

immigration definition biology

immigration definition biology is a foundational concept in the study of populations and ecosystems. In biology, immigration refers to the movement of organisms into a new area or habitat from elsewhere, increasing the population size of the receiving community. Understanding immigration is essential for grasping population dynamics, genetic diversity, and species distribution. This article explores the comprehensive definition of immigration in biological contexts, its distinction from related terms, the mechanisms driving it, and its ecological and genetic impacts. Readers will also learn about real-world examples of immigration in biology, how it is measured, and why it is a critical process for maintaining healthy ecosystems. By the end, you will have a clear understanding of immigration's definition in biology, its significance, and its application in various biological fields.

- Understanding Immigration Definition in Biology
- Immigration vs. Related Biological Concepts
- Mechanisms and Drivers of Immigration
- Ecological Impacts of Immigration
- Genetic Consequences of Immigration
- Examples of Immigration in Biological Systems
- How Scientists Measure Immigration
- Importance of Immigration in Conservation Biology

Understanding Immigration Definition in Biology

In biology, immigration is defined as the arrival of new individuals into a population or community from an external source. Unlike human migration, which is often driven by social or economic factors, immigration in biology is primarily influenced by environmental, ecological, and evolutionary processes. Immigration increases the number of individuals in a population, which can impact resource availability, competition, and species interactions. This movement can occur at various scales, from the dispersal of seeds to the arrival of animal species into new habitats. Immigration is a key parameter in population ecology, helping scientists understand how populations grow, decline, or stabilize over time.

Immigration vs. Related Biological Concepts

Immigration and Emigration

While immigration refers to the influx of individuals into a population, emigration is the opposite process—the departure of individuals from a population to another area. Both processes together constitute migration in biological terms, but immigration specifically increases local population size, while emigration decreases it. Understanding the balance between immigration and emigration is crucial for studying population dynamics.

Immigration vs. Colonization and Dispersal

Colonization involves the establishment of a population in a new habitat, often following immigration. Dispersal is the physical movement of individuals away from their origin or from high-density areas. While dispersal can lead to immigration, not all dispersal events result in successful immigration if the individuals fail to establish or reproduce in the new location. Distinguishing these concepts helps clarify the specific role of immigration within broader ecological processes.

Immigration and Gene Flow

Gene flow is the transfer of genetic material between populations, often facilitated by immigration. When individuals immigrate and successfully breed, they introduce new genes into the population, enhancing genetic diversity. This process is vital for adapting to environmental changes and reducing the risk of inbreeding depression.

Mechanisms and Drivers of Immigration

Natural Mechanisms of Immigration

Immigration in biology can occur through various natural mechanisms. These include active movement, such as animals walking, flying, or swimming to new habitats, and passive movement, like seeds carried by wind or water. Some species, like migratory birds, have evolved behaviors specifically for seasonal immigration to exploit different resources throughout the year.

Environmental and Biological Drivers

Several factors drive immigration in biological populations, including:

- **Resource Availability:** Organisms may immigrate to areas with more abundant food, water, or shelter.
- **Habitat Disturbance:** Natural disasters or human activities can force organisms to move and establish in new areas.
- **Population Density:** High density can lead to competition, prompting individuals to immigrate elsewhere.
- **Climate Change:** Shifting temperatures and weather patterns can create new suitable habitats, encouraging immigration.

Ecological Impacts of Immigration

Population Growth and Stability

Immigration directly affects population size and growth rates. When new individuals arrive, they contribute to birth rates and can offset losses from mortality or emigration. In small or declining populations, immigration can prevent extinction by replenishing numbers and boosting reproductive success.

Community Structure and Biodiversity

The arrival of new species or individuals can alter community composition, increase species richness, and enhance biodiversity. Immigration may also introduce competition, predation, or mutualistic interactions, reshaping ecological relationships within the community.

Invasive Species and Ecosystem Disruption

Sometimes, immigration leads to the establishment of invasive species, which can outcompete native organisms and disrupt ecosystem functioning. Understanding the ecological impacts of immigration helps in managing invasive species and preserving native biodiversity.

