

our window into home

A Photo Essay on the Apollo Program
and the Environmental Movement

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Photographs from NASA Archive

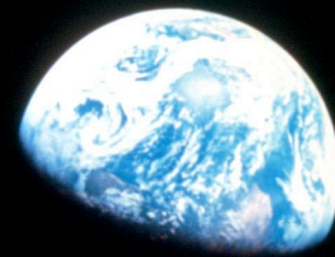
"Many species. One planet. One future." is the focus for World Environment Day this year on June 5, in Kigali, Rwanda, which is also part of the UN International Year of Biodiversity. The complexity and frailty of Earth's biodiversity only really became known when it could be seen from a different vantage point – the Moon.

"Earthrise," Apollo 8, December 24, 1968, Earth Day Image Gallery

The "age of ecology" is rooted in an early space program which looked to a future that moved outward from Earth in order to move forward –

our gaze was meant to be fixed on the distance as we progressively broadened our window into the universe.

After the Apollo 8 crew photographed "Earthrise," we turned our attention back to what was not only a point of departure, but what had become home.



In December of 1968, Bill Anders captured what was later called “the most influential environmental photograph ever taken.”

He’d also captured a moment unique in human history – he and his Apollo 8 crewmates, Frank Borman and Jim Lovell, had been set the task by the UN of being “envoys of mankind in outer space,” and “they were also its eyes” (Poole, 2008, p. 1).

On Christmas Eve, 384,000 km from the Kennedy Space Centre launch pad and rounding the Moon, they were the first human beings to see the Earth rise above its horizon –

at the farthest point that humans have ever been from our planet, they had seen dawn from a world other than our own.

“Earthrise,” December 24, 1968, from the astronauts’ point of view, Great Images in NASA Collection



Apollo 8 crew seeing "Earthrise":

“ Borman: Oh my God! Look at that picture over there! Here's the Earth coming up. Wow, that is pretty!

Anders: Hey, don't take that, it's not scheduled.

Borman: (Laughter). You got a colour film, Jim?

Anders: Hand me that roll of colour quick, will you...

”



"Artist's concept of Apollo 8 command/service module heading for the moon," December 2, 1968, NASA Johnson Space Centre Collection

Mission Commander Frank Borman:

“ I happened to glance out of one of the still-clear windows just at the moment the Earth appeared over the lunar horizon. It was the most beautiful, heart-catching sight of my life, one that sent a torrent of nostalgia, of sheer homesickness, surging through me ...

... It was the only thing in space that had any color to it. Everything else was either black or white, but not the Earth (Borman, 1988, p. 212).

”



"Artist's concept of Apollo 8 start thrust engine and head for home," December 2, 1968



"Apollo program insignia," August 30, 1966,
NASA Johnson Space Center Collection

Konstantin Tsiolkovsky, an early pioneer of the theory of spaceflight, notably said that "the Earth is man's cradle, but one cannot live in the cradle forever" (Tsiolkovsky, as cited by Poole, 2008, p. 3). The start of the first space age, which spanned from 1957 to 1972, was premised on the outward push of exploration. Its goals and ideals were largely shaped by astrofuturism, a faith in the ability to transcend and surpass limitations through

The way forward was charted to be in space, but "Earthrise" turned our attention back to the start of this trajectory.

technological innovation, where space exploration was a means for humankind's self-realization.

What was initially meant to be our base, our jumping-off point in an onward voyage, became our unexpected destination during the Apollo program.

This view shifted the perspective of what space exploration's implications were on cultural and social levels, which were reoriented "from what it meant for space to what it meant for the Earth" (Poole, 2008, p. 8). Norman Cousins summarized this shift to the Congressional hearings in 1975 when he stated that "what was most

significant about the lunar voyage was not that men set foot on the Moon, but that they set eye on the Earth" (Poole, 2008, NASA, 1976).

