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‘Planners have no enemies in their organisational vision of the world. They can order everything rationally and inevitably achieve their goals by choosing suitable, even drastic, means. But means, especially human means, don’t bend easily to objectives; ultimately—fortunately—they stand in the way of rational prescription. Strategists, however, know they must consider the fact that the enemy may react to their actions. Hence, they choose their objective with a mind to the means at hand, in other words, the resources available and existing constraints. Then, pragmatically, they seek to mitigate constraints by cooperating with the resources at hand as efficiently as possible. In other words, while commanders only see their plan, strategists rely on the reality on the field.’

Michel Crozier, 1995

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Biodiversity: A multifaceted notion

For over thirty years, scientists, experts and agencies in charge of environmental issues have provided a plethora of definitions for the concept of biodiversity.
The term 'biodiversity' was first used in 1986 during a conference entitled *The National Forum on BioDiversity*, held in Washington under the aegis of the US National Academy of Sciences and the Smithsonian Institution[1]. The proceedings of this conference, coordinated by Edward O. Wilson and Frances M. Peter, were published in 1988 with the title *Biodiversity*, and with the well-known following definition:

> 'Biological diversity, or biodiversity means the variety and variability among all living organisms. This includes, intra-species and inter-population genetic variability, the variability of species and their life form, the diversity of associated species complexes and their interactions, and the diversity of the ecological processes they influence or in which they are involved [known as ecosystem diversity].'

In and of itself, this definition is nothing new. Several authors (Bergandi and Blandin, 2012; Blandin, 2019; Le Guyader, 2008; Barbault, 2018[2])

1. The term was coined in 1985 by Walter G. Rosen while preparing for the conference.

2. 'It is a well-known and long-standing fact that life manifests itself in very diverse forms. […] naturalists, palaeontologists, systematists, then ecologists and geneticists have never ceased to point out the diversity of life forms, i.e. the wealth of species both living and extinct, the genetic variability within populations of the same species, the diversity of the ecological functions they perform and of the ecosystems they constitute.' (Barbault, 'Biodiversité', *Encyclopedia Universalis*, 2018).

have highlighted that scientific research has shown a long-standing interest in gene, species and ecosystem diversity. Such a definition shows biodiversity as a characteristic, a property of living beings. However, as highlighted by Virginie Maris (2010), it does introduce a hitherto overlooked dimension:

> 'In the past, except for a few specialists, biological diversity would mostly refer to species diversity whereas biodiversity refers to the diversity of living organisms at every level of organisation.'

How, then, do we explain how a term (the result of a simple lexical contraction) has become a mandatory point of reference for international policies and a key topic of major international conferences in just a few years? There are several reasons for this, which point to the concept being open to other dimensions and registers, resulting in the term's polysemy and, at times, ambiguity.

The first reason[3] is the progressive substitution of the term 'nature' by that of 'biodiversity', both in international policy-making organisations and in the scientific and non-profit sectors. The concept of 'nature' itself had become problematic: the polysemy of the term and the 'philosophical fog' (Ducarme, 2019) around it undoubtedly fostered its discredit. The debates within the International Union for Conservation of Nature (IUCN) and the environmental movement itself, between the protectionist rationale (which aims to maintain a 'wild' nature, independent of humans, as defended by John Muir in the United States, for example) and the conversationalist rationale (as per Gifford Pinchot in particular, what must be preserved above all are resources, without necessarily excluding all human activity), have highlighted the divergences arising from the concept of 'nature'. The term 'nature protection', fraught with cultural preferences, impossible to define accurately and overly vulnerable to conflict when implemented (Rossi, 2000), will gradually be replaced by 'biodiversity protection'. Biodiversity paves the way to a more scientific approach and rigorous management based on metrics. But from then on, biodiversity is no longer the property of ecological systems. It tends to become an entity in its own right, forever dissociated from human societies. For Gilles Bœuf, biodiversity is the 'living fraction of nature'.

3. A considerable body of research (Aubertin and Vivien, 1998; Boeuf, 2014; Larrère and Larrère, 2018), to which we refer, has analysed the semantic shifts in the term biodiversity.

