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Editorial

Differences between niches of anthropocentric and biocentric conservationists: Wearing old clothes to look modern?

When looking for links between biodiversity and human well-being, recent debates have focused on the comparison of two different approaches to conservation: conservation because of the intrinsic value of nature and conservation narrowed only for human interests (Cafaro & Primack, 2014; Kareiva & Marvier, 2012). In fact, these two main conservation approaches can be summarized as "anthropocentric conservationists" (a vision more focused on conserving nature for saving human well-being, represented for instance by the ecosystem services approach) and "biocentric conservationists" (a vision focused on conserving nature that considers the importance to protect species and ecosystems due to their intrinsic values) (Baltaci, Yirik, Sargin, & Yumusak, 2015; Gagnon Thompson & Barton, 1994; Kortenkamp & Moore, 2001). If minimizing the main differences related to the ethical basis in each conservation approach (Rottman, 2014; Shoreman-Ouimet & Kopnina, 2015), these apparently divergent-theoretical positions can be considered relatively close to each other. Some authors emphasize how conservation will be most effective if focused on articulating the values they all share, while collaborating on common interests, because the conservation arena is large enough to accommodate both positions (Hunter, Redford, & Lindenmayer, 2014). However, even if we agree with a message about the merging of both anthropocentric and biocentric conservationists as suggested directly or indirectly by several authors (Cimon-Morin, Darveau, & Poulin, 2014, Cimon-Morin, Darveau, & Poulin, 2015; Eigenbrod et al., 2010; Hunter et al., 2014; Naidoo et al., 2008), we consider that it is necessary to compare the different scopes of these two concepts, analysing the potential implications for the conservation of nature and humans on a short and a long time scale.

1. New vs. old conservationists

First of all, we warn against the potentially dangerous use of adjectives such as "new" and "old" to categorize the two conservation approaches. The identification of "anthropocentric conservationists" with the innovative aim of conservation to benefit both people and nature is wrong. This aim is not a new endeavour, since it has been the basis for conservation in Europe and North American for over a century (Hunter et al., 2014). But it is too easy a temptation to fall for this classification of the two conservation approaches. These are often presented as: Old conservation = eco- or biocentric, while new conservation = anthropocentric focus. Some examples are available in recent comments (Soulé, 2013) and also in ecological blogs: https://theoreticalecology.wordpress.com/2014/05/31/are-the-niches-of-anthropocentric-and-biocentric-conservationists-really-complementary/ or http://www.theguardian.com/environment/2012/oct/18/what-wrong-price-on-nature. However, the adjective "new" assumes the development of the concept, from an old to a new one. Paradoxically, in the focused case, the "new" approach can also be delineated as a return to the past, to before the Victorian era, with the vision of man as the centre of nature, the most significant entity in the world, and thus with the authority to rule all forms of life that surround us. Furthermore, it is impossible to ignore the similarities (even recognizing that they are not directly linked) with the final purposes of the "ecosystem services" approach: Maintain the ecosystem, because it provides an increase in human well-being (Millennium Ecosystem Assessment, 2005) and the principles of "utilitarianism", as already highlighted in the book "An Introduction to the Principles of Morals and Legislation" (Bentham, 1780). However, the principle of utilitarianism as conceived by Bentham is much more deep than simply recognizing instrumental values for each component of nature, and it is not anchored only in human-beings.

It is interesting (and slightly contrasting with this perspective) to learn that the term "anthropocentric" was first coined in the 1860s (Kortenkamp & Moore, 2001; Mugula, 2013), while the term "ecocentrism" related to conservation was suggested by Aldo Leopold in a revolutionary essay published over 60 years ago (Leopold, 1949), so this term is the relatively youngest one in the field of philosophy of ecology.

If we follow this approach, we can claim that the use of "new conservationists" refers to conservation focused on the anthropocentric view, rendering it like wearing old clothes while trying to appear modern. The anthropocentric perspective is not only a relatively out-dated solution, but can also re-propose old issues. Some lessons from the recent past can be helpful in order to understand the risks behind a too fast and easy implementation of a unilateral approach as promoted by the ecosystem services framework. For a few decades, economic ornithology proposes a practical "assessment system" so close to the method now re-vitalized by the ecosystem services approach: Values of birds were estimated on the basis of their interests for the human economy, in terms of costs and benefits (always quantified in terms of monetary units) (Kronenberg, 2015; Whelan, Şekercioğlu, & Wenny, 2015). Pest control was a keyword in the economic ornithology paradigm, because of its political importance and relative ease of being monetized. However, this particular service quickly became obsolete,

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when human-made solutions (chemical pesticides) were introduced, performing the same service at a lower cost, undermining for ever the instrumental utility of economic ornithology (Kronenberg, 2015).

Similarly, in the old bird books from the 15th to 20th century there was a Section on uses and benefits of each species of bird, usually the last section. This utilitarian Section was still included in "The birds of the Soviet Union" (Dementiev & Gladkov, 1951), but to our knowledge currently there is no longer a Section on the use of birds in any bird book.

