

Peter Kallang of SAVE Rivers said, “You cannot say this is a Sarawak problem. This is our national problem. If you look at the impact of a dam on the environment, this is an international problem, because it will drown one of the most biodiverse parts of the world.”

The massive dams that will submerge Sarawak’s forests present one of the greatest environmental and social threats the island of Borneo has ever faced. As Mark Bujang said, “We have seen the

widespread destruction of the forests in Sarawak, but once you build a dam there, there’s nothing left. It’s the final nail in the coffin.”

Amanda Stephenson is a writer, researcher, and filmmaker living in Oakland, CA. She is working with the Borneo Project on an educational film series documenting the environmental and social catastrophe that would follow the construction of Malaysia’s proposed mega-dams. This article originally appeared in *The Ecologist*.

Let It Burn

Why Large Fires Are an Ecological Necessity

by Monica L. Bond, Chad T. Hanson and Dominick A. DellaSala

Last winter California suffered its most severe drought in decades, with record-low rainfall and meager mountain snowpack. Drought, high summer temperatures, and wind together make the perfect storm for what some have termed “mega” forest fires that, in spite of fire suppression activities, sweep across the landscape and end only when winds die down and weather cools off. So why aren’t we, as wildlife and forest scientists, worried?

Despite the impression fostered by many in the media, politicians, the timber industry, and the US Forest Service that large fires are widespread and destructive, they are actually

infrequent and ecologically necessary. In non-drought years, western forests experience few fires big enough to affect the landscape. When

you add up all the acreage burned in the biggest fires over the past decades, it is a tiny fraction of the area historically shaped by fire. Most importantly, fires in California and across most of western North America are as natural as sunlight and rain, and have been burning in forests, shrublands, and grasslands regularly since the end of the last ice age. Natural fires include the low-burning small blazes that consume leaf litter and small saplings as well as the biggest, hottest fires that kill all the trees in a large area. In fact, the term “mega-fire” is just another name for a large fire. Not only are these fires natural, but they are ecologically necessary for the survival of many plant and wildlife communities. For these species, years with no large fires are bad fire years.

For many plants and animals large fires create the very best habitat. The occurrence of large forest fires creates special conditions—standing dead trees, fallen logs, re-sprouting shrubs, naturally regenerating conifer saplings, and nutrient-rich soils that set the stage for the new forest to follow. Because large, intense fires burned regularly over millennia, it is not at all surprising that many plants, insects, birds and other animals evolved to take advantage of these unique conditions. Many species are now dependent upon intense fire to create their prime habitat—habitat that is now much rarer than it was historically, due to fire suppression and post-fire logging.

The remarkable boom in plant and wildlife populations in the aftermath of large forest fires more than outweighs the negative effects from some

animals that prefer unburned or lightly burned forests. Moreover, contrary to popular myth, even large, intense forest fires move relatively slowly, unlike fires in grass-

lands and low-elevation chaparral (e.g., the Rim Fire of 2013 moved at less than one mile per hour on the fastest days, according to US government data); so, with rare exceptions, wildlife has little difficulty moving out of the way while fires burn.

Among the first to arrive after a large fire are the wood-boring beetles, who intently seek out heavily burned forests with specialized sensory organs that detect heat and smoke from miles away. They flock to the smoldering forest to lay their eggs on the bark of scorched trees—the more burned, the better. The eggs hatch into grubs (larvae) that burrow beneath the bark and eat sapwood for a few years before burrowing out again and flying off as adults.

This super-abundant food source hidden in the burned trees attracts a variety of woodpecker species. The woodpeckers, balanced upright on tree

trunks using their specialized stiff tails, can hear the grubs moving under the bark. The woodpecker excavates a hole, pokes in its long, barbed tongue, hooking the grub, and pulls out a

protein-rich meal, employing skills that would make any fly fisher envious. With reinforced skulls and ribs, and chisel-like beaks, woodpeckers—aptly called *carpenteros* in Spanish—are perfectly adapted for excavating nesting cavities in hard, dead trees,

For many plants and animals large fires create the very best habitat.

Wood-boring beetles flock to the smoldering forest.

raising their young deep inside the safe, strong holes.