One reason why this point of arrival might have been so unexpected is that the Earth didn't figure strongly into mission plans. The focus was intensely on studying the Moon, and pictures of Earth were termed "low-priority 'targets of opportunity'" (Poole, 2008, p. 2).

It was mainly thanks to the Apollo director of photography at the time, Richard Underwood, that the astronauts had technical photography

training before the missions, and were ready to capture images of the Earth.

The Apollo program set out to study the Moon in depth, and to meet the goals publicly announced by Kennedy of taking humans safely to Earth's satellite, and bringing them home (White, 1987).

The surprising outcome of a lunar program that looked forward and outward, was that its legacy was to make us pause and look back (Poole, 2008). While pictures of the Earth had

been taken from orbit before by remote satellites, Frank Borman (who took the first black and white photos of "Earthrise") and Bill Anders, along with Jim Lovell, were the first humans to see it from a distance. Frank White explores this dramatic shift in perspective and its impact in his term the "overview effect" (White, 1987).

Looking at these photos as a kid, I wanted to know "who took them?," "when?," and "how?" While film allowed us to take an imprint of the Earth, as

Holly Henry and Amanda Taylor (2009) state, "in deep time as well as in deep space," the picture is also inevitably layered in our political and social history (pp. 191-192).

Both Martin Luther King, Jr. and Robert Kennedy were assassinated in 1968, and the year also saw intensified protests over the Vietnam War and violent rioting at the Chicago Democratic Convention (Poole, 2008, Kluger, 2008).

Lunar Module Pilot Bill Anders:

“ We'd spent all our time on Earth training about how to study the Moon, how to go to the Moon; it was very lunar orientated ... ”



"Apollo 8 Astronauts Leave for Launch Pad,"
December 21, 1968, NASA Marshall Space
Flight Center Collection

“ ... And yet when I looked up
and saw the Earth coming up on
this very stark, beat up lunar
horizon, an Earth that was the
only color that we could see, a
very fragile looking Earth, a very
delicate looking Earth ...

”

“Launch of Apollo 8 lunar orbit mission,” December
21, 1968, NASA Johnson Space Center Collection





“ ... I was immediately almost overcome by the thought that here we came all this way to the Moon, and yet the most significant thing we’re seeing is our own home planet, the Earth (Anders as cited by Poole, 2008, p. 2). ”

How the Earth looked from near the Moon,
December, 1968, Great Images in NASA Collection

The shift in perspective and impact of the first photograph of the Earth taken by a human being spurred the beginning of the modern environmental movement “as images from space became part of public consciousness” (McCurdy, 1997). One of the most famous photographs of all time, the “Blue Marble,” or a fully illuminated Earth, was captured during the Apollo 17 mission in 1972, the last manned voyage to such a distance. This picture also had a huge impact in shifting our awareness of environmental issues, but for different reasons than the

previous image of “Earthrise.”

“Earthrise” was the first photograph of the Earth from a distance that deeply resonated with the public when it was released. It made the entire planet seem small, but it also made our world in its entirety familiar for the first time. Because of its distance, it made what had seemed so immense seem suddenly extremely frail (Poole, 2008).

This was a photograph of the crescent Earth, and the logistics of taking

a picture of the whole Earth weren’t possible until our last trip away from it. It provided greater detail, and conveyed to the public how isolated it is when seemingly in the foreground of emptiness. While “Earthrise” turned our planet -- rather than our nation or our address -- into home and place for the first time from afar, the “Blue Marble” translated this to us from the perspective of our planet in its entirety (Poole, 2008).



The “Blue Marble”
image showed
everyone back home
that our planet was
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ripples of ocean and
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Ecologist Donald
Worster described it as
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Its thin film of life ... was
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vulnerable than anyone
had ever imagined.”