Furthermore, the need to relativize the values of all ecosystems or components of nature (in terms of money, but the same is also true if the values are quantified as aesthetic significance or for supporting well-being) for the central figure of the human species involves an inevitable loss of essential information related to the complexity of natural systems: The great majority of interactions among components of nature or ecosystems are declassed as being of secondary value if not directly connected to humans (Fig. 1A and B). However, often these kinds of interactions are essential for nature conservation (equilibrium), but also in order to understand biotic and abiotic interactions driving the main ecological process (Kissling et al., 2011; Mod, le Roux, Guisan, & Luoto, 2015; Morelli & Tryjanowski, 2015).

2. Intersection or inclusion of niches for conservationists?

We partially disagree with the fundamental assumption of the existence of a continuum from anthropocentrism to biocentrism on conservation practice (Baltaci et al., 2015; Meine, 2004). The two extremes of conservation approaches are often defined in the following terms: Anthropocentric conservationists are people who only care about the welfare of humanity, considering all other species mainly as resources to be exploited (Hunter et al., 2014). For them, the protection of other species (or ecosystems) is important only if it means an increase in human well-being. At the other extreme, the biocentric conservationists are people who consider the human species no more intrinsically important than any other species. Thus some authors affirm that niches within the conservation movement are close and complementary (Hunter et al., 2014). However, when analysing the concepts implicit in each "conservation position", it becomes clear how both are not really extreme points of a gradient, but only two visions pointing in the same direction, with a marked difference in focus (one, species-specific, the other, multi-species focused). Furthermore, we claim that one vision is located within the other. The biocentric scope can include the anthropocentric one. The aims of human-centred conservationists are the human benefits, while the aims of biocentred conservationists, because widespread, can satisfy also the aims of human-centred conservationists. This kind of relationship is called "inclusion" (Fig. 2B).

3. On the risks of simplification when working in ecology

Considering that ecology – and then conservation – is focused in both natural and non-natural components of ecosystems, different views are requested in order to handle each one. An excellent example is constituted by the natural protected areas that should be managed towards naturalness, while urbanized areas, should be managed towards sustainability (Machado, 2004). The first one is clearly based on a biocentric perspective, but it should have long-term effects even on human populations, while the second one is based on an anthropocentric perspective and, for this, more restricted. We consider it necessary to underline some deep differences implicit in each theory of conservation described above. The anthropocentric approach, focused mainly on the instrumental values of ecosystem services, diminishes the importance of those components, species or ecosystems with less instrumental value. This fact also implies that from the point of view of biodiversity conservation, some species that can be defined as "ecosystem passengers" can be lost without any loss of ecosystem function (Chee, 2004). Furthermore, functionally important species that are lost in one ecosystem can be substituted by other species in the same guild to sustain the same function and provide the same services. This disparity between traditional biodiversity conservation and biodiversity conservation promoted by ecosystem services can be clearly highlighted when comparing different facets of biodiversity. Many recent studies underlined how some less explored components of biodiversity should play an important role on conservation planning (Morelli & Tryjanowski, 2016). The evolutionary distinctiveness measures, for example, indicates a species' contribution to the total evolutionary history of the community by capturing uniquely divergent genomes and functions. In effect, evolutionary distinctiveness can be used to identify areas of particular value for safeguarding evolutionary diversity (Jetz et al., 2014). In a similar way, focusing on the evolutionary distinctiveness of the communities of species, it is possible to estimate in a more accurate way the magnitude of the biodiversity loss affecting a particular ecosystem or environment (Frishkoff et al., 2014). All these measures depend on the intrinsic values of each component of a community (for instance species), often neglected by too simplistic or utilitarian approaches as the ecosystem services framework proposes.

In contrast, the biocentric approach, focused on the conservation of nature for the intrinsic values of all its components, maintains the importance of each species, including humans. As a consequence, the final expectations of each conservation approach are clearly different. While conservation promoted by the anthropocentric view (save the services provided by ecosystems to humans) provide benefits only for the human species, conservation promoted by the biocentric view (save the nature, also as a resource for all species) can guarantee benefits for all components of the biosphere. The conceptual assimilation of a species to a "service", can deliver some important misunderstandings (Morelli & Møller, 2015): A service could be "restored", while a species cannot be recovered from extinction (Cafaro & Primack, 2014; Hunter et al., 2014). In a similar way, several studies devoted to link biodiversity to the value of ecosystem services adopt the same theoretical focus. Equating biodiversity with ecosystem services implies that managing one will automatically enhance the other (TEEB, 2010). In an interesting opinion paper, Mace et al. (2012) suggested that the confusion over the role of biodiversity in the ecosystem services approach can be resolved by recognizing that different relations exist at various levels of the ecosystem services hierarchy. Partially, the authors point out, the problem is due to the fact that both have complex definitions, connected by several interrelationships. However, from our point of view, the question falls in the same category of problems that affect the comparison of anthropocentric conservationists with biocentric conservationists: It is an asymmetric comparison (Fig. 2A). Even if the complexity of the "biodiversity" definition is ascribable, "ecosystem services" are rather simple by definition. Thus, any effort to translate the first one (biodiversity) in terms of the second one (ecosystem services), or to correlate both, becomes a very hard operation with a high probability of failure (see Carrasco et al., 2014).

In our opinion, the most used (and abused) criteria favouring, in conservation, the anthropocentric reasons over the bio or ecocentric ones is related to a "simplification" of concepts, making the importance of protection highly readable and easy to understand for common people including politicians (Mugula, 2013). However, obtaining easy answers to complex questions is often an indication that something was lost. The main ecological questions are complex, because they are focused on ecosystems, which are complex