Other kinds of cavity-nesting birds, from bluebirds to house wrens, as well as bats and other denning mammals, cannot excavate these holes, so they take over this prime real estate after the woodpeckers have departed. The combination of so many available cavities in the dead trees (thanks to the woodpeckers), the shelter of fallen logs, the super-abundance of insects drawn to the burst of new flowers and shrubs, and nutritious leaves

and seeds from post-fire shrubs, is why so many different kinds of wildlife thrive in forests after a large, intense fire.

The best-adapted woodpecker in the world for excavating into freshly fire-killed trees is the Black-backed Woodpecker, whose black back camouflages the bird as it perches on scorched tree trunks. This rare woodpecker is found almost exclusively, and reproduces most successfully, in the areas heavily burned in large fires. As pointed out by pre-eminent ornithologist Richard Hutto, this bird simply would not have evolved as it did without the presence of large areas of regularly occurring intense fire throughout its evolutionary history—strong evidence for the naturalness of big fires in western North America. This bird is profoundly harmed by fire suppression and the widespread practice of logging dead trees after a fire, so much so that it is now under consideration for listing under the Endangered Species Act.

Many media stories describe the forest after a large fire as a “moonscape” in desperate need of “restoration.” One Forest Service spokesman described the 2013 large Rim Fire that burned in the Sierra Nevada as “nuked.” Nothing could be further from the truth. In western North America, where large, intense forest fire is natural, shrubs and trees have evolved the ability re-sprout from their roots and trunks, and some have seeds that germinate best only after intense fire. Many fire-following shrubs fix nitrogen in soils, allowing nitrogen-hungry conifers and other plants to flourish during natural regeneration. Flowers bloom, mushrooms thrive, insects buzz, squirrels and mice feast on seeds, woodpeckers and flycatchers abound, a symphony of birdsong echoes. Even a creature synonymous with old-growth forests, the iconic Spotted Owl, takes ad-

Why would we ever consider logging in this ecological treasure trove?

vantage of intensely burned forests to hunt for gophers and wood rats.

A unique, fascinating, complex, life-filled world can be found in the days, months and years after a large forest fire. In fact, the habitat created by large, intense fires supports levels of native biodiversity and wildlife abundance that are comparable to, or higher than, old-growth forests. So why be distressed when such a fire happens? Why aren't we

celebrating, breaking out binoculars to go birding, packing up wildflower guides to identify the flowering plants, or slinging on baskets to collect the prodigious morel mushrooms? And why would we ever consider logging in this ecological treas-

ure trove?

The answer is there are powerful economic forces at work, with profits reaped from logging in the name of fire. Logging is proposed as a solution to preventing future fire and to “restoring” green forests after fire. Many within federal and state land-management agencies, Congress, private industry, and even a few conservation groups promote logging out of fire phobia and economic interest.

Consider this fact—according to the Office of Policy and Analysis, annual fire-suppression costs on public lands in some years now exceeds \$4 billion, and “fuel reduction” (logging in the name of fire protection) costs taxpayers hundreds of millions of dollars annually through the Forest Service alone. In big fire years, the Forest Service also proposes millions of dollars in post-fire timber sales on federal public lands, while Congress pushes legislation to bypass environmental review to quickly cut burned trees before they lose their economic value.

With massive expenditures in fire suppression, logging in the name of fire prevention, and post-fire timber sales, fire is big business. This situation creates an inherent conflict of interest for the agency. As the US 9th Circuit Court explained in a 2006 ruling against a Forest Service post-fire logging project, “it has not escaped our notice that the Forest Service has a substantial financial interest in the harvesting of timber in the National Forest. We regret to say that in this case, like the others just cited, the Forest Service appears to have been more interested in harvesting timber than in complying with our environmental laws.”

Fire phobia promotes fire as the enemy, and fear is an understandable reaction after a half-century of Smokey Bear and witnessing firefighters attacking blazes with aircraft and chainsaws amid warlike rheto-



Male black-backed woodpecker in the Sugarloaf Fire in the Lassen National Forest, California. Photo by Joseph Leibrecht.

ric. Yes, human structures in fire-prone forests are at risk if they are not built and maintained properly, and yes, a blackened swath of dead trees may not look like what we have come to believe a forest should look like, but the truth is that we have nothing to fear from large fires in the forest. Ignition-resistant construction and removing adjacent vegetation nearest homes are the only way to prevent loss of life and property from forest fires, while logging the forest before or after a fire is unnecessary, expensive, and extremely damaging.