“The Blue Marble,” as the
astronauts would have seen the
Earth from space, Apollo 17,
1972, Wikimedia Commons

We can start the history of the early American environmental movement in 1890 when Sequoia and Yosemite National Parks were established, and with the development of organizations such as the Sierra Club, the World Wildlife Fund, and the Wilderness Society in the years that followed (Henry & Taylor, 2009, Poole, 2008).

The Peace Movement and the Civil Rights Movement, as well as developments in nuclear testing, the 1958 founding of NASA, and Rachel Carson's famous 1962 book, "Silent Spring," shaped the environmental awareness and concern that emerged in the 1960s (Henry & Taylor, 2009).

One major influence of seeing the whole Earth for the first time was a transition from a more conservationist approach that focused on wilderness and

"open spaces," to the environment as an entire system. Change needed to be mobilized at the societal level, and there was a surge in environmental organizations and full-time Washington lobbyists during the few years following the Apollo 8 mission (Poole, 2008, p. 157).

A "national ecology movement" started in 1970 after the first Earth Day in the United States, spurred by the Apollo 8 mission, and which later used the "Blue Marble" image as its logo (Cosgrove as cited by Henry & Taylor, 2009, Poole, 2008). The next landmark was in 1972, when the first Earth Summit, the UN Conference on the Human Environment, took place in Stockholm. Two years later, June 5, the opening of the conference, became World Environment Day. Environmental legislation such as the American Natural

Environmental Policy Act, the Clean Water Act, and the Clean Air Act were also put into place following the Apollo 8 mission (Gore, as cited by Henry & Taylor, 2009).

One major development during this time was systems theory, that applied from cybernetics to the "age of ecology." The idea of integrating various processes as branches of a larger complexity is echoed in the emergence of resilience theory today that describes our world in terms of "linked social-ecological systems" (Resilience Alliance, 2010).

What all the astronauts who had been into orbit noted, whether it was nearer our home or as far as the Moon, was that the only point of colour the eye could see was the Earth. From this vantage point they could see the Earth, as a whole, as "the only home we've ever known," and



The International Year of Astronomy and of Biodiversity are inherently complimentary. The first acknowledged the moment in history when distant planets became “knowable worlds,” and the second recognizes what makes our own world so unique, and which in itself became knowable only from a distant one.

the only place we know with absolute certainty holds the capacity for life (Sagan, 1994, p. 9).

The United Nations Environment Programme's goal for World Environment Day is "positive, environmental action" on a global scale, with an emphasis on political action. Another objective is "to give a human face to environmental issues," and to empower people to "become agents for change in support of sustainable and equitable development" (UNEP, n.d.).

This action includes the involvement and partnering of different stakeholders, which UNEP states encompasses "all species living on this one planet and sharing a common future" (UNEP n.d.).

The focus on biodiversity comes with a sense of urgency – from the lowest to the highest estimates, 0.01% to 0.1% of species, or between 200 and 100,000 species, go extinct annually. One reason

the estimates are so broad is that we're still not sure exactly how many species constitute Earth's biodiversity. The lower range is 2 million, but there may be up to 100 million species on Earth. According to the World Resources Institute, "surprisingly, scientists have a better understanding of how many stars there are in the galaxy than how many species there are on Earth (World Wildlife Fund, n.d., World Resources Institute, 1992).

