The Evolution Of The Human Pair Bond

Brenna R. Hassett –
Source: en.wikipedia.org

02-21-2024 ~ Our species stands out from the animal kingdom in many ways. Some of them are obvious: we are big-brained primates who use tools and language, a social species with symbols, culture, and art. These are all artifacts of our evolution, the process by which our ancestors found adaptations that allowed them to succeed in a natural world that is often red in tooth and claw. Often, however, we think of evolution as affecting our physical bodies—changing the shape of our hominin ancestors so they could walk upright, or grow bigger brains. But evolution has other ways to act on a species, particularly in clever, social species like ours. It can shape the way we socialize and bond, the way we pass on learning and care, and even whom we love. This is why we find that one of the most remarkable adaptations our species has ever made lies in our very, very unlikely mating system: monogamy.

Monogamy is a strange word and an even stranger concept. The way we use it in our societies today to imply two people romantically linked for life is a far cry from what a scientist who actually observes primates like us would call it. Monogamy, simply put, is pair-bonding between two animals. Often it is pair-bonding with an eye towards reproduction, but it can also include animals that

can't reproduce together who form a pair-bonded social unit anyway. Perhaps the most famous example, though certainly not the only one, might be Roy and Silo , two chinstrap penguins from New York's Central Park Zoo who formed a pair bond and even raised a chick together. There are other critical differences between what a scientist would define as a pair bond and what we commonly understand monogamy to be.

While humans tend to define monogamy as a once-in-a-lifetime pairing, with rituals and cultural rules that reinforce the idea of a lifetime bond, even the most pair-bonded of animals rarely are pair-bonded for life. Perhaps the most extreme animal monogamists on the planet are the far-flying seabirds albatrosses and petrels (all from the family *Procellariiformes*); almost every single pair is mated for life. However, even in these pairs, factors can intervene to disrupt the pair bond. Beyond simply losing one member of the pair, even allegedly mated-for-life albatrosses have cases of 'extra-pair paternity'—almost 10 percent of chicks surveyed in one sample had a male parent who was not their female parent's partner.

Humans, even those with strong cultural proscriptions against adultery, have very similar rates of extra-pair paternity—about 10 percent. While some cultures, particularly those that do not allow a great deal of female agency in choosing a partner, have slightly higher rates than others, this figure seems to be broadly the same across our species. While genetic monogamy—where two individuals breed exclusively with each other—may be elusive, even in the allegedly monogamous sea birds, social monogamy is not. Social monogamy is the type of pair bonding where the partners fulfill all the social roles needed in a pair bond without necessarily producing any genetic offspring—like Roy and Silo, tending a chick that was not their own. This suggests that it is *social* monogamy that is the most important part of pair bonding for many species—including our own.

Why would social monogamy benefit a species? It must offer some sort of advantage to our species, or we would not have adopted it—and we have indeed adopted it. Despite our very human flair for variety and adaptation,most societies around the world set a pair-bonded couple at the heart of how their members reproduce. Of course, there are examples of polygamy—marriage of one male to multiple females—and even polygyny—one female to many males in our wide array of cultural practices, but the vast majority of our fellow *Homo sapiens* will have social expectations of forming a monogamous pair bond.

So why have we evolved to have these bonds? It is not at all automatic that pair-bonds would be of adaptive value. In species that have evolved to sexually reproduce, the distribution of risk and reward for breeding behavior depends on how much each partner will need to invest in reproduction in order to produce a successful offspring. For the partner that makes the small gamete (sperm), investment costs are lower from the get-go, meaning strategies that maximize opportunities for reproduction. In fact, pair bonding is an incredibly rare phenomenon in the animal kingdom. Outside of birds, who are uncommonly fond of the state—90 percent of bird species create pair bonds—only 5 percent of animal species settle for 'the one' and form pair bonds. About 15 percent of primates, however, opt for pair-bonding.

Here we can start to unravel part of the mystery of the human pair bond, by examining what our other clever, social primate relatives use pair bonding for. The evolution of monogamy, or pair-bonding, has been a topic of major debates in anthropology and primatology . Most of the primate species that form pair bonds are actually quite distant from our species evolutionarily—the smaller monkey species like the marmosets, titi monkeys, and owl monkeys. Many of the original investigations of primate monogamy sought to explain the phenomenon in very Darwinian terms, looking at the advantage in genetic terms gained by reproducing monogamous pairs. In the 1970s, primatologist Sarah Hrdy suggested that pair-bonding might have evolved to be protective against infanticide because marauding male monkeys would not be motivated to harm their own genetic offspring but would be motivated to remove any offspring from a group that were not theirs.

This interpretation has been challenged in more recent times, particularly by anthropologist Holly Dunsworth. She argues that the kind of cognitive power required for a primate to understand whether offspring is genetically theirs or not is just not present in primate species. Perhaps pair-bonded species don't have infanticide not just because the male primates are trying to maximize their genetic reproductive potential, but because primates are social animals and those male primates are simply primed to be 'nice' to the offspring of the females they are bonded to.

Current theories for why pair bonding exists, even though it doesn't allow male primates to maximize their mating opportunities, follow several lines of evidence to understand what the actual adaptive benefit might be. One theory is that pair-

bonding is the only way for males to keep up with females who roam over large territories; it allows them the opportunity to mate because otherwise, they wouldn't be able to encounter any females. This is something that seems particularly applicable to the smaller monkeys like marmosets, where females hold territory.

