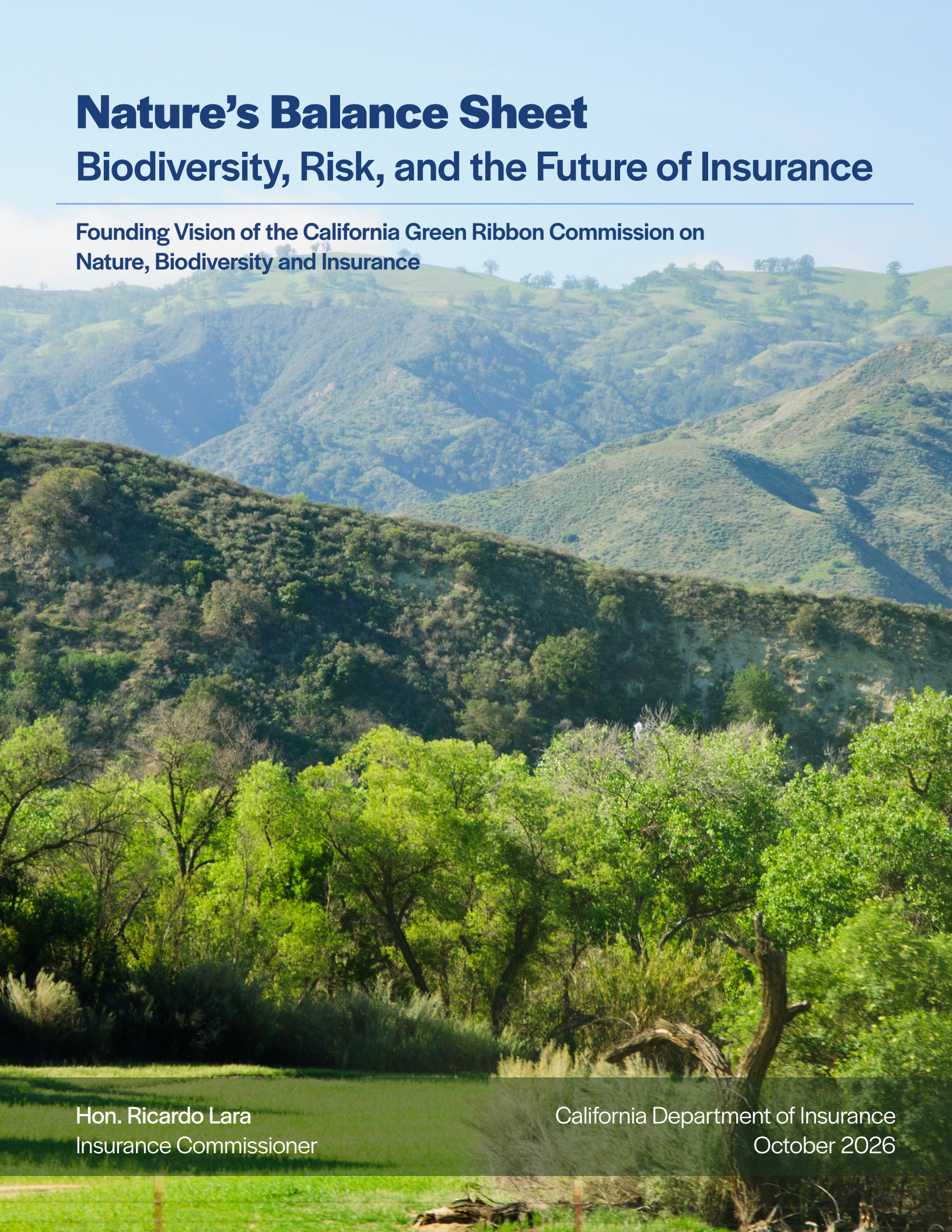




Nature's Balance Sheet

Biodiversity, Risk, and the Future of Insurance

Founding Vision of the California Green Ribbon Commission on
Nature, Biodiversity and Insurance

Hon. Ricardo Lara
Insurance Commissioner

California Department of Insurance
October 2026



"For generations, we treated nature and insurance as separate conversations. The reality is that they are becoming increasingly connected. Healthy forests, wetlands, watersheds, and ecosystems reduce losses, strengthen communities, and support economic stability.

The next frontier of insurance is better understanding the value that nature provides and the role biodiversity plays in reducing risk. California is launching this effort because the future of resilience, insurability, and economic security will increasingly depend on the health of the natural systems that protect us."