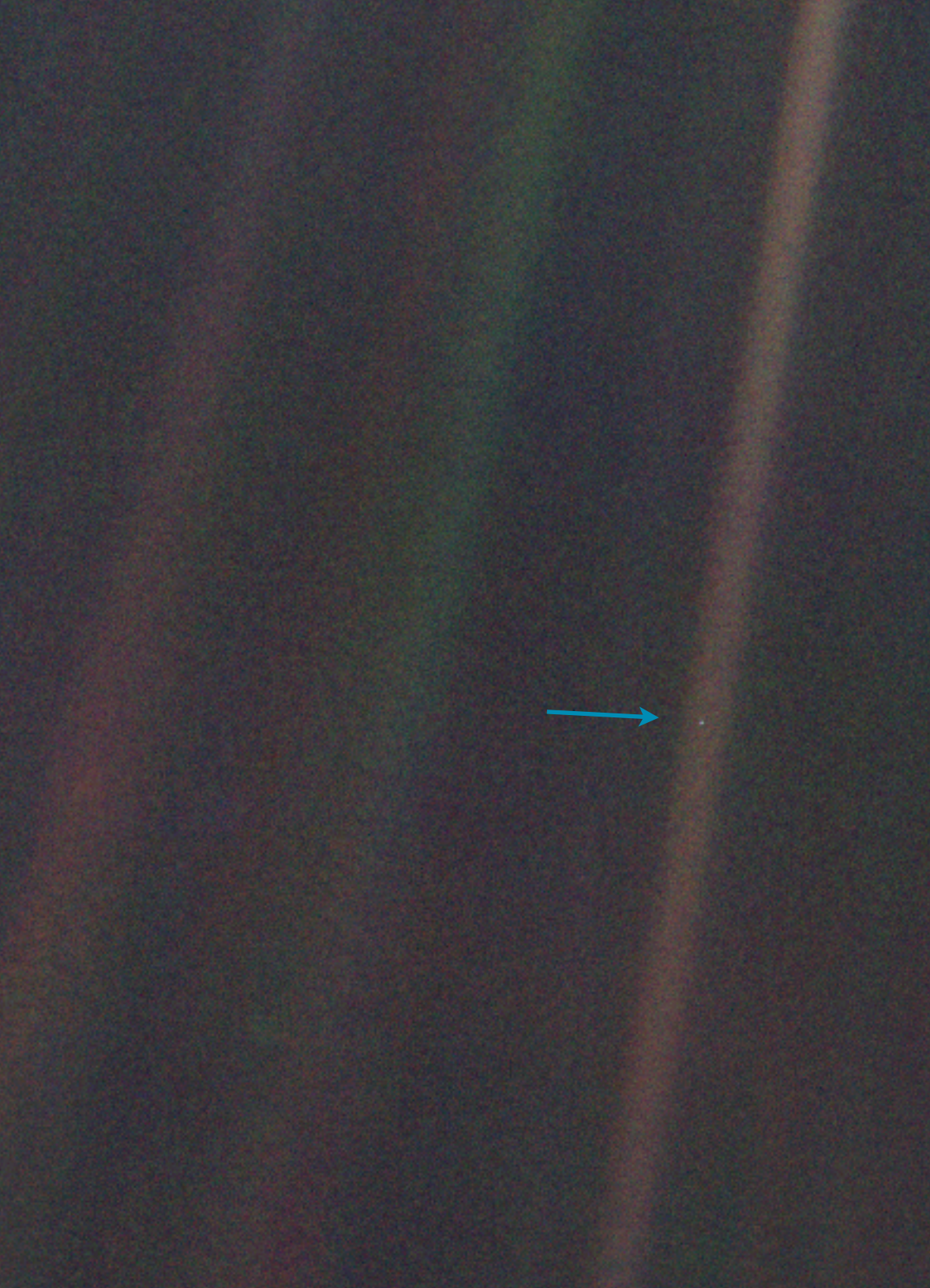
This follows the UNESCO International Year of Astronomy in 2009, which recognized the 400th anniversary of the first time Galileo used a telescope to study the sky (UNESCO and International Astronomical Union, n.d.) I think that the two years are inherently complimentary – the first acknowledged the moment in history when distant planets became "knowable worlds," and the second recognizes what makes our own world so unique, and which in itself became knowable only from a distant one (Henry & Taylor, 2009, p. 196).

Our planet is unique quite simply

because it's the only one we know of that can support life. All the Apollo astronauts, and the crews of later missions, were struck by this fact, and how apparent it was from the vantage points of their window or a space walk (Poole, 2008).

The "Blue Marble" image showed everyone back home that our planet was precisely that – ripples of ocean and cloud fringed by land.