Another theory for the evolution of pair bonding in primates looks at the reproductive benefit not just to the individual parent, in terms of the number of offspring possible, but to the effects on the next generation of having one more pair of helping hands. This looks at the net benefit to the offspring itself of having two parents provisioning it. In many species of primates, the offspring are helpless and a considerable burden on their carer. Having another pair of hands around may make the difference between growing an expensive, big-brained baby and falling out of the evolutionary race. Looking again at examples from the primate order we can see that the role of the male parent can be critical in the survival of the species—our male titi monkey will carry his offspring for the first year of their life, until they are old enough to move around on their own.

What does this mean for our own species? Well, we definitively have adopted a pair-bonded architecture—social monogamy is at the core of our societies. Why we have done so is less clear—but as more and more work is done on understanding the benefits of monogamy to a species we see that there are several factors that may have influenced our ancestors' choices to develop such an outré mating system. In fact, monogamy in primates seems to have evolved multiple times, and for multiple reasons. Computational models that have examined the likelihood of different evolutionary explanations have used these multiple evolutionary episodes in our nearest relatives to predict that, for humans, multiple factors may have given us the monogamy we have now. Adaptations to pair bonding that ensure males meet roving females might have been a stepping stone to developing the kind of multiple-parental care that keeps something as extraordinarily demanding as a human baby alive. So while our cultural perceptions of monogamy might not fit the evolutionary reality, we can say that as a species, we are awfully fond of a pair bond.

By Brenna R. Hassett

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Source: Human Bridges

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Why Is The US Producing More Oil And Natural Gas Than Ever Under Biden?

Michael Ash ~ University of Massachusetts Amherst

02-21-2024 ~ *US crude oil production reached an all-time production high in 2023 — the hottest year on record.*

The current year has a one-in-three chance of being even hotter than 2023, which was already the world's warmest year on record, according to analyses conducted by scientific organizations such as NASA and Copernicus Climate Change Service. And there is a 99 percent chance that 2024 will rank among the five warmest on record, according to scientists from the U.S. National Oceanic and Atmospheric Administration.

In the meantime, U.S. crude oil production reached an all-time production high in 2023, solidifying the position of the U.S. as the No. 1 global oil powerhouse. So much for President Joe Biden's vows of "strong" climate action; he has in fact approved nearly twice the number of oil and gas permits for wells on federal land that former President Donald Trump did in his first three years in office.

Unfortunately, according to a recent Center for Biological Diversity report, "The emissions that will result from the Biden administration's fossil fuel project approvals are larger than the emissions reductions from the Inflation Reduction Act and other climate policies." Moreover, the full effects of the emissions reductions promised by the Inflation Reduction Act will only be felt decades down the road, according to the U.S. Department of the Treasury. On top of that, the U.S. government has yet to effectively address greenhouse gas, water and air pollution from the country's major emitters, as economist Michael Ash reveals in this exclusive interview for *Truthout*. But perhaps this is not surprising, as the federal government ranks No. 6 on the list of greenhouse gas polluters. Ash is professor of economics at the University of Massachusetts Amherst and co-directs the Corporate Toxics Information Project of the Political Economy Research Institute (PERI), which publishes information about the major U.S. polluters and the effects of pollution on communities.

C. J. Polychroniou: Since 2010, climate scientists have set 1.5 degree Celsius, or 2.7 degrees Fahrenheit, as the climate threshold the world should not cross if we hope to avoid dramatic climate disruptions which will make heat waves longer, more extreme and more frequent, increasing in turn the risk of wildfires and exacerbating droughts by drying out soil. A warming of 1.5 degrees Celsius will also lead to other large-scale catastrophes on people, wildlife and ecosystems. Yet, one major dataset suggests that we already crossed the threshold in 2023 as the world failed again to reduce emissions from burning fossil fuels. In fact, the U.S. produced record amounts of oil and gas in 2023, and those records are expected to be shattered again in 2024 and 2025. Why is the U.S. producing more

oil and natural gas than ever under Biden?

Michael Ash: The core problem is the economic and political power of the fossil fuel industry. This industry has spent decades and billions of dollars investing in political and media campaigns of misinformation and astroturfing hostility to converting the U.S. energy system to an efficient and renewable basis.

A decade ago, I attended Transformational Trends, a conference sponsored by *Foreign Policy* magazine, and Jack Gerard, then-president and CEO of the American Petroleum Institute, observed that technological innovation (fracking and other unconventional extraction technology) had "changed the landscape." I think it was a slip of the tongue that revealed more than intended. But he was correct that we are now in the remarkable situation that the U.S. has become a net fossil energy exporter.

It's true that U.S. households as well as industrial and commercial users rely heavily on fossil fuels as well as electricity powered by fossil fuels. That reliance can make people think that expanded oil and gas production is a demand-side consumer problem. But enormous advances in renewable generation, efficiency and storage put transition within reach. It's crucial to put fossil fuels out of reach and to do it in an equitable way that ensures access, affordability and environmental justice.

I'm sympathetic to people who would like to get the entire transition done by making efficiency, renewables and storage so cheap and accessible that no one would even imagine choosing to use dirty and unjust fossil fuels. Those investments in efficiency, renewables and storage are crucial, but it's also essential that we stop burning fossil fuels very soon.

There are excellent policy instruments available for reducing the use of oil, natural gas and coal. My preferred instrument is a strict and shrinking cap on the total amount of fossil fuels introduced into the U.S. economy, with permits auctioned and the auction proceeds distributed equitably as carbon dividends. There are other approaches, such as carbon taxation, that achieve similar ends. These approaches are not a set-it-and-forget-it solution; they need monitoring for compliance, for fairness and for environmental justice. But they are an important step, and there really must be a "no to carbon" as well as a "yes to alternatives."