Logging in the name of fire prevention is big business.

We often hear the claim that logging is necessary to clear dense, overcrowded forests of dangerous “fuels.” In this way old-fashioned logging is repackaged as “fuels reduction,” but this simplifies complex forests to just one aspect: their ability to burn. So-called fuels are trees and shrubs that stabilize soils and provide shelter and food for a host of forest-dwelling creatures. Because climate and weather are the real drivers of fire behavior, logging trees and clearing shrubs in “fuels reduction” does little to influence the behavior of large fires during extreme weather events.

We also hear the claim that logging and replanting after a large fire will restore the forest; otherwise the area will remain a shrub field for decades. In fact, trees grow back better without human intervention, and in the meantime those temporary shrub fields intermixed with standing and fallen dead trees are favored habitat for many kinds of animals, and are part of the natural succession of forests after a fire. Numerous native birds are primarily dependent upon shrub habitat in intensely burned areas, and many of these are declining in population due to fire suppression and the widespread and expensive practice of eradicating shrubs after fire. As geneticist and author Spencer Wells noted, “more and more, we are realizing that tinkering with nature can produce unintended consequences.”

Intelligent planning would limit sprawl into fire-prone areas.

Speaking of tinkering with nature, many people are now invoking climate change as another justification for logging forests for fire prevention. What if fires get bigger and hotter in the face of climate change? Don't we need to cut trees now to save our forests in the future? Widespread and effective fire suppression since World War II means forests now have too little fire, not too much fire. Even increased fire due to climate change is not likely to ameliorate this fire deficit. The fire deficit is so steep that even if the amount of fire in Sierra Nevada forests were to double from current levels, there would still be far less fire than existed prior to the era of suppression. Furthermore, as fires become increasingly governed by extreme weather events, fuels become less important to fire behavior. Thus, intelligent planning would limit sprawl into fire-prone areas and reduce fuels near existing homes.

Finally, let's remember that the many plants and animals that require large, intense fires to thrive aren't the only organisms to co-evolve with large fire. For millennia, Native Americans maintained a respected kinship with forest fire. Late 19th century Euro-American colonization and its doctrine of dominion ruptured this age-old kinship between people and fire. We propose a paradigm shift away from

fire phobia and to an admiration of large fire's ecological benefits. With all of the fear mongering around large fire being encouraged by logging interests, this is

no easy task. But when we summon the courage to move past our fear and learn the truth about fire ecology, we will then be on the right path to living in harmony with our naturally beautiful, fire-adapted forests.

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Controlling Science (from inside front cover)

University of California attempted to deny tenure to Chapela; but after a loud campaign, he received tenure in 2006.

Blatant suppression of GMO research has occurred most recently with Gilles-Eric Seralini who found that feeding Monsanto's GM corn to rats increased their development of tumors. The study appeared in *Food and Chemical Toxicology*, the same journal that routinely carries studies by Monsanto employees showing that GM corn is safe. The Seralini study was actually superior to that by Monsanto's research teams. First, Monsanto studies examine the effect of glyphosate (the active ingredient in Roundup) while Seralini examined rats fed Roundup itself. This is a critical distinction, since

glyphosate could have synergistic effects when combined with other chemicals in Roundup. [3]

Second, Monsanto rats were only studied for 90 days while Seralini examined rats for two years. There were several other differences between the lines of research, but none of them threatened the validity of Seralini's findings. [4] Nevertheless, corporate researchers demeaned and hurled insults at Seralini, demanding that the journal withdraw his study.

As *Food and Chemical Toxicology* gave into corporate pressure and retracted the Seralini article, it admitted that the study was neither fraudulent nor did it intentionally misrepresent the data. Its retraction was based on the claim that “the results presented (while not incorrect) are inconclusive...” [3]

This is an astounding statement since virtually every published research article has a “discussion” section wherein authors describe limitations of their findings and explain how further research could help clarify issues. If “inconclusive” results were the basis for retraction, then 99 – 100% of published research should be withdrawn.

