



**HAL**  
open science

# Is There an Anthropologist in the Room? Biodiversity Through the Sieve of Anthropology

Sophie Goedefroit

► **To cite this version:**

Sophie Goedefroit. Is There an Anthropologist in the Room? Biodiversity Through the Sieve of Anthropology. 2024. hal-04671584

**HAL Id: hal-04671584**

**<https://hal.science/hal-04671584v1>**

Preprint submitted on 15 Aug 2024

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Copyright

**Is There an Anthropologist in the Room ?  
Biodiversity Through the Sieve of Anthropology**

*Sophie Goedefroit*

## ABSTRACT

Anthropologists are seldom present in international fora where some of the main themes of the discipline are discussed. Can there be an anthropology without anthropologists and at what cost? The concept of biodiversity is used as an example in order to help identify why the situation arises and the contribution anthropology could bring to current debates about biodiversity conservation and the role of indigenous knowledge. Based on the theoretical advances of the discipline and on contemporary thinking regarding indigenous knowledge and the relationship between Humans and Nature, this article challenges several tenets of the current international discourse and reformulates the debates that concern anthropology but to which too few anthropologists are invited to contribute.

Can indigenous knowledge be taken out of the system in which it is rooted for the sake of its protection? Are indigenous practices inherently geared to the conservation of the resource? Are taboos informal systems of resource conservation? What is the legitimacy of representatives of indigenous peoples that participate in international policy-making? Answers to such questions need be based on an examination of socio-cultural mechanisms in which knowledge and practices are embedded. A focus on processes rather than on an object isolated from its context shows how illusory and meaningless are current attempts to freeze and reformat indigenous knowledge in order to save it for biodiversity. It would be even more dangerous to try and change practices and “mentalities.” The conclusion insists on the methodological fundamentals that too often are set aside in surveys carried out in the name of anthropology.

*Keywords: Anthropology, biodiversity, indigenous knowledge, nature-culture, representativity, social organization, transmission, uses.*

## INTRODUCTION: THE BEST AND THE WORST OF TIMES

The media seems full of people claiming to be anthropologists or ethnologists. One can only applaud this new enthusiasm for a discipline that, paradoxically, attracts fewer and fewer students to struggling academic departments. Can there be an anthropology outside the discipline? One would think so given the prevalence of pronouncements and reflections from hyphenated anthropologists: philosophers, geographers, economists, sociologists *cum* anthropologists, but also biologists, physicians, and assorted reporters, novelists, and travelers. This phenomenon is not restricted to the media. Many themes fundamental to the discipline are discussed in international fora where new conceptual tools are being forged, with little or no input from anthropologists.<sup>1</sup> It seems as if anthropology were the only discipline solely defined by its object of study; anyone working on the latter would *ipso facto* perform anthropological work. No formal academic training required; no need to bother with theory or methodology; no need to position oneself within the history of the discipline. To have been “in the field” and have conducted “qualitative surveys”, i.e. asked people questions, should suffice. Anthropology, however, is not a trivial undertaking. How have we come to the paradoxical situation where anthropology is being conducted and invoked in the absence of anthropologists?

In fact, anthropology has always been fashionable and elicited much curiosity. The shortcomings of classical economic development models and the consequent integration of social and cultural concerns into development projects, have heightened the urgency placed on anthropologists to demonstrate their usefulness by, for example, finding ways to overcome the so-called “cultural impediments” to development. In addition, the emergence of international non-governmental organizations (NGOs) as advocates of indigenous people has folded anthropology into politics through the quest for anthropological answers to questions pertaining to the rights of indigenous populations. Though anthropologists are frequently called upon to support prior decisions, to legitimize the cultural and social components of a development project, or to boost the grant application of a multidisciplinary team, they are rarely consulted upstream, that is during the early phases of policy, or at the design stage of the research, or when new concepts, such as “biodiversity” or “sustainable development”, are being constructed. Indeed, these concepts often feel foreign, and anthropologists will find the questions asked somewhat disconcerting. The problem would need to be reformulated, the concepts redefined, and their use contextualized. This takes time, and rarely are these basic requirements clearly understood. It may explain why anthropologists show so little interest in concepts defined outside their discipline, even though they have no difficulty whatsoever in

opening up to new research topics (Ghasarian 2002, Leservoisier and Vidal 2009), and demonstrating the reflexivity of the discipline.

Not only is this withdrawal linked to the role conceptions that anthropologists may hold (as “facilitators”, “translators” of a given culture), it also stems from the conception that anthropologists have of the usefulness of their discipline, a conception that varies across time and space. This question has underlain the debate about “applied anthropology” since the 1940s (Baré 1995). It ranges from the anthropologist as a tool of political authorities (see, for example, the role played by English functionalists, such as Evans Pritchard, in indigenous rule), to anthropology as basic science that does not have to prove its usefulness other than through its theoretical developments (Lévi-Strauss ; v. Albert 1995 : 100), to an activist anthropology which loudly proclaims the duty of anthropologists to act as “advocates for indigenous people’s rights “ (Orlove and Bruschi 1996). In the international arena, the latter have since been rapidly replaced by those whom they claimed to represent. Anthropology, be it applied, theoretical or activist, has found it difficult to answer questions put to it by other disciplines and by decision-makers, and has shown little interest in these new concepts.

Yet, the demand for anthropological answers to questions that pervade the international discourse on the environment and development is strong. For lack of a suitable anthropologist, one will turn to disciplines with field experience. It obviously is easier than talking to anthropologists and has the added value of reducing the number of participants. This substitution is also present in the field. I have witnessed economists, veterinarians, biologists, or students working for an NGO, conducting surveys “of an anthropological character” by virtue of their being aimed at so-called “traditional” communities. A list of prohibitions or taboos is drawn. The elder is identified, deemed a fount of traditional knowledge, and questioned. Surveys are conducted speedily with those considered “good” informers. Why bother with complicated survey designs and proven methodologies of developing hypotheses, and with cross-checking and contextualizing data? The ignorance and misuse of anthropological methods of data collection is no impediment to the production of results. But what kind of results? What good are they for? Are these data intended to inform policy toward those very populations that field anthropologists study? There is then a clear danger that the process of substitution and the indiscriminate use of information, answers, and data presented on behalf of anthropology be used to manufacture and reinforce a conventional wisdom that caricatures the beliefs, knowledge, and taboos of so-called “traditional” societies. An endless mechanism is set in place where assumptions are confirmed, and the same questions keep being

asked (Goedefroit 2007). One only has to go in the field in order to witness the devastating potential of such rough reconstructions of reality.

