

## APPENDIX 1 - METHODS

This paper presents a synthesis of literature concerning human-nature relationships. An extensive list of keywords (see below) relating to human-nature relationships and interactions was extracted from papers by Kidner (2000), Fletcher (2009, 2017), Shoreman-Ouimet & Kopnina (2015), Kahn et al. (2009), Kellert (1984), Pidgeon (2012), and Büscher et al. (2014). With further literature research into these keywords, using published literature and each keyword as a separate search word, a list of relationship types was identified based on existing literature. From there, each type of relationship was used as a keyword in an additional literature search to further expand on each relationship type. Search engines Scopus and Web of Science were used for the above literature searches.

Ultimately, 22 articles that directly described clear relationships between humans and nature and that were referenced by the other consulted papers were selected and put in a database. The database describes for each of the relationships mentioned in each paper how they fit in the 5 descriptors of human-nature relationships by Muradian & Pascual (2018), namely:

1. Ontology
2. Goal orientation
3. Emotional drivers
4. Practices
5. Main mode of interaction

Secondly, the similarities and distinctions between different authors describing similar types of relationships were identified. Based on a review of the choices each author made to describe a certain relationship, three main defining characteristics of a human-nature relationship were identified: 1) degree of anthropocentrism versus ecocentrism, 2) the degree to which nature and culture (the “human”) are divided or not, and 3) the relationship’s core values.

Thirdly, based on these descriptors and the framework given by Muradian & Pascual (2018), relationships with similar and overlapping characteristics were grouped together. The result was a list of 12 distinctly different types of human-nature relationships, with multiple types of stewardship placed in one group. Within the figure, the divide between human and nature and the core values were put in the description of each relationship. To give the relationships a useful order, they were placed on a scale from anthropocentric to ecocentric, with marked points that indicate clear shifts, for instance relationships that see nature and humans as equal and relationships that do not.

### Keywords used in initial search:

Biophilia, pro-environmental behavior, ecological identity, political ecology, anthropocentrism, ecocentrism, participation in nature, mastery over nature, new environmental paradigm, connectedness to nature (scale), Human and Nature Scale (HaN), human ecology, stewardship, ecological consciousness, ecoteology, environmentalism, environmental activism, Ecological Identity Scale, nature relatedness, commitment to nature, affinity with nature, ecological worldview, environmental literacy, ecological literacy, ecoliteracy, interaction with nature, conservation, market-based conservationism, ecological justice, environmental justice, ecological determinism, cultural determinism, human constructs of nature, commodification of nature, humanistic altruism, biospheric altruism, awareness of nature, commitment to nature, direct nature experiences, romanticized image of nature, wilderness, ecopsychology, realist definition of nature, naive definition of nature, essentialism, separation of nature.

## LITERATURE CITED IN APPENDIX

Büscher, B., W. Dressler, and R. Fletcher (Eds.). 2014. *Nature Inc.: Environmental Conservation in the Neoliberal Age*. University of Arizona Press, Tucson, USA. doi:10.2307/j.ctt183pdh2

Fletcher, R. 2009. *Against Wilderness*. *Green Theory & Praxis*. *The Journal of Ecopedagogy* 5(1):169-179. doi:10.3903/gtp.2009.1.12

Fletcher, R. 2017. Connection with nature is an oxymoron: A political ecology of “nature-deficit disorder”. *The Journal of Environmental Education* 48(4):226-233. doi:10.1080/00958964.2016.1139534

Kahn, P. H., R. L. Severson, and J. H. Ruckert. 2009. The Human Relation With Nature and Technological Nature. *Current Directions in Psychological Science* 18(1):37-42. doi:10.1111/j.1467-8721.2009.01602.x

Kellert, S. R. 1984. American Attitudes Toward and Knowledge of Animals: An Update. In Fox, M.W., and L.D. Mickley (Eds.), *Advances in animal welfare science 1984/85* (pp. 177-213). The Humane Society of the United States, Washington D.C., USA.

Kidner, D. W. 2000. Fabricating nature: A critique of the social construction of nature. *Environmental Ethics* 22(4):339-357.

doi:10.5840/enviroethics20002242

Muradian, R, and U. Pascual. 2018. A typology of elementary forms of human-nature relations: a contribution to the valuation debate. *Current Opinion in Environmental Sustainability* 35:8-14. doi:10.1016/j.cosust.2018.10.014

Pidgeon, N. 2012. Public understanding of, and attitudes to, climate change: UK and international perspectives and policy. *Climate Policy* 12:S85-S106. doi:10.1080/14693062.2012.702982

Shoreman-Ouimet E., and H. Kopnina. 2015. Reconciling ecological and social justice to promote biodiversity conservation. *Biological Conservation* 184:320-326. doi:10.1016/j.biocon.2015.01.03