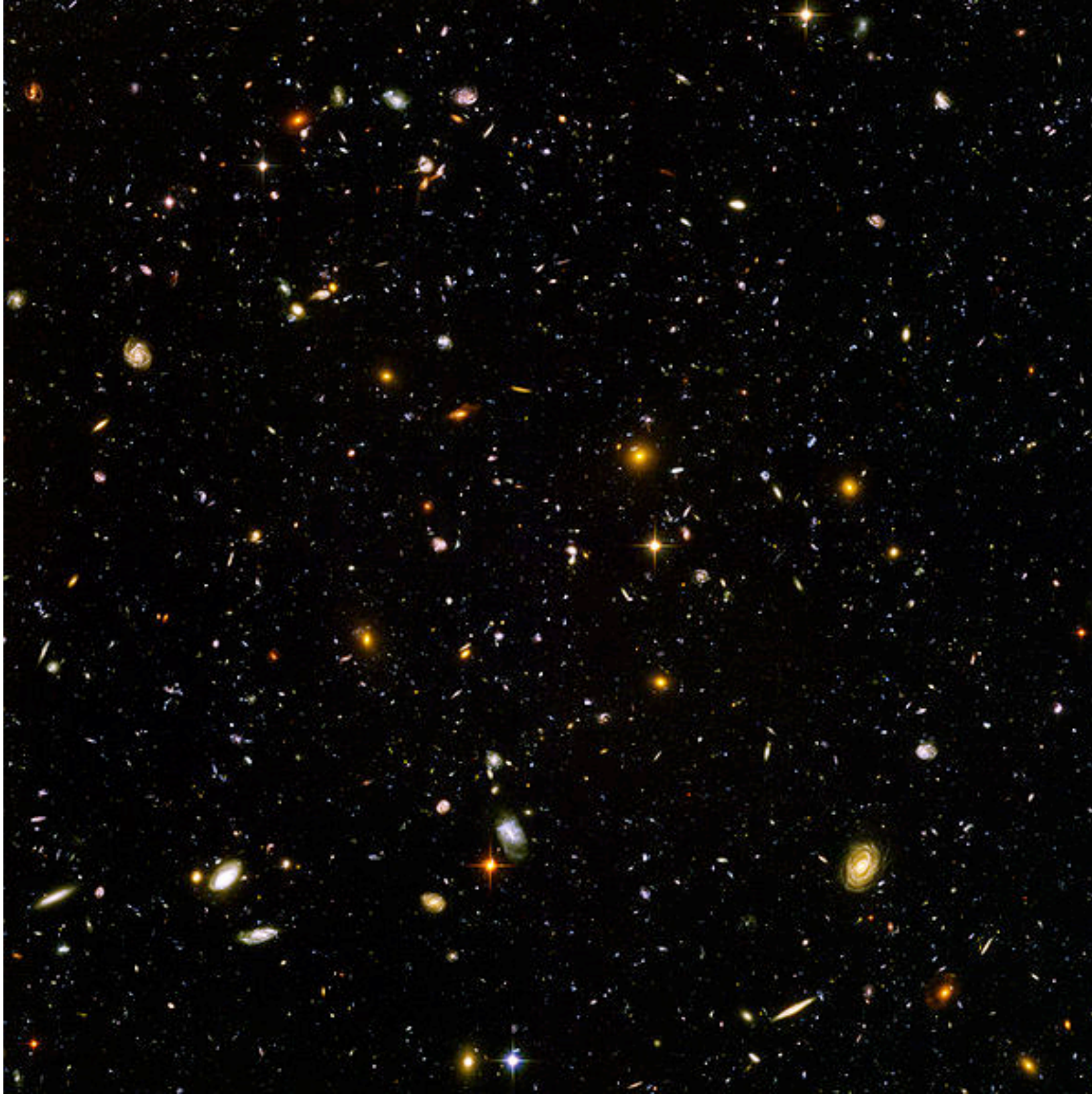
Ecologist Donald Worster felt that the photo introduced "a stunning revelation ... Its thin film of life ... was far thinner and far more vulnerable than anyone had ever imagined" (Worster as cited by Poole, 2008). "Earthrise" gave us a perspective on our planet that no one had ever seen before, and helped redefine our planet as a whole as a place, in that it would eventually disappear from view from a far enough distance.