What would have happened had anthropology been invited to participate in the discussions surrounding the construction of such powerful concepts as “biodiversity” and “sustainable development”? How might the problem have been reformulated? What new answers might have been given had anthropology been given the time to collect data and provide analyses based on rigorous field research? I shall use the concept of “biodiversity” in order to help address these questions. First proposed in 1985, it has become an indispensable political tool on behalf of the conservation of natural and renewable resources. In addition to the diversity of genes, species, and ecosystems, cultural diversity is approached as a fourth component of biodiversity. Although it may appear foreign to anthropologists, this concept nevertheless concerns them directly, as is obvious from the wealth of theoretical and empirical studies on this topic. Indeed, many questions that international meetings keep asking have long found answers in the anthropological literature.

## **1- BIODIVERSIT(IES)**

What are these main questions? Who was present to debate them? By way of an illustration, I shall refer to three meetings that took place in the first half of 2013. The first meeting was a workshop on “The links between sustainable development and biodiversity: the role of academics in biodiversity protection”, organized as part of the annual meetings of the French Canadian Association for the Advancement of Science (ACFAS), in Quebec, in May 2013.<sup>ii</sup> Speakers included political scientists, economists, biologists and one anthropologist, all charged with thinking about the tools developed by academics to help decision-makers, local communities, and business take better account of biodiversity, in the context of “thinking anew about the links between Nature and human societies”.

The second meeting, organized by the Institute for Sustainable Development and International Relations (IDDRI) in Paris in June 2013, was entitled “Biodiversity and Traditional Knowledge : How can they be protected ?” The aim was to present various perceptions of the relationships between biodiversity and traditional knowledge in order to identify ways that would foster economic development without prejudice to the environment or the societies concerned. The workshop was intended “to help clarifying the important role that biocultural diversity and traditional knowledge play in biodiversity conserving production systems; to provide a critical assessment of the tools that can be used to enhance their potential

contribution to the livelihood of indigenous and local communities and to conserving biodiversity...[and to show why it is]important to protect traditional knowledge to conserve biodiversity.” Invited were members of NGOs, experts on intellectual property rights, one agronomist, two representatives of indigenous organizations, but no anthropologist.

The third event was organized by the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) in June 2013 in Tokyo.<sup>iii</sup> The goal of that workshop was to bring together experts and stakeholders around the theme of “The contribution of Indigenous and Local Knowledge systems to IPBES : Building synergies with Science”. The themes included “Their relevance for IPBES ;” “The indigenous People’s engagement and experiences in global processes for biodiversity assessment, conservation and sustainable use ;” “Engaging Indigenous Knowledge-holders in IPBES and its Functions ;” “Identifying Gaps and Needs with respect to Procedures and Approaches for working with Indigenous & Local Knowledge ;” “Scoping Experiences, Methodologies and Emerging Opportunities for Bridging across Knowledge Systems,” etc. Out of the twenty-nine participants, there were twelve stakeholders,<sup>iv</sup> twelve natural and environmental scientists, two economists, one ethno-botanist, and only two anthropologists, although indigenous and local knowledge systems was the main theme running through all the sessions.

Clearly, the need to conserve biodiversity is considered self-evident. It is supposed to be the natural foundation of societies’ development and well-being. According to this approach there exists a traditional knowledge held by “indigenous knowledge-holders” whose participation to these debates is deemed essential because this collective heritage is geared to the protection of biodiversity. It then becomes imperative to protect it and find ways of bridging the scientific and traditional knowledge systems.

Anthropologists can only be taken aback by such assertions and their underlying assumptions.<sup>v</sup> For one thing, one should first ascertain the extent to which traditional populations support the idea that biodiversity is a condition of their existence, of their welfare, and of their development; whether they are aware that Nature is finite and that certain practices are more or less ecologically sustainable. It also assumes that these populations are ready to change their values, norms, and practices; and that they are willing to transmit their knowledge to future generations in order to maximize their welfare. Finally, one would also have to imagine that there indeed exists such a person as an “indigenous knowledge-holder,” entitled to participate as a stakeholder in these debates and to speak on behalf of his group.

Most of these assumptions disappear when viewed from the perspective of anthropology. Although the concept of biodiversity is foreign to the discipline, anthropology,

however, has since its emergence generated extensive knowledge about the natural world. To learn only today that, after numerous meetings and workshops on this theme since 1986, one should now speak of *biodiversities* (CNRS)<sup>vi</sup> is progress indeed. To read that “any question about Nature leads inevitably to cultural solutions” and that it is imperative to « think anew about the links between Nature and human societies (ACFAS 2013) is a comforting return to the fundamentals of the discipline. But the discipline has much more to say in the context of an international discourse on biodiversity that is seriously lacking in basic anthropological knowledge.

The uniqueness of traditional knowledge, as well as its singular character must be put in perspective. It is not self-evident that these knowledge systems are naturalistic (Levang 2001) and that traditional praxis is protective of the environment (Orlove and Bruschi 1996). It seems hardly possible to want to “protect” them without setting them in stone and distorting them, for knowledge is the product of transmission and translation processes. The anthropologist, then, would argue that we should study the natural (and cultural) *processes* rather than the *object* of biodiversity conservation, for it is through the process of transmission that what is being conserved acquires meaning. To talk about transmission is also engaging the main themes of anthropology: social organization, kinship, residency, and representativeness. In this context, one has difficulty understanding why traditional knowledge (as a whole) could be held by a few individuals vested with the legitimacy to speak on behalf of the community. In this regard, anthropological studies of “development brokers” (Bierschenk, Chauveau, and Olivier de Sardan 2000) should help us ascertain better the role, the interest, and the limits of the participation of these stakeholders in international meetings and scientific workshops.

## **2- NATURE VS CULTURE: AN UNNATURAL DIVIDE**

Every society, every culture, and every religion holds some explanation of the origins of the world. It usually comes through cosmogonic myths that explain the creation of the universe and of the elements of nature. Humans are rarely separated from this natural process of genesis. Rather, they are conceived as originating in the natural world that is being created. They may even be formed of the same material, such as clay. They then clearly belong to Nature and hold a specific place in the ordering of the world.