This is in stark contrast to the open arms with which journals greet papers by corporate researchers. As Jill Richardson concludes in her review of the Seralini affair, “any time a study has at least one author with a professional tie to the biotech industry, you don’t even have to read the study to know the conclusion. It’s concluded that GE crops are A-okay.” [3]

GMO science not alone

While pure food advocates are justifiably outraged at the dismissal of serious investigations, please be aware that GMO research is not at all unique in being attacked. In September 1962, Rachel Carson’s *Silent Spring* exposed the havoc that pesticides had been wreaking on flora and fauna. I was in my early teen years at the time and remember well the personal ridicule heaped on her by chemical apologists.

Carson was hardly the only critic of pesticides to be dogged by industry. In 1997 Tyrone Hayes investigated how the herbicide atrazine feminizes male frogs by disrupting their endocrine system. He described how low income people of color are exposed via farm work or urban ghettos. When the US EPA did literature reviews of atrazine toxicity in

If “inconclusive” results were the basis for retraction, then 99 – 100% of published research should be withdrawn.

2007 and 2012 it ignored Hayes’ findings. [5] Syngenta, the Swiss manufacturer of atrazine, pursued Hayes so relentlessly that *The New Yorker* wrote that it “plotted ways to discredit him.” [6] Syngenta’s campaign included press releases, letters to the editor, a formal ethics complaint filed at University of California, Berkeley, attempting to get journals to retract his work, and investigating his private life.

Efforts to have scientific journals retract published articles detrimental to industry is not limited to pesticide and GMO research. It now includes investigations of climate change denial.

In February 2013, Stephen Lewandowsky headed a team of investigators who found that those who reject climate science more often believe in conspiracy theories. Soon after *Frontiers in Psychology* published the research, it was beset by climate denial fanatics. As threats of litigation mounted, on March 21, 2014, *Frontiers* retracted the

Lewandowsky article, not because of methodological issues, but to avoid legal threats. [7]

The mother of research vilification is that on nuclear meltdowns. Though discounting the effects of Three Mile Island and Fukushima has been a favorite pastime of the nuke industry, it is Chernobyl where the results have been most clear and the find-

Syngenta’s campaign included press releases, a formal ethics complaint, attempting to get journals to retract his work, and investigating his private life.

ings most systematically ignored.

What is taken as the gospel truth regarding deaths resulting from the April 1986 Chernobyl meltdown is the *Chernobyl Forum Report* published by the World Health Organization (WHO) in 2006. [8] It estimated 4000 deaths. In 2009, a much more thorough analysis by Yablokov and others estimated the number of Chernobyl-caused deaths at 985,000. [9]

Immediately, the nuclear industry began hounding the Yablokov analysis, claiming that it “obfuscated” the truth, its references were from sources “hitherto unknown,” and “it was in a range of rather science fiction than science.” [10, 11] So vituperative and continuous were the attacks that WHO will still not recognize the corrected figures and some climate change activists have sided with the nuke industry from a misguided belief that radiation is less dangerous than coal plants. Countering the accusation that the manuscript had not been peer reviewed, senior author Yablokov noted that “The original Russian edition had two of the highest quality peer reviewers: Prof. Dmitry Grodzinsky (Head of Ukrainian State Radioprotection Committee) and Prof. Helen Burlakova (Chair of the Russian Radiobiological Society).” [12]

Katz points out the absurdity of the claim that the Yablokov study does not cite peer-reviewed research [13]. The WHO figure of 4000 deaths is based on 11 studies, only 2 of which are peer reviewed. The Yablokov analysis cite 112 studies, 46 of which are peer reviewed. Those disparaging the Yablokov study dismiss reports from groups such as Greenpeace as scientifically worthless while accepting reports from the nuclear industry at face value.

Of course, the biggest difference in the two studies is the vastly greater number of deaths estimated by Yablokov. There are at least three reasons for the discrepancy.

1. The WHO report limits its estimation of deaths to 3 groups within 3 countries with a total population of 605,000. Yablokov’s estimates include radiation effects on the entire globe (7 billion), especially countries near, but outside of the USSR, where 57% of the fallout was deposited.
2. The WHO report focused on current radiation exposure. It ignored or minimized (a) future exposure and (b) massive radiation received at the time of the meltdown.

