped from large, corporate nurseries in Japan to meet the growing demand for exotics in the United States. Jeannie Shinozuka marshals extensive research to explain how the categories of native and invasive defined groups as bio-invasions that must be regulated-or somehow annihilated-during a period of American empire-building. Shinozuka shows how the modern fixation on foreign species provided a linguistic and conceptual arsenal for anti-immigration movements that gained ground in the early twentieth century. Xenophobia fed concerns about biodiversity, and in turn facilitated the implementation of plant quarantine measures while also valuing, and devaluing, certain species over others. The emergence and rise of economic entomology and plant pathology alongside public health and anti-immigration movements was not merely coincidental. Ultimately, what this book unearths is that the inhumane and unjust incarceration of Japanese Americans during World War II cannot, and should not, be disentangled from this longer history--

what is immigration biology: Invasion Biology Mark A. Davis, 2009-01-29 With the exception of climate change, biological invasions have probably received more attention during the past ten years than any other ecological topic. Yet this is the first synthetic, single-authored overview of the field since Williamson's 1996 book. Written fifty years after the publication of Elton's pioneering monograph on the subject, *Invasion Biology* provides a comprehensive and up-to-date review of the science of biological invasions while also offering new insights and perspectives relating to the processes of introduction, establishment, and spread. The book connects science with application by describing the health, economic, and ecological impacts of invasive species as well as the variety of management strategies developed to mitigate harmful impacts. The author critically evaluates the approaches, findings, and controversies that have characterized invasion biology in recent years, and suggests a variety of future research directions. Carefully balanced to avoid distinct taxonomic, ecosystem, and geographic (both investigator and species) biases, the book addresses a wide range of invasive species (including protists, invertebrates, vertebrates, fungi, and plants) which have been studied in marine, freshwater, and terrestrial environments throughout the world by investigators equally diverse in their origins. This accessible and thought-provoking text will be of particular interest to graduate level students and established researchers in the fields of invasion biology, community ecology, conservation biology, and restoration ecology. It will also be of value and use to land managers, policy makers, and other professionals charged with controlling the negative

impacts associated with recently arrived species.

what is immigration biology: The House of Bug Representatives and Bug Immigration Reform Heather Bankrupt, 2013-04-30 This story is a humorous look at immigration reform through bug lenses. Houseflies, crickets, cockroaches, and ants entered one Nevada home, and the homeowner wanted them to leave or be removed. She considered their entry illegal and their presence unlawful. The Bug House representatives overheard her threats and enacted immigration reform legislations. Have we done better or worse?

what is immigration biology: Developmental Biology and Larval Ecology Klaus Anger, Steffen Harzsch, Martin Thiel, 2020-06-17 This is the seventh volume of a ten-volume series on The Natural History of the Crustacea. Chapters in this volume synthesize our current understanding of early crustacean development from the egg through the embryonic and larval phase. The first part of this book focuses on the elemental aspects of crustacean embryonic development. The second part of the book provides an account of the larval phase of crustaceans and describes processes that influence the development from hatching to an adult-like juvenile. The third and final part of the book explores ecological interactions during the planktonic phase and how crustacean larvae manage to find food, navigate the dynamic water column, and avoid predators in a medium that offers few refuges.

what is immigration biology: The Flexible Phenotype Theunis Piersma, Jan A. van Gils, 2011 In essence, the authors argue for the existence of direct, measurable, links between phenotype and ecology.

