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WHAT THE FIRES IN AUSTRALIA INDICATE —  
REFLECTIONS ON THEIR SCOPE

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This first editorial of 2020 addresses the devastating fires in Australia since 2019, which results from the combination of droughts and heat waves as an effect of climate change. The fires in Australia are historic, it is part of the Australian biome regime and can occur naturally, mainly by lightning, similar in many characteristics to the Brazilian Cerrado.

The UNEP - United Nations Environment Programme - revealed that the average global temperature is now 1.1°C higher than in the early twentieth century. This leads to higher temperatures in many parts of the world, causing more dry conditions, and increasing the likelihood and intensity of mega-fires and forest fires.

According to the World Meteorological Organization (WMO), the year of 2019 was the second warmest on record, and in the past decade there has been a decrease in the amount of ice, record levels of rising sea, acidification of the oceans and extreme climatic conditions.

WMO also notes that the year of 2020 started in the same way that 2019 ended, and highlighted the situation in Australia, that had the warmest and driest year on record, which contributed to the huge forest fires that were devastating to people, properties, wildlife, ecosystems and the environment.

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The climate crisis has been identified as the main responsible for several extreme events, such as the flood in Venice, the Cyclone Idai in Mozambique in 2019, the fires in California in 2018, among others.

Deforestation, global warming resulting from climate change and the risk of forest fires are directly connected, reflecting the feedback effect, as the fires increase the concentration of greenhouse gases in the atmosphere.

According to Greenpeace, about 8 billion tonnes of CO<sub>2</sub> are released each year by fires. This equates to about half of the emissions caused by burning coal worldwide. The fires in Australia have already released half the volume of CO<sub>2</sub> that the country would produce during a typical year.

Data on fires in Australia show that more than 10 million hectares burned in the second week of January 2020, causing human deaths and an inestimable number of animals. Researchers at the University of Sydney estimated that more than 1.5 billion animals died in fires across the country. This number includes mammals, birds and reptiles. The outbreaks of fires were concentrated in the east of the country, with the situation in the state of New South Wales being considered the most severe.

For scientists, unprecedented fires can lead several species of fauna and flora to extinction and to losses related to a decade of conservation, and there may be no possibility of recovery for some of them.

In fact, the exorbitant number of animals killed from forest fires impacts not only Australia's wildlife, but also the world's biodiversity, due to the high number of endemic species in this region. Megafauna, such as kangaroos, and medium fauna, such as koalas, have been standing out, but other species may have been much more affected with risk of extinction.

Data presented in a report by The Guardian in January 2020, show that forest fires not only burn animals to death, but also starve them, as birds lose their nesting sites, fruits and invertebrates on which they feed, and the mammals that survived are in open landscapes, with nowhere to hide, becoming easy prey for wild cats and foxes.

But Australia is not the only country with forest fires. In 2019, the Global Forest Watch Fires (GFW) *online* surveillance platform accounted more than 4.5 million fires with at least one square kilometer of area worldwide. This represents a total of 400,000 fires more than in the year of 2018.

Australia is usually hot and dry in the summer, but climate change, which brings longer and more frequent periods of extreme heat, aggravates these conditions and makes vegetation drier and more likely to burn. The southern half of Australia experienced one of the driest periods in its history, from January to August. This extension of periods of what was conventionally called extreme events, the drought, combined with a winter with heat records, provided the ideal scenario for the flames to spread through the vegetation.

The fire catastrophe also drew attention to the Australian government's failure to reduce carbon dioxide emissions, which are responsible for retaining heat in the atmosphere.

Even with rising emissions, the country, currently governed by a conservative coalition, has a difficult time reaching a political consensus on energy and climate change

policies, as these policies are partly influenced by Australia's long mining history and its powerful coal lobby.

It is worth clarifying that there is no comparison between the fires in Australia and the Amazon, because, unlike Australia, the fires in the Amazon rainforest are not natural, but caused mainly by human action, as part of the deforestation process.

We conclude by noting that these fires impact biodiversity and ecosystems. It should be noted that UNEP warns that biodiversity is in sharp decline, with impacts on vital ecosystems. Therefore, as the world's terrestrial biodiversity is concentrated in forests, which are home to more than 80% of all terrestrial species of animals, plants and insects, this is also reflected in global food production. As for economic costs, the effects occur mainly in damage to infrastructure, impacts on agriculture and tourism.