“Look again at that dot. That’s home. On it everyone you know, everyone you ever heard of, every human being that ever was, lived out their lives ... on a mote of dust suspended in a sunbeam.”

- Carl Sagan (as cited by Poole, 2008)

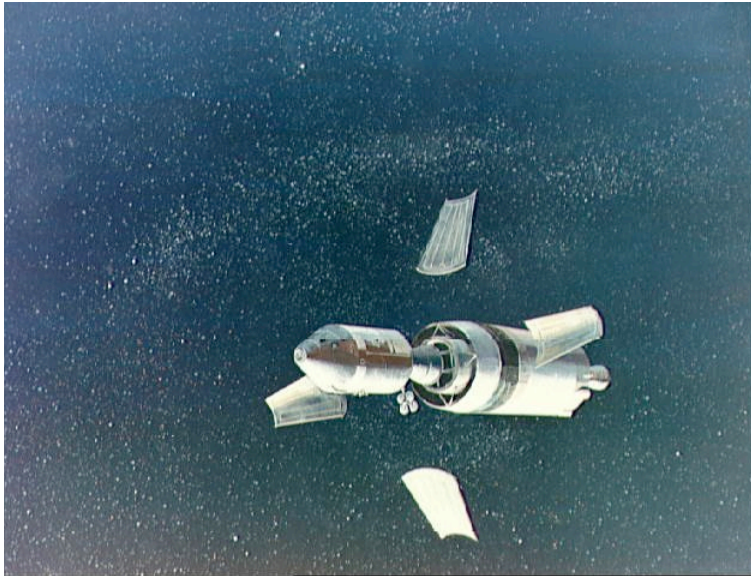
“Pale Blue Dot,” taken “from a distance of more than 4 billion miles from the Earth” February 14, 1990, Voyager 1, NASA Planetary Photo Journal Collection



It might be that a view as expansive as the Hubble Ultra Deep Field only acquires meaning when we can also see ourselves in context.

The Apollo program transformed the whole Earth into place, and brought this place into focus as home.

“Hubble Ultra Deep Field,” a view going back to just after the big bang, “the deepest portrait of the universe ever achieved by humankind,” March 9, 2004, Wikimedia Commons



"Artist's concept of Apollo 8 lunar module adapter panels are jettisoned," December 2, 1968

"The mind of the scientist, exploring space and matter, is closely related to the mind of the poet, whose task is to explore inner space and the reality of things. Like the scientist the poet is enchanted with an expanding universe of knowledge; but he keeps insisting that the new data must be incorporated into a moral universe, the universe that poetry originally created as myth and for which he must perpetually seek new metaphors."

- Stanley Kunitz

"A Kind of Order, a Kind of Folly"
(Wachhorst, 2000)

The Apollo missions certainly set out to explore and test the frontiers of technology and human capability. In doing so, they unavoidably charged us with incorporating this data into a "moral universe" – the first space age had been partly based on an astrofuturist ideal of exploration, but it caused us to ultimately undertake a reflective exploration of "inner space" (Kunitz as cited by Wachhorst, 2000). Visually, it spurred the idea that our world is an isolated, complex, fragile set of enclosed systems, that it is both vast and small at the same time, and the only place we can say for certain is a harbour for life.

In "The Dream of Spaceflight," Wyn Wachhorst says that "if the essence of exploration is to touch the boundary – the beach, the mountaintop, or the moon – the core of the human condition is the attempt to see the self in context" (Wachhorst, 2000, p. 78).

