

A Lighthouse Of Inspiration

An Interview with Ellen Stofan, PhD, Under Secretary for Science and Research, Smithsonian

EDITORS' NOTE Dr. Ellen Stofan oversees the science museums and science research centers as well as the Smithsonian Libraries and Archives, Smithsonian Scholarly Press and Scientific Diving Program. Her focus is on the Smithsonian's Our Shared Future: Life on a Sustainable Planet initiative and collective research, especially in areas of biodiversity, climate change, global health, sustainable communities, and environmental justice. Stofan previously was the John and Adrienne Mars Director of the Smithsonian's National Air and Space Museum. As the former Chief Scientist of NASA, Stofan served as the principal advisor to the Administrator on science programs and strategic planning. Currently, she is on the science team of the NASA Dragonfly mission to Titan. Stofan holds master's and doctorate degrees in geological sciences from Brown University, and a bachelor's degree from the College of William & Mary.



Ellen Stofan

in archaeology. But the universe had a different story in store for me.

It was during my mother's geology course, which she attended while pursuing a master's degree in Ohio, that my path veered toward the earth sciences. As a child of ten or eleven, my hobby of collecting rocks became a profound fascination under her tolerant and kind professor. I was allowed to tag along on her field trip to a gorge with its imposing rock formations. The professor interpreted the language

of the Earth, deciphering the rock layers as if they were chapters of our planet's extensive story. His knowledge turned my curiosity into a barrage of inquiries.

This pivotal moment made me realize that science was not solely about the vastness of space; it was equally about the narratives etched into the very rocks of Earth. The realization that one could delve into such stories as a profession, to "read" the layers of the Earth like pages in a book, resonated deeply with me, and it has since been the compass guiding my career.

Despite the masculine and engineer-dominated landscape at NASA, where my father and his peers were the predominant faces, my direction was irrevocably shaped when I was 14. My father was in charge of the rockets that would take the NASA Viking landers to Mars. During a month-long family stay at Cape Canaveral, I had the chance to hear about the world of mission scientists and the reasons behind our Martian venture. Carl Sagan spoke of Mars' geology and its parallels with Earth, connecting the dots between our home planet and the mysteries of the red one.

The spark ignited in my youth followed me to college at William & Mary, where I landed an internship at the National Air and Space Museum. Walking amidst the silent giants of aviation and spaceflight before the museum's doors opened to the public was nothing short of magical. In my early career, I immersed myself in planetary science research and space administration, ultimately serving as the Chief Scientist at NASA. In this capacity, I contributed to the grand endeavor of planning to send humans to Mars to seek life beyond Earth.

INSTITUTION BRIEF The Smithsonian Institution (*si.edu*) was established by an act of the U.S. Congress in 1846 as an independent federal trust instrumentality, a unique public-private partnership that has proven its value as a cultural and scientific resource for over 175 years. The federal commitment provides the foundation for all the Institution does, and is especially helpful in attracting private support. The Institution leverages its federal funding to enrich the lives of the American people and advance its mission for "the increase and diffusion of knowledge."

Will you discuss your career journey, and when did you know that you had a passion for science?

My journey into science began with an explosive start – quite literally. As a child witnessing a rocket launch, courtesy of my father's position at NASA, I stood awestruck. The launch didn't go as planned; the uncrewed rocket failed. Yet, from that failed attempt, a fervent curiosity for science was kindled.

Growing up in an era when female scientists were scarce in the public eye, my quest for a role model led me to the legendary Mary Leakey. Her groundbreaking work on human origins in the 1960s served as an inspiration, and I envisioned myself following in her footsteps



Ellen Stofan assists "S.H.E. Can STEAM" campers as they prepare to launch a weather balloon out of Culpeper Regional Airport, Brandy Station, Virginia

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In 2018, I returned to the Smithsonian, taking the helm at the museum that once stirred my youthful imagination. My career took another leap in 2021 when I became Under Secretary for Science and Research at the Smithsonian. These positions were not mere titles; they represented chapters of a lifelong narrative underscored by curiosity, the thrill of discovery, and the immeasurable value of mentors, and the dissemination of knowledge.

Will you highlight your role and areas of focus at the Smithsonian?