And it cannot be ignored that the effects are also manifested in public health, as a result of the intense smoke and air pollution resulting from the fires. Big cities like Sydney and Canberra experience negative air quality levels among all the big cities in the world. As drinking water catchment areas are located mainly in forest areas, they end up affected by the ashes of fires and pollution, with effects human health. Finally, it should also be noted that fires and their impacts cause, in addition to physical damage, collective mental trauma due to the emergency evacuation of the population that loses their homes, pets, belongings, livestock or other sources of subsistence.

After this reflection, we invite everyone to enjoy the readings during the year 2020, not without first thanking the entire editorial team of the *Journal Ambiente & Sociedade*, which, with academic rigor and quality, makes it possible to continue publishing articles with an interdisciplinary discussion.

Opening the new annual volume, the authors: *Melina de Souza Leite, Joaquim Alves da Silva Júnior, Adriane Calaboni and Alexandre Toshio Igari* investigated how property size, economic activity and social group are related to the coverage of native vegetation in rural properties the state of São Paulo, evaluating implications for public policies for environmental conservation; in the article: **Socioeconomic factors and native vegetation cover in rural lands in São Paulo State, Brazil.**

In the article: **Miracle or mirage? Critical contributions to the Theory of Ecological Modernization in the light of the Desertec project**, the authors *Luiz Enrique Vieira de Souza, Marcelo Fetz and Alina Mikhailovna Gilmanova Cavalcante* analyze the "Desertec" project and propose a critical debate, pointing out a research agenda that focuses on unsuccessful ecological modernization projects (*failure cases*), underlining the limits of scope of the Ecological Modernization Theory.

The authors *Cleber Broietti, João Antônio Salvador de Souza, Leonardo Flach, Gilberto Crispim Silva and Celma Duque Ferreira*, based on a multivariate model with data stacked by the Pooled OLS technique, sought to understand how and what impacts environmental spending, and the importance of this process for the performance and concern of public managers with the environment. This in the article: **The impact of public consortium in environmental spending from municipalities in southern Brazil.**

Considering the importance of guiding any environmental intervention in the specificities of the interactions between different human groups and the environment,

the authors *Lara Carvalho de Oliveira and Wilza Gomes Reis Lopes*, in the article: **Experiencing place: a study of the relations between man and the environment and their implications in the Olarias neighborhood, Teresina, Piauí**, analyzed affective, symbolic and functional aspects of the relationship between residents of the Olarias neighborhood, located in the coverage area of the Lagoas do Norte Program (PLN).

*Simone Mendonça Santos, Marcelo Marini Pereira de Souza, Guilherme Augusto Carminato Bircol and Helene Mariko Ueno*, in the article: **River Basin Management Plans and their challenges: the case of the Alto-Tietê River Basin □ State of São Paulo, Brazil**, propose a set of requirements that were applied in evaluation of the Alto Tietê River Basin Plan. The case showed low potential for horizontal articulation and water security planning. The authors suggest using planning tools that promote the involvement of society.

The article: **Decentralization of environmental licensing and impact assessment in Brazil: literature and regulatory reviews**, by authors *Thiago Nascimento, Emanoele Lima Abreu and Alberto Fonseca*, critically summarizes the regulations and empirical scientific studies on the decentralized use of these instruments, as well as explores the perception of experts on this phenomenon. The work emphasizes the importance of training and institutional innovation in the municipalities and suggests future studies.

Recognizing community resilience as essential in disaster management, the authors *Larissa Ciccotti, Angela Cassia Rodrigues, Maria Eugenia Gimenez Boscov and Wanda M. R. Günther*, in the article: **Building indicators of community resilience to disasters in Brazil: a participatory approach**, highlighted the value public policies and urban infrastructure for community resilience to disasters in the perception of Brazilian experts.

In the article: **Water conservation in desert cities: from the socioecological fix to gestures of endurance**, authors *Brian F. O'Neill and Anne-Lise Boyer* claim that in places with scarcity of water resources, water conservation policies are based on the ideological framework of economic growth, promoting conservation to repair a dysfunctional hydro-social cycle. This would constitute a “gesture” that seeks the illusion of a future with an abundance of resources so that scarcity can be supported.

Authors *Luíz Everson da Silva, Wanderlei do Amaral, Marcos Machado da Silva and Adriana Lucinda de Oliveira* worked with traditional communities in order to contemplate the available genetic resource, local cultural diversity and the sustainable use of natural resources. They found the importance of traditional knowledge for the discovery of bio-active compounds and the generation of income; in the article: **Conservation of genetic resources: a study with medicinal plants on the coast of Paraná - Brazil**.

