The problem of biodiversity loss is solvable with changed behavior (Steffen et al., 2015). Current generations of children spend little time in natural surroundings, which is reflected in a weaker connection with nature and a low level of pro-environmental behavior (Borsos et al., 2018). This remoteness from nature is having important consequences for children’s overall well-being and development, directly impacting cognitive development and creativity (Little & Wyver, 2008). The nature-deficit disorder introduced by Louv (2008) and the thesis that the more high tech we become, the more nature we need (Louv, 2011) serve as a guide that reminds parents and educators of the importance of nature to child development. Mitchell et al. (2016) introduced eco-mindfulness to reduce nature-deficit disorders. The use of these theoretical findings increases the positive attitude toward nature and at the same time toward biodiversity on a practical level.

Described deficits can be solved by formal and informal education. Education must take place both from an ecological (natural science) point of view as well as a social and humanistic point of view in order to achieve useful knowledge, judgment, and acting ability. The study of biodiversity is an important natural scientific topic. Decisions on managing the natural environment are an important social issue at the crossroads of many, sometimes contradictory, interests. Biodiversity is important in the sociological, economic, and political fields (Myers et al., 2000).

Social and technological development has led to many forms of literacy, as described by Snavely and Cooper (1997), who point out that different forms of literacies are developed based on competencies or basic knowledge that an individual acquires in the different levels of education. Reading and writing are the basis for all other literacies, but they are not sufficient for modern personal, social, technological, and cultural life.

Rogers (2019) describes biophilia, according to E. Fromm’s The Anatomy of Human Destructiveness (1973) and E.O. Wilson’s Biophilia (1984), as the passionate love of life and of all that is alive, which is, in part, on a genetic basis. In the current time—Anthropocene—biophilia is with biodiversity highly endangered. Louv (2011) emphasizes how tapping into the restorative powers of the natural world can boost mental acuity and creativity; promote health and wellness; build smarter and more sustainable businesses, communities, and economies; and ultimately strengthen human bonds. Such thinking and attitude toward nature simultaneously increase the positive attitude toward biodiversity and the need for biodiversity literacy.

Unfortunately, biodiversity, as we have already presented, does not have a strong place in education. In literature, criteria for achieving knowledge on biodiversity (Navarro-Perez & Tidball, 2012) and biodiversity literacy (BDL) are not yet given. In this article, we present the foundations of BDL.
**Biodiversity**

The internationally accepted definition of biodiversity is from the Convention on Biological Diversity (United Nations, 1992).

The first educational program on biodiversity was *Windows on the Wild* (World Wildlife Fund, 1992). In addition to textbooks, there are online resources for teaching biodiversity (unesco.org, cbd.int). Several zoos participate in biodiversity literacy projects, such as WAZA's (waza.org). There are also museums and botanical gardens that implement educational programs on biodiversity from the local to the global level.

According to Navarro-Perez and Tidball (2012), the Convention on Biological Diversity objectives (United Nations, 1992) are only partially implemented. The same authors find that texts on the topic of environmental education (the importance of biodiversity in the international field) and education for sustainable development (creation of skills for solving problems) prevail. Many authors study approaches and strategies for teaching biodiversity (Lindemann-Matthies, 2002; Spahiu & Lindemann-Matthies, 2015). There is a lack of criteria (standards) for achieving knowledge on biodiversity and achieving BDL.

According to the Swedish biology curriculum, biodiversity is one of the four central dimensions characterizing the subject of biology. The other dimensions are the ecosystem, cells, and human beings (Helldén & Helldén, 2008). In educational terms, biodiversity is an ill-defined concept. Recognizing the different political, symbolic, and scientific uses of such concepts and making a critical assessment of their strengths and weaknesses could be an important learning objective in environmental education. Exploring the different meanings, values, and uses of biodiversity could easily become a vehicle for developing critical thinking skills and respect for different ways of looking at the world (Wals, 1999).

Much of this education goes on through the science curriculum. However, it is also clear that there are aspects to the topic that relates to economic, political, cultural, ethical, and other considerations.

The fact that biodiversity education deals with a complex issue from several different perspectives, some scientific and others non-scientific, requires students to take into account these different ideas and arrive at balanced opinions, therefore, making it a particularly interesting controversial issue (Gayford, 2000).