There are several reasons why these cosmogonic myths are important to the anthropologist. First, they reflect society’s particular perception of where Humans are situated in the universe, of their relationship to Nature, but also of their links to the sacred. Beyond their



explanatory function, myths also shape mental representations and shape a social order in equilibrium with the universe. Myths explain taboos and the importance of certain practices. They are perpetuated and acted out through rituals (circumcision, first haircut, but also agricultural rituals). They then are the recollection and restoration of a primeval order, and not the reflection of an obsolete vision. Rituals express current realities, reflect modernization and on-going social transformations, and give rise to *habitus*, in the sense of Bourdieu (1980). Let us take one example by way of an illustration.

In the Menabe region of Madagascar, the Sakalava's conception of the development of a human being is embedded in cosmogonic myths (Goedefroit 2007a). At birth, a child still belongs to the world of the spirits (*koko*) that live in forests. It is only when it grows up and becomes more solid that it will gradually become part of the group of humans. These different stages are punctuated by rituals and specific treatments. As long as its bones remain soft and his body only water, it will be called an "animal" (*biby*), for it would seem inconceivable to proceed with a naming ritual. Its hair, said to be akin to that of a *koko*, will be left unkempt and anointed with raw honey from the forest. It will be surrounded with wild plants in order to repel the *koko* who are liable to take the little "animal" away. Then will come the first haircut, the presentation to the village, the gift of a name which marks the integration into the group of humans, and so on all lifelong. Such rituals, although based on common perceptions rooted in similar myths, may also vary markedly depending on social status, or on differing conceptions of what it is to be modern (more in deeds than in meaning). For example, wild plants used to repel spirits (*sanatrindolo*) are increasingly replaced with the noise of bullets fired from a Kalachnikov, with similar effects.

Clearly, there is no discontinuity between the worlds of plants and animals, between the individual's biology and the world of spirits. They all represent a vast cultural construct. This link between nature and culture, in all its variants across societies, has been studied by anthropologist since the dawn of the discipline. And it has been the object of many theoretical debates that are worth mentioning however briefly, because some of the oldest arguments still creep into the current discourse on the impact of Humans on biodiversity.

The divide between the natural and social sciences is rooted in the idea, widely held early in the 19<sup>th</sup> century, that what most distinguished humans from animals was culture. To the humanities and social sciences goes the study of attributes of cultural beings (religions, technique, history...) and to the natural sciences that of plants and animals, including the biological dimensions of humans (physical anthropology).

In the second half of the 19th century, the evolutionist approach is backed by the likes of

James Frazer, Edward Tylor, and Lewis Morgan (1877), its most ardent champion. According to this theory, Humanity has evolved through three stages: savagery, barbarism, and civilization. Each stage itself goes through a technical, social, or religious evolution, such as the passage from hunting-gathering to agriculture, and then to commerce and industry. When applied to Humanity, this evolutionist thinking reflects the idea that evolution is linear and rooted in a gradual separation from nature, in part thanks to technology. Civilized man would then be at the apex of this evolution where he totally dominates the natural world.

The British functionalists of the first half of the XXth century provided another interpretation of the link between humans and nature. Evans-Pritchard's study of the Nuer of the Sudan (1940) exemplifies this approach. Throughout his book, especially in the second chapter on ecology (oecology), emerges a somewhat deterministic feedback mechanism whereby the Nuer society is shaped both by its physical environment and the activity of cattle raising, which in turn allows for the survival of the animals both through the uses to which they are put (included social uses as matrimonial exchange for example), and through the management of the herds. There is perfect osmosis between man and beast, each shaping and owing its survival to the other.

The second half of the XXth century saw a succession of theoretical approaches, each concerned with the links between societies and nature. Lévi-Strauss saw in Nature a thinking tool ("un moyen de la pensée"). Based on his work on myths, particularly those of Amerindians, he sought to develop a universal theory explaining the emergence of distinct but not separated rules governing the world of Humans and that of Nature. These rules find expression in opposing sets (raw/cooked, hot/cold). The prohibition of incest would also symbolize the fracture between humans and animals. This model, however, does not impose a clear distinction the two realms. There would exist « two large sets of facts » : « the first one stems from our animalness...[from] our biological or even psychological heredity...” The second set is rooted in « the artificial world in which we live as members of a society...[and]belongs to the external tradition (the set of customs, beliefs, institutions such as the arts, law, religion, technology, in other words, all the habits and capabilities we learn as members of a society” (Charbonnier 1969). Although Lévi-Strauss (1952) clearly rejected Morgan's linear model of the evolution of societies, one must still acknowledge the persistence of some sort of dichotomy between biological and cultural (or “civilized”) man in his own thought, an idea that over a century earlier contributed to the great divide between disciplines.

Descola (1986, 2013) was to renew this thinking, notably in his book *Beyond Nature and Culture* which offers a comprehensive survey of anthropological thought on the matter. Based

on numerous field examples, he too attempts to build a new universal model reflecting the many ways in which this relationship is conceived. In this “ecology of relationships”, the dichotomy Nature/Culture loses meaning for it is rooted purely in social conventions. The extent and importance of the debates generated by this book (e.g. Descola and Digard 2006) show that anthropology has all along been very much concerned with “the need to think again about the links between nature and human societies”. At any rate, no matter where or when, no matter his starting point (rituals, myths, kinship, etc.), when anthropologists are talking about culture, they are also talking about nature, and conversely, and when she is talking about nature, she is bound to be talking about culture.

### **3- NOMENCLATURE AND CLASSIFICATION: TRADITIONAL KNOWLEDGE**

In all societies, humans have always felt the need to name what is around them. This need generated the development of language as well as the emergence of typologies and word lists that help build bodies of knowledge about the diversity of the natural world. Though it can be observed in all societies, this process takes a variety of forms. The large literature on this question shows that in all societies, the process of classifying and arranging the universe operates through culturally-rooted principles of symbolic transcription (metaphors, analogies, metonymies...). These principles, rooted as they are in the particular perception and representations of each society as well as in specific uses, are arbitrary. This “knowledge system” is also encompassing but not global. It operates within a whole culture but is restricted to its boundaries. A few classic examples will illustrate these points.