Genetic Consequences of Immigration

Genetic Diversity Enhancement

Immigration brings new genetic material into a population, increasing genetic diversity. High genetic diversity is essential for populations to adapt to changing environments, resist diseases, and avoid the negative effects of inbreeding.

Genetic Rescue and Population Viability

In small or isolated populations, immigration can act as a genetic rescue mechanism. Introducing new genes helps restore genetic health, reduce inbreeding depression, and increase the population's long-term survival prospects.

Examples of Immigration in Biological Systems

Animal Immigration Examples

Many animal species exhibit immigration as part of their life cycle or in response to environmental changes. For instance, monarch butterflies immigrate to new breeding grounds annually, while fish may immigrate upstream to spawn.

Plant Immigration Examples

Plants can also immigrate when their seeds or spores are dispersed to new areas by wind, water, or animals. Pioneer species in disturbed habitats often owe their rapid colonization to effective immigration mechanisms.

Microbial Immigration

Microbes, including bacteria and fungi, often immigrate into new environments via air, water, or animal vectors. This process plays a critical role in ecosystem functions such as decomposition and nutrient cycling.

How Scientists Measure Immigration

Direct Observation and Mark-Recapture

Scientists use techniques such as direct observation, tagging, and mark-recapture

methods to estimate immigration rates. By tracking individuals as they enter a population, researchers can quantify immigration's contribution to population growth.

Genetic and Molecular Methods

Advanced genetic tools allow scientists to detect gene flow and recent immigration events by analyzing genetic markers. These methods provide insights into the origins of immigrants and their impact on genetic diversity.

Modeling and Statistical Approaches

Mathematical models and statistical analyses help estimate immigration rates based on population trends, reproductive success, and demographic data. These approaches are essential for understanding large-scale or long-term immigration patterns.

Importance of Immigration in Conservation Biology

Maintaining Healthy Populations

Immigration is vital for maintaining healthy, resilient populations in fragmented or changing landscapes. Conservation strategies often focus on enhancing habitat connectivity to facilitate natural immigration.

Preventing Extinction and Supporting Recovery

For endangered species, managed immigration can improve survival rates and support population recovery efforts. Introducing individuals from other populations boosts genetic diversity and reduces the risk of local extinctions.

Managing Invasive Species

Understanding immigration helps in managing the risks posed by invasive species. By monitoring immigration pathways, conservationists can develop strategies to prevent the establishment and spread of harmful organisms.

Key Benefits of Immigration in Biology

- Increases genetic diversity and adaptive potential
- Stabilizes population sizes and prevents local extinctions
- Enhances ecosystem resilience and biodiversity
- Supports conservation and restoration initiatives

Trending Questions and Answers about Immigration Definition Biology

Q: What is the definition of immigration in biology?

A: In biology, immigration refers to the movement of individuals into a population or community from an external source, leading to an increase in the local population size.

Q: How does immigration differ from emigration in biological terms?

A: Immigration is the arrival of individuals into a population, while emigration is the departure of individuals from a population to another area. Together, these processes contribute to overall migration.

Q: Why is immigration important in population ecology?

A: Immigration is crucial because it increases population size, enhances genetic diversity, and helps maintain stable and resilient populations, especially in changing environments.

Q: Can immigration lead to the introduction of invasive species?

A: Yes, immigration can sometimes result in the arrival and establishment of invasive species, which may disrupt native ecosystems and outcompete resident species.

Q: How do scientists measure immigration in biological

populations?

A: Scientists use direct observation, mark-recapture techniques, genetic analyses, and statistical modeling to estimate immigration rates and its effects on populations.

Q: What role does immigration play in genetic diversity?

A: Immigration introduces new genetic material into a population, increasing genetic diversity, which is essential for adaptation and long-term survival.

Q: Give an example of immigration in the animal kingdom.

A: Monarch butterflies immigrate annually to breeding grounds in North America, illustrating how species move and establish in new habitats.

Q: How does immigration affect ecosystem stability?

A: Immigration can enhance ecosystem stability by increasing species richness, contributing to biodiversity, and supporting complex ecological interactions.

Q: Is immigration relevant to conservation biology?

A: Yes, immigration is highly relevant to conservation biology as it helps maintain healthy populations, supports genetic rescue, and informs strategies to manage endangered or invasive species.