The United States is the second-biggest carbon polluter after China. Now, you

and some of your colleagues at the Political Economy Research Institute (PERI) have introduced the Corporate Toxics Information Project, which "develops and disseminates information and analysis on corporate releases of pollutants and the consequences for communities." And you have just released the figures for 2021, which is the latest year for which data has been published. Which are the top U.S. companies responsible for direct release of greenhouse gases, and where does the U.S government itself rank overall?

In terms of direct releases of greenhouse gases, our Greenhouse 100 Polluters Index pinpoints electricity production with fossil fuels as the biggest direct corporate contributor. These are Scope 1 emissions [or direct greenhouse gas emissions] going directly from the company into the atmosphere. The top 10 is dominated by fossil fuel-burning electric utilities such as Vistra Energy, Southern Company and Duke Energy. ExxonMobil, at No. 9, is the only top 10 company for which oil refining operations rather than electricity generation is the main greenhouse gas source. The federal government ranks as No. 6 on the list.

Direct corporate emissions are important, but companies that introduce fossil fuels into the U.S. economy are another concern. Four large oil companies top our Greenhouse 100 Suppliers Index: Marathon Petroleum, Phillips 66, Valero Energy and ExxonMobil account collectively for one-quarter of the total greenhouse gas emissions from fossil fuel combustion in the U.S. economy. Rounding out the top 10 are two coal companies, Peabody Energy (No. 5) and Arch Resources (No. 7); three additional oil companies, Chevron (No. 6), PBF Energy (No. 9) and PDVSA (No. 10); and a natural gas firm, Enterprise Products Partners (No. 8). The top 10 fossil fuel suppliers alone account for over 40 percent of greenhouse gas emissions from fossil fuel in the U.S. That is a remarkable concentration, which gives some sense of the incentive and capacity that these companies have to resist controls on fossil fuels. At the same time, that same concentration creates an excellent opportunity for effective intervention; there are simply not that many entry points for fossil fuels in the U.S. economy.

Which companies are the top polluters on the Toxic Air and Toxic Water Index?

In addition to monitoring corporate responsibility for greenhouse gases, we also track corporate emissions of toxics with our Toxic 100 Air Polluters and Toxic 100 Water Polluters indexes. Here we are assessing company releases of strongly toxic substances with effects primarily on local populations near company

facilities.

Some companies that are high on both the Air and Water Polluter lists are chemical giants LyondellBasell Industries, Dow Inc. and BASF.

Low-income and underrepresented groups tend to be more exposed to air pollution and toxic chemicals. Why is so much pollution found in disadvantaged communities, and what exactly are the environmental justice (EJ) indicators included in PERI's air and water indexes?

The U.S. has a long history of environmental injustice. Pollution is a costly, negative byproduct of making valuable goods and services. Companies sell their output for profit and try to dispose of the wastes at low cost. Displacing the wastes for free onto communities that are not well positioned to resist — communities of color, poor communities and other communities with less representation and less social capital — has been a main method for disposing of pollution cheaply. It's a form of exploitation. When siting their polluting facilities and the storage and disposal of waste, companies disproportionately select communities of color and poor communities. The EJ measurements in the PERI indexes document this environmental injustice.

The first basis of assessing the Toxic 100 Polluters is their contribution to potential chronic human health risk, which combines information on the quantities of over 600 different toxic chemicals that they emit, the relative toxicity of each chemical and the size and exposure of nearby populations affected by the releases. There is a long history of unequal exposure of minority populations and of low-income populations to these corporate environmental hazards. In addition to tabulating the total population risk, we also compute the share of the risk that accrues to minority populations and low-income populations. If the population more or less "downwind" of a polluting facility is, say, 45 percent minority, then the minority share of the risk from the facility is 45 percent. (The water polluters environmental justice assessment is based on proximity to polluted stream reaches — meaning a length of stream with no confluences. The greenhouse polluters environmental justice assessment is based on simple proximity to the facility.) We assess each toxic release for its potentially disproportionate impact on minorities or on low-income people and then aggregate that to the company as a whole.

For example, ExxonMobil, which ranks 20th on Toxic 100 Air Polluters, has an EJ minority share of 68 percent (compared to a 37 percent minority share in the U.S. population).

To what extent can it be said that the companies mentioned earlier engage in environmental crimes?

It is extremely difficult to connect the emissions we are analyzing from U.S. EPA data with permitting data or other indications that the releases are allowed. Many of these emissions are legal without a permit and many more have permits from the U.S. EPA or the state environmental agency. Indeed, much U.S. environmental regulation is in the form of right-to-know laws, such as those that enable our analysis. The right-to-know approach means that corporations are under legal mandate to publicly report their pollution, but after the reports are filed and published, citizens, employees, consumers, shareholders and managers are left to respond as they see fit. For the right-to-know approach to improving corporate environmental performance to have any chance of success, you need to have stakeholders with access to the information, the ability to interpret the information and the capacity and incentive to respond to the information.

Environmental crimes are regarded as a form of white-collar crime. Isn't it time that the world started treating environmental crimes as crimes against humanity?

That question is outside my scope of expertise. We are certainly facing a situation in which population health is in serious jeopardy from corporate pollution. Obviously, we need significant regulation that will result in a much cleaner environment.

This interview has been lightly edited for clarity.