Ricardo Lara

California Insurance Commissioner

Executive Summary

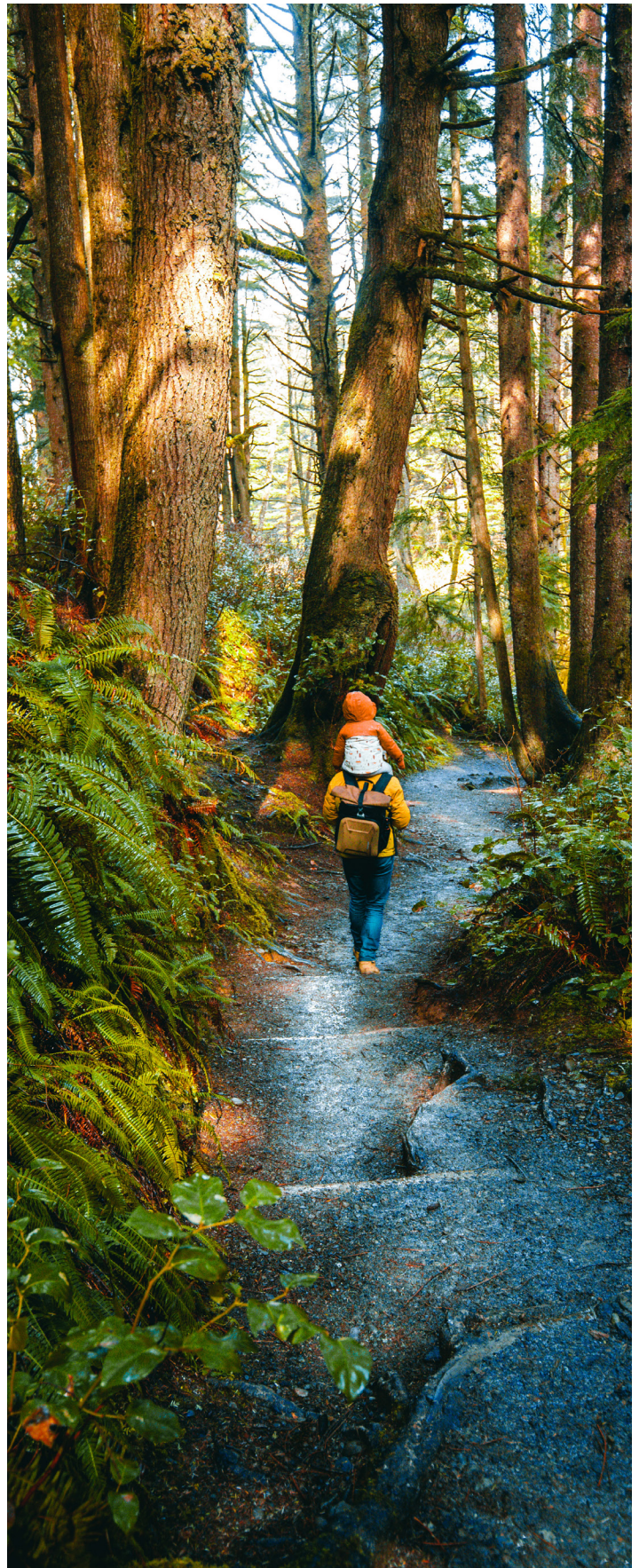
The twenty-first century is reshaping how societies understand risk. Climate change, biodiversity loss, ecosystem degradation, and increasingly severe natural disasters are creating new challenges for communities, economies, and insurance markets. As these pressures grow, they require new approaches to protecting people, strengthening resilience, and supporting long-term economic stability.

For generations, nature has been viewed primarily through the lens of conservation and environmental protection. While these objectives remain essential, growing scientific and economic evidence demonstrates that healthy ecosystems also help reduce risk. Forests can influence wildfire behavior. Wetlands can lessen flood impacts. Watersheds can strengthen water security. Healthy natural systems provide benefits that help communities prepare for, withstand, and recover from increasingly complex climate-related challenges.

As governments and institutions around the world seek new ways to strengthen resilience, a critical question is emerging: how should nature's protective value be reflected in risk management, economic planning, and insurance decision-making?

The California Green Ribbon Commission on Nature, Biodiversity and Insurance was established by California Insurance Commissioner Ricardo Lara to help answer that question.

Launched during the 2026 United Nations Biodiversity Conference (CBD COP17) in Yerevan, Armenia, the Commission positions California at the forefront of an emerging global conversation regarding the relationship between biodiversity, risk, resilience, and insurance. The Commission brings together leaders from Indigenous communities, science, conservation, academia, insurance, finance, and public policy to explore practical opportunities for integrating ecosystem health and biodiversity considerations into resilience planning, investment strategies, and risk management frameworks.