Q: What are the main drivers of immigration in biology?

A: Key drivers include resource availability, habitat disturbance, population density, and environmental changes such as climate shifts.

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Immigration Definition Biology: A Comprehensive Guide

Are you curious about the intricate world of population dynamics in biological systems?

Understanding the movement of organisms is crucial to grasping ecological processes, and a key concept in this field is immigration. This blog post dives deep into the immigration definition biology, explaining its significance in different ecosystems and offering practical examples. We'll explore its role in shaping biodiversity, community structure, and even conservation efforts. Prepare to expand your understanding of this fundamental biological process.

What is Immigration in Biology?

In its simplest form, immigration definition biology refers to the one-way movement of individuals into a population. This movement is permanent, meaning the immigrating organisms are establishing themselves within the new population and its territory. It's a crucial component of population ecology, alongside other factors like birth rate, death rate, and emigration (the movement of individuals out of a population). Unlike migration, which often implies a cyclical or seasonal movement, immigration is typically a unidirectional process resulting in a net increase in population size.

Distinguishing Immigration from Other Population Dynamics

It's essential to distinguish immigration from similar concepts:

Emigration: The opposite of immigration; the departure of individuals from a population.

Migration: The movement of organisms between areas, often seasonal or cyclical, not necessarily permanent.

Dispersal: The movement of individuals away from their birth site to establish new territories. While dispersal can lead to immigration, it encompasses a broader range of movements.

Factors Influencing Immigration

Several factors influence the rate and scale of immigration in biological populations:

Environmental Factors:

Habitat Suitability: The availability of resources (food, water, shelter) is a primary driver. Organisms are more likely to immigrate to areas that offer better living conditions.

Climate: Temperature, rainfall, and other climatic conditions can significantly impact the suitability of a habitat and thus, immigration rates.

Presence of Predators and Competitors: The risk of predation or competition for resources can deter immigration.

Biological Factors:

Reproductive Strategies: Species with high reproductive rates may exhibit higher immigration rates, as a larger number of offspring increases the likelihood of successful colonization of new areas.

Dispersal Mechanisms: The ability of an organism to travel (e.g., flight, swimming, seed dispersal) directly affects its potential for immigration.

Genetic Diversity: Immigration can introduce new genetic variation into a population, potentially increasing its adaptability and resilience.

The Impact of Immigration on Ecosystems

The consequences of immigration can be profound and far-reaching:

Increased Biodiversity:

Immigration can introduce new species into an ecosystem, increasing its biodiversity and potentially creating more complex food webs.

Changes in Community Structure:

Immigrant species can compete with native species for resources, leading to changes in the relative abundance of different species within a community. This can also lead to niche partitioning or even the displacement of native species.

Enhanced Ecosystem Resilience:

A diverse community, partly due to immigration, is often more resilient to environmental disturbances like disease outbreaks or climate change. A wider range of species increases the likelihood that some will survive and recover.

Measuring Immigration Rates

Quantifying immigration rates in the field can be challenging. Researchers employ various methods, including:

Mark-Recapture Studies: Marking and recapturing individuals allow researchers to estimate population size and track movement patterns.

Genetic Analysis: Analyzing genetic markers can help identify the origin of individuals and determine immigration rates.

Monitoring Population Changes: Tracking population size over time and considering birth, death, and emigration rates can help infer immigration rates.

Conservation Implications

Understanding immigration is crucial for conservation efforts. Facilitating immigration through habitat restoration or assisted migration can help populations recover from declines or adapt to changing environmental conditions. Conversely, preventing the immigration of invasive species is also a critical aspect of conservation.

Conclusion

Immigration is a fundamental biological process with significant ecological implications. By understanding the factors influencing immigration and its effects on ecosystems, we can better manage and conserve biodiversity. This knowledge is crucial for addressing challenges posed by climate change, habitat loss, and the spread of invasive species. A deeper understanding of immigration allows for more effective strategies in conservation biology and ecological management.