**Literacy**

Literacy is both the complex ability to read, write, and understand information and a social and cultural phenomenon. It is also worth mentioning the concept of multiliteracy, which initially developed from multilingualism (Cazden et al., 1996).

**Multiliteracies**

Knowledge is an important factor that influences basic literacy (OECD, 2010) and allows multiliteracies. Knowledge is acquired through education at various levels (primary, secondary, etc.) and in other ways (formal and informal). Reading literacy includes cognitive competencies (from font decoding, to word order, to general knowledge) and metacognitive competence (ability to use different word processing strategies) (PISA, 2015). For education to have a lasting effect, teaching must include the skills of different literacies.

**Foundations of Biodiversity Literacy**

As Moss and colleagues (2014) mention, BDL refers to knowledge and understanding of the concept of biodiversity as well as of relevant behaviors that contribute to biodiversity preservation. Schneiderhan-Opel and Bogner (2020) conclude that BDL is a subcategory of scientific literacy and environmental literacy, but Katili and Rahmat (2020) conclude that BDL is a form of competence as well as an approach to science education. A biodiversity-literate person must be able to think critically and be active in the social environment. Therefore, BDL is a synthesis of knowledge and skills with which an individual can recognize, preserve, and study the diversity of living things in space and time. It is also the ability to understand and obtain information about biodiversity and use it to create new knowledge and pass it on. BDL has attributes of several forms of literacy. The contents of BDL include being knowledgeable about organisms in the environment, experimental methods and techniques, and scientific work and processes; understanding ecological systems; and working with data.

Objectives to be achieved through BDL include actions for sustainable living, understanding and knowledge of environmental laws and systems, ability to access information, and knowledge of the social, cultural, and ethnical background of scientific activity and decision making.

On this assumption, BDL can be classified as an independent literacy that has its contents (topics on biodiversity, its conservation, and its preservation) and its goals and is at the same time a part of multiliteracies. The starting point for BDL is knowledge of ecology, science, and environment.

**Conclusion**

Although the nature-deficit disorder is not recognized with a clinical diagnosis, those afflicted with it should change their lifestyle and begin a healthier living to lessen the effects of the fast modern lifestyle (chronic fatigue, musculoskeletal pain, inattentiveness, depression). Eco-mindfulness can be described as a set of skills that can be developed and practiced formally or informally by people through their experiences in and with their environment. Eco-mindfulness not only develops through experiences in nature but also serves to alleviate symptoms associated with a lifetime spent away from it. Time spent in nature encourages the skills and practices of eco-mindfulness. It serves as a remedy for nature-deficit disorder (Mitchell et al., 2016). Environmental psychological theory suggests that contact with nature is important because it promotes a child’s creativity, imagination, and intellectual and cognitive development, and it boosts social relationships (Heerwagen & Orians, 2002; Kellert, 2002).

Feelings about nature are not enough to function in the modern world. We mentioned that biophilia is to some extent genetically given to every individual. Positive feelings toward nature need to be developed and encouraged in the early educational period in order to lay the foundations for ecological thinking. Science education should be an upgrade of the development of positive emotions toward nature and thus also a positive attitude toward biodiversity. Teaching about nature should take place in nature (Louv, 2008). Duffey (2011) cites five barriers: curriculum, lack of time, difficult supervision, exposure to nonessential hazards, and lack of knowledge that make it impossible for teachers to teach in nature. There are more and more initiatives for teaching about nature, but it is really only necessary to go out to a park, suburbs, or forest nearby.
Teaching biodiversity is an important factor in the sustainable management of the environment. Only from educated citizens can we expect changes in the direction of positive, responsible behavior toward biodiversity and environmental problems. Many scholars and professionals in the field support “citizen science” (Ellwood et al., 2017). Future-oriented biology education needs to focus on socio-scientific issues to prepare students for active participation in decision making.

Further research aims to justify BDL as a prerequisite for teaching, studying, protecting, and promoting biodiversity-responsible behavior. For achieving these aims, we must start with putting BDL into the curricula.

Only by linking different areas including the social sciences, humanities, and natural sciences can we achieve the socially necessary knowledge and awareness for the conservation of the natural environment. In the field of biological education, it is imperative to develop new didactic approaches and contents based on an approach that includes the required biodiversity content.

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