

SCIENCE

Connecting the dots between climate and biodiversity

BY DAVID SUZUKI

THE POLAR bear has become the poster child for climate change impacts in the Arctic. Sea ice, which the bears depend on for hunting, is melting at an ever-expanding rate.

For other species, climate impacts are not as direct. The 2019 State of Canada's Birds report found aerial insectivores like swifts, swallows and nightjars have declined by 59 per cent since 1970. The report cites climate change as one of several threats, as severe weather limits insect availability.

Similarly, according to Lauren Meads, director of the Burrowing Owl Conservation Society of B.C., extreme weather events linked to climate change have affected habitat where captive rehabilitated burrowing owls are released, affecting their ability to return to breeding grounds the following year.

For those working to help species recover, addressing the primary cause of decline is key.

Although climate disruption is exacerbating the plight of many species, the polar bear and its Arctic neighbours stand — or swim or fly — alone to some extent. The primary cause of decline for most at-risk species in Canada is habitat loss and degradation.

Some industries are trying to use the ever-evolving climate crisis to stall habitat protection and recovery. When the forestry industry called for a delay in much-needed recovery measures, citing the need to explore climate change impacts on caribou populations, some leading caribou scientists wrote, "There is little evidence to suggest that climate change brought caribou populations to their current threatened condition, nor does climate change explain the rapid rates of decline and range recession that are continuing today in many locations."

Although they intersect, the ecological emergency driving species imperilment and the climate crisis can't be entirely conflated. The extinction crisis is caused by a lack of sufficient limits to development, agricultural and resource-extraction activities. The climate crisis is caused by a lack of sufficient limits to greenhouse gases we release into the atmosphere.

That isn't to say that there isn't significant overlap, in causes and solutions.

A Canadian Parks and Wilderness Society report says, "Human activity, including industrial farming, logging, mining, hydroelectric development, and oil and gas exploration, have caused these twin ecological crises, which are closely interrelated."

Finding Common Ground finds, "Reducing human-driven land use change in Canada's ecosystems, especially wetlands, offers a potential treasure trove of emission reductions with significant biodiversity benefits."



SCIENCE MATTERS

This is especially true in Alberta and northeastern B.C., where oil and gas development have devastated caribou habitat and imperilled wildlife and the Indigenous communities that depend on it. Industrial activity has disturbed 96 per cent of the Little Smoky caribou range and 70 to 80 per cent of the Chinchaga, West Side Athabasca River, East Side Athabasca River, Cold Lake, Nipisi and Slave Lake boreal caribou ranges.

These high disturbance levels reduce caribou populations' chances of persistence to less than 20 per cent. To increase their chances, significant changes are needed to contain the logging and oil and gas footprint and initiate aggressive restoration.

Protecting habitat such as the boreal forest, rich with peatlands, would also serve as a means of sequestering carbon.

Wildlife decline isn't just an ecological issue. In B.C.'s Peace River Valley, more than three-quarters of Blueberry River First Nations traditional territory is within a few minutes' walk of industrial disturbance. In May 2019, Blueberry took the province to court, arguing that the cumulative impacts of industrial activities — primarily oil and gas — have significantly affected the lands and wildlife within their traditional territory and, accordingly, their treaty rights to hunt and fish.

Although there are different ways to mend and mitigate the two crises, the root causes — avoiding our duties to repair what we have fractured, neglecting to set limits to human activities, stalling direly needed actions — are the same, as are the broad solutions: recognizing our impacts on the planet, taking responsibility for them and coming together to take immediate, meaningful action. As the CPAWS report says, protecting and restoring forests, peatlands, grasslands and wetlands can advance biodiversity and climate goals.

As daunting as both crises are, we can't look away. We must face them and change course.

All living things depend on a stable climate and functioning ecosystems. Our planet is the only one with badgers and dragonflies — and chocolate. It's worth fighting for.

David Suzuki is a scientist, broadcaster and author. Learn more at www.davidsuzuki.org.

Study finds universe might be younger

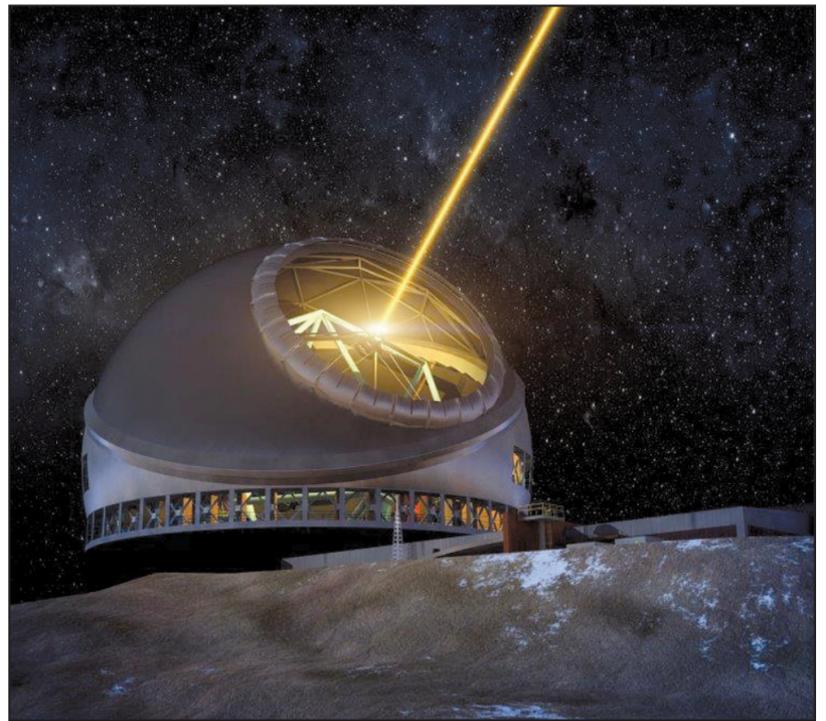
THE ASSOCIATED PRESS

WASHINGTON — The universe is looking younger every day, it seems.