In my capacity as Under Secretary for Science and Research, I am tasked with a mission that truly energizes me every day: to cast a vision for our institution’s scientific endeavors and establish strategic priorities. Imagine our institution as a lighthouse of inspiration, illuminating pathways and sparking transformative change, especially in nurturing the scientific dreams of those who have not been represented in STEM fields.

Remember the faces of scientists you saw in textbooks? It’s time to refresh those pages. We have phenomenal women scientists right here who shine as role models – the kind I longed to see during my own academic journey. Their stories are not just narratives; they are powerful testaments that can redefine the realm of possibilities for the next generation.

Our commitment goes beyond inspiration; it’s about action. We are actively breaking down the age-old barriers that have funneled talent into a narrow corridor and muted diverse voices. By celebrating the achievements of pioneers from underrepresented groups, we are not just sharing stories – we are rewriting the science canon for a future where every child can see themselves as a scientist.

This role is profoundly personal to me. My professional voyage has been about contributing to new frontiers in scientific research and exploring worlds beyond our own. However, my transition to the Smithsonian marked a pivotal shift. Here, I contemplated a deeper purpose: “How can I extend a hand to those coming after me to reshape and enrich the field of science?”

Our museums and educational initiatives are more than repositories of knowledge – they are dynamic spaces that mirror the rich tapestry of the STEM community. By bringing a wide spectrum of accomplishments into the spotlight, we craft a narrative as varied and vibrant as the



Ellen Stofan in the “One World Connected” gallery at the Smithsonian National Air and Space Museum in Washington, DC

people it represents. This narrative is a celebration that resonates with every visitor, especially the young women and girls who stand at the threshold of their scientific journey, poised to step into the realms of science, technology, engineering, and math.

Every exhibit, every program we design, is a chapter in a larger story that says: “This is what a scientist or an engineer looks like. It can look like you.” It’s an invitation to imagine, to explore, and most importantly, to belong. We are not just nurturing the next generation of scientists; we are cultivating a community where every dream has a place and every story is valued.

Will you provide an overview of the Smithsonian’s “Our Shared Future: Life on a Sustainable Planet” initiative?

“Our Shared Future: Life on a Sustainable Planet” is the Smithsonian’s comprehensive initiative to address the urgent environmental challenges of our time. It’s a strategic, innovative effort that leverages the institution’s extensive resources to foster a sustainable coexistence between humans and nature in the face of climate change. The excitement around this program stems from its integrative approach. It combines the Smithsonian’s rich collections and educational programs with its research prowess in history, art, culture, and science to develop practical, sustainable solutions for our planet.

The Smithsonian doesn’t just conduct groundbreaking science – it uses its educational reach through museums and programs to provide the public with actionable insights. This is about empowering people to actively participate in the change we all wish to see.

Central to the initiative is a commitment to Earth Optimism, which champions a hopeful outlook for our planet at this pivotal moment. It’s about cultivating a deep-seated respect for how science, technology, innovation, and culture are interlinked and how they can help us achieve a balanced coexistence with nature.

Our work is extensive: we’re studying carbon storage in forests, grasslands, and coastal ecosystems, mapping the genetic changes in marine life, examining the connections between human, wildlife, and environmental health, and working alongside farmers to cultivate biodiversity-supporting agriculture. The Adrienne Arsht Resilience Initiative at the Smithsonian Tropical Research Institute is so critical to Life on a Sustainable Planet – it is helping us work with communities to co-develop resilience solutions.

With over 175 years of scientific inquiry under our belt, the Smithsonian is building on this legacy to advance sustainability for all life on Earth. “Our Shared Future” is more than just a program – it’s a rallying cry for collective action. We believe the answers to our environmental challenges are within reach, and we invite everyone to join us in this important work. The time for action is now.

What makes the Smithsonian so special?

The Smithsonian brand is known and trusted around the world, but Smithsonian isn’t just a name; it’s a global byword for discovery

and learning, a trusted custodian of history, and an innovator at the frontiers of science and technology. Yet, there’s a common misconception that our presence is confined to the galleries and exhibitions that line the National Mall in Washington, DC, where visitors often ask, “Where is the Smithsonian?” as if it were a single destination.

Indeed, our galleries are alive with the echoes of prehistoric roars among the dinosaur exhibits and buzzing with the energy of schoolchildren getting their first taste of real science. Programs like the National Air and Space Museum’s S.H.E. Can summer camp extend this learning, empowering young girls to reach for the stars – quite literally – by showing them that the sky’s not a limit but a beginning.