Evans-Pritchard’s study of the Nuer explains the importance these pastoralists ascribe to their herd and, consequently, how they have developed an exceptional empirical knowledge about cattle breeding, with a corresponding linguistic richness. Praxis breeds knowledge. However, Evans-Pritchard also stresses the arbitrary character of taxonomic knowledge: cattle are classified according to colors associated with other realms (mineral, other animals, the atmosphere even). For example, a given animal will be associated with coal, beetles or stormy weather depending on its color. This type of analogical reasoning should not be surprising since the western world proceeds similarly, as when (based on the color of a fruit) we say light or a piece of clothing is orange. Bahuchet (1985) relates other and perhaps more telling examples from Central African Pygmies. The classification system of these societies of hunter-gatherers is based on the method of capture and on the morphology of the animals’ extremities. Nobody would think of questioning the Pygmies’ knowledge of their natural environment. Yet how can

this knowledge be characterized when we see that pangolins and turtles are in the same category because they are both gathered rather than hunted? In this logic, snakes and ants belong to the category of “biters”; and elephants, gorillas and panthers in the category of “animals with large hands”. In Madagascar, shrimps have long been considered insects, akin to mosquitoes and spiders. What conclusions can we draw from that?

First, such a classification is, but only partly, grounded in a particular environment. It is indeed difficult to imagine that a traditional society could classify a species not found in the territory where it lives, or unknown. Second, even within the same ecosystem, different populations will have different classifications, depending on the use (or non-use), or on their perception of the environment. Farmers have a more precise plant classification than their pastoralist neighbors who have developed a more detailed classification of animals (Grenand 1998, Caillon and Degeorges 2005). Third, societies are not characterized by just one type of knowledge; rather, various forms of knowledge are present and passed on through different means. This holds true for all types of knowledge since they are all linked to one another. Moreover, as in the case of rituals, knowledge is not fixed but dynamic, and it evolves through encounters with the outside (contacts, migrations, exogamy) and through shifts in meaning that contribute to a redefinition of existing classification categories.

The classification systems used by traditional societies and by natural science, therefore, cannot be compared, even though both rest on a logic of association. Where Science attempts to rationalize knowledge, with a focus on explanation and the hope of generating universal propositions, traditional knowledge is tied to a territory and operates in the context of a specific society. It is unique, with no universal ambition. It is, however, very effective where it is used, and it cannot be ignored. But what is this traditional knowledge really about?

Although embedded in Nature, traditional knowledge is neither scientific nor merely naturalistic. It is the expression of a given society’s global vision of the universe, which is the anthropologist’s main object of inquiry. Kinship nomenclature, typologies, spaces and even spirits, astrology, myths and rituals, all are part of the same continuum which, approached as a whole, interpret a culture. Just like ecologists cannot understand the dynamics of an ecosystem by studying a single species, even a keystone species, anthropologists cannot speak of traditional knowledge without considering the whole representation system of a society, its impacts on daily practices and uses, on modes of transmission, and on the legitimacy of those who would claim to hold or represent it.

When speaking of indigenous knowledge about biodiversity, then, not only should we keep in mind that it is neither scientific nor necessarily naturalistic, but, above all, that its

effectiveness, although real, is dominated by considerations relevant to sentience and beliefs. To the effectiveness of one type of rationality is opposed another type, just as effective. I have often observed traditional therapeutic rituals where the healing virtue of a plant was equally if not primarily determined by the patient's identity (name, date of birth, origin and astrological sign), or even by the day and time of the consultation, or by the astrological fate of the traditional practitioner, rather than by the molecular properties of the prescribed plants. This is not to deny the real progress made possible by a partnership between the two types of knowledge, that of the traditional healer and that of the scientist. The former identifies the properties of a plant based on his pragmatic knowledge, the latter thanks to various scientific techniques.

Undeniably, traditional knowledge about nature can be effective from a scientific viewpoint; but its effectiveness cannot be separated from powers other than strictly scientific. These powers are rooted in traditional knowledge understood as a whole, in practices and in symbols. It is then difficult, if not impossible to extract traditional knowledge from the system in which it is embedded (Carneiro da Cunha 2012); just as it would be difficult to try and build a bridge between the traditional and scientific knowledge systems.

#### ***4- CONSERVATION/PROTECTION***

We have seen that traditional knowledge is a system of thought and practices, of uses and non uses. These intertwining notions need be understood before speaking of the traditional conservation practices of indigenous communities.

Only a portion of available species is used, either because they have not been identified (their presence and qualities are thus ignored), or, if they are known, there is no use for them or their use is subject to prohibitions, for religious reasons for example. There is indeed no clear separation between practical knowledge and symbolic representation.

It seems therefore surprising that non-use, for religious considerations for example, should be interpreted as a biodiversity conservation strategy. Because use and non-use are tied to knowledge and practices, they vary from one society to another, and can change over time according to the season, or following changes in needs or the emergence of new opportunities (Goedefroit, Chaboud, and Breton 2002). Uses even can differ within a given society for they are tied to a system of devolution of acquired rights gained through prior residency, primogeniture, inheritance, or marriage. Access to property and the right to use a given resource are thus regulated by very sophisticated systems. As a discipline concerned with

studying systems of social organization of traditional societies, anthropology is well suited to understand the way access to use is socially regulated.

Practice enables use. Yet practice is not an end in itself. It is based on knowledge that has been acquired, developed and passed on through processes that differ widely from society to society. Before coming back to transmission in the following section, two persistent misconceptions that all too often are found in international meetings and literature about biodiversity must be shed.

The first one is the idea that so-called traditional indigenous practices are “naturally protective of the environment”, being driven by some sort of ageless “ecological wisdom” inherent in preindustrial societies to whom we owe the preservation of the last remnants of pristine wilderness. It is then incumbent upon us to maintain these indigenous practices in order to protect biodiversity. These practices are not automatically conservationist, however. For one thing, this idea assumes that these practices rest on some notion of finality, of extinction, as if the knowledge of these populations were similar to that of the natural sciences. Yet, as we have seen, traditional knowledge is not of that kind.

Conversely, the second idea views traditional or indigenous practices as driven by the overwhelming need of those populations to find in nature the means to fulfill their basic needs. They would have no means to ensure their survival other than by draining natural resources at the risk of destroying them. They are then presented as ignorant but not guilty. The solution is education; to raise awareness in order to change practices, even “mentalities”, with the idea that their development and quality of life depend on the conservation of biodiversity. These twin ideas reflect a questionable and anachronistic idealism, heir of the evolutionary theories mentioned earlier: that of the indigenous populations “close to nature”. Used as assumptions behind projects intended to protect “ecological” practices or changing those deemed non-ecological, these ideas can become dangerously counter-productive. Before elaborating on this point, let us first reflect on the nature of the conservation praxis.

I have earlier stressed that the willingness to protect biodiversity is not a given since so-called traditional knowledge is not inherently ecological, it is encompassing, and it does not have a universalistic ambition. Protecting an endangered species in order to maintain a global public good is, of course, foreign to these populations. It does not mean that no practices of conservation exist. The criteria governing what should be protected, however, do not always follow an ecological logic, another rationality. On what basis then are species selected for protection and what are the known conservation practices that anthropologists study?