FAQs

1. Can immigration be negative for an ecosystem? Yes, the introduction of invasive species through immigration can severely disrupt native ecosystems, leading to biodiversity loss.
2. How is immigration different from gene flow? While related, immigration focuses on the movement of individuals, while gene flow refers to the movement of genes between populations, which can occur through immigration but also other mechanisms.
3. How do researchers track immigration in sessile organisms (those that don't move easily)? For sessile organisms, researchers often rely on genetic analysis to determine the origin of individuals and infer immigration patterns.

4. What role does immigration play in the evolution of populations? Immigration introduces new genetic variation into recipient populations, providing the raw material for natural selection and contributing to evolutionary change.

5. Can human activities influence immigration rates? Absolutely. Habitat destruction, climate change, and the introduction of non-native species all significantly affect immigration rates, often negatively impacting native biodiversity.

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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.

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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.

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educational improvement). Whatever the cause of the relocation, the outcome requires individuals to adjust to their new surroundings and cope with the stresses involved, and as a result, there is considerable potential for disruption to mental health. This volume explores all aspects of migration, on all scales, and its effect on mental health. It covers migration in the widest sense and does not limit itself to refugee studies. It covers issues specific to the elderly and the young, as well as providing practical tips for clinicians on how to improve their own cultural competence in the work setting. The book will be of interest to all mental health professionals and those involved in establishing health and social policy.

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survey data, Lee and Zhou bridge sociology and social psychology to explain how immigration laws, institutions, and culture interact to foster high achievement among certain Asian American groups. For the Chinese and Vietnamese in Los Angeles, Lee and Zhou find that the educational attainment of the second generation is strikingly similar, despite the vastly different socioeconomic profiles of their immigrant parents. Because immigration policies after 1965 favor individuals with higher levels of education and professional skills, many Asian immigrants are highly educated when they arrive in the United States. They bring a specific “success frame,” which is strictly defined as earning a degree from an elite university and working in a high-status field. This success frame is reinforced in many local Asian communities, which make resources such as college preparation courses and tutoring available to group members, including their low-income members. While the success frame accounts for part of Asian Americans’ high rates of achievement, Lee and Zhou also find that institutions, such as public schools, are crucial in supporting the cycle of Asian American achievement. Teachers and guidance counselors, for example, who presume that Asian American students are smart, disciplined, and studious, provide them with extra help and steer them toward competitive academic programs. These institutional advantages, in turn, lead to better academic performance and outcomes among Asian American students. Yet the expectations of high achievement come with a cost: the notion of Asian American success creates an “achievement paradox” in which Asian Americans who do not fit the success frame feel like failures or racial outliers. While pundits ascribe Asian American success to the assumed superior traits intrinsic to Asian culture, Lee and Zhou show how historical, cultural, and institutional elements work together to confer advantages to specific populations. An insightful counter to notions of culture based on stereotypes, *The Asian American Achievement Paradox* offers a deft and nuanced understanding how and why certain immigrant groups succeed.

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outsiders—immigrants or would-be immigrants—requires regulating, monitoring, and sanctioning insiders, those citizens and residents who might otherwise hire, trade with, house, teach, or generally associate with outsiders. The more vigorously immigration control is pursued, the more seriously freedom is diminished. The search for control threatens freedom directly and weakens the values upon which it relies, notably equality and the rule of law. Kukathas demonstrates that the imagined gains from efforts to control immigration are illusory, for they do not promote economic prosperity or social solidarity. Nor does immigration control bring self-determination, since the apparatus of control is an international institutional regime that increases the power of states and their agencies at the expense of citizens. That power includes the authority to determine who is and is not an insider: to define identity itself. Looking at past and current practices across the world, *Immigration and Freedom* presents a critique of immigration control as an institutional reality, as well as an account of what freedom means—and why it matters.