what is immigration biology: The Next Great Migration Sonia Shah, 2020-06-11 'A dazzlingly original picture of our relentlessly mobile species' NAOMI KLEIN 'Fascinating . . . Likely to prove prophetic in the coming months and years' OBSERVER 'A dazzling tour through 300 years of scientific history' PROSPECT 'A hugely entertaining, life-affirming and hopeful hymn to the glorious adaptability of life on earth' SCOTSMAN _____ We are surrounded by stories of people on the move. Wild species, too, are escaping warming seas and desiccated lands in a mass exodus. Politicians and the media present this upheaval of migration patterns as unprecedented, blaming it for the spread of disease and conflict, and spreading anxiety across the world as a result. But the science and history of migration in animals, plants, and humans tell a different story. Far from being a disruptive behaviour, migration is an ancient and lifesaving response to environmental change, a biological imperative as necessary as breathing. Climate changes triggered the first human migrations out of Africa. Falling sea levels allowed our passage across the Bering Sea. Unhampered by borders, migration allowed our ancestors to people the planet, into the highest reaches of the Himalayan Mountains and the most remote islands of the Pacific, disseminating the biological, cultural and social diversity that ecosystems and societies depend upon. In other words, migration is not the crisis - it is the solution. _____ Tracking the history of misinformation from the 18th century through to today's anti-immigration policies, The Next Great Migration makes the case for a future in which migration is not a source of fear, but of hope.

what is immigration biology: Marine Biology Philip V. Mladenov, 2020 Philip Mladenov provides a comprehensive overview of marine biology, providing a tour of marine life and marine processes that ranges from the polar oceans to tropical coral reefs; and from the intertidal to the hydrothermal vents of the deep sea.

what is immigration biology: Gender and International Migration Katharine M. Donato, Donna Gabaccia, 2015-03-30 In 2006, the United Nations reported on the "feminization" of migration, noting that the number of female migrants had doubled over the last five decades. Likewise, global awareness of issues like human trafficking and the exploitation of immigrant domestic workers has increased attention to the gender makeup of migrants. But are women really more likely to migrate today than they were in earlier times? In Gender and International Migration, sociologist and demographer Katharine Donato and historian Donna Gabaccia evaluate the historical evidence to show that women have been a significant part of migration flows for centuries. The first scholarly analysis of gender and migration over the centuries, Gender and International Migration

demonstrates that variation in the gender composition of migration reflect not only the movements of women relative to men, but larger shifts in immigration policies and gender relations in the changing global economy. While most research has focused on women migrants after 1960, Donato and Gabaccia begin their analysis with the fifteenth century, when European colonization and the transatlantic slave trade led to large-scale forced migration, including the transport of prisoners and indentured servants to the Americas and Australia from Africa and Europe. Contrary to the popular conception that most of these migrants were male, the authors show that a significant portion were women. The gender composition of migrants was driven by regional labor markets and local beliefs of the sending countries. For example, while coastal ports of western Africa traded mostly male slaves to Europeans, most slaves exiting east Africa for the Middle East were women due to this region's demand for female reproductive labor. Donato and Gabaccia show how the changing immigration policies of receiving countries affect the gender composition of global migration. Nineteenth-century immigration restrictions based on race, such as the Chinese Exclusion Act in the United States, limited male labor migration. But as these policies were replaced by regulated migration based on categories such as employment and marriage, the balance of men and women became more equal – both in large immigrant-receiving nations such as the United States, Canada, and Israel, and in nations with small immigrant populations such as South Africa, the Philippines, and Argentina. The gender composition of today's migrants reflects a much stronger demand for female labor than in the past. The authors conclude that gender imbalance in migration is most likely to occur when coercive systems of labor recruitment exist, whether in the slave trade of the early modern era or in recent guest-worker programs. Using methods and insights from history, gender studies, demography, and other social sciences, *Gender and International Migration* shows that feminization is better characterized as a gradual and ongoing shift toward gender balance in migrant populations worldwide. This groundbreaking demographic and historical analysis provides an important foundation for future migration research.

what is immigration biology: Tracking Animal Migration with Stable Isotopes , 2008-04-09 *Tracking Animal Migration with Stable Isotopes* provides a consolidated overview of the current knowledge of stable isotopes in terrestrial migration research questions. It offers ecologists and conservation biologists provide a practical handbook for those considering using stable isotopes in their migration research. - Presents information for readers to understand how to apply isotopic methods for tracking - Critical information on areas for future research - Practical guidelines and discussions of sample collection, sample preparation, and data analysis - Enhanced understanding of data and statistical analysis in isotope-based studies of migratory animals

what is immigration biology: Metapopulation Biology Ilkka Hanski, Michael E. Gilpin, 1997 This volume presents a review of metapopulation biology. It describes key theories of study and applies the best field studies to the conservation of species in fragmented landscapes. The work explains and critically assess the value of the metapopulation concept for field studies and conservation.