To be sure, some practices may promote conservation even though their purpose is not the protection of species per se. The selective felling of trees for firewood, or taking away “no more than is needed” are not ecological actions. Rather, they may only reflect a lack of need, shortcomings in conservation techniques, or the absence of a market. One only has to witness the excessive exploitation that follows the introduction of new technology or the opening of a market among populations believed to be living in harmony with nature to realize the weakness of this assumption. In Madagascar, for example, local populations have little use for precious woods such as pallsander and rosewood, because they are hard to fell and their burning potential is mediocre. The opening of a market and the introduction of the chain-saw, however, have encouraged overexploitation by the local population. A similar dynamics can be found in sea cucumbers or shark fishing, a practice never found among traditional Malagasy fishers but one that boomed in some villages following the development of a Chinese product chain during the 1980s. Because this type of fishing is also considered to be dangerous, it has, in some cases, acquired the status of a “tradition”, and those that perform it, akin to the great warriors of old, dawn amulets and charms for protection. This practice then dresses itself as a tradition, even though it is very recent and independent from traditional use.

In these societies, conservation follows a different logic. It is often driven by protection of a specific animal, a place, a tree; only rarely of a whole species. Although the reasons for doing so may differ, these practices are all more or less closely linked to the sacred, to identity, to the history of the group or of a family. Such and such animal may not be killed by a group or family, for example, because according to the myths, they share the same origin. One tree will contain the spirits of the village; another proves that a family that later gave rise to a whole social organization settled there first. A tree, an animal, a place are the targets of conservation efforts, but what is conserved belongs to the social and the religious. They are selected for their specificity (a tree of a tortuous shape, an individual animal of a color much sought after for symbolic reasons). These objects of conservation are often interchangeable: if the tree or the animal dies, then the taboo may be transferred to another animal or tree. Specific rituals are used for that purpose.

“Taboos” or prohibitions that apply to these sacred objects and protect them are not “informal systems of biodiversity protection” (Tengö et al. 2007). Far from being informal, they are embedded in a society and institutionalized, as demonstrated by their links to myths, rituals, as well as by the group’s history. Moreover, a taboo or a prohibition has an intention of its own that has nothing to do with the protection of biodiversity. Rather, its function is to maintain the values and equilibria essential to the group, the family, or the individual. Finally,

a prohibition may be just the means of appropriating a place, an animal or a plant, thus preventing outsiders from gaining access to it. There are examples of resources, such as a forest, that are subject to prohibitions simply to ward off migrants and keep exclusive ownership and use of its resources. When it does not work, because migrants may not be sensitive to the risks incurred by violating a taboo, then the local populations themselves would join in their exploitation. Sacred forests do exist; their biodiversity is protected by taboos and prohibitions that are effective, especially if they are backed by external means: a national park, a world heritage site. But the taboo in itself does not reflect the will to protect biodiversity. Thus, an anthropologist would find it most curious to map intact forest areas by satellite, and attempt to link them with taboos from surrounding populations, (as one would draw a list of species) in order to conclude that these traditional practices are responsible for the protection of these forests (Elmqvist et al. 2007).

If such criteria as endemism, scarcity, endangerness, or gene pool useful to humanity are not those of indigenous populations, what criteria do they retain? The example of the “gestion locale sécurisée” (Gelose) program (Weber 1996) provides a few answers to this complex question. In this process of securing land rights which also aims at involving local populations in mapping the biodiversity of their territory, villagers were asked to fill out questionnaires. A first set of questions asked respondents to list those animals and plants that should absolutely be protected. A second set pertained to those that had to be eradicated. Answers were largely consistent from one village or one region to another (Goedefroit 2007a). In the category of animals in need of protection could be found zebus, chickens, and dogs; whereas the crocodile, the fossa (*Crypto procta ferox*; classified as vulnerable by the IUCN) and the papango (black kite, *milvus migrans*) were considered pests. The logic is readily apparent: one must protect the dog because he protects chickens from nocturnal predators such as the fossa and the papango. And crocodiles must be eliminated because at night they lie between canoes at the edge of the village, where people go to relieve themselves. There have been too many accidents. That is why they systematically destroy crocodiles’ eggs and nests.

How can one instill in these populations an interest in favor of conservation without changing norms? The Durrell Wildlife Conservation Trust used economic incentives by offering to pay for every protected crocodile’s nest (or egg). The reaction of the villagers can easily be understood: how can we be asked to raise animals on our own territory that put our children at risk? The conservation of biodiversity is then placed in opposition to the natural desire of wanting to protect Humans. In the 1980s, a similar approach was used in an attempt to eradicate rats (*ratus ratus*). A sum was given for every rat trapped or killed. There was



general consensus behind the campaign, itself the result of a participatory approach. Results, however, were contrary to expectations. Seizing the opportunity to make an easy profit, populations started raising rats rather than hunting them.

Other means of enlisting indigenous populations behind the goal of biodiversity protection imply changing societal norms. They consist in targeting indigenous practices so as to make them more ecological, or in modifying their knowledge systems by making them aware of the importance of conserving a given species. Modifying practices, raising awareness, and changing “mentalities” may be laudable goals; yet it is also playing sorcerer’s apprentice, for it involves acting on a thought *system*, on beliefs and representations, and on the norms and social stability, without mastering the consequences of doing so.

There is not one knowledge but various knowledge; not one practice but a variety of practices, be they social, religious, in their infancy, non-ecological, arbitrary, inequitable, deemed irrational, acquired or passed on. They form a whole in a dynamic equilibrium. Attempts to modify, even stop, a given practice in favor of another, risk favoring one group (of migrants, for example) at the expense of the indigenous order, thereby triggering a progressive loss of social control, including control over access to resources or the regulation of their use. This phenomenon can be observed in various regions of Madagascar, for example (Goedefroit 2002a). Raising awareness, believed to be a softer method of inducing change, can also have equally devastating effects, especially when the discourse becomes more radical and turns into preaching, demonizing indigenous practices, announcing the end of the(natural) world, food scarcities, etc. For many indigenous populations, biodiversity has always been there and will always be there. Discourses to the contrary lead to the emergence of an “ecological stress” (Goedefroit 2007a) that sometimes drive societies to destroy or precipitously exploit entire forests to make charcoal, to grow corn, to do anything possible before it ends. In this situation, conservation based on external criteria becomes a threat to the well-being and to the future of the population concerned (Harper 2002). And in a context of economic exploitation or stress, and with no land guarantee, populations will respond to the invasion of their territory by using the very weapon that they wish to fight against (Grenand 1998 ).