C.J. Polychroniou is a political scientist/political economist, author, and journalist who has taught and worked in numerous universities and research centers in Europe and the United States. Currently, his main research interests are in U.S. politics and the political economy of the United States, European economic integration, globalization, climate change and environmental economics, and the deconstruction of neoliberalism's politico-economic project. He is a regular contributor to *Truthout* as well as a member of *Truthout's* Public Intellectual

Project. He has published scores of books and over 1,000 articles which have appeared in a variety of journals, magazines, newspapers and popular news websites. Many of his publications have been translated into a multitude of different languages, including Arabic, Chinese, Croatian, Dutch, French, German, Greek, Italian, Japanese, Portuguese, Russian, Spanish and Turkish. His latest books are *Optimism Over Despair*: *Noam Chomsky On Capitalism, Empire, and Social Change* (2017); *Climate Crisis and the Global Green New Deal*: *The Political Economy of Saving the Planet* (with Noam Chomsky and Robert Pollin as primary authors, 2020); *The Precipice*: *Neoliberalism, the Pandemic, and the Urgent Need for Radical Change* (an anthology of interviews with Noam Chomsky, 2021); and *Economics and the Left*: *Interviews with Progressive Economists* (2021).

Why Ecosystems Need Healthy Populations Of Apex Predators To Be Restored

Jimmy Videle ~ Source: YouTube

20-02-2024 ~ *Wolves benefit the entire ecosystem they inhabit. So why hunt them?*

What if restoring ecosystems was as easy as letting nature do what she intends? From the microscopic level, which constantly churns and builds the "living soil"—from where all life originates—to the massive ungulates that wander the plains and forests, like bison, moose, and wapiti.

Top predators like wolves are integral to maintaining the natural balance and for the ecosystem to thrive.

People tend to believe that wolves are vicious and dangerous. Perhaps this myth originates from the fables we learned as children, like "Little Red Riding Hood" and "The Three Little Pigs." Yet, between 2002 and 2020, there were only 26 deaths from wolf attacks worldwide.

For the most part, wolves tend to run at the first sight of a human. They have evolved to understand that humans are dangerous. Around 40,000 people have died due to gun violence in the U.S. as of December 7, 2023, according to the Gun Violence Archive. Considering these fatalities, which species should we be more wary of: wolves or humans?

I live in southern Québec, where eastern wolves (*Canis lupus lycaon*) patrol the forests. Historically, they could be found throughout the deciduous forests of the eastern United States and southeastern Canada.

According to Parks Canada, their range has shrunk dramatically, and less than 1,000 eastern wolves could be found in south-central Ontario and south-central Quebec in 2015. Eastern wolves have been "listed as a species of special concern" under the Canadian Species at Risk Act and "threatened" under Ontario's Endangered Species Act, 2007.

Québec has an annual hunting season for all wolves from October to April—five months when these animals need to look over their shoulders. They have become so cautious of humans that they avoid areas where hunters are present.

When the wolves leave, it significantly impacts the ecosystem. But it is not just in Québec. Hunting the gray wolf (a larger cousin of the eastern wolf) is legal in every Canadian province and territory.

The gray wolf (*Canis lupus*) once ranged over most of the northern hemisphere. Following a steep decline of the gray wolf population—starting with colonization,

as expansion destroyed habitat and game and livestock were threatened—they were extirpated from the contiguous 48 United States, except for a few hundred in Minnesota and Isle Royale National Park, Michigan.

The gray wolves were listed for protection under the U.S. Endangered Species Act (ESA) in 1978 when efforts arose to reintroduce them to some of their historic range. The culling of gray wolves was previously allowed to protect livestock in Arizona, Idaho, Michigan, Minnesota, Montana, New Mexico, Wisconsin, and Wyoming. As of 2022, following a court order, they are once again protected under the ESA, except in Alaska, Idaho, Montana, and Wyoming.

"Throughout their range, wolves are keystone predators and have a profound effect on the ecosystems they inhabit. The wide range of habitats in which wolves can thrive reflects their adaptability as a species," said Stephen Guertin, the deputy director for policy at the U.S. Fish and Wildlife Service, in testimony before the U.S. House of Representatives in 2016.

"In his essay titled, 'Thinking Like a Mountain ,' the great American conservationist Aldo Leopold described the cascading effect of losing wolves in a forested mountain ecosystem—the resulting increase of deer, followed by overgrazing, deforestation, and erosion, and then the collapse of deer [populations] after having eaten themselves out of house and home," addedGuertin.

In a research article published in August 2023 in the journal Science Advances, a team of scientists from Michigan Technological University and Arizona State University pointed out how the changes in the genetics of gray wolves in Isle Royale National Park, Michigan, affected the prey population (moose) as well as the insect and flora populations, which are all associated to each other.

In conclusion, the researchers assessed that "forest dynamics can be traced back to changes in the genetic characteristics (processes) of a predator population."

Extrapolating on the study, Anaissa Ruiz-Tejada, a graduate science writer at the School of Life Sciences at Arizona State University, concluded in a September 2023 article that the research "emphasizes the interconnectedness of species in ecosystems and how one species' well-being can affect others."

"It underscores the necessity of holistic conservation strategies that consider

genetic diversity to ensure the robustness and health of intricate ecosystems."

Wolves benefit the entire ecosystem they inhabit.

So why hunt them?

Hunting Wolves Is Big Business

Humans are disrupting the balance of the ecosystem to increase profits and generate more income from hunting elk, moose, and white-tailed deer—species that are primary food sources for wolves—and from big game hunting outfitters.

Outfitters in Alberta, Canada, charge anything from $6,000 to $10,000 for an almost guaranteed taking of a moose or a white-tailed deer. Companies in Idaho, meanwhile, charge up to $10,000 for the opportunity to take a "trophy" elk. Wealthy people from cities invade remote locations to "kill" the largest species of any kind they can find for sport and bragging rights.

According to the International Wolf Center, one adult wolf requires at least "15 to 19 adult-sized deer per wolf per year" to sustain itself. Considering around 1,000 eastern wolves remain in Canada, they need at least 15,000 deer.

However, humans hunt these deer, generating revenue for the government instead of letting them be food for wolves. This prioritizes economics over the environment and puts humans out of sync with the natural world.