The Commission is founded on a simple but increasingly consequential observation:

Healthy ecosystems influence risk.

The condition of forests, wetlands, watersheds, coastlines, and other natural systems can affect the frequency, severity, and cost of disasters while shaping the resilience of communities and economies. Understanding these relationships will become increasingly important as policymakers, insurers, investors, and communities confront a future marked by growing climate uncertainty.

The Commission's work is organized around three strategic pathways:

Biodiversity, Risk, and Insurance Market Stability

Examining how ecosystem condition influences losses, insurance availability, and long-term market resilience.

Indigenous Stewardship, Ecological Knowledge, and Risk Reduction

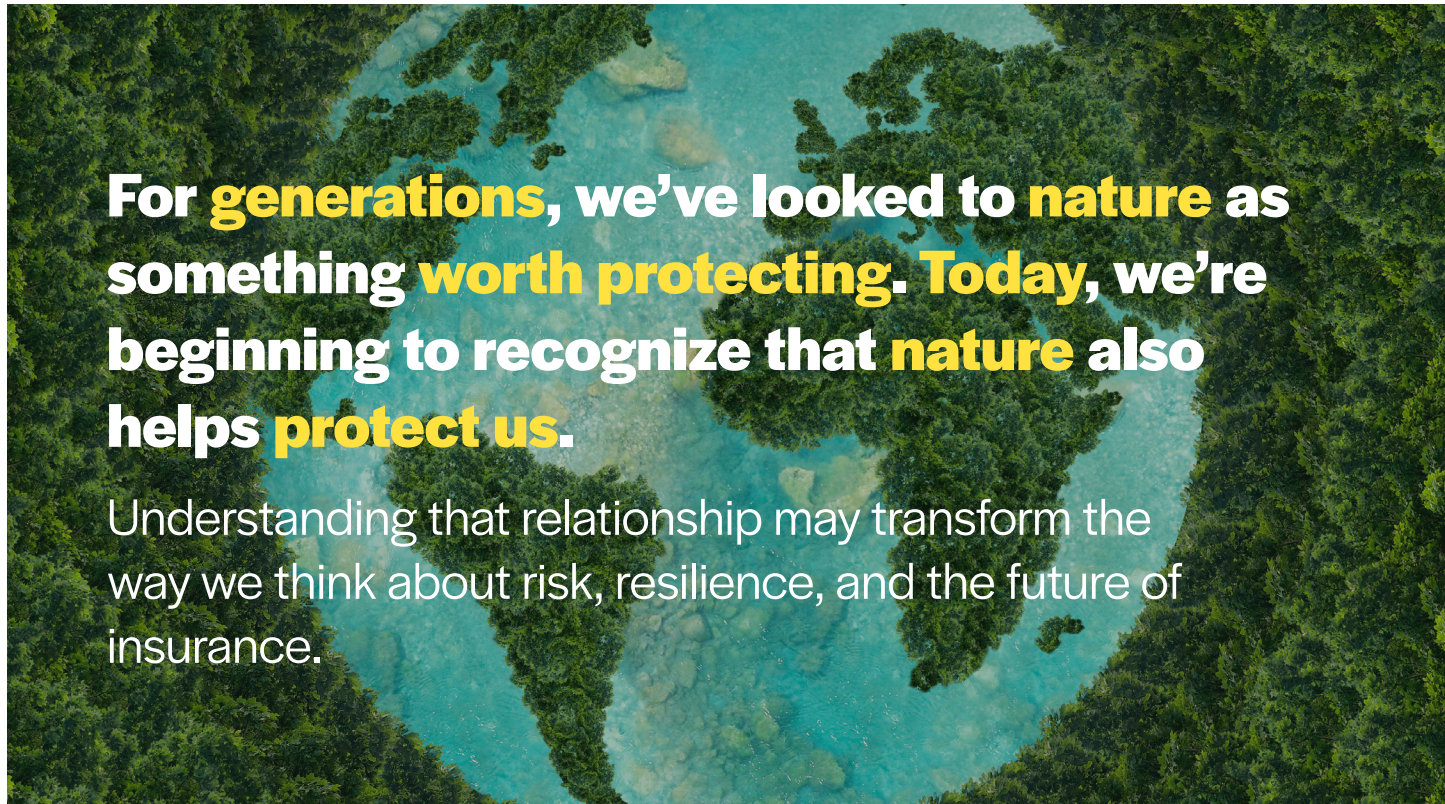
Exploring how generations of stewardship experience can inform innovative approaches to resilience and risk management.