#### **4- TRANSMISSION AND REPRESENTATIVITY**

As mentioned earlier, the classical anthropological notions, of transmission and representativeness pervade the international discourse on biodiversity and underlie the debates on the role that indigenous knowledge-holders play in these debates. Transmission is important because one cannot speak of knowledge systems and indigenous practices without

understanding how they are acquired. And the issue of representation comes up because one must understand the processes and criteria that in traditional societies confer an individual the right to speak on behalf of the community. These two notions underlie anthropological knowledge about rules governing filiation, kinship, marriage, residency, or social organization. These are the very rules that govern access to land and the regulation of uses.

Knowledge is a construct of different realities held by different individuals within the same society. It is passed through distinct channels that follow distinct rules. The resulting complexity is such that it would be better, as an illustration, to use an analogy far removed from the reality of the field. Let us then take the example of categories of speakers of a given language. One can identify three of them: the grammarian, the “native” speaker, and the foreign speaker. Each of them will hold a portion of all the knowledge about this language acquired through different means. Grammarians possess theoretical if not esoteric knowledge, akin to that of astrologers and healers who, following a set of initiation and learning stages, will master the different knowledge repertoires of their society. This knowledge of which they are the sole translators, guides their practice, and places them at the interface between Humans and their fate. Not anyone can be the grammarian of his own culture; he is the product of competence as well as filiation that follows widely different rules across societies.

Unconcerned with grammatical rules, the native speaker speaks a language acquired early in life from people around her, without initiation or effort, slowly and unconsciously. It is own language. Unlike the grammarian, he cannot explain its rules, but is more apt to use it in daily life. It is the language of use, of practice, of common sense. He will, however, still need a grammarian in certain circumstances.

The foreign speaker possesses a certain grammatical knowledge, though less than the grammarian but more than the native speaker, and is able to communicate with the native speaker though less fluently. It is not “her” language, but one “learnt” theoretically and empirically. As such, she may be a source of innovation because she will, often unconsciously, introduce features or words from her own native tongue. The anthropologist would then observe a slow process of « acculturation », « enculturation » or « deculturation », depending on the form, modalities, and extent of the phenomenon. In any case, the foreign speaker also possesses part of this knowledge.

Knowledge is not fixed; rather, it is the product of twin dynamics of loss and acquisition through, for example, borrowings or diversion. These dynamics are temporal (Grenand 1998) and conjunctural. They can also be part of the very logic that governs social organizations. Let us take, as an example (Harper 2002), societies that follow an harmonic regime(patrilineal

descent and patri-virilocal residence). In these societies, children belong to their father's lineage and live with him. Men marry outside their lineage and often outside their village. Girls of marrying age live the paternal home to join their husband's. The result is that men occupy the same territory across generations, whereas women move around. Over time, large matrimonial networks develop, sometimes expanding over large areas.

With respect to knowledge about biodiversity, one could logically infer that in this system knowledge is passed on by men and that it expands and grows in complexity thanks to their permanent residency in a given environment. It would then be natural to consider the elder man as the privileged informer, holder of all the knowledge, and ignore the young bride who settled recently in the village. As a woman in a patrilineal system, new to the community, young, and part of women's transgenerational roaming, she can only be ignorant. That would be wrong. In this type of society, women play the role of "foreign speakers" mentioned earlier. They learned from their mother who came from village A as they were still living in their father's village B, a mixed knowledge (AB) regarding, for example, the use of plants. When they join their husband's village (C), they acquire from their mother-in-law knowledge that originally came from village D mixed with the knowledge specific to village C. This knowledge CD then is combined with knowledge AB, and so on. At work is a formidable dynamic of accumulation of knowledge, but also practices and uses of biodiversity, a source of innovation which exists alongside knowledge more closely tied to male practices.

Many other examples would show that one cannot understand modes of transmission, of land appropriation, and of resource management and control apart from the social organization of the community. The limits of those attempts to identify, record and "freeze" indigenous knowledge in the singular and at a particular time, as is usually done when a list of traditional prohibitions and "ancestral" taboos is drawn up, then become clear (Carneiro da Cunha 2012).<sup>vii</sup> This method also generates more accurate studies of the devolution of power and legitimacy of representation within a society.

This question of representativity is pervasive. First, the principles governing the legitimacy of representation rest on modes of devolution of power based on rules of transmission that are specific to each society (descent, marriage, seniority, residency), and depend on the existing power structure (lineage, headless, sacred kingship, etc.). Each society has its own system for designating those authorized to speak and make decisions on behalf of the group. But other legitimacies are present and embedded in the system, such as those based on knowledge (magico-religious, for example). The individual who may legitimately speak on behalf of the community is not necessarily the elder of the village.

Second, the external criteria that confer a given individual the role of representative of a society rarely correspond to those held by this society. It begins with the selection of the informer. To decide *a priori* that a given individual, because he is an old male, is *ipso facto* more legitimate to speak for all the others and possesses all the knowledge of his group is an arbitrary stand seen all too frequently in the field, with a negative impact on the quality of the data collected. This attitude could also be observed with the creation of base communities (“communautés de base”, or Coba), a device attached to some development projects targeted at “local” communities. The aim is to gain the support of the population and facilitate participation, while bypassing the obstacles or “brakes” put up by legitimate traditional authorities. Without giving much thought to the meaning of legitimacy and representation in those societies, presidents and bureau members of the Coba are selected according to criteria useful to foreign operators: literacy, language proficiency, youth and openness to change. Indigenous, but not too much so. The risks are large: failure or abandonment of the project, or, more seriously, a rise in internal conflicts that leads to the overthrow of the traditional order and to the loss of control over natural resources with possible negative impacts on biodiversity (Goedefroit 2007a).

At the interface between these two processes of legitimacy building and representativity stand the “development brokers” (Bierschenk, Chauveau, and Olivier de Sardan 2000). Perceived by external actors as representatives of indigenous populations, they set themselves within their community (where they often hold a marginal position) as key interpreters between it and the outside. “We’ll always find a bunch of traditionals with enough knowledge of French or English to negotiate a deal” one could say, paraphrasing Françoise Grenand (1998 :49). Over time, this “bunch of traditionals” becomes an association claiming to represent the community. “By adopting the “ecolo-indigenous” discourse of certain NGOs, social or religious institutions, or even of scientists, some local populations “reformat” their political demands and their practices in order to appeal to donors. Having rejected their indigenous identity in the 1980s, the people of the Brazilian forest now claim the status of traditional populations in order to gain international recognition” (Caillon and Degeorges 2005: 91).