what is immigration biology: The Triumph of Evolution Hamilton Cravens, 2017-11-15 Hamilton Cravens challenges widespread belief to argue that the impact of evolutionary ideas on American culture and science has been greater since the collapse of Social Darwinism. he portrays a new generation of American scientists whose pioneering work led to the bitterly debated heredity-environment controversy in the 1920s and then, in the '30s, to a synthetic theory of the way heredity and environment together have shaped human nature and culture. The resolution of this issue seemed to hold an exhilarating promise. If scientists could explain—and even predict—human behavior, they might help restore social control and stability in an age of domestic ferment and international turmoil. *The Triumph of Evolution* is the first scholarly history of one of the most significant scientific controversies of the twentieth century.

what is immigration biology: Biology and Evolution of Crocodylians Gordon Grigg, 2015-01-15 *Biology and Evolution of Crocodylians* is a comprehensive review of current knowledge about the world's largest and most famous living reptiles. Gordon Grigg's authoritative and

accessible text and David Kirshner's stunning interpretive artwork and colour photographs combine expertly in this contemporary celebration of crocodiles, alligators, caimans and gharials. This book showcases the skills and capabilities that allow crocodylians to live how and where they do. It covers the biology and ecology of the extant species, conservation issues, crocodylian-human interaction and the evolutionary history of the group, and includes a vast amount of new information; 25 per cent of 1100 cited publications have appeared since 2007. Richly illustrated with more than 500 colour photographs and black and white illustrations, this book will be a benchmark reference work for crocodylian biologists, herpetologists and vertebrate biologists for years to come.

what is immigration biology: *Scaling in Biology* James H. Brown, Geoffrey B. West, 2000
Scaling relationships have been a persistent theme in biology at least since the time of Leonardo da Vinci and Galileo. While there have been many excellent empirical and theoretical investigations, there has been little attempt to synthesize this diverse but interrelated area of biology. In an effort to fill this void, *Scaling in Biology*, the first general treatment of scaling in biology in over 15 years, covers a broad spectrum of the most relevant topics in a series of chapters written by experts in the field. Some of those topics discussed include allometry and fractal structure, branching of vascular systems of mammals and plants, biomechanical and life history of plants, invertebrates and vertebrates, and species-area patterns of biological diversity.

what is immigration biology: *International Handbook on the Economics of Migration* Amelie F. Constant, Klaus F. Zimmermann, 2013-09-30
This is an extremely impressive volume which guides readers into thinking about migration in new ways. In its various chapters, international experts examine contemporary migration issues through a multitude of lenses ranging from child labor, human t

what is immigration biology: *Biology and Conservation of Musteloids* David Whyte Macdonald, Chris Newman, Lauren A. Harrington, 2017
The musteloids are the most diverse super-family among carnivores, ranging from little known, exotic, and highly-endangered species to the popular and familiar, and include a large number of introduced invasives. They feature terrestrial, fossorial, arboreal, and aquatic members, ranging from tenacious predators to frugivorous omnivores, span weights from a 100g weasel to 30kg giant otters, and express a range of social behaviours from the highly gregarious to the fiercely solitary. Musteloids are the subjects of extensive cutting-edge research from phylogenetics to the evolution of sociality and through to the practical implications of disease epidemiology, introduced species management, and climate change. Their diversity and extensive biogeography inform a wide spectrum of ecological theory and conservation practice. The editors of this book have used their combined 90 years of experience working on the behaviour and ecology of wild musteloids to draw together a unique network of the world's most successful and knowledgeable experts. The book begins with nine review chapters covering hot topics in musteloid biology including evolution, disease, social communication, and management. These are followed by twenty extensive case studies providing a range of comprehensive geographic and taxonomic coverage. The final chapter synthesises what has been discussed in the book, and reflects on the different and diverse conservation needs of musteloids and the wealth of conservation lessons they offer. *Biology and Conservation of Musteloids* provides a conceptual framework for future research and applied conservation management that is suitable for graduate level students as well as professional researchers in musteloid and carnivore ecology and conservation biology. It will also be of relevance and use to conservationists and wildlife managers.