The second reason is that, simultaneously, the body of scientific research published between the 1970s and the 1990s, by highlighting the role of disturbances in the dynamics of ecological systems, calls into question the idea of a natural equilibrium underpinning protected area zoning policies. This is particularly true of Steward Pickett and Peter White's book (1985), *The Ecology of Natural Disturbance and Patch Dynamics*. With the boom in landscape ecology (Naveh and Lieberman, 1984; Forman and Godron, 1986), a new perspective emerged through the acknowledged role of spatial heterogeneity in maintaining the diversity of ecosystems and populations. However, as Paul Arnould (2006) pointed out, 'considering landscape biodiversity or that of the major biomes that structure the biosphere integrates a territorial and cultural dimension', which is inconceivable without including the human societies behind such landscape management. Hence, nature confined to parks and reservations is replaced by biodiversity that includes historical and social parameters. It can thus be envisaged as a resource for which the question of appropriation, use, and access arises. This was illustrated in the early 1990s by the debate around the common of 'the common heritage of humanity', which, at the Rio Conference in 1992, pitted the countries of the Global North against those of the Global South on the central issue of ownership. This entity, which integrates humankind, soon expanded to become a widely shared political object with considerable media coverage, the third reason for its remarkable popularity. As Virginie Maris (2010) highlighted, this is a new transformation:

> 'Moreover, the term biodiversity suggests not only diversity itself but also the crisis it is undergoing. Biodiversity is not a property of the world around us over which we have no influence; it is a challenge we face.'

The concept, hence, shifts away from its scientific foundations (Le Guyader, 2008) to include all the dimensions of the living realm. 'Living fabric of the planet' according to Robert Barbault, it also opens up to the diversity of cultural forms viewed by Arne Næss, philosopher and pioneer of deep ecology, as 'a part of the wealth and diversity of life forms on Earth'. This is a long way from the scientific approach that initially prevailed and far from having erased the ambiguities for which nature has been criticised. As Catherine Aubertin, Valérie Boisvert and Franck-Dominique Vivien (1998) have pointed out, 'we've shifted from the purely scientific questions raised by evolutionary theories to geopolitical and industrial challenges'. Nature as biodiversity has entered the market

and the political realm. Its definition varies depending on the author and the challenges at stake. No fewer than eighty definitions were identified between 1985 and 1995 (DeLong, 1996).

In the final analysis, far from overcoming the imprecise character of the term 'nature', the term 'biodiversity' has merely shifted the ambiguity. Critics were quick to point to the polysemic nature of the concept and ensuing pitfalls: 'bring and buy sale' (Lévêque, 2008), 'fuzzy concept' (Le Guyader, 2008), 'technocratic substitute for nature' (Blandin, 2013), etc. There is no lack of expressions to highlight the imprecision of the notion. However, the same researchers who criticised the notion use it. For example, in 1995, Jacques Blondel—President of the scientific committee of the French Institute for Biodiversity from 2000 to 2005—regarded the term biodiversity as an 'empty shell which everyone fills as they wish', but he published a book in 1995 entitled *Biodiversité, un nouveau récit à écrire*. However, this is hardly surprising and only illustrates 'the impressive power of multiplication [of the notion] and the positive and dynamic charges associated with the assembled ideas of life and diversity [which] turn it into an unassailable term' (Arnould, 2006). The result is a considerable amount of confusion, including in some peer-reviewed publications in renowned scientific journals:

> 'This is why one can frequently come across scientific articles that mention the term "biodiversity" in the title or keywords, whereas the article itself will focus, for instance, on a biological process or an ecosystem service and not on the diversity of life forms within an ecosystem.' (Gosselin and Gosselin, 2010)

We neither claim nor wish to decide between all the possible acceptations. Instead, we feel that integrating the plurality of meanings is a means to understand better the issues and debates that permeate the stakeholders of biodiversity protection. Behind each definition, there is a conception, a project, and sometimes there are interests. How could it be otherwise when key international texts and their national and regional versions convey these ambiguities, reflecting the compromises between the various stakeholders?