Although they may be useful, whom do these brokers really represent? What is their legitimacy? Can they pretend to possess their community’s knowledge? Or is it that the legitimacy of their participation in international networks, commissions and workshops is based only on external criteria (the requirement to have representatives of minorities at all cost, including gender representation; lack of alternatives...)? In that case, there is a need to contextualize and qualify their participation. Decisions based on this type of representation

may not be understood or readily accepted by local populations. Not to mention the danger of strengthening certain aspects of a given society and, therefore, building caricatures of “traditional” societies.

#### **CONCLUSION: THE SPRING OF HOPE**

The introduction raised the paradox that although anthropology is asked questions about social dynamics, anthropologists are rarely invited to answer them. What can we expect from an anthropology that produces results outside the discipline? Conversely, what types of answers could anthropologists provide on the basis of their theoretical and empirical knowledge? Using the example of the concept of biodiversity, this article has identified some misperceptions regarding knowledge, practices and representativity, and stressed the need first to understand internal systems and processes rather than performing inventories (of knowledge, practices, or taboos). That approach would not have been very different had I chosen the notions of sustainable development or ecosystem services. Its strength lies in anthropology’s « field policy » (Olivier de Sardan 1995), that is, in the richness of its methods. Anthropology is a “theoretical science of the praxis”. “The uniqueness of its approach lies less in its object (...) than in the method used to study it” (Izard 1982: 125). Indeed, I did express some surprise in the introduction that being concerned with one of the main themes of the discipline suffices to generate data or solutions deemed anthropological, as if the object defined the discipline. Therein emerges a great misunderstanding. In anthropology methodology comes first, whereas what usually comes under the “anthropological” label are answers to certain questions and the production of objects, regardless of the method. Considering, on the one hand, how vital field work is, and, on the other hand the absence of this requirement, we may, without exaggerating too much, suggest that, as in the case of the representatives of traditional populations selected in the context of development projects, we certainly need anthropology provided it is not too anthropological.

Yet, the power of anthropological methods that allow for the understanding of a whole system of representations and organization has long been proven. In this context, the methods used outside of the discipline to generate “anthropological!” material for use in international meetings on biodiversity need some elaboration. I have already identified a few procedure typically found in the field that amuse the anthropologist, such as finding the elder deemed a fount of knowledge, or using the president of the local association who speaks the language of the outsiders as a privileged informer. He is invited to speak, asked “open” questions defined a priori according to the type of information needed or in response to the need to fit them into

an entry form that will contribute to a « qualitative » data base. The amount of data is often very large, for one only rarely refuses to talk with an outsider. This approach is fast and powerful. It generates maps, lists, inventories, data bases that nobody can question, not even the anthropologist, for does not the information come from field work on the society itself? It then must be true and anthropological, even if it cannot be used in an anthropological analysis. Such an approach reflects a series of naïve beliefs: the native is bound to be old; he holds the truths of the whole society which he readily reveals; he can even speak of the collective unconscious; to talk is to investigate; to see is to observe; taboos are the answer. Anthropologists avoid those paths for they know they do not lead to the heart of societies. Their research design is reflexive and evolutionary. It combines numerous methods that allow for cross-checking and contextualizing information and for taking into account a diversity of realities.

“Indigenous knowledge about nature” is in vogue. From an anthropological viewpoint, its study should be based on comprehensive surveys covering at the very least myths and rituals, genealogy (the structure of society and systems of transmission), mapping (based on specific observation protocols), the identification of the informants in order to determine their status, and oral and evolutionary surveys that may or may not be recorded, cognitive, etc. Their content analysis (inferences, recurrences, etc.) may then generate to observations regarding the nature of this knowledge and the conditions of its existence. We are, therefore, far from even thinking about building a bridge between traditional and scientific knowledge. In the absence of anthropologists in debates about biodiversity, it is not anthropological knowledge that is used to make decisions that affect the welfare and the future of these communities. The word of the native or of the president of native associations now dubbed stake-holders or deemed to be indigenous knowledge-holders, cannot substitute for the knowledge of the anthropologist.

Can we continue eschewing this knowledge? My purpose here is not to decry the effectiveness of a concept based on the standards of excellence specific to a discipline. Rather, it is to improve effectiveness by avoiding the dead-end of the production of questionable commonplaces, avoiding repeating always the same questions, progressing on a straight road, and taking into account the phenomenon of brokerage so as to have a better idea of its advantages and shortcomings. Beyond the interest of a discipline lies an ethical problem. One cannot ignore the impact, in practice, of the implementation of these ideas: are they as humanely bearable as they are ecologically sound?

## REFERENCES

- Albert, Bruce. 1995. Anthropologie appliquée ou « anthropologie impliquée » ? Ethnographie, minorités et développement. In *Les applications de l'anthropologie. Un essai de réflexion collective depuis la France*. Jean-François Baré, ed. Pp. 87-18. Paris : Karthala.
- Bahuchet, Serge. 1985. *Les Pygmées Aka et la forêt centrafricaine : ethnologie écologie*. Louvain : Peeters Publishers.
- Baré, Jean.-François, ed. 1995. *Les applications de l'anthropologie. Un essai de réflexion collective depuis la France*. Paris : Karthala.
- Bierschenk, Thomas, Jean-Pierre Chauveau, and Jean-Pierre Olivier de Sardan. 2000. *Courtiers en développement. Les villages africains en quête de projets*. Paris : Karthala.
- Bourdieu, Pierre. 1980: *Le sens pratique*. Paris : Editions de Minuit.
- Charbonnier, Georges. 1969. *Entretiens avec Claude Lévi-Strauss*. Paris : Presses Pocket.
- Caillon, Sophie and Patrick Degeorges. 2005. Biodiversité(s), quand les frontières entre culture et nature s'effacent. *Ecologie et Politique*, n° 30:85-95
- Carneiro da Cunha, Manuela. 2012. Conclusion au cycle de conférences « Hommage à la pensée sauvage. Nature, apports, rapports des savoirs autochtones. Paris, Collège de France , 15 May.
- Descola, Philippe. 1986. *La Nature domestique : symbolisme et praxis dans l'écologie des Achuar*. Paris : Ed. de la Maison des sciences de l'Homme.
- . 2006. Soyez réalistes, demandez l'impossible, *L'Homme* 177-178:429-434.
- . 2013. L'ethnologie ouvre à tous les possibles. *Le Monde Science et Médecine*, June 24: 8
- . 2013 (2005). *Beyond Nature and Culture*. Chicago : University of Chicago Press.
- Digard, Jean-Pierre. 2006. Canards sauvages ou enfants du Bon Dieu ? Représentation du réel et réalité des représentations. *L'Homme* 177-178 :413-428.
- Elmqvist, Thomas M., M. Pyykönen, M. Tengo, F. Rakotondrasoa, E. Rabakonandrianina, C. Radimilahy. 2007. Patterns of Loss and Regeneration of Tropical Dry Forest in Madagascar : The Social Institutional Context. *Cf PloS ONE*.
- Evans-Pritchard, Edward Evan. 1940. *The Nuer: A Description of the Modes of Livelihood and Political Institutions of a Nilotic People*. Oxford: Clarendon.
- Ghasarian, Christian, ed. 2002. *De l'ethnographie à l'anthropologie réflexive. Nouveaux terrains, nouvelles pratiques, nouveaux enjeux*. Paris: Armand Colin.