Nature-Based Investments and Economic Security

Identifying opportunities for public and private investment that support biodiversity while strengthening resilience and reducing risk.

California's goal is not simply to participate in the global dialogue surrounding biodiversity and insurance, but to help define it. By convening a first-of-its-kind coalition of experts and stakeholders, the California Green Ribbon Commission seeks to advance understanding of how biodiversity influences risk and how nature can contribute to safer communities, stronger economies, and more resilient insurance markets.

Ultimately, Nature's Balance Sheet advances a simple but powerful idea:



For generations, we've looked to nature as something worth protecting. Today, we're beginning to recognize that nature also helps protect us.

Understanding that relationship may transform the way we think about risk, resilience, and the future of insurance.

Introduction

The twenty-first century presents an unprecedented convergence of challenges that are reshaping the relationship between society, the economy, and the natural world. Climate change, biodiversity loss, ecosystem degradation, catastrophic disasters, and economic volatility are increasingly interconnected forces whose impacts extend across communities, governments, businesses, and financial institutions. As these pressures intensify, they require a fundamental reassessment of how risk is understood, managed, and financed.

For much of modern history, nature has been viewed primarily through the lens of conservation and environmental protection. While these objectives remain essential, they capture only part of nature's value. Increasingly, scientific, economic, and financial evidence demonstrates that healthy ecosystems are not only environmental assets, but also contributors to public safety, economic stability, and risk reduction. Forests influence wildfire outcomes. Watersheds support water security. Wetlands reduce flood impacts. Coastal ecosystems lessen storm damage. Biodiversity itself contributes to the resilience and adaptive capacity of the natural systems upon which communities depend.¹

As climate-related disasters become more frequent and severe, governments, insurers, investors, and policymakers are beginning to recognize that ecosystem condition influences the frequency, severity, and cost of many of the risks they seek to manage. Healthy ecosystems can reduce losses before disasters occur, while ecosystem degradation can amplify risks and increase economic costs. This realization has profound implications for insurance markets, risk management practices, and public policy. It suggests that the future of resilience depends not only on what societies build, but also on what they protect, restore, and steward.

Increasingly, global institutions, insurers, and policymakers are recognizing that understanding risk in a changing climate requires a deeper understanding of nature itself. As the relationship between biodiversity and risk becomes clearer, a new question emerges: how should institutions incorporate nature's protective value into the systems they use to assess risk, allocate capital, guide investment, and strengthen resilience? Addressing that question may become one of the defining challenges, and opportunities, of the coming decades.

¹ United Nations Environment Programme Finance Initiative (UNEP FI) and United Nations Development Programme (UNDP), Insurers and the Global Biodiversity Framework: Managing Risk, Unlocking Finance, Enabling the Transition (2026). <https://www.unepfi.org/industries/insurance/briefing-on-cbd-cop17-and-insurance/>



A Global Moment

The establishment of the California Green Ribbon Commission on Nature, Biodiversity and Insurance comes at a pivotal moment in global efforts to address biodiversity loss and strengthen resilience.

In October 2026, governments, scientists, financial institutions, Indigenous leaders, and civil society organizations gathered in Yerevan, Armenia, for the Seventeenth Conference of the Parties to the Convention on Biological Diversity (CBD COP17). The conference represents the first global review of progress toward implementation of the Kunming-Montreal Global Biodiversity Framework and reflects a growing international focus on transforming commitments into measurable action. Priorities include biodiversity finance, ecosystem restoration, implementation support, Indigenous leadership, and stronger integration between biodiversity, climate adaptation, and disaster risk reduction agendas.²

2 Secretariat of the Convention on Biological Diversity, 2026 United Nations Biodiversity Conference (CBD COP17) (2026). <https://www.cbd.int/conferences/2026>

A central question emerging from COP17 is how institutions can better recognize biodiversity as a contributor to resilience, economic security, and societal well-being. Within this discussion, insurance occupies a unique and increasingly important position. Through risk management, risk transfer, capital allocation, and investment decisions, insurers help shape how societies understand and respond to risk. International organizations have increasingly emphasized that insurance should be recognized as part of the broader biodiversity finance architecture and as a mechanism for helping communities and economies adapt to a changing climate.³

The California Green Ribbon Commission on Nature, Biodiversity and Insurance is being established in this context. It reflects a growing understanding that biodiversity, resilience, economic security, and insurance are not separate conversations. They are increasingly interconnected dimensions of how societies prepare for and respond to a rapidly changing world.