immigration definition biology: Bioinformatics for Beginners Supratim Choudhuri, 2014-05-09 *Bioinformatics for Beginners: Genes, Genomes, Molecular Evolution, Databases and Analytical Tools* provides a coherent and friendly treatment of bioinformatics for any student or scientist within biology who has not routinely performed bioinformatic analysis. The book discusses the relevant principles needed to understand the theoretical underpinnings of bioinformatic analysis and demonstrates, with examples, targeted analysis using freely available web-based software and publicly available databases. Eschewing non-essential information, the work focuses on principles and hands-on analysis, also pointing to further study options. - Avoids non-essential coverage, yet fully describes the field for beginners - Explains the molecular basis of evolution to place bioinformatic analysis in biological context - Provides useful links to the vast resource of publicly available bioinformatic databases and analysis tools - Contains over 100 figures that aid in concept discovery and illustration

immigration definition biology: Immigrants and Boomers Dowell Myers, 2007-02-22 This story of hope for both immigrants and native-born Americans is a well-researched, insightful, and illuminating study that provides compelling evidence to support a policy of homegrown human investment as a new priority. A timely, valuable addition to demographic and immigration studies. Highly recommended. —Choice Virtually unnoticed in the contentious national debate over immigration is the significant demographic change about to occur as the first wave of the Baby Boom generation retires, slowly draining the workforce and straining the federal budget to the breaking point. In this forward-looking new book, noted demographer Dowell Myers proposes a new way of thinking about the influx of immigrants and the impending retirement of the Baby Boomers. Myers argues that each of these two powerful demographic shifts may hold the keys to resolving the problems presented by the other. *Immigrants and Boomers* looks to California as a bellwether state—where whites are no longer a majority of the population and represent just a third of residents under age twenty—to afford us a glimpse into the future impact of immigration on the rest of the nation. Myers opens with an examination of the roots of voter resistance to providing social services for immigrants. Drawing on detailed census data, Myers demonstrates that long-established immigrants have been far more successful than the public believes. Among the Latinos who make up the bulk of California's immigrant population, those who have lived in California for over a decade show high levels of social mobility and use of English, and 50 percent of Latino immigrants become homeowners after twenty years. The impressive progress made by immigrant families suggests they have the potential to pick up the slack from aging boomers over the next two decades. The mass retirement of the boomers will leave critical shortages in the educated workforce, while shrinking ranks of middle-class tax payers and driving up entitlement expenditures. In addition, as retirees sell off their housing assets, the prospect of a generational collapse in housing prices looms. Myers suggests that it is in the boomers' best interest to invest in the education and integration of immigrants and their children today in order to bolster the ranks of workers, taxpayers, and homeowners America they will depend on ten and twenty years from now. In this compelling, optimistic book, Myers calls for a new social contract between the older and younger generations,

based on their mutual interests and the moral responsibility of each generation to provide for children and the elderly. Combining a rich scholarly perspective with keen insight into contemporary political dilemmas, *Immigrants and Boomers* creates a new framework for understanding the demographic challenges facing America and forging a national consensus to address them.

immigration definition biology: *Inventing Latinos* Laura E. Gómez, 2022-09-06 Named one of the Best Books of the Year by NPR An NPR Best Book of the Year, exploring the impact of Latinos' new collective racial identity on the way Americans understand race, with a new afterword by the author Who are Latinos and where do they fit in America's racial order? In this "timely and important examination of Latinx identity" (Ms.), Laura E. Gómez, a leading critical race scholar, argues that it is only recently that Mexican Americans, Puerto Ricans, Cubans, Dominicans, Central Americans, and others are seeing themselves (and being seen by others) under the banner of a cohesive racial identity. And the catalyst for this emergent identity, she argues, has been the ferocity of anti-Latino racism. In what Booklist calls "an incisive study of history, complex interrogation of racial construction, and sophisticated legal argument," Gómez "packs a knockout punch" (Publishers Weekly), illuminating for readers the fascinating race-making, unmaking, and re-making processes that Latinos have undergone over time, indelibly changing the way race functions in this country. Building on the "insightful and well-researched" (Kirkus Reviews) material of the original, the paperback features a new afterword in which the author analyzes results of the 2020 Census, providing brilliant, timely insight about how Latinos have come to self-identify.