The more plentiful the deer, the more enthusiastic hunters become. The total revenue from hunting licenses, permits, and tags in the United States in the four states where wolves are killed (Alaska, Idaho, Montana, and Wyoming) was nearly $90 million in 2020, 10 percent of the total U.S. revenue of $902 million from these activities. Spending on hunting in all of Canada exceeded $5.9 billion in 2018. Hunting is a huge business.

Is There Justification for Wolf Hunting?

According to a September 2023 NPR article , 23 cows and calves and 62 sheep were killed by wolves in Idaho in the past year. In response, the state Department of Fish and Game has allowed for the "harvesting" of 500 wolves over the past few years and would like to see the wolf population decline from 1,300 to 500.

In Montana, the state's Fish, Wildlife, and Parks Department reported that 58 cattle and 41 sheep were killed by wolves in 2022. Of the 1,087 estimated wolf

population, 248 were harvested during that year. Meanwhile, Montana passed regulations in 2021 that allow the hunting and trapping of 450 wolves per year with an extended season.

In 2022, 46 cattle and 46 sheep were either injured or killed by wolves in Wyoming, and humans killed 95 wolves during the period. The Wyoming Game and Fish Department implemented an objective hunting plan for wolves in 2022 to diminish the population from approximately 338 to 160.

Effectively, the three state governments want to see the wolf population cut down by more than 1,400 per year.
When it has been determined that a wolf has killed a rancher's livestock, the rancher is compensated at fair market value. They may lose the animal, but they don't lose income. Since this causes a payout by the respective governments, wolves take away from the potential of big game hunting and directly diminish game and fish department budgets.

But far from causing economic loss, wolves are beneficial to humans. According to a 2021 research article published in Proceedings of the National Academy of Sciences, the existence of wolves leads to economic benefits to humans that are "63 times greater than the costs of verified wolf predation on livestock."

I have heard firsthand from ministry biologists in Canada and even the Nature Conservancy, a nonprofit environmental group, that we *must* kill deer because they destroy the forests. What if we allowed wolves to return to the ranges they once inhabited and help naturally restore the balance in the ecosystem instead?

Letting the Wolves Come Home
Wolves are selective hunters. They target young, sick, or infirmed animals. The fastest, strongest, and wisest of the prey escape to continue the genetic line.

"New research shows that by reducing populations and thinning out weak and sick animals, wolves are helping create more resilient elk herds," pointed out a 2020 article in National Geographic.

The winters in the north are harsh, and the snow can be deep. Those deer, elk, and moose that survive their predators and the harsh weather conditions will become more adaptive to these factors.

Going deeper into the issue, my understanding from personal observations is that wolves know their terrain. They follow trails, scents, and scat, and will feed on those animals that do the least damage to the herd.

For example, if the wolf pack kills the strongest male or the most fertile female, there is a possibility that the herd will be depleted to the point of dying off over time. There are no wolves if there are no deer, elk, or moose. The wolves understand this.

Referring to research from Yellowstone National Park, the 2020 National Geographic article explained how the return of the gray wolf to the park after 25 years has resulted in the wolves being a "stabilizing force" there. "[T]hey would rather kill an undernourished 750-pound bull versus a 450-pound cow. So by targeting bulls during years of scarce food, they give the cows a chance to reproduce, thus keeping the population afloat."

Emphasizing the importance of wolves in maintaining a healthy ecosystem and biodiversity, Joseph Bump, an ecologist at the University of Minnesota, explained in a 2022 Discover magazine article that wolves influence not only the populations of the prey they consume but also the populations of the food sources for their prey.

The forests and mountains where wolves live know their howling. Leopold expressed how it feels to live in their world in his essay, "Thinking Like a Mountain":

"Only the mountain has lived long enough to listen objectively to the howl of the wolf. Those unable to decipher the hidden meaning know nevertheless that they are there, for it is felt in all wolf country, and distinguishes that country from all other lands. It tingles in the spine of all who hear wolves by night, or who see their tracks by day."

As modern humans, we lead different lives from our ancestors, who depended entirely on the natural world for their regional survival.

When the resources kept the tribes alive, it was apparent that if they depleted them, it would put their lives in jeopardy. This is learned behavior, and every other living being besides humans knows how to live in harmony with nature.

If we stop being manipulated by the almighty dollar, there is a wealth of information we can learn from, especially if we pay attention to the flora and fauna surrounding us. When we read between the lines of the Game and Fish Department propaganda, we will realize that tax revenue from hunting is blurring the focus of what should be their entire mission: the protection of species and the ecosystems in which they all live.

As a concerted naturalist and citizen scientist, I witness the interactions between plant and animal communities and their integral relationship to each other every day.

We need to veer away from our human desire to exploit nature through competition and greed. Instead, we must embrace social and natural harmony and cooperation for the benefit of all. Among the multitude of lessons that we can learn from wolves, this may be the most important.

By Jimmy Videle

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Jimmy Videle is a farmer, naturalist, and researcher. He is the author of *The Veganic Grower's Handbook: Cultivating Fruits, Vegetables, and Herbs from Urban Backyard to Rural Farmyard* (Lantern Press, 2023) and the co-founder of NAVCS-Certified Veganic. He is a contributor to the Observatory. His writing has appeared in CounterPunch, Countercurrents, and LA Progressive, among others.

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Advances In Archaeology Allow Us

To Understand Political Evolution And Social Change In Deep Time

02-20-2024 ~ Western society is largely in the grips of an entrenched mythology that premodern non-Western states and empires were organized despotically, markedly different from how humans govern themselves in the contemporary West. There's another common myth that dynamic periods of prosperity and well-being were exclusive to Europe during preindustrial times. We're still reckoning with the 19th-century academic belief that human history developed along two major paths: the West and the rest.

