

The essential transdisciplinary approach to ecosystems' health and conservation

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ABSTRACT

Ecology and nature conservation are fields of practical importance to the future of different species (including ours) and the future of the planet Earth. At the same time, they should be interconnected with other scientific fields, including biomedical sciences, and approached more holistically. Transdisciplinary approaches and practical interpretations of ecology research are now more than needed and should be, thus, encouraged.

KEYWORDS

Ecology; Medicine; Natural; Wildlife; Preservation

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Due to globalization and the interconnected world we are currently living in, the importance of looking at nature, natural resources, wildlife, and humanity's future as global concerns is now necessary. Several governmental and non-governmental institutions have been promoting integrated approaches to reunite forces and knowledge to fight dangers that often lead to worldwide repercussions and impacts on population stability and health [1]. The so-called "One Health approach" is an intimate relationship between humans, animals, and ecosystems [2]. Fields that were only associated with biomedical sciences in the past, such as toxicology or microbiology, are now part of a multidisciplinary way to preserve our ecosystems and the species that belong to them. Diseases and health hazards are frequently connected to climate changes and habitat loss, leading to essential impacts on several keystone species and affecting different biodiversity hotspots worldwide [3].

Nowadays, the crucial role of veterinary and other health professionals in ecosystem conservation surpasses the recognition the scientific community usually does. It may seem obvious that there is no point in fighting against a species extinction or a severe epidemic if there's no available or healthy habitat. Notwithstanding, there is still a lack of holistic approaches to nature conservation and global health. Oil spills, zoonotic diseases, chemical pollution, or radiation are only a few examples of hazards that severely affect the health of species from different taxa while grossly modifying multiple abiotic factors of a particular ecosystem [3]. Distinct living organisms can act as true sentinels and bioindicators of those health hazards, warning humans about the consequences of their environmental actions. Furthermore, due to the similarities between humans and other taxa (physiology, habitat share, and resources, among others), some species can effectively help prevent disease outbreaks or severe consequences of exposure to some contaminants. For instance, some fish-eating carnivores

are directly exposed to bio-methylated mercury and methylmercury biomagnification in food chains, a chemical hazard that concerns humans and changes our consumption habits regarding fish [4]. In the Florida coastline, bottlenose dolphins (*Tursiops truncatus*) carcasses often present different degrees of anthracosis related to the degree of air pollution they are exposed to [5]. Hedgehogs (*Erinaceus europaeus*) have also been used to evaluate zoonotic diseases, heavy metals, rodenticides, and organic pollutants contaminating specific geographic regions [6-8]. The examples are numerous. Therefore, potential authors, researchers, and health professionals should be encouraged to work in more diverse teams to interpret their data and provide answers with global importance. There is no doubt about the relevance of scientific specialization and that it has been providing answers to detailed questions of massive importance. Notwithstanding, some scientific fields, such as ecology, conservation biology, or public health, also need a more detailed and broader interpretation of the data provided. Thus, the inclusion of researchers from different fields should be encouraged and facilitated [1].

Disclosure statement

No potential conflict of interest was reported by the author.

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