immigration definition biology: *Integrated Population Models* Michael Schaub, Marc Kéry, 2021-11-12 *Integrated Population Models: Theory and Ecological Applications with R and JAGS* is the first book on integrated population models, which constitute a powerful framework for combining multiple data sets from the population and the individual levels to estimate demographic parameters, and population size and trends. These models identify drivers of population dynamics and forecast the composition and trajectory of a population. Written by two population ecologists with expertise on integrated population modeling, this book provides a comprehensive synthesis of the relevant theory of integrated population models with an extensive overview of practical applications, using Bayesian methods by means of case studies. The book contains fully-documented, complete code for fitting all models in the free software, R and JAGS. It also includes all required code for pre- and post-model-fitting analysis. *Integrated Population Models* is an invaluable reference for researchers and practitioners involved in population analysis, and for graduate-level students in ecology, conservation biology, wildlife management, and related fields. The text is ideal for self-study and advanced graduate-level courses. - Offers practical and accessible ecological applications of IPMs (integrated population models) - Provides full documentation of analyzed code in the Bayesian framework - Written and structured for an easy approach to the subject, especially for non-statisticians

immigration definition 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.

immigration definition biology: Measuring Racial Discrimination National Research Council, Division of Behavioral and Social Sciences and Education, Committee on National Statistics, Panel on Methods for Assessing Discrimination, 2004-07-24 Many racial and ethnic groups in the United States, including blacks, Hispanics, Asians, American Indians, and others, have historically faced severe discrimination—pervasive and open denial of civil, social, political, educational, and economic opportunities. Today, large differences among racial and ethnic groups continue to exist in employment, income and wealth, housing, education, criminal justice, health, and other areas. While many factors may contribute to such differences, their size and extent suggest that various forms of discriminatory treatment persist in U.S. society and serve to undercut the achievement of equal opportunity. *Measuring Racial Discrimination* considers the definition of race and racial discrimination, reviews the existing techniques used to measure racial discrimination, and identifies new tools and areas for future research. The book conducts a thorough evaluation of current methodologies for a wide range of circumstances in which racial discrimination may occur, and makes recommendations on how to better assess the presence and effects of discrimination.

immigration definition biology: Birds of Two Worlds Russell Greenberg, Peter P. Marra, 2005-05-02 For centuries biologists have tried to understand the underpinnings of avian migration: where birds go and why, why some migrate and some do not, how they adapt to a changing environment, and how migratory systems evolve. Twenty-five years ago the answers to many of these questions were addressed by a collection of migration experts in Keast and Morton's classic work *Migrant Birds in the Neotropics*. In 1992, Hagan and Johnston published a follow-up book, *Ecology and Conservation of Neotropical Migrant Landbirds*. In *Birds of Two Worlds* Russell Greenberg and Peter Marra bring together the world's experts on avian migration to discuss its ecology and evolution. The contributors move the discussion of migration to a global stage, looking at all avian migration systems and delving deeper into the evolutionary foundations of migratory behavior. Readers interested in the biology, behavior, ecology, and evolution of birds have waited a decade to see a worthy successor to the earlier classics. *Birds of Two Worlds* will complete the trilogy and become indispensable for ornithologists, evolutionary biologists, serious birders, and public and academic libraries.

immigration definition biology: Lifestyle Migration Michaela Benson, 2016-05-06 Relatively affluent individuals from various corners of the globe are increasingly choosing to migrate, spurred on by the promise of a better and more fulfilling way of life within their destination. Despite its increasing scale, migration academics have yet to consolidate and establish lifestyle migration as a subfield of theoretical enquiry, until now. This volume offers a dynamic and holistic analysis of contemporary lifestyle migrations, exploring the expectations and aspirations which inform and drive migration alongside the realities of life within the destination. It also recognizes the structural conditions (and constraints) which frame lifestyle migration, laying the groundwork for further intellectual enquiry. Through rich empirical case studies this volume addresses this important and increasingly common form of migration in a manner that will interest scholars of mobility, migration, lifestyle and culture across the social sciences.

immigration definition 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 assesses the value of the metapopulation concept for field studies and conservation.