3 UNEP FI and UNDP, Insurers and the Global Biodiversity Framework: Managing Risk, Unlocking Finance, Enabling the Transition (2026). <https://www.unepfi.org/industries/insurance/briefing-on-cbd-cop17-and-insurance/>



Revaluing Nature

For generations, societies have measured and managed risk by evaluating hazards, estimating losses, and investing in assets designed to protect people and property. Roads, bridges, levees, reservoirs, emergency management systems, and other forms of infrastructure have long been recognized as investments that strengthen resilience and support economic prosperity.

Far less attention has been given to another category of assets that quietly perform many of the same functions.

Healthy forests reduce wildfire severity. Healthy wetlands absorb and store floodwaters. Healthy watersheds improve water security. Coastal ecosystems lessen storm impacts. Biodiverse landscapes strengthen ecological stability and adaptive capacity.

These systems create measurable value by reducing losses before disasters occur.⁴ Yet despite their importance, their protective functions are rarely fully reflected in the frameworks used to assess risk, allocate capital, or guide investment decisions. In effect, one of society's most valuable assets remains significantly undervalued.

Recognizing and accounting for nature's contribution to resilience represents one of the most important opportunities for innovation in insurance, finance, and public policy. As climate-related risks continue to grow, the ability to better understand nature's protective value may prove essential to preserving affordability, strengthening insurance markets, and supporting long-term economic stability.

This does not mean replacing traditional infrastructure or conventional approaches to risk management. Rather, it means broadening how we think about value. The most resilient communities of the future will be those that successfully combine engineered infrastructure with healthy natural systems, recognizing that both play indispensable roles in reducing risk and protecting economic security.

4 UNEP FI and UNDP, Insurers and the Global Biodiversity Framework: Managing Risk, Unlocking Finance, Enabling the Transition (2026). <https://www.unepfi.org/industries/insurance/briefing-on-cbd-cop17-and-insurance/>

Why California Must Lead

Few jurisdictions are better positioned to advance this conversation than California.

As the world's fourth-largest economy, California faces some of the most significant climate-related risks of any region in the world, including catastrophic wildfires, drought, flooding, extreme heat, and coastal impacts. At the same time, California is home to extraordinary ecological diversity and has long served as a global leader in environmental stewardship, climate innovation, consumer protection, and insurance regulation.

California's experience demonstrates that economic resilience, environmental stewardship, public safety, and insurance market stability cannot be viewed as independent challenges. Increasingly, they influence one another.

For much of modern history, biodiversity and insurance occupied separate spheres of policy and regulation. Biodiversity was viewed primarily as an environmental concern, while insurance focused on risk, capital, claims, and market stability. Increasingly, however, the distinction between these issues is disappearing. The condition of forests influences wildfire losses. The condition of watersheds influences drought impacts. The condition of wetlands influences flood risk. The health of ecosystems increasingly shapes the frequency, severity, and cost of insured losses. As climate pressures intensify, the future of insurance will be influenced not only by economic and demographic trends, but also by the natural systems that help protect communities from harm.⁵

California has an opportunity to help lead this emerging conversation. Through innovation, collaboration, and practical action, California can help demonstrate how biodiversity, resilience, and insurance can be integrated in ways that strengthen communities while supporting long-term economic security.

5 UNEP FI and UNDP, Insurers and the Global Biodiversity Framework: Managing Risk, Unlocking Finance, Enabling the Transition (2026). <https://www.unepfi.org/industries/insurance/briefing-on-cbd-cop17-and-insurance/>

Throughout his tenure, Insurance Commissioner Ricardo Lara has championed efforts to modernize insurance regulation and better prepare communities for emerging risks. The creation of the California Green Ribbon Commission on Nature, Biodiversity and Insurance represents the next evolution of that work, positioning California at the forefront of an emerging field that seeks to better understand the relationship between biodiversity, risk, and insurance.