what is immigration biology: *Migration and Colonization in Human Microevolution* Alan G. Fix, 1999-09-09
An integrative approach linking the causes of migration to genetic consequences for human evolution.

what is immigration biology: *Sociobiology, Sex, and Science* Harmon R. Holcomb, 1993-01-01
This book examines sociobiology's validity and significance, using the sociobiological theory of the evolution of mating and parenting as an example. It identifies and discusses the array of factors that determine sociobiology's effort to become a science, providing a rare, balanced account--more critical than that of its advocates and more constructive than that of its critics. It sees a role for

sociobiology in changing the way we understand the goals of evolutionary biology, the proper way to evaluate emerging sciences, and the deep structure of scientific theories. The book's premise is that evolutionary biology would not be complete if it did not explain evolutionarily significant social facts about nonhumans and humans. It proposes that explanations should be evaluated in terms of their basis in underlying theories, research programs, and conceptual frameworks.

what is immigration biology: *Modelling Biological Populations in Space and Time* Eric Renshaw, 1993-08-26 This volume develops a unifying approach to population studies, emphasising the interplay between modelling and experimentation. Throughout, mathematicians and biologists are provided with a framework within which population dynamics can be fully explored and understood. Aspects of population dynamics covered include birth-death and logistic processes, competition and predator-prey relationships, chaos, reaction time-delays, fluctuating environments, spatial systems, velocities of spread, epidemics, and spatial branching structures. Both deterministic and stochastic models are considered. Whilst the more theoretically orientated sections will appeal to mathematical biologists, the material is presented so that readers with little mathematical expertise can bypass these without losing the main flow of the text.

what is immigration biology: *Insect Migration* V. Alistair Drake, A. Gavin Gatehouse, 1995-09-14 A comprehensive account of insect migration in its ecological and evolutionary context.

what is immigration biology: **Communities in Action** National Academies of Sciences, Engineering, and Medicine, Health and Medicine Division, Board on Population Health and Public Health Practice, Committee on Community-Based Solutions to Promote Health Equity in the United States, 2017-04-27 In the United States, some populations suffer from far greater disparities in health than others. Those disparities are caused not only by fundamental differences in health status across segments of the population, but also because of inequities in factors that impact health status, so-called determinants of health. Only part of an individual's health status depends on his or her behavior and choice; community-wide problems like poverty, unemployment, poor education, inadequate housing, poor public transportation, interpersonal violence, and decaying neighborhoods also contribute to health inequities, as well as the historic and ongoing interplay of structures, policies, and norms that shape lives. When these factors are not optimal in a community, it does not mean they are intractable: such inequities can be mitigated by social policies that can shape health in powerful ways. *Communities in Action: Pathways to Health Equity* seeks to delineate the causes of and the solutions to health inequities in the United States. This report focuses on what communities can do to promote health equity, what actions are needed by the many and varied stakeholders that are part of communities or support them, as well as the root causes and structural barriers that need to be overcome.

what is immigration biology: **Immigration from Countries of the Western Hemisphere** United States. Congress. House. Committee on Immigration and Naturalization, 1928

what is immigration biology: **Beyond Smoke and Mirrors** Douglas S. Massey, Jorge Durand, Nolan J. Malone, 2002-03-14 Migration between Mexico and the United States is part of a historical process of increasing North American integration. This process acquired new momentum with the passage of the North American Free Trade Agreement in 1994, which lowered barriers to the movement of goods, capital, services, and information. But rather than include labor in this new regime, the United States continues to resist the integration of the labor markets of the two countries. Instead of easing restrictions on Mexican labor, the United States has militarized its border and adopted restrictive new policies of immigrant disenfranchisement. *Beyond Smoke and Mirrors* examines the devastating impact of these immigration policies on the social and economic fabric of the Mexico and the United States, and calls for a sweeping reform of the current system. *Beyond Smoke and Mirrors* shows how U.S. immigration policies enacted between 1986-1996—largely for symbolic domestic political purposes—harm the interests of Mexico, the United States, and the people who migrate between them. The costs have been high. The book documents how the massive expansion of border enforcement has wasted billions of dollars and hundreds of lives, yet has not deterred increasing numbers of undocumented immigrants from