Early anthropology and archaeology were dominated by notions of progress and the categorization of human behaviors through successive evolutionary ages. Human history was misinterpreted through linear, generalized sequences of societal change; school children and college graduates were taught to imagine political evolution from tribes to chiefdoms to states, a great ladder of being that placed then-dominant European societies on the top rung.

This approach repeatedly fell short in the light of new findings in archaeology, as no clear patterns or laws emerged by comparisons of social history either regionally or globally that were pressed into these categories of evolution. For instance, disparities like the delayed introduction of metal in pre-Hispanic Mesoamerica and the absence of a text-based writing system in the pre-Hispanic Andes contradicted the notion of uniform growth seen in empires from early Eurasia.

Even as we still reckon with that legacy today, Mesoamerican researcher and archaeologist Gary M. Feinman makes the case in a 2023 paper that current understandings of a more global and detailed archaeological record offer a new vantage toward interpreting long-term political change. Today, the wealth of qualitative and quantitative archaeological data challenges the Eurocentric notion of a single linear course in human history.

The traditional comparative approaches in archaeology, often categorical and binary, are being reshaped by powerful new findings, made possible by decades-long research programs in archaeology that have seen improved chronological controls, wider global coverage, and multiscalar analyses in many investigated regions. As a result, the way of reading historical narratives changed strikingly, importantly in our understanding of long-term political change.

Rather than projecting recent organizational patterns—often recorded during colonial eras, back in time—archaeologists can now study patterns of change looking forward from deep in the past. In other words, we need to eliminate now-dated postulates and accept that long-term political change does not follow uniform or directed paths. Rather the change happens differently across space and time.

We should focus on case-specific variation and acknowledge that human cooperative patterns, and the resultant institutions that are founded, have more situational and contingent histories and that sequences of change were often impacted by open networks of exchange, conquest, and warfare that fomented new challenges and opportunities. This modern model to examine long-term political change is less universal but is more realistic and precise, and since we often know outcomes, deep-time histories provide a rich record of human experience that we can learn and draw from when facing current challenges.

By Gary M. Feinman and David M. Carballo

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North Korea's Transformation On Peaceful Reunification Marks Paradigm Shift In Asia

John P. Ruehl – Source: Independent Media Institute

02-20-2024 ~ *Abandoning peaceful reunification could escalate into a major conflict, or signify that the window for reunification is presently closed, prompting Pyongyang to explore alternative approaches.*

Late 2023 marked a notable transformation in North Korea's longstanding pursuit of peaceful reunification with South Korea after North Korean leader Kim Jong Un noted the failure of the policy in his end-of-year speech. This sentiment was reiterated during a January 15 meeting of North Korea's Supreme People's Assembly (SPA), where the country's constitution was ordered to be rewritten to label South Korea as its "principal adversary."

Subsequently, public symbols promoting peaceful reunification in North Korea were dismantled and references to it were deleted on state media outlets. Additionally, three inter-Korean cooperation organizations —the Korean People's Cooperation Administration, Kumgangsan International Tourism Administration,

and the Committee for the Peaceful Reunification of the Fatherland—were abolished, accompanied by an increase in North Korean missile tests.

Several North Korea experts, including former State Department official Robert L. Carlin and nuclear scientist Siegfried S. Hecker, have sounded the alarm about the growing potential for conflict. Armed with nuclear weapons and emboldened by challenges to U.S. power in Ukraine and the Middle East, Pyongyang might see this as an opportune moment for large-scale aggression. However, the North Korean leadership may believe that abandoning reunification while avoiding war could bolster its autonomy by freeing it from the democratization constraints linked to the reunification process.

North Korea explored various avenues for peaceful reunification in the decades following the Korean war, including Kim Il Sung's Three Principles of National Reunification in 1972. The 1980s saw more substantive ideas emerge. North Korea's "Democratic Confederal Republic of Koryo," proposed two regional Korean governments under a confederal government. Subsequently, South Korea put forward its "Unification Formula for the Korean National Community," outlining a three-step model of reconciliation and cooperation, formation of a Korean commonwealth, and establishment of a unitary liberal democracy.

In 1991, North Korea introduced the idea of a "low-stage federation" with regional autonomy, which received a positive reception from South Korea. By 2000, a Joint Declaration acknowledged common elements in both North and South Korea's proposals that fostered an environment conducive to the pursuit of unification.

However, relations between the Koreas began to break down in the 2000s, particularly after the North conducted its first nuclear test in 2006, and have soured further in recent years. Citing the "vicious cycle of contact and suspension, dialogue, and confrontation" and accusing South Korea of using reunification to collapse the North Korean government, Kim Jong Un's policy shift threatens to undo decades of work.

Apprehension about South Korea and the U.S. maintaining a firm stance on North Korea without concessions no doubt motivated Pyongyang to discontinue reunification efforts. The Biden Administration reversed Trump's outreach policies to North Korea, while in 2022 , South Korean President-elect Yoon Suk

Yeol declared it would designate North Korea as the country's "main enemy" following North Korean missile tests.

The U.S. and South Korea later launched the U.S.-ROK Nuclear Consultative Group (NCG) in 2023 to strengthen deterrence and cooperation on nuclear and contingency planning, while Yoon stated in December 2023 that a "nuclear-based, powerful Korea-U.S. alliance" would be formed to deter Pyongyang. Additionally, greater military cooperation under Biden among South Korea, the U.S., and Japan may have further incentivized North Korea.

Amid worsening relations with its adversaries, North Korea's foreign policy is increasingly aligned with its major partners. Russia and China, once occasional collaborators with the U.S. on North Korea issues, have hindered U.S. measures against Pyongyang as their own relations with Washington have worsened. Widespread sanctions on China and especially Russia in recent years have prompted them and other countries to work around the sanctions through increased mutual trade and assistance with North Korea.