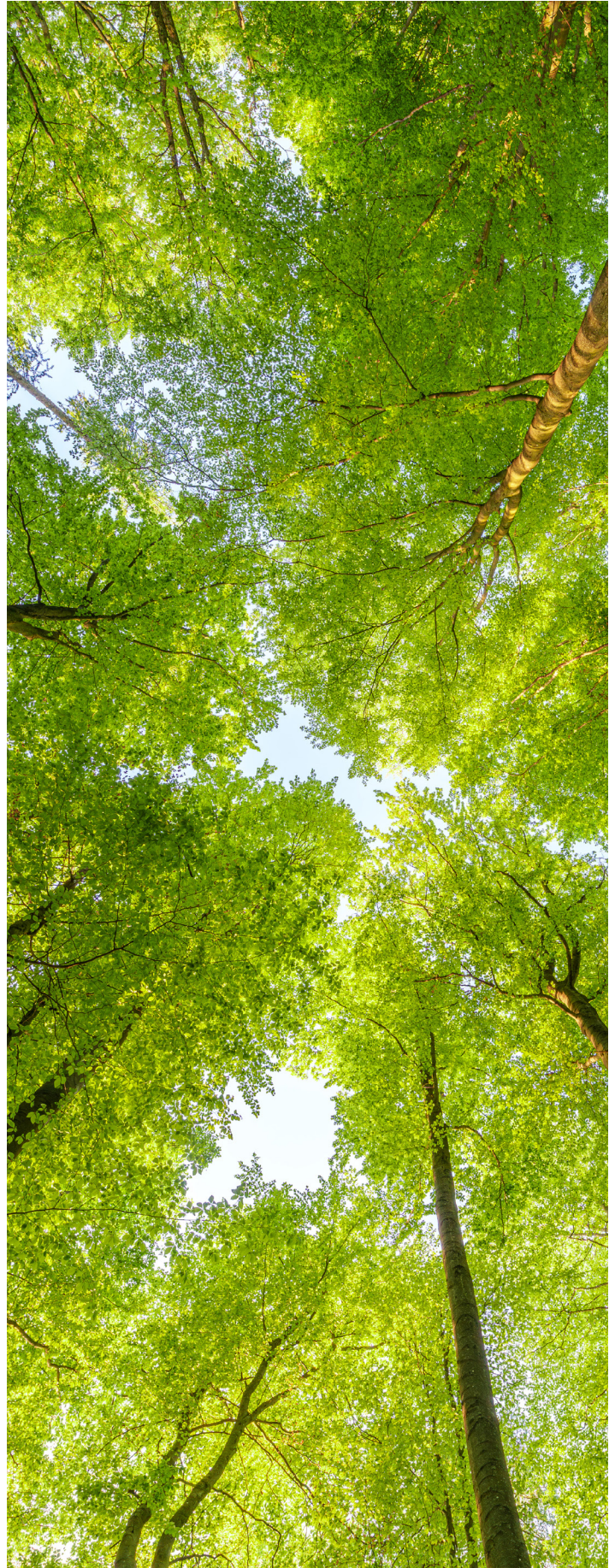
Establishing the California Green Ribbon Commission on Nature, Biodiversity and Insurance

Recognizing these realities, California Insurance Commissioner Ricardo Lara has established the California Green Ribbon Commission on Nature, Biodiversity and Insurance.

The Commission has been convened to explore the relationship between ecosystem health, biodiversity, risk reduction, insurance markets, and economic security. Its purpose is to develop practical recommendations that advance the integration of nature and biodiversity considerations into insurance practices, resilience planning, investment strategies, and public policy.

The Commission proceeds from a central premise: healthy ecosystems generate measurable risk-reduction benefits that should be better understood, valued, and reflected in the decisions that shape communities, economies, and insurance markets.

More broadly, the Commission seeks to foster a new dialogue regarding the role biodiversity can play in strengthening resilience, reducing losses, protecting communities, and informing the future evolution of insurance. By bringing together expertise from diverse disciplines, the Commission aims to create a foundation for innovative thinking, practical solutions, and collaborative action.



Founding Commissioners

The Green Ribbon Commission reflects the belief that the increasingly complex challenges of the twenty-first century cannot be addressed within traditional institutional or disciplinary boundaries. Building resilient communities requires collaboration across fields that have historically operated independently, including insurance, conservation, ecology, Indigenous stewardship, finance, engineering, public policy, and climate adaptation.

To advance this mission, the Green Ribbon Commission brings together an exceptional group of leaders whose collective expertise reflects the breadth of knowledge required to understand the relationship between nature, risk, resilience, and insurance.

Indigenous Leadership and Traditional Ecological Knowledge

Mary Adelzadeh

First Nations

Brian Wallace

Indigenous Futures Society

Bill Tripp

Karuk Tribe

Don Hankins

Miwok Practitioner

Indigenous peoples have stewarded California's landscapes for millennia through systems of knowledge grounded in reciprocity, responsibility, observation, and long-term ecological health.

