

## A critical reflection on scientific approaches for valuing the relationships between humans and nature: Toward embodied ecosystems

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The concept of cultural ecosystem services, referring to the non-material benefits that humans obtain from ecosystems<sup>1</sup>, is now well-established in environmental policy across the world. A plethora of studies have assessed cultural ecosystem services from monetary and non-monetary perspectives, including the mapping of social values for cultural ecosystem services<sup>2</sup>. However, the ecosystem services concept has been criticized from many angles, including its focus on direct use of ecosystems by humans, and negating the many ways in which humans relate to, care for, and value ecosystems<sup>3</sup>. In response, we now see a ‘third wave’ of value concepts responding to the need to recognize local and indigenous perspectives<sup>4</sup>, both direct use and intrinsic values<sup>5</sup> and the preferences, principles, and virtues associated with relationships<sup>6,7</sup>. These relational value concepts have been integrated into the ‘nature’s contributions to people’ framework recently endorsed by the Intergovernmental Panel on Biodiversity and Ecosystem Services<sup>9</sup>.

In this presentation, I will critically reflect on my approaches to valuing the relationships between humans and nature. I will start by outlining my guiding research paradigm and then highlight how this philosophy of science has shaped my assessment of the relationships between humans and nature by elucidating insights from participatory mapping studies in Australia and Europe. These studies reveal that there are multiple ways of identifying and assessing human-nature relationships, each resulting in different priorities for landscape planning and management. I will then discuss the limitations of these participatory mapping approaches and how they have transformed the way in which I now conceptualise ‘relations’. My thesis is that many scholars interested in human-nature relationships, including much of my work and of that in the ‘third wave’, have represented value as a static or fixed concept and negated the dynamic relationships between humans and nature<sup>10,11</sup>. I therefore encourage a transition towards ‘embodied ecosystems’ recognising that human–nature–relationships are not solely produced in the mind, but through relations between mind, body, culture and environment through time<sup>10</sup>.

I will conclude this presentation with a research agenda for applying the embodied ecosystems metatheory to the assessment of the co-benefits of nature-based solutions (NBS), broadly defined as solutions that are inspired and supported by nature. I will discuss how this research agenda complements and enhances the major research themes at SLU, leading into my proposal for a new inter- and trans-disciplinary research group on the Social Valuation of Nature.

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