heading north. The authors also show how the new policies unleashed a host of unintended consequences: a shift away from seasonal, circular migration toward permanent settlement; the creation of a black market for Mexican labor; the transformation of Mexican immigration from a regional phenomenon into a broad social movement touching every region of the country; and even the lowering of wages for legal U.S. residents. What had been a relatively open and benign labor process before 1986 was transformed into an exploitative underground system of labor coercion, one that lowered wages and working conditions of undocumented migrants, legal immigrants, and American citizens alike. Beyond Smoke and Mirrors offers specific proposals for repairing the damage. Rather than denying the reality of labor migration, the authors recommend regularizing it and working to manage it so as to promote economic development in Mexico, minimize costs and disruptions for the United States, and maximize benefits for all concerned. This book provides an essential user's manual for readers seeking a historical, theoretical, and substantive understanding of how U.S. policy on Mexican immigration evolved to its current dysfunctional state, as well as how it might be fixed.

what is immigration biology: Conservation Biology in Sub-Saharan Africa Richard Primack, Johnny W. Wilson, 2019-09-10 Conservation Biology in Sub-Saharan Africa comprehensively explores the challenges and potential solutions to key conservation issues in Sub-Saharan Africa. Easy to read, this lucid and accessible textbook includes fifteen chapters that cover a full range of conservation topics, including threats to biodiversity, environmental laws, and protected areas management, as well as related topics such as sustainability, poverty, and human-wildlife conflict. This rich resource also includes a background discussion of what conservation biology is, a wide range of theoretical approaches to the subject, and concrete examples of conservation practice in specific African contexts. Strategies are outlined to protect biodiversity whilst promoting economic development in the region. Boxes covering specific themes written by scientists who live and work throughout the region are included in each chapter, together with recommended readings and suggested discussion topics. Each chapter also includes an extensive bibliography. Conservation Biology in Sub-Saharan Africa provides the most up-to-date study in the field. It is an essential resource, available on-line without charge, for undergraduate and graduate students, as well as a handy guide for professionals working to stop the rapid loss of biodiversity in Sub-Saharan Africa and elsewhere.

what is immigration biology: Promises and Limits of Reductionism in the Biomedical Sciences Marc H. V. Van Regenmortel, David L. Hull, 2002-08-02 - Anthologie mit Beiträgen aus dem Grenzgebiet zwischen Naturwissenschaft und Philosophie - diskutiert werden folgende Bereiche: - Reduktionismus im Rahmen der traditionellen Philosophie (Hull, Rosenberg, Griesemer und Sarkar) - Vor- und Nachteile des Reduktionismus in bestimmten Gebieten der Naturwissenschaften (Williams, Debru, Morange, Van Reganmortal) - Reduktionismus in der medizinischen Praxis (Lloyd, Tauber, Schaffner)

what is immigration biology: Bird Migration Peter Berthold, 2001 Ten years have passed since the first edition of this book. During that time the field of bird migration has experienced many advances which are reflected in this second edition. No other book exists to bring together the vast amount of information currently available on the subject of bird migration. Includes discussion of evolution and history of bird migration, physiology, orientation mechanisms and threats to migrations and is accessible to experts as well as amateurs.

what is immigration biology: Like an Animal: Critical Animal Studies Approaches to Borders, Displacement, and Othering , 2021-06-17 Like an Animal features a number of relevant critical animal studies scholars providing theoretical and empirical accounts on the intersection of border politics, displacement and nonhuman animals.

what is immigration biology: In the Name of Eugenics Daniel J. Kevles, 1995 Daniel Kevles traces the study and practice of eugenics--the science of improving the human species by exploiting theories of heredity--from its inception in the late nineteenth century to its most recent manifestation within the field of genetic engineering. It is rich in narrative, anecdote, attention to

human detail, and stories of competition among scientists who have dominated the field.

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