These commissioners bring invaluable expertise regarding the relationship between healthy ecosystems, cultural stewardship, community resilience, and risk reduction. Their perspectives will help ensure that the Commission's work reflects both historical wisdom and contemporary opportunities for advancing resilience through landscape stewardship.

Conservation, Biodiversity, and Ecosystem Resilience

Kiya Bibby

California Ocean Science Trust

David Kuhn

World Wildlife Fund

Emily Corwin

San Francisco Estuary Institute

Eric Roberts

The Nature Conservancy

Deborah Glaser

The Nature Conservancy

Heather Tallis

Independent Consultant

These experts represent globally respected institutions and organizations working to advance biodiversity conservation, ecosystem restoration, nature-based solutions, and climate resilience.

Their expertise will help illuminate how healthy ecosystems reduce risk, strengthen adaptive capacity, and contribute to the long-term resilience of communities, economies, and insurance markets.

Science, Research, and Climate Adaptation

Newsha Ajami

Stanford University, Doerr School of Sustainability

Megan Kelso

University of California, Santa Cruz

Todd Bridges

University of Georgia

The Commission's scientific and academic leaders bring expertise spanning climate adaptation, ecological systems, resilience science, environmental engineering, and natural resource management.

Their work will help ensure that Commission recommendations are grounded in rigorous research, robust evidence, and the best available understanding of how natural systems influence risk and resilience.

Insurance, Finance, and Risk Innovation

Carolyn Kousky

Insurance for Good

Verena Kraus

Independent Consultant

Insurance and financial institutions play a critical role in shaping how society understands, prices, and manages risk.

These commissioners bring deep expertise in resilience finance, catastrophe risk management, insurance innovation, and emerging approaches to integrating climate and nature considerations into financial decision-making and market development.

Government and Public Policy

Sarah Clark

Shute, Mihaly & Weinberger LLP

Deborah Halberstadt

California Department of Insurance

Tawny Mata

California Department of Food and Agriculture

Holly Vuong

California Department of Insurance

These public policy leaders bring extensive experience in law, regulation, agriculture, insurance, and public administration. Their expertise will help bridge science, policy, and implementation, ensuring that the Commission's recommendations are practical, actionable, and capable of informing future regulatory frameworks and market innovations.

Collectively, the composition of the Commission reflects a broader truth. Biodiversity cannot be separated from climate resilience. Climate resilience cannot be separated from economic resilience. Economic resilience cannot be separated from insurance.

The Green Ribbon Commission has therefore been designed to foster a new framework for understanding resilience through an integrated lens that reflects the realities of a changing world.



Mission and Vision

The California Green Ribbon Commission on Nature, Biodiversity and Insurance seeks to position California at the forefront of an emerging global conversation regarding the relationship between biodiversity, risk, resilience, and insurance.

The Commission is founded on a simple but increasingly consequential observation: healthy ecosystems influence risk. The condition of forests, wetlands, watersheds, grasslands, coastal systems, and other natural assets can affect the frequency, severity, and cost of disasters, shape community resilience, and influence long-term economic stability.⁶ As climate pressures intensify and losses grow, understanding these relationships will become increasingly important to the future of insurance markets and the communities they serve.

The Commission's mission is to advance understanding of how biodiversity and ecosystem health affect risk, while identifying practical opportunities to integrate nature-related considerations into insurance practices, resilience strategies, investment decisions, and public policy. Through research, dialogue, collaboration, and innovation, the Commission will seek to develop actionable recommendations that strengthen both ecological and economic resilience.

At a broader level, the Commission seeks to contribute to the evolution of insurance itself. For generations, biodiversity and insurance have largely existed as separate conversations. Biodiversity has traditionally been viewed as an environmental issue, while insurance has focused on risk, capital, claims, and financial stability. Increasingly, however, these conversations are converging. The future of insurance will be influenced not only by economic and demographic trends, but also by the condition of the natural systems that help reduce losses and protect communities.

⁶ UNEP FI and UNDP, *Insurers and the Global Biodiversity Framework: Managing Risk, Unlocking Finance, Enabling the Transition* (2026). <https://www.unepfi.org/industries/insurance/briefing-on-cbd-cop17-and-insurance/>

California is uniquely positioned to help advance this emerging field of inquiry. As a global economic leader confronting some of the most significant climate-related risks in the world, California has both the opportunity and the responsibility to help shape new approaches to understanding the connections between nature, risk, and economic security. Through the work of this Commission, California intends not only to participate in the global dialogue surrounding biodiversity and insurance, but to help define it.