3. The WHO report focused on a narrow range of cancers and birth defects. In contrast, Yablokov's conclusion was that ...

... in ... countries contaminated to varying degrees by radionuclides from Chernobyl, there has been a significant increase in all types of cancer; in diseases of the respiratory, cardiovascular, gastrointestinal, urogenital, endocrine, immune, lymphoid, and nervous systems; prenatal, perinatal, infant and child mortality; spontaneous abortion, deformities and genetic anomalies; disturbance and retardation of mental development; neuropsychological illness, and blindness. [13]

For those who claim to pursue scientific truth to ignore effects of this magnitude and ridicule authors who document it confirms that treatment of GMO research is neither new nor distinct. Harassment of researchers and suppression of findings which contradict powerful economic interests permeates science. Corporations have enormous influence over what appears on the news and what gets swept under the rug.

Carrots over sticks

Reacting to research after it is published could be called *rear-end repression*. It is nasty and messy and educational institutions hate being involved in it because it pulls the fig leaf off of their facade of objectivity. *Front-end domination* is much more prevalent — it refers to the way government and industry guide research in their preferred direction.

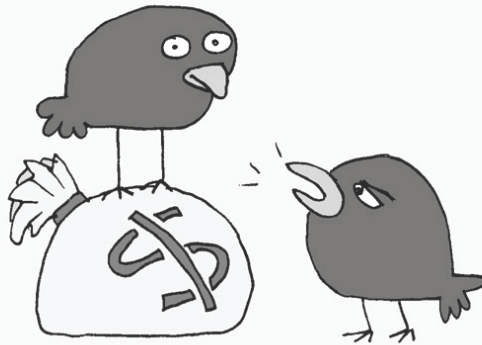
Kris Hundley describes a crystal clear example in "Koch Brothers Buy Economics Department." A foundation bankrolled by Charles G. Koch put up \$1.5 million for positions in Florida State University's Department of Economics.

In return, his representatives get to screen and sign off on any hires for a new program promoting "political economy and free enterprise..." The contract specifies that an advisory committee appointed by Koch decides which candidates should be considered. [14]

Is this basically an obscene version of standard operating procedure at Any University, USA? Is it any different from Peabody funding clean coal studies at Washington University in St. Louis (where

~ Daily Affirmations for the Revolutionary Proletarian Militant ~

Personal success is meaningless in the context of an evil, exploitative system.



Stephanie McMillan.org

Barry Commoner once headed the Center for the Biology of Natural Systems? Or, is it different from an agricultural school focusing on fertilizers, pesticides, herbicides and fungicides?

During the 25 years I worked at St. Louis Psychiatric Rehabilitation Center, I often collaborated with faculty at the Missouri Institute of Mental Health, which was a branch of the University of Missouri medical school. It appeared that the Institute had the practice of hiring and retaining faculty who could bring in grant money. Faculty were free to attract money in any way that they could, but the drug companies provided the most and largest grants. So, while everyone had academic freedom to investigate whatever they

wanted, those who researched drug benefits were more free than others.

The Land Institute's David van Tassel computed figures that explain the regard that the US

Those disparaging the Yablokov study dismiss reports from Greenpeace as worthless while accepting reports from the nuclear industry at face value.

government has for organic farming. Food, which many feel is the most basic human need, gets a total funding of \$1.12 billion, 1/27 of the \$29.9 billion which goes to medical research. Organic and sustainable food production receives a total of \$43 million, or 1/695 of that going to medical research. [15]

While funding is critical in shaping basic research, so is the way that articles are "peer reviewed" before being published in scientific journals. In order to become a peer who is invited to review articles, a person must previously publish articles in that area. Conversely, a person who repeatedly publishes articles in a journal will be invited to review articles for it. This means that biotech researchers who publish articles discounting GMO dangers and nuke researchers who publish

... researchers who publish articles discounting GMO dangers will soon be making judgment calls on new articles ...

articles showing the safety of nukes will soon be the ones making judgment calls on what new articles are fit for publication. As more and more industry researchers publish their material, expect journals to

move in the direction of accepting fewer critical findings.

Charles Seife details how drug companies have become particularly adept at maximizing the likelihood that scientific research will find what they want. [16]

Corporate ghost writers can produce an entire article for a researcher.