But the Smithsonian’s story runs deeper. It’s not just a keeper of artifacts or a facilitator of educational programs. We are a dynamic research institution where past knowledge is a launchpad for tomorrow’s breakthrough solutions. At the Smithsonian, we believe in the power of storytelling combined with scientific exploration. We provide a space where the dreamers of the past ignite the curiosity and drive of the next generation of explorers and innovators. When a young girl stands beneath the shadow of the Wright brothers’ plane or the Apollo lunar module, it’s not just a history lesson – it’s an invitation to dream and to realize that she, too, has a place in the unfolding narrative of innovation and exploration.

In essence, the Smithsonian is where the timeline of history stretches out its hands to the future. It’s where curiosity is nurtured into ambition, marked by a commitment to knowledge and the endless horizon of possibility. This is the essence of the Smithsonian: not just a museum, but a beacon of inspiration and a community of minds dedicated to understanding our world and shaping its future.

How has resilience impacted your work?

Revolutionary ideas stem from the audacity to challenge the norm. True change isn’t born from complacency or confining ourselves within the boundaries of what’s deemed “possible.” It emerges when we dare to dream, invest belief in those dreams, and persevere through the odds to turn them into reality. This is the essence of resilience: the relentless drive to navigate the unexpected, to rebound from setbacks, and not just to return to form but to forge a stronger, more adaptable version of what we were.

In the face of an escalating climate emergency, resilience is more than a concept – it’s a guiding principle for “Our Shared Future: Life on a Sustainable Planet.” This isn’t just about survival; it’s about uniting our collective strengths to ensure that communities can prosper without sacrificing the health of our planet.

So, how do we sculpt a future where economic vitality and high quality of human life are not at odds with the vitality of our ecosystems? How do we ensure that our actions today cultivate a world where biodiversity isn’t just a segment of a science textbook but a lived experience for generations to come?

The Smithsonian is stepping up to this challenge. Our commitment is to harness our global repository of art, culture, science, and history to unearth solutions that strike a balance between human progress and environmental preservation. We are innovating ways to empower communities to thrive while maintaining the delicate ecological balance necessary for a sustainable Earth.

It’s a complex puzzle, but we’re poised to piece it together, fostering a symbiotic relationship between humanity and nature. “Our Shared Future” isn’t just a response to a crisis – it’s a proactive movement towards an equilibrium, a testament to our adaptability and ingenuity. It’s time to rethink our relationship with the planet, not as a resource to be exploited but as a shared home to be nurtured. We have the tools. We have the knowledge. Now, it’s about putting them to work, not only to imagine a sustainable planet, but to create a resilient, sustainable future.

What are your priorities in your role at the Smithsonian as you look to the future?

I’m currently on a mission to elevate the profile and reach of our research. It’s about making the incredible wealth of knowledge we gather both seen and easily navigated by the public. But beyond visibility lies the imperative of integration, where we mesh the threads of various scientific fields and organizations into a cohesive fabric to address the major challenges of our time.

The Smithsonian has long been a vanguard in weaving together disparate viewpoints and datasets to unravel the complex tapestries of climate change, biodiversity, and the interplay between human culture and history. However, this aspect of our institution is like an unsung melody – familiar to some, unknown to many. I’m here to amplify that tune.

For many, the Smithsonian conjures images of iconic artifacts – the glimmer of Dorothy’s ruby slippers or the historic heft of the Apollo 11 command module. Yet, beyond the glass cases and exhibit halls, we have a cadre of scientists working tirelessly across the globe. They’re the sentinels of our environment, chroniclers of Earth’s past, and innovators for its future. They measure the pulse of our planet, drawing on a 175-year legacy of scientific inquiry to inform and confront today’s climate challenges with solutions that are not just viable, but sustainable.

My commitment is to move this narrative into the limelight – to ensure that when the Smithsonian is mentioned, it evokes not just images of past wonders, but also visions of a future where our research is a beacon for resilience and action. It’s about celebrating and promoting our diverse scientific heroes, those who embody the spirit of discovery and inclusivity. It is about combining art, history, culture and science to forge a better future. By doing so, we can inspire a new generation to engage with science and innovation in a way that reflects the rich tapestry of human experience and ensures that every voice is heard. ●