These images recorded moments in history when humans grazed a new boundary with their fingertips, and began to have a larger view of the boundaries of their initial departure point. At the end of the Apollo program, the drive to explore turned to what it meant for humans, at some of the smallest scales in the

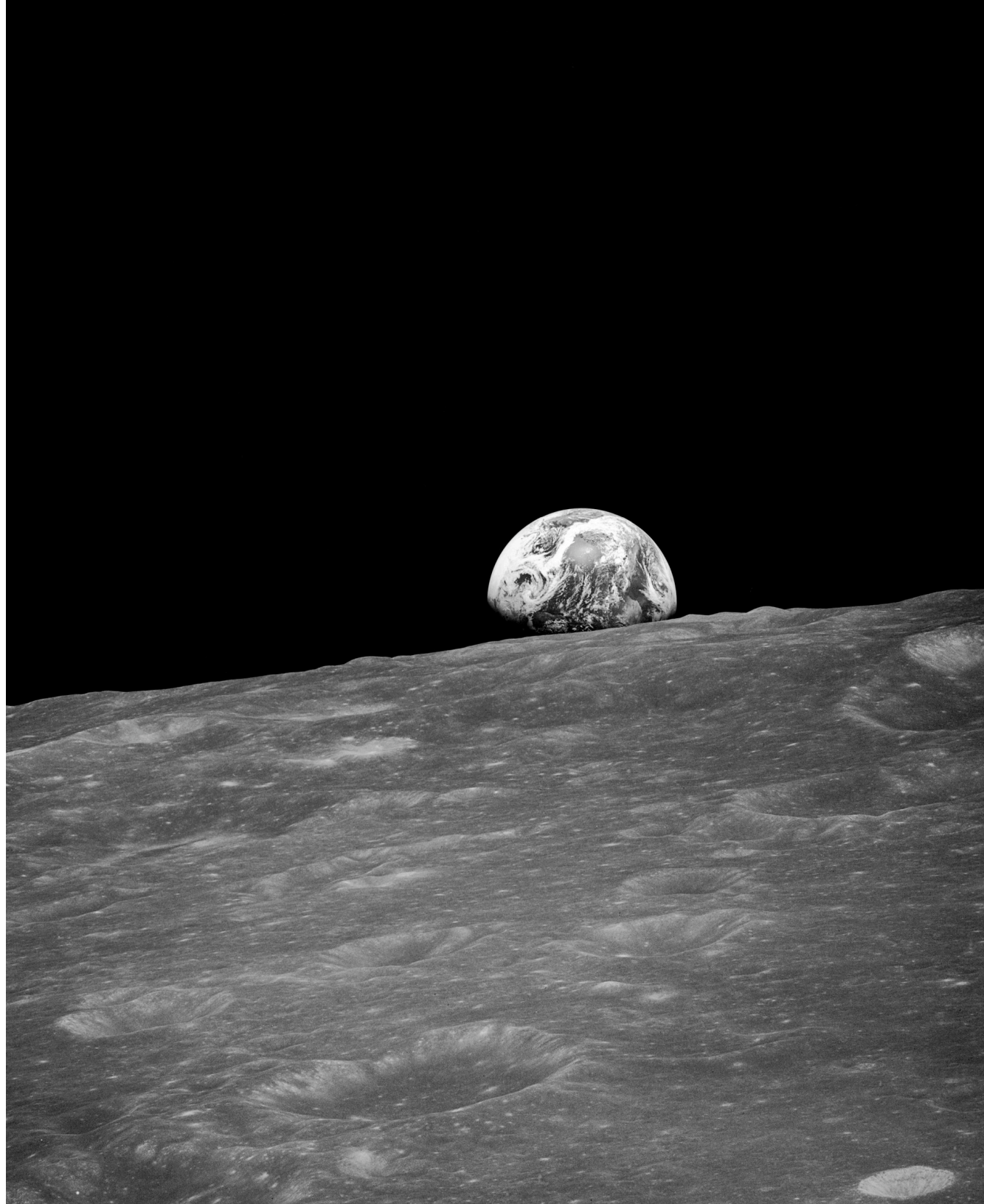
universe, to see themselves in its larger context.

