
An organizational account of ecosystem functions

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Abstract

Ecologists talk about ecosystem health that we should preserve and restore (for example, see Costanza et al., 1992). How to account for this medical vocabulary and for the moral obligation which seems follow from it ? Literature on the problem is plentiful but the first step to its resolution had been quite forsaken: giving an account of ecological functional vocabulary in a way which allows for constructing an objective concept of ecosystem health (Callicott 1995). Indeed, the expression "ecosystem health" assumes that each ecosystem has a normal operating condition and is able to leave it for pathological conditions. Our presentation will be divided into three parts: firstly, we will describe the explanandum - the functional structure of ecosystems constituted by ecological niches and communities. Secondly, we will argue that the two mainstream accounts of biological functions – the systemic capacity account (Cummins, 1975) and the etiological-selective account (Neander, 1991) – are unsatisfactory with respect to ecosystem functions. The systemic account adopted by (Odenbaugh, 2010) denies the normativity of ecosystem functions and the etiological account faced the difficulties to figure ecosystems as units of selection (Bouchard, 2012). Thirdly, we will extend the organizational account recently proposed by (Mossio et al., 2009) inspired from (Varela et al, 1974, Schlosser 1998). This organizational account explains the normativity of biological functions by the organizational closure and differentiation of biological systems. We claim that ecosystems are organizationally closed and differentiated systems both regarding of their structuring in communities and in niches and that allow us to speak about ecosystem health objectively.

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