



# Motivations to Act for the Protection of Nature Biodiversity and the Environment

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# Environment and Behavior

## Motivations to act for the protection of nature biodiversity and the environment: A matter of 'significance'.

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Keywords:	environmental activism, meaning in life, pro-environmental behaviors, pro-environmental ideology, willingness to sacrifice, difficult pro-environmental behaviors
Abstract:	Environmental activism, defined as a range of difficult pro-environmental behaviors, is analyzed within the conceptual framework of Significance Quest Theory (SQT). In Study 1, 40 interviews were carried out on 2 groups of people in the EU: Committed Actors for Nature (CANs, n = 25) vs. Committed Actors for Society (CASs, n = 15). Results demonstrated that Significance Quest (SQ) motivates each group to be strongly committed to their chosen action and the main difference between them being in their ideology (pro-social vs. pro-environmental). In Study 2 (N = 131), the relationship between SQ and intention to enact difficult pro-environmental behaviors was assessed. Results suggested that the higher the SQ, the higher the tendency to enact difficult pro-environmental behaviors, but not average or easy ones. Moreover, the higher the pro-environmental ideology, the stronger the indirect effect of SQ on difficult behavior through willingness to sacrifice.

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4 **of ‘significance’.**  
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7  
8 **Abstract**  
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11 within the conceptual framework of Significance Quest Theory (SQT). In Study 1, 40 interviews  
12 were carried out on 2 groups of people in the EU: Committed Actors for Nature (CANs,  $n = 25$ )  
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15 difference between them being in their ideology (pro-social vs. pro-environmental). In Study 2  
16 ( $N = 131$ ), the relationship between SQ and intention to enact difficult pro-environmental  
17 behaviors was assessed. Results suggested that the higher the SQ, the higher the tendency to  
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19 the pro-environmental ideology, the stronger the indirect effect of SQ on difficult behavior  
20 through willingness to sacrifice.  
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42 **Keywords:** environmental activism, meaning in life, pro-environmental behaviors, pro-  
43 environmental ideology, willingness to sacrifice, difficult pro-environmental behaviors  
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## Introduction

Recently, the life-support systems of the biosphere have become overloaded due to the high consumption of natural resources and the consequent degradation of the environment and loss of biodiversity in natural habitats (Rockström et al., 2009; Shepherd et al., 2016; Whitmee et al., 2015). Despite recent increased awareness and knowledge of these issues, important behavioral changes have failed to follow (Schultz, 2011). The question is why an important behavioral change is still missing. The present paper explores possible psychological factors that play a role in people's regard for nature and willingness (or not) to actively engage in nature protection, focusing on 'environmental activists' and committed pro-environmental actions.

Séguin, Pelletier, and Humsley (1998) define 'environmental activists' as "people who intentionally engage in the most difficult ecological behaviors" (Séguin et al., 1998, p. 631). Thus, environmental activists are people who engage in actions that require a certain level of commitment and energy to be performed and, consequently, that are not necessarily performed by the majority of the population. For example, a person who devotes his/her whole life to a cause, i.e., protecting the environment and nature, who makes this cause his/her job or hobby, who encourages and promotes pro-environmental behaviors among others, is performing more difficult behaviors than a person who merely throws plastic house waste out in his/her recycling can. It is obviously the former person who could be defined as 'strongly committed' because the former behaviors are those that require a high level of motivation to be enacted. The distinction between easy and difficult behaviors was previously made by Green-Demers, Pelletier, and Menard (1997) who identified self-educating pro-environmental behaviors as the most difficult and recycling behaviors as the easiest (Green-Demers et al., 1997).

### Theoretical framework for studying environmental activism

Many studies have attempted to identify the determinants of 'environmental activism'

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2  
3 and committed pro-environmental actions. Embracing a developmental perspective, several  
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5 studies focused on the experiences of childhood and adolescence that may have activated the  
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7 desire to care for nature in adulthood (Chawla, 1998, 1999; Matsuba & Pratt, 2013; Palmer,  
8  
9 Suggate, Bajd, & Tsaliki, 1998). The results of this work suggest that individuals' experiences  
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11 are essential to creating a meaningful relationship with nature. Significant environmental  
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13 experiences, in fact, contribute to an individual's perception of her/his relationship with nature,  
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15 and in turn this has implications for relevant beliefs and actions (Vining & Merrick, 2012). Wells  
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17 and Lekies (2006) found positive correlations between self-reported childhood participation in  
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19 nature (e.g., hiking, camping) and later adult attitudes and behaviors toward the environment.  
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24 A perspective that focuses on the personal traits and characteristics of 'environmental  
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26 activists' has found that high levels of education (Scopelliti et al., 2018), personal efficacy, and  
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28 environmental knowledge characterize 'environmental activists'. Moreover, Séguin et al. (1998)  
29  
30 proposed that perceptions of health risks that are related to the condition of the environment are  
31  
32 the proximal predictor of 'environmental activism'.  
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35 A theoretical framework often applied in studying pro-environmental behaviors is the  
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37 Theory of Planned Behavior (TPB; Ajzen, 1988, 1991), which has shown good predictive  
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39 validity for a number of easy pro-environmental behaviors such as recycling (Fornara, Carrus,  
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41 Passafaro, & Bonnes, 2011; Mannetti, Pierro, & Livi, 2004) and saving water (Lynne, Casey,  
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43 Hodges, & Rahmani, 1995), but also for some difficult behaviors such as 'environmental  
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45 activism' (see Fielding, McDonald, & Louis, 2008, for a review). According to TPB, individuals  
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47 who hold positive attitudes toward 'environmental activism