The article: **Upstream, downstream: fisherman, river and risks in low São Francisco River**, by the authors *Kleverton Melo de Carvalho, Maria Elisabete Pereira dos Santos, Juliane Alves Cabral Silva, Rosa Eunice Alves Azevedo, and Virginia de Lourdes Carvalho dos Santos*, reveals a scenario of generalized disbelief; enhancement of the sense of risk due to the transposition of river waters; association between the death of “Velho Chico” and the cultural death of riverside communities, as well as their social and economic structures.

In order to observe and describe the restructuring process of the Management Council of the Morro do Osso Natural Park (PNMO), the authors *Suzane Bevilacqua Marcuzzo, Thani da Silva Prunzel and Rafael Vidor Dezorzi* used participatory diagnostic

methodologies and verified information and leadership failures in the process of building the council, but also potential for mobilization and restructuring; in the article: **The pathways of participation in the Morro do Osso municipal park, Southern Brazil.**

The authors *Maria Luísa Bonazzi Palmieri and Vânia Galindo Massabni* analyzed the contributions of conducting school visits in protected areas, considering the concepts and practices of those involved. They concluded that monitored school visits contribute to school education through the opportunity of visiting, living in the natural environment provided to students and contributing to teaching work. This in the article: **The contributions of visits to protected areas to school education.**

Reflecting on the development of an educational expedition, the authors *Ermelinda Moutinho Pataca and Camila Martins da Silva Bandeira*, in the article: **History of Science and environmental education in the Expedition along the Ipiranga stream**, problematize the socio-environmental issues of the city of São Paulo in a contextualized and critical approach, associating environmental issues to the history of two important institutions located in the stream: the Botanical Garden and the woods of the Museu Paulista.

In the article: **Influence of climate change on working conditions in the late 21st century**, authors *Plínio Marcos Bernardo de Souza, Marcelo de Paula Corrêa, Roger Rodrigues Torres and Luiz Felipe Silva* evaluated these effects, comparing the ability to work in South America between the present climate (1979 to 2005) and the future (2071 - 2100). The results indicate that, even in favorable climatic scenarios, the capacity for heavy work should be reduced by 25 to 50% by the end of the 21st century.

In order to identify the benefits generated by urban agriculture and their motivations, the authors *Carina Júlia Pensa Corrêa, Kelly Cristina Tonello, Ernest Nnadi and Alexandra Guidelli Rosa* carried out a bibliographical survey and analysis of articles that describe the current experiences. Regardless of the objectives that motivate the practice, its contribution to the environmental, social and economic quality of cities is evidenced; in the article: **Seeding the city: History and current affairs of urban agriculture.**

After conducting a qualitative exploratory research, the authors *Francisco Tavares Filho, Roberta Fernanda da Paz de Souza Paiva, Ana Paula Poll, Angelita Pereira Batista and Wellington Kiffer de Freitas*, in the article: **The effects of urban/industrial expansion in Guanabara Bay on the perception of artisan fishermen**, concluded that the urban/industrial advance, resulting from the current cycle of regional development related to oil, has been constituting a threat to the survival of the fishing activity.

In the article: **Rural development in the Brazilian Amazon: levels and distribution in the 2000-2010 decade**, *Mário Sérgio Pedroza Lobão and Jefferson Andronio Ramundo Staduto* found a high heterogeneity in intraregional distribution, in which municipalities with different levels of rural development coexist. In the East and South portion of the Brazilian Amazon are the states with the best levels of rural development and in the West and North side are those with the worst levels.

In order to understand the settings involving the issue of forest cover and their vulnerability and elucidate arguments for reducing forest clearing, the authors *Rosane Aparecida Kulevicz, Ozeni Souza de Oliveira, Natália Pompeu, Benedito Albuquerque da Silva*

and *Édila Cristina de Souza* featured a series of solutions for tree vulnerability; in the article: **Analysis of forests' genetic vulnerability and arguments to reduce deforestation.**

Finally, *Luciana Rodrigues Fagnoni Costa Travassos, Silvana Maria Zioni, Pedro Henrique Campello Torres, Bruna de Souza Fernandes and Gabriel Machado Araujo*, in the article: **Heterogeneity and spatial fragmentation in the Sao Paulo Macrometropolis: the production of borders and holes**, revealed the characteristics produced in this space, unveiling territories that, although they are not part of the urban-industrial arrangements specific to that city-region, provide ecosystem services and give way to other ways of life.

We wish you all a good reading!

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Editorial