1. Corporate ghost writers can produce an entire article for a researcher (who may or may not have been the one who actually did the research and who may or may not acknowledge the role of the true author).
2. Companies pay thousands of dollars to academics who give lectures favorable to drugs.
3. Money talks to the mind: Researchers who have received more money from a drug company perceive that its drugs are safer than do researchers without those financial ties.
4. Requirements that researchers report financial conflicts of interest when publishing articles tend not to work because [a] there are no consequences for failing to report conflicts and [b] backup systems to ensure reporting don't work.
5. The same problems regarding not reporting conflicts of interest occur when applying for grants.
6. Management at the National Institute of Health (NIH), which gives tens of billions in grants, discourages investigating conflicts of interest.
7. NIH advisory committee members receive large sums of money from drug companies for speaking and consulting.
8. NIH waivers for conflicts of interest are supposed to be exceptional, but are passed out like candy on Halloween.

In other words, the problem is **not** with a rogue drug company or researcher here and there, but with the entire system — granting institutions, research labs, journals, and professional societies. There is an interconnected whole which ensures that profit talks.

Who determines the goals of science and technology?

If we limit our framework to the way that corporations buy off some researchers and punish thought criminals, then we might approach science as if it is an Eternal Truth waiting to be discovered by those whose hearts are so pure as to be untainted by money. The problem is that this view fails to recognize that technological changes are not inevitable because they are not separate from the society that gives birth to them.

Before a technology can spread throughout society, its advocates must vigorously lobby for and

build an infrastructure and arrange for “bribes, pork-barrel legislation and regulatory exemptions.” [17] Every new technology that “takes hold” is first created within a society that defines its investigation as valuable science.

One of the main reasons for pursuing a particular technology at a particular time in history is that it can be useful for the few who dominate the many. Larry Lohmann and Nicholas Hildyard give the example of the molding machine adopted at the Chicago McCormick manufacturing plant during the mid-1880s. One might think that management would bring in new machines to “modernize” the plant and make it more efficient. This was not the case. The “new machines produced inferior castings at a higher cost than the machines they replaced...” [17]

In the 19th century, why would anyone install more expensive equipment that produced a lower quality product? Because McCormick was slugging it out with the National Union of Iron Molders and the new machines could be run by unskilled workers who replaced union members.

In the 20th century, why did the mental health industry begin encouraging the use of drugs for problems like depression and obsessive-compulsion when there were already cognitive-behavioral treatments that work quite well without creating the risk of brain damage? Because corporate medicine/pharmacy was in a frenzy to centralize mental health care under the control of psychiatrists who would use the most expensive treatment.

In the 21st century, why is Big Food obsessed with spreading GMO technology when nobody who eats food is asking for it and it is fraught with environmental and health dangers? Because GMOs are a core part of a grand plan to replace small farmers with mega-farms which produce uniform products for the global market and ignore needs to feed the local population.

By beginning with the overall goal of the food industry, a clearer picture of the suppression of research on GMO dangers emerges. Corporate ag defines the problem as how to increase its control of food production. GMOs rely on chemical inputs that raise the cost of production and thereby destroy small farms. Good research is then defined of as investigations which help accomplish these goals, including demonstrating that GMO/chemicalized agriculture is efficient and safe. Suppression of findings which demonstrates the dangers of these crops is a last resort to be used only when the opposition is getting too large. Taking this into account, attacks on scientists such as Pusztai, Chapela and Séralini are validations of the strength of the resistance movements.

... GMOs are a core part of a grand plan to replace small farmers with mega-farms which produce uniform products ...

Defending the right of scientists to investigate dangers of GMO food could not be successful if that defense were limited to demanding free scientific inquiry while ignoring the way that agro dollars control the world's food. The food industry will use any technique it can to squash significant opposition. That includes softening their blows against critics until the heat dies down and then beginning the attack anew. The right to scientific investigation can only be protected if it is part of a larger effort to challenge the right of corporations to define what good food is and how it should be grown. The fact that the food sovereignty movement fully understands the unity of these goals is why it is so strong and why Big Food fears it so much.

This article is based on a talk given at the Justice Begins with Seeds conference in Portland OR, Sept 13, 2014.

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