The view of the Earth from space also put it in a context of place and familiarity; what makes the Earth home for us is life, which we are swiftly losing through a biodiversity crisis. As the world turns its attention to this issue in 2010, and as we near World Environment Day on June 5, we should acknowledge some of the most important lessons of the space age -- no matter how far we are able to look in time, or how great the scales afforded by technology become, we can't lose the instinct to look home.

“At the very apex of human progress the question was asked, ‘Where next?’ and the answer came, ‘Home.’”

- Robert Poole, 2008

“The first photograph taken by humans of Earthrise during Apollo 8,” Mission Commander Frank Borman, December 24, 1968



References:

- Borman, F. (1988). *Countdown: An autobiography*. New York: Silver Arrow Books.
- Henry, H., & Taylor, A. (2009). Re-thinking Apollo: Envisioning environmentalism in space. In D. Bell & M. Parker (Eds.), *Space travel and culture: From Apollo to space tourism* (pp. 190-203). Malden, MA: Wiley-Blackwell.
- HubbleSite. (2004). *Hubble's deepest view ever of the universe unveils earliest galaxies*. Retrieved from <http://hubblesite.org/newscenter/archive/releases/2004/07/>
- Kluger, J. (2008, December). Remembering Apollo 8, man's first trip to the Moon, *TIME*. Retrieved from <http://www.time.com/time/nation/article/0,8599,1868461,00.html>
- McCurdy, H. E. (1997). *Space and the American imagination*. Washington: Smithsonian Institution Press.
- NASA, *Why Man Explores*, symposium held at Bechman auditorium, California Institute of Technology, Pasadena, Calif., 2 July 1976.
- Poole, R. (2008). *Earthrise: How man first saw the Earth*. London: Yale University Press.
- Resilience Alliance. (2010). *Resilience*. Retrieved from <http://www.resalliance.org/576.php>
- Sagan, C. (1994). *Pale Blue Dot: A vision of the human future in space*. New York: Random House.
- UNESCO and International Astronomical Union. (n.d.). *About IYA2009*. Retrieved from <http://www.astronomy2009.org/general/about/>
- United Nations Environment Program. (n.d.). *About WED*. Retrieved from <http://www.unep.org/wed/2010/english/about.asp>
- Wachhorst, W. (2000). *The dream of spaceflight: Essays on the near edge of infinity*. New York: Basic Books.

White, F. (1987). *The overview effect: Space exploration and human evolution*. Boston: Houghton Mifflin.

World Resources Institute. (1992). *How many species are there?* Retrieved from http://archive.wri.org/page.cfm?id=535&page=pubs_content_text

World Wildlife Fund. (n.d.). *How many species are we losing?* Retrieved from http://www.panda.org/about_our_earth/biodiversity/biodiversity/

Images: NASA/courtesy of nasaimages.org
Wikimedia Commons

Apollo 8 transcript:

Poole, R. (2008). *Earthrise: How man first saw the Earth*. London: Yale University Press.

“seeing ourself in context”:

Henry, H., & Taylor, A. (2009). Re-thinking Apollo: Envisioning environmentalism in space. In D. Bell & M. Parker (Eds.), *Space travel and culture: From Apollo to space tourism* (pp. 190-203). Malden, MA: Wiley-Blackwell.

Wachhorst, W. (2000). *The dream of spaceflight: Essays on the near edge of infinity*. New York: Basic Books.

“looking back home”:

Poole, R. (2008). *Earthrise: How man first saw the Earth*. London: Yale University Press.

Astronaut Michael Collins as cited by Poole, 2008, p. 191