New calculations suggest the universe could be a couple billion years younger than scientists now estimate, and even younger than suggested by two other calculations published this year that trimmed hundreds of millions of years from the age of the cosmos.

The huge swings in scientists' estimates — even this new calculation could be off by billions of years — reflect different approaches to the tricky problem of figuring the universe's real age.

"We have large uncertainty for how the stars are moving in the galaxy," said Inh Jee, of the Max Planck Institute in Germany, lead author of the study in Thursday's journal Science.



THIRTY METER TELESCOPE

An artist's rendition shows the proposed Thirty Meter Telescope at night with laser guide star system illuminated.

Faith and science collide on a Hawaiian mountaintop

BY MAUREEN ARGES NADIN



COSMIC NEIGHBOURHOOD

SCIENCE, without religion, is lame; Religion, without science, is blind.

That brilliantly insightful statement comes to us from one of the greatest minds in the history of science, Albert Einstein.

Rumour has it that he knew a thing or two about science; his lesser known views on religion might come as a surprise to some.

Although he did not believe in a personal god who controlled earthly fates, he refused to call himself an atheist. Ultimately, he conceded what most of us already know God (whoever or whatever you believe him to be) "is a mystery." And for centuries of human existence, so was the universe.

But as a result of the advancement of science and technology, the cosmos has recently been revealing some of its truly wondrous mysteries to we humble mortals. Could those "revelations" some day bring us closer to our understanding of God?

That is a big question indeed and I can't help but wonder what Einstein would say in light of recent discoveries of the likely millions of planets beyond our own, not to mention other exciting astronomical breakthroughs of the last few decades.

Space based telescopes such as the world-famous Hubble have taken us back in time and shown us breathtaking images of distant galaxies, shimmering in a celestial beauty that stokes our imagination and — if I may use a term lifted from the religious community — stirs our soul. And earth based telescopes, such as the proposed Thirty Meter Telescope (TMT) scheduled to be built on the peak of



COSMIC NEIGHBOURHOOD

the Hawaiian mountain, Mauna Kea, will be one of the largest and most powerful telescopes in the world and according to a recent article on the Smithsonian website will "enable astronomers to see forming galaxies at the very edge of the observable universe, near the beginning of time."

The TMT, an international non-profit project shared between the scientific communities of the U.S., Japan, China, India and Canada, was scheduled to begin construction on July 15.

And that is when the logistical challenges presented themselves or perhaps it would be more appropriate to say, existential challenges. Although the Mauna Kea site, being above the clouds and having little to no light pollution is an astronomical "heaven" for scientists, it is also sacred to the Indigenous people of Hawaii.

Although Mauna Kea is sometimes referred to as "White Mountain" because of its snow-capped summit, the name is actually a shorter version of Mauna a Weke, the sky father, an important deity in the Hawaiian indigenous religion. For the past eight-weeks, thousands of protestors have been peacefully blocking the proposed construction site. Thankfully, there has been no violence but judging from the online comments, there is no shortage of

opinions on both sides of the issue, that are polarizing, divisive and in my opinion, not particularly helpful. Although there are other factors that come into play here, such as nationalism and colonialism, it will be up to the seemingly mutually exclusive communities of science and religion to find that middle ground and work together towards a solution.

Fortunately, or unfortunately, depending on how you look at it, I can see both sides of the issue.

As a person of faith with a strong interest in science, I find myself sitting on the fence and it's an awkward and uncomfortable place to be. As an astronomy and space

enthusiast, I want to see the TMT project move forward as much as anyone in the science community but not at the cost of disrespecting the beliefs of the indigenous people.

There is a middle ground here and these two groups have to work together to find it. It's not rocket science. Well, actually it is but even science is not absolute all the time. Compromises can be found if both parties have the will to find them and this project is worth putting the time in to do just that.

I don't know how much consultation took place with the Indigenous people prior to reaching this point but given the fact that there are 13 other operating telescopes around the Mauna Kea summit, I can only conclude that the Hawaiian people are not opposed to exploring the heavens.

In fact, I am deducing that they love the stars as much as the astronomical community does but perhaps in a different way.

I am reminded of a quote from Dan Brown's book Origin that describes this situation: "Science and religion are not competitors. They are two different languages trying to tell the same story. There is room in this world for both."

As of this writing, this situation is fluid, as reporters often say. So, I decided to dust off the rose-coloured glasses that I keep in my desk drawer for situations like this. And after removing a couple of smudges, I looked through them and learned that in late August, TMT officials revealed that there is a Plan B site in the Spanish Canary Islands that has no opposition.

However, a Sept. 8 report indicated that the protestors are still firmly in place and the parties remain at an impasse. Perhaps it's the effect of the rose-coloured glasses but I remain hopeful of a solution to this situation that everyone can live with. And who knows where that could bring us? Perhaps when we peer back to the formation of those distant galaxies near the beginning of time, science and faith will meet, shake hands and find the answers that they both have been looking for. As the saying goes, anything is possible.

I wonder what Einstein would say?

Maureen Arges Nadin is a freelance writer and space enthusiast. Cosmic Neighbourhood appears the second Saturday of each month in the Weekend Edition. Find her blog and join the conversation on her website at www.maureenargesnadin.ca.

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