North Korea came to rely on China after the collapse of the Soviet Union but has strengthened its partnership with Russia since the start of the Ukraine war. South Korea's support for Ukraine saw Russia include it in its list of "unfriendly countries," easing Moscow's limitations on aiding North Korea's military. In return for receiving energy, food, and space and weapons technology, North Korea has supplied missiles, artillery, and other weapons to Russia.

Military assistance to North Korea meanwhile allows Russia to raise the security costs for the U.S., South Korea, and Japan, which Russia declared in January 2024 were preparing for war with North Korea. Boosting North Korea's abilities may distract the U.S. from aiding Ukraine and complicate its efforts to deter increasing Chinese activities around Taiwan and the South China Sea.

Washington has also intensified attempts to sanction numerous countries to a level not seen in decades. The increasing number of countries attempting to circumvent traditional networks may have persuaded North Korea that it is no longer as susceptible to isolation from the global economy as it was in decades past. Utilizing Russia as a conduit, North Korea has already increased engagement with other sanctioned states like Iran and Syria.

In recent decades, the waning of the prospect of Korea's reunification has also

paralleled a global trend. Country unification has become increasingly rare compared to state fragmentation. The last two major reunifications, Germany and Yemen, occurred in 1990, with the reunification of East and West Germany often cited as a model for Korea. But the absorption of the far smaller East Germany by the far larger West Germany contrasts to South Korea's population being only double that of North Korea.

Familial links between North and South Korea have also dwindled significantly since 1953 and income gaps have widened. Bringing East Germany up to West German social standards has meanwhile cost more than $2 trillion, with lingering cultural differences between them—challenges that will be even more pronounced in Korea. And in contrast to Germany's relative success, Yemen's reunification attempts since 1990 have been marred by ongoing violence and instability.

Faced with these realities, growing numbers of South Koreans, particularly younger generations , no longer want reunification with the North, trends that may solidify as the population difference between the two countries may reverse by the end of the century.

Concerns remain that though North Korea may not actively pursue forceful unification, there is a potential for an escalation in destabilization tactics. In 2010, a suspected North Korean missile sank the ROKS Cheonan, a South Korean naval vessel, killing 46 servicemen. Months later , North Korean shelling of Yeonpyeong Island left two South Korean servicemen and two South Korean civilians dead. Although full-scale conflict was avoided, South Korea's government may now not show as much restraint, and North Korea has increased its shelling near Yeonpyeong Island in recent weeks.

With Washington distracted in Ukraine and the Middle East, it has become harder for it to effectively punish North Korea for missile launches and military posturing. But open conflict or serious escalation might be deemed too risky by Kim Jong Un. While Russia and China may welcome distractions from their own territorial ambitions, a flare-up in the Korean peninsula may be too close to home for Moscow and Beijing.

Recognizing the aversion of major powers to the instability associated with the collapse of a nuclear-armed North Korean government, Kim may choose to test the U.S. and South Korea without the allure of reunification as a bargaining chip.

Distracting Washington but steering clear of serious escalation would ensure his long-term rule and is an approach that both Moscow and Beijing could support.

Capitalizing on perceived greater leverage, Pyongyang has reverted to the Cold War-era strategy of playing Moscow and Beijing off one another. Following North Korea's foreign minister's visit to Moscow in January 2024, state media invited Putin to Pyongyang, dubbing him "the Korean people's closest friend," language usually reserved for China. But in contrast to the later stages of the Cold War, the foreign policy alignment of North Korea, Russia, and China against Washington has made confronting them more formidable.

In 936, the Goryeo dynasty managed to reunify Korea after centuries of division. Today, North Korea's recent policy shift has halted Korea's current reunification process, shaping a new chapter in the peninsula's history. South Korea now faces the crucial decision of upholding its reunification policy and championing pan-Korean nationalism, or abandoning these ideals and more permanently dividing the two countries. Seoul's decision to downsize and repurpose the Ministry of Unification in mid-2023 offers some insight into the direction it is leaning.

Though the prospect of reunification could return, the joint admission of North and South Korea to the UN in 1991, while still committed to reunification, hints at the early stages of consideration of abandoning reunification as a policy. Committing to the policy reversal will fundamentally alter Asia's geopolitical landscape and reshape bilateral ties, and already appears to be bringing the threat of conflict closer.

Yet should North Korea's policy shift solidify, abandoning reunification"theoretically opens the way to diplomatic relations, mutual recognition, and even the establishment of embassies" between the two Koreas. Pyongyang, Seoul, and outside powers could transform the decision to abandon reunification from a crisis into an opportunity—provided collaboration, a commitment to diplomatic resolution, and an avoidance of escalation are recognized as a collective responsibility.

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Pakistan Election Aftermath: Coalition Government, Economic Challenges, And The Struggle For Substantive Solutions

The Parliament House ~ Islamabad

02-19-2024 ~ *Pakistan's recent elections led to a PML-N and PPP coalition, overshadowed by economic challenges and a focus on personalities. However, the overarching question persists: can these parties provide a substantial alternative for the people?*

On February 8, 2024, Pakistan conducted its parliamentary elections with 44 political parties contesting for 265 seats in the National Assembly. This marked the 12th general election in the country since it gained independence 76 years

ago.

After the announcement of results on February 11, the Pakistan Muslim League-Nawaz (PML-N), under the leadership of Nawaz Sharif, and the Pakistan People's Party (PPP), led by Bilawal Bhutto-Zardari, joined hands to form a government. Both of these parties were not able to reach the majority mark. Nawaz Sharif put forth his younger brother, Shehbaz Sharif, as the nominee for the position of Prime Minister.