immigration definition biology: How to Be a (Young) Antiracist Ibram X. Kendi, Nic Stone, 2023-09-12 The #1 New York Times bestseller that sparked international dialogue is now a book for young adults! Based on the adult bestseller by Ibram X. Kendi, and co-authored by bestselling author Nic Stone, *How to be a (Young) Antiracist* will serve as a guide for teens seeking a way forward in acknowledging, identifying, and dismantling racism and injustice. The New York Times bestseller *How to be an Antiracist* by Ibram X. Kendi is shaping the way a generation thinks about race and

racism. How to be a (Young) Antiracist is a dynamic reframing of the concepts shared in the adult book, with young adulthood front and center. Aimed at readers 12 and up, and co-authored by award-winning children's book author Nic Stone, How to be a (Young) Antiracist empowers teen readers to help create a more just society. Antiracism is a journey--and now young adults will have a map to carve their own path. Kendi and Stone have revised this work to provide anecdotes and data that speaks directly to the experiences and concerns of younger readers, encouraging them to think critically and build a more equitable world in doing so.

immigration definition biology: Avian Migration Peter Berthold, Eberhard Gwinner, Edith Sonnenschein, 2013-03-09 P. Berthold and E. Gwinner Bird migration is an intriguing aspect of the living world - so much so that it has been investigated for as long, and as thoroughly, as almost any other natural phenomenon. Aristotle, who can count as the founder of scientific ornithology, paid very close attention to the migrations of the birds he observed, but it was not until the reign of Friedrich II, in the first half of the 13th century, that reliable data began to be obtained. From then on, the data base grew rapidly. Systematic studies of bird migration were introduced when the Vogelwarte Rossitten was founded, as the first ornithological biological observation station in the world (see first chapter In Memory of Vogelwarte Rossitten). This area later received enormous impetus when experimental research on the subject was begun: the large-scale bird-ringing experiment initiated in Rossitten in 1903 by Johannes Thienemann (who was inspired by the pioneering studies of C. C. M. Mortensen), the experiments on photoperiodicity carried out by William Rowan in the 1920s in Canada and retention and release experiments performed by Thienemann in the 1930s in Rossitten, the first experimental study on the orientation of migratory birds. After the Second World War, migration research, while continuing in the previous areas, also expanded into new directions such as radar ornithology, ecophysiology and hormonal control mechanisms, studies of evolution, genetics, telemetry and others.

immigration definition biology: Out of Eden: The Peopling of the World Stephen Oppenheimer, 2012-03-01 In a brilliant synthesis of genetic, archaeological, linguistic and climatic data, Oppenheimer challenges current thinking with his claim that there was only one successful migration out of Africa. In 1988 Newsweek headlined the startling discovery that everyone alive on the earth today can trace their maternal DNA back to one woman who lived in Africa 150,000 years ago. It was thought that modern humans populated the world through a series of migratory waves from their African homeland. Now an even more radical view has emerged, that the members of just one group are the ancestors of all non-Africans now alive, and that this group crossed the mouth of the Red Sea a mere 85,000 years ago. It means that not only is every person on the planet descended from one African 'Eve' but every non-African is related to a more recent Eve, from that original migratory group. This is a revolutionary new theory about our origins that is both scholarly and entertaining, a remarkable account of the kinship of all humans. Further details of the findings in this book are presented at www.bradshawfoundation.com/stephenoppenheimer/

immigration definition biology: *Migration, Environment and Climate Change* Frank Laczko, Christine Aghazarm, 2009 Gradual and sudden environmental changes are resulting in substantial human movement and displacement, and the scale of such flows, both internal and cross-border, is expected to rise with unprecedented impacts on lives and livelihoods. Despite the potential challenge, there has been a lack of strategic thinking about this policy area partly due to a lack of data and empirical research on this topic. Adequately planning for and managing environmentally induced migration will be critical for human security. The papers in this volume were first presented at the Research Workshop on Migration and the Environment: Developing a Global Research Agenda held in Munich, Germany in April 2008. One of the key objectives on the Munich workshop was to address the need for more sound empirical research and identify priority areas of research for policy makers in the field of migration and the environment.

immigration definition biology: Research Strategies in Human Biology Gabriel Ward Lasker, C. G. Nicholas Mascie-Taylor, 1993-11-04 This book is about the process of doing research, not about the results obtained. A number of researchers with experience working on problems

including environmental stresses, population genetics, parasitic vectors and vital records describe obstacles encountered and successful strategies employed in their own studies and in those of others. One learns to do research by trial and error, but accounts such as these can supplement what one learns from mentors and fellow students.