The Commission envisions a future in which healthy ecosystems are recognized as essential contributors to public safety, disaster risk reduction, economic prosperity, and insurance market stability. It envisions insurance systems that more fully recognize the value of nature's protective functions, investment strategies that support long-term ecological and economic resilience, and public policies that foster stronger connections between environmental stewardship and risk management.

Ultimately, the Commission aspires to help establish a new framework for understanding how biodiversity influences risk and how nature can contribute to a safer, more resilient, and more economically secure future. By bringing together leaders from insurance, science, conservation, Indigenous stewardship, finance, and public policy, the Commission seeks to position California as a catalyst for innovation and a global leader in advancing the next generation of thinking on biodiversity and insurance.



Strategic Pathway One: Biodiversity, Risk, and Insurance Market Stability

The first strategic pathway will examine the relationship between ecosystem condition, biodiversity, and the long-term stability of insurance markets. This work will explore how nature loss, ecosystem degradation, and declining ecological function influence risk exposure, claims experience, insurance availability, and financial resilience. The Commission will identify opportunities to better recognize and account for nature's risk-reduction benefits within risk assessment, underwriting, and resilience planning frameworks.⁷

The pathway will seek to advance understanding of how biodiversity-related risks and opportunities affect insurers, policyholders, and communities while providing practical insights that can support stronger and more resilient insurance markets.

Strategic Pathway Two: Indigenous Stewardship, Ecological Knowledge, and Risk Reduction

The second strategic pathway recognizes that Indigenous communities possess generations of experience in stewarding landscapes and maintaining ecological health. The Commission will explore how Indigenous approaches to stewardship, cultural burning, ecological observation, and resource management can inform contemporary approaches to risk reduction and community resilience.

7 UNEP FI and UNDP, *Insurers and the Global Biodiversity Framework: Managing Risk, Unlocking Finance, Enabling the Transition* (2026). <https://www.unepfi.org/industries/insurance/briefing-on-cbd-cop17-and-insurance/>

This work seeks to promote meaningful dialogue, strengthen partnerships, and identify opportunities for innovative pilot initiatives that integrate Indigenous knowledge, ecological stewardship, and risk management. By elevating these perspectives, the Commission seeks to foster a more comprehensive understanding of resilience and the role that stewardship can play in reducing long-term risk.

Strategic Pathway Three: Nature-Based Investments and Economic Security

The third strategic pathway focuses on identifying opportunities to strengthen resilience through investments in ecosystem protection, restoration, and stewardship. The Commission will examine how public and private capital can support strategies that simultaneously advance biodiversity conservation, reduce risk, strengthen community resilience, and support long-term economic stability.⁸

Particular attention will be given to opportunities where investments in nature may generate measurable benefits relevant to insurance markets, disaster risk reduction, public safety, and economic security. The Commission aims to help decision-makers better understand where and how investments in natural systems can produce the greatest resilience benefits for communities and economies.

8 UNEP FI and UNDP, Insurers and the Global Biodiversity Framework: Managing Risk, Unlocking Finance, Enabling the Transition (2026). <https://www.unepfi.org/industries/insurance/briefing-on-cbd-cop17-and-insurance/>

Conclusion

The establishment of the California Green Ribbon Commission on Nature, Biodiversity and Insurance reflects a growing recognition that the future of risk management will be shaped not only by economic and technological factors, but also by the condition of the natural systems upon which societies depend.

Ultimately, the work of the Commission is about expanding how society understands value. For generations, many of nature's most important contributions to economic security remained largely invisible within the systems used to evaluate risk and guide investment. The Commission begins from the proposition that healthy ecosystems are not simply environmental assets. They are resilience assets, economic assets, and increasingly, insurance assets. Recognizing their value is not only a conservation imperative. It is an essential step in preparing communities, markets, and institutions for the challenges of the twenty-first century.

California has long demonstrated a willingness to confront emerging challenges through innovation and leadership. Through the Green Ribbon Commission, California seeks to contribute to a growing global dialogue regarding how biodiversity, risk management, insurance, and economic security can work together to build safer communities, more stable markets, and a more resilient future.

The Commission begins its work with a conviction increasingly supported by science, economics, and experience: that understanding the relationship between nature and risk will be essential to protecting communities, strengthening insurance markets, and advancing long-term prosperity in an increasingly uncertain world.

In helping illuminate that relationship, California hopes not only to advance its own resilience and economic security, but also to contribute meaningfully to a global conversation that will shape the future of insurance, biodiversity, and risk management for years to come.