Parties and Regional Results
Pakistan's National Assembly comprises 336 seats, and elections were conducted for 265 seats. The election for one seat was postponed after the death of a candidate, while the remaining seats (60 for women and 10 for minorities) were reserved for members of those groups and allocated based on the proportional representation of parties in the election results.

According to the Election Commission of Pakistan, the independents supported by now-jailed Imran Khan's party Pakistan Tehreek-e-Insaf (PTI) secured 93 seats in the National Assembly . Pakistan Muslim League (Nawaz), headed by former Prime Minister Nawaz Sharif, attained 75 seats. The Pakistan People's Party led by former Foreign Minister Bilawal Bhutto Zardari obtained 54 seats. The Muttahida Qaumi Movement (MQM), a party based in Karachi, made a noteworthy comeback, winning 17 seats in the polls, and has pledged full support to PML-N. The remaining 26 seats were secured by others.

In the provincial elections, candidates from PML (N) won 138 seats in Punjab while independents backed by PTI won 116 seats. Additionally, the PPP secured 10 seats and later offered support to Nawaz Sharif's party. PTI-backed candidates won a majority in Khyber Pakhtunkhwa, securing 84 seats out of 113. In Sindh, the PPP obtained a majority by winning 83 seats out of 130, while Balochistan voted in a hung assembly.

Maryam Nawaz, the daughter of Nawaz Sharif, made history by being the first woman to be nominated as the Chief Minister of Punjab province in Pakistan.

What Led to PTI's Revival?
These elections occurred against a backdrop of broad public dissatisfaction directed at the previous government headed by the PML (N) and PPP. The discontent stemmed from their inability to control the prices of essential

commodities and address the economic challenges faced by the majority of Pakistanis.

Furthermore, the arrest of Imran Khan, his involvement in multiple legal cases , the prison sentences he received, and his party losing its election symbol added to the prevailing chaos. Nevertheless, the public perceived the targeting of Imran as an assault on democracy, mobilizing support and playing a significant role in the PTI's performance. Pakistanis expressed dissatisfaction with the military's role in politics, seeking change and a genuine democratic system. Imran Khan emerged as the preferred candidate to fulfill these aspirations.

Issues in the Election

In Pakistan, a primary concern for voters centered around the burning issue of inflation, a critical factor that has significantly eroded real wages. A real wage is the income that an individual receives for their work, adjusted for inflation. The average real wage has seen a substantial decline in Pakistan, plummeting by 13 percent in the year 2023 alone, increasing financial strain on the people.

The industrial sector of the country is in a downturn, with the high costs of inputs acting as a major barrier. The manufacturing output of large industries witnessed a staggering 15 percent year-on-year contraction in June 2023, due to the high cost of doing business. Moreover, the broader economic scenario from July 2022 through June 2023 indicates an overall industrial decline of 10.26 percent, pointing towards the intensity of the challenges faced by the manufacturing sector.

The imposition of stringent austerity measures mandated by the International Monetary Fund (IMF) and the transition toward market-based prices have further constricted Pakistan's capacity to navigate economic challenges effectively. This shift in economic policy has not only impacted the purchasing power of citizens but has also intensified the economic hardships faced by businesses, particularly in the manufacturing domain which is the highest creator of employment opportunities.

Adding to the complexity is the absence of a comprehensive plan for reindustrialization, leaving the economy without a clear roadmap to revitalize its industrial base. The allocation of a substantial portion of the budget, approximately $17 billion , to subsidies that primarily benefit a privileged elite

increases the economic disparities within the country. Concurrently, the persistently high unemployment rate, currently standing at 8 percent, underlines the challenges faced by ordinary people.

Collectively, these issues underscored the intricate economic landscape in Pakistan, where concerns about inflation, industrial decline, austerity measures, and the distribution of resources played pivotal roles in shaping voters' perspectives and influencing their choices.

However, a notable positive outcome from the recent elections is the limited influence of religious parties, with their representation remaining below 10 seats. This suggests a preference among voters for a more secular and inclusive political landscape, emphasizing national interests over religious affiliations.

The recently held Pakistan election, considered one of its most significant, experienced a substantial voter turnout despite lingering doubts about its fairness. Before the polls, concerns were raised regarding the fairness of the Election Commission, which denied PTI its symbol and the consistent 'persecution' of Imran Khan. Several petitions challenged constituency results post-general elections, citing issues with Forms 45 and 47, crucial in Pakistan's electoral process. Form 45, recording votes at polling stations, includes vital details submitted to the Returning Officer for final results. Form 47 offers a provisional overview before official confirmation, consolidating Form 45 data. PTI raised concerns over their polling agents not being provided Form 45 and significant discrepancies between Form 47 results and detailed Form 45 information in several cases.

The appeals for unity from both political and military figures underscore the strained civil-military relationship. Unfortunately, none of the political parties presented a substantive alternative agenda. Critical issues have taken a back seat in the discussions. Instead, the focus had shifted disproportionately toward the personalities of Imran Khan and Nawaz Sharif, turning the entire electoral narrative into a contest of charisma.

Asif Ali Zardari is poised for a potential second term as president. Imran Khan has cautioned against the "misadventure" of establishing a government based on "stolen votes," asserting that such electoral manipulation would not only disrespect citizens but also worsen the country's economic decline.

Uncertainties persist regarding tangible benefits for the people, including increased income for farmers and workers as promised, the prevention of government overthrow by the military, and potential surprises from Imran Khan. Amidst numerous questions, answers remain elusive, leaving the population to confront challenges while elites build their castles.

By Pranjal Pandey

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