- Goedefroit, Sophie, Christian Chaboud et Yvan Breton, eds. 2002. *La ruée vers l'or rose. Regards croisés sur la pêche crevette traditionnelle à Madagascar*. Paris: PNRC/DID/IRD.
- . 2002a. Par le jeu des alliances : quand les preneurs d'épouses deviennent les donneurs. In *La ruée vers l'or rose. Regards croisés sur la pêche crevette traditionnelle à Madagascar*. Sophie Goedefroit, Christian Chaboud and Yvan Breton, eds. Pp. 91-100. Paris : PNRC/DID/IRD.
- . 2007. Le cercle vertueux du développement. Regard anthropologique sur les mouvements de la pensée dans le monde du développement. In *Mondialisation au risque des travailleurs*. Baumann et al. eds. Pp. 193-217. Paris : l'Harmattan.
- . 2007a. La restitution du droit à la parole. In *Quel développement à Madagascar ? Transfert et détournement, biodiversité et ressources naturelles, Conservation, investissement et pratiques locales*. Sophie Goedefroit and Jean-Pierre Revéret, eds. Pp. 39-64. *Etudes rurales*, n°178.
- Goedefroit, Sophie et Jacques Lombard. 2007. *Andolo. L'art funéraire sakalava (Madagascar)*. Paris : IRD/Adam Biro.
- Grenand, Françoise and Pierre Grenand. 1998. Les anthropologues face à la biodiversité. Propos recueillis par C. Aubertin et A. Auris. *Nature, Sciences, Sociétés* 6(2):43-49.
- Guay, Louis. 2002. The Science and Policy of Global Biodiversity Protection. In *Governing Global Biodiversity*. Philippe Le Prestre, ed. Pp. 207-231. Aldershot, UK: Ashgate.
- Harper, Jane. 2002. *Endangered Species. Health, Illness and Death among Madagascar's People of the Forest*. Durham, NC: Carolina Academic Press.
- Izard, Michel. 1982. L'anthropologie et les recherches en sciences sociales dans le Tiers-Monde. In *Les sciences de l'homme et de la société en France. Analyses et propositions pour une politique nouvelle*. Maurice Godelier, ed. Pp. 121-138. Paris : La documentation française.
- Leservoisier, Olivier and Laurent Vidal, eds. 2007. *L'anthropologie face à ses objets. Nouveaux contextes ethnologiques*. Paris, Editions des Archives contemporaines.
- Levang, Patrice. 2001. Is Tenure security/insecurity the determining factor in sustainability of local systems of forest management ?. In *Alternative strategies to forest resource development*. G. Michon, ed. FORRESASIA, Final Report of the European Commission.
- Levi-Strauss, Claude. 1952. *Race et histoire*. Paris: UNESCO.
- Morgan, Lewis H. 1877. *Ancient Society, or Researches in the Line of Human Progress from Savagery, through Barbarism to Civilization*. London : Macmillan.



- Olivier de Sardan, Jean-Pierre. 1995. La politique de terrain. Sur la production des données en anthropologie. *Enquête*, Les terrains de l'enquête, n°1 : 71-109.
- Orlove, Ben and Stephen Bruschi. 1996. Anthropology and the Conservation of Biodiversity. *Annual Review of Anthropology* 25:329-52.
- Tengö, M., K. Johansson, F. Rakotondraso, J. Lundberg, J.-M. Andriamaherilala, J.-M. Rakotoarisoa, T. Elmqvist. 2007. Taboos and Forest Governance: Informal Protection of Hot Spot Dry Forest in Southern Madagascar. *Ambio* 36(8):683-691.
- Weber, Jacques. 1996. Conservation, développement et coordination : peut-on gérer biologiquement le social ? Paper presented at the Panafrican Workshop on "Community Management of renewable natural resources and sustainable development." Harare, June 24-27.
- Wilson, Edward O. and Frances M. Peter, eds. 1988. *Biodiversity*. Washington, DC: National Academy Press.

---

<sup>i</sup> The interim Multidisciplinary Expert Panel of the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), for example, includes only two economists as sole representatives of the social sciences. As for DIVERSITAS, six out of the 24 members that have sat on its scientific committee over the last twenty years have come from the social sciences, none of whom is an anthropologist.

<sup>ii</sup>The workshop was co-organized by the Quebec Centre for Biodiversity Science whose aim is to build a multidisciplinary science of biodiversity.

<sup>iii</sup>Established in 2012, IPBES aims to strengthen the science-policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity, long-term human well-being and sustainable development.

<sup>iv</sup> Mainly NGOs representing ethnic minorities, integrating or not the gender dimension.

<sup>v</sup> Since the adoption of article 8j of the Convention on biological diversity (conservation in situ), indigenous knowledge or traditional ecological knowledge has become an unavoidable theme of every international meetings on the topic of biodiversity conservation.

<sup>vi</sup> «Biodiversities» (plural) was the title of an exhibit organized by the Centre national de la recherche scientifique (CNRS) in Paris in October 2010. See also Caillon and Degeorges 2005.

---

<sup>vii</sup>Regarding biodiversity, M. Carneiro da Cunha (2012) also stresses the opposition between the mechanisms that create diversity and those that conserve an existing one.