Strategy aims for the efficiency of difficult action

Public action has been making great use of strategy lately, from global warming to the erosion of biodiversity and, more recently, the COVID-19 pandemic. It is a global phenomenon. Academics, the media, experts of

all types and politicians endlessly comment on government strategies, while state agencies, high scientific councils and expert forums produce countless 'strategic recommendations'. Overusing the term leads to trivialisation, to the point of losing sight of its meaning. As a result, nobody really takes the trouble to define the term and consider whether it is being used properly.

Yet, there is a substantial body of work on the subject. It is worth recalling some of the basic teachings of this literature.

Derived from military vocabulary, the concept of strategy refers explicitly to war. The term strategist comes from the Greek *stratos*, 'army', 'crowd', 'troop' and *agein* 'to lead' and refers to the person who leads an army. The term strategy, therefore, implies a confrontation between opposite sides. It refers to action and, as a first approach to a definition beyond the military realm, may be defined as 'the art of achieving one's goals'.

Not just any action, however. Introduced in Sun Tzu's *The Art of War* (sixth century BC), strategy was initially concerned with the survival of the State and, specifically, how to guarantee its longevity in a world of rivalry and conflict. Because war can be waged in many ways, the term is now widely applied to the economic field: to avoid being absorbed by the competition or being eventually outperformed in their area of business, corporations and companies have a vested interest in developing strategies of their own. In every case, strategy is concerned with issues of the utmost importance, which are vital to the survival of the entity in question.

Specifically, strategy concerns complex action. Anything that does not pose a real problem, routine issues, current affairs or traditional controlled problem management falls outside the scope of strategy. Strategy implies that reality puts up a certain amount of resistance: a relatively strong degree of uncertainty as to the possibility of achieving the desired goal; a rather stubborn and uncooperative context; the significant probability of headwinds, paradoxical and unexpected effects; a greater or lesser risk that a set of factors, dimensions and stakeholders might combine in such a way—whether intentionally or fortuitously—as to thwart the end in view significantly. Hence, strategy fundamentally differs from planning, as the sociologist Michel Crozier pointed out in the quote at the beginning of this book. Planning applies to situations where reality is accommodating: a flexible reality that accepts bending to the planner's will to conform to his intentions and projects. In short, it is a more or less cooperative reality. The first lesson, hence, is the necessity of ascertaining

to which extent the 'strategy' claimed by a given entity is really deserving of the term and is not, in fact, a mere 'action plan' masquerading as strategy. Admittedly, however, if public action makes so much use of the notion nowadays, it is because the situation is more or less clearly viewed as uncomfortable, and the outcome is far from certain.

The purpose of strategy is not to shamelessly fleece the opponent, let alone obliterate them, as one might wrongly believe. Rather, it is to secure a significant profit or, better still, a substantial and durable advantage. Moreover, it is not a matter of setting grandiose goals and leaving it to the stewards to define the means of achieving them; in a strategic approach deserving of the name, the means are not mere variables in the service of the ends. The means should be considered together with the ends: the utmost economy of means for maximum relevance and efficiency. Hence, the critical issue: rather than overdoing things, it is preferable to identify the levers of change that will trigger the transformation processes, which in turn will bring the expected victory or desired improvement. Second key lesson: avoid grandiloquent commitments, which all too often hide a lack of resources or, worse, a certain lack of reflection when it comes to identifying the ways and means sufficient and necessary to reach stated goals.

Finally, Western and Eastern strategy treatises agree on one essential step: taking the time to meticulously examine the terrain, the notion of terrain being understood broadly to cover all the parameters and conditions likely to affect the configuration of the issue encountered. Close scrutiny of the terrain is critical to avoiding strategic errors resulting from overlooking dimensions or aspects that are, sooner or later, bound to thwart the aims pursued. More importantly, it is the only possible way to define realistic ends and the judicious and proportionate ways to reach them. Hence, the third lesson: the strategic diagnosis phase is essential to ensure that no significant aspect or component of the issue has been overlooked.

In other words, science and strategy should be clearly distinguished. Science is concerned with knowledge: its purpose is to increase our understanding of phenomena. Conversely, strategies are concerned with action: they aim to increase the effectiveness of action pertaining to significant problems or issues.

Strangely enough, contemporary rhetoric tends to obscure this distinction. Faced with a number major economic crises, we are told that the solution simply consists in reconciling scientific truth with political will. This amounts to an odd confusion between the register of knowledge

and the register of action—as if scientific knowledge could automatically lead to relevant and practical action. While this may be acceptable for areas and fields where scientific expertise can directly inspire political decision-making, this fallacious understanding of action has no chance of success in facing complex issues that involve intricate and multiple parameters, stakes and stakeholders with diverging logics and interests. Facing such situations, it is worth remembering that strategy is precisely 'the art of achieving one's goals' under challenging contexts.

INTRODUCTION

Unlike climate change, biodiversity loss is not a major controversial issue. In fact, specialists agree on three key points: because of the roles it plays and the goods it produces, biodiversity is crucial to the future of humankind; natural environments have been significantly degraded by human activity for decades, and the many threats looming on the horizon mean that the diversity of life forms is in danger of collapsing brutally and uncontrollably; only awareness and a thorough review of the relationship between human activities and natural systems can avert the predicted catastrophe, for species, natural environments and humans alike.

Unfortunately, notwithstanding repeated appeals from the highest scientific and moral authorities, the revolution in awareness and behaviour is slow in coming. Political agendas are dominated by economic, social, security and geopolitical emergencies. Climate change continues to take precedence over all environmental issues. In a society of screens that is now predominantly urban, the connection with nature has significantly weakened. As a result, those who are most concerned about the future of life on Earth regularly give in to despair, and disillusioned assertions proliferate: 'Nobody cares about biodiversity, indifference is the rule'; 'Triumphant capitalism doesn't care; more than ever, economic interests are running the show and lobbies rule the roost'; 'Politicians are unable to free themselves from the dictatorship of the short term, electoral deadlines dictate the priorities of the moment'; 'Materialism and individualism are the scourges of our age, and the common good pays the price every day'.

This general picture—easy to paint as it is relayed through thousands of different channels—nevertheless omits one key aspect. The general public is unaware of it, and many people who work in the field to protect nature and living things are only vaguely aware of it: for several decades now, public policies on biodiversity, in France as in the rest of the world,

have been inspired primarily by an official strategic approach. Gradually developed in the wake of international meetings on species protection and nature conservation and consolidated by several international conventions, including the Convention on Biological Diversity promoted by the Earth Summit in Rio de Janeiro in 1992, it has steadily gained in strength, precision and scope. Building on this long history and continuity, in 2010, the international community developed a 'strategic plan' featuring twenty primary targets to stem the erosion of biodiversity. The fact is that, despite large-scale studies and international expert reports, numerous intergovernmental meetings and the resolve to achieve results through multilateral negotiations, and despite the significant progress made on a few indicators, expectations about the future of biodiversity have never been so bleak.

Strangely, strategic thinking at work in the case of biodiversity hardly raises any questions. Books and papers on the crisis of the living world, the science of biodiversity, and the philosophy or governance of nature abound, yet minimal research deals directly with biodiversity strategy or strategies. Our book aims to address this gap.

Traditionally defined as 'the art of achieving one's goals', strategy implies identifying the conditions and means of efficient and relevant action; as necessary as they may be, scientific inventory or diagnosis are insufficient to build a strategic approach deserving of the name. More specifically, we base our work on a hypothesis that can be formulated simply: could the difficulties and failures encountered in the fight against biodiversity loss stem from an incomplete way of framing the problem, which would affect how we attempt to solve it? In other words, are the foundations of the strategic approach governing the conception of action to fight biodiversity loss being challenged? Not that we should reject out of hand the usual explanations offered to explain the lack of attention paid to biodiversity, in the view of many observers. Not that we mean to call into question the wealth of thoughts, experiences and knowledge patiently accumulated regarding the erosion of living things and how to respond to it. However, we will be considering whether certain aspects, dimensions or relationships have been insufficiently considered in how we have tried to curb the phenomenon. By bringing these neglected areas or blind spots back into the equation, we will see how they can be used to draw up a more comprehensive strategic diagnosis, a diagnosis likely to make pro-biodiversity action significantly more effective by allowing it to rest on stronger and more promising foundations.