immigration definition biology: Evolution of Insect Migration and Diapause H. Dingle, 2012-12-06 This volume is an outgrowth of a Symposium entitled Evolution of Escape in Space and Time held at the XV International Congress of Entomology in Washington, D. C., USA in August, 1976. The choice of topic was prompted by recent advances in evolutionary ecology and the apparent suitability of insect migration and diapause as appropriate material for evolutionary studies. In the event, that choice seems amply justified as I hope a perusal of these papers will show. These Symposium papers hardly cover the topic of the evolution of escape mechanisms exhaustively, and I am sure everyone will have his favorite lacuna. Some of the more obvious ones are indicated by Professor Southwood in his Concluding Remarks at the end of the book. The purpose of the Symposium, however, was not complete coverage, but rather to indicate the potential inherent in insect migration and diapause for the study of evolutionary problems. In that I think we have succeeded reasonably well. These papers are expanded and in some cases somewhat altered versions of the papers delivered in Washington. This has allowed greater coverage of the topics in question. I suggested a format of a general overview of a topic emphasizing the author's own research contributions. In general the papers follow this outline although emphases vary. Two of the authors, Dr. Rainey and Dr. Lumme, were unable to attend the Symposium. Dr. Rainey's paper was read by Mr. Frank Walsh, but Dr.

immigration definition biology: Circannual Rhythms Eberhard Gwinner, 2012-12-06 In addition to the more or less static properties of the environment, plants and animals must cope with its temporal variations. Among the most conspicuous temporal changes to which organisms are exposed are periodic phenomena generated by the rotation of the earth about its axis, its revolution around the sun, and the more complex movements of the moon in relation to both sun and earth. The first two of these astronomical cycles are basic to the familiar daily and annual rhythms, respectively, in the environment. The third generates somewhat more complex cycles, such as those in moonlight and variations in tides. These environmental cycles have provided challenges and opportunities for organisms to adjust their physiology and behavior to them. Indeed, the predictability inherent to these periodic processes has enabled organisms to evolve innate endogenous rhythmic programs that match the environmental cycles and allow, in a variety of different ways, adjustment of biological activities to the cycles of environmental changes. The endogenous nature of rhythmicity was first clearly recognized in the 1930's in daily periodicities, the most widely distributed and best investigated class of biological rhythms of this type. In the 1950's, demonstrations of endogenous tidal and lunar rhythms, which occur in some littoral and marine organisms, ensued. Another decade passed before endogenous annual periodicities were first demonstrated unambiguously.

immigration definition biology: Brenner's Encyclopedia of Genetics Stanley Maloy, Kelly Hughes, 2013-03-03 The explosion of the field of genetics over the last decade, with the new technologies that have stimulated research, suggests that a new sort of reference work is needed to keep pace with such a fast-moving and interdisciplinary field. Brenner's Encyclopedia of Genetics, Second Edition, Seven Volume Set, builds on the foundation of the first edition by addressing many of the key subfields of genetics that were just in their infancy when the first edition was published. The currency and accessibility of this foundational content will be unrivalled, making this work useful for scientists and non-scientists alike. Featuring relatively short entries on genetics topics written by experts in that topic, Brenner's Encyclopedia of Genetics, Second Edition, Seven Volume Set provides an effective way to quickly learn about any aspect of genetics, from Abortive Transduction to Zygotes. Adding to its utility, the work provides short entries that briefly define key terms, and a guide to additional reading and relevant websites for further study. Many of the entries include figures to explain difficult concepts. Key terms in related areas such as biochemistry, cell,

and molecular biology are also included, and there are entries that describe historical figures in genetics, providing insights into their careers and discoveries. This 7-volume set represents a 25% expansion from the first edition, with over 1600 articles encompassing this burgeoning field. Thoroughly up-to-date, with many new topics and subfields covered that were in their infancy or not in existence at the time of the first edition. Timely coverage of emergent areas such as epigenetics, personalized genomic medicine, pharmacogenetics, and genetic enhancement technologies. Interdisciplinary and global in its outlook, as befits the field of genetics. Brief articles, written by experts in the field, which not only discuss, define, and explain key elements of the field, but also provide definition of key terms, suggestions for further reading, and biographical sketches of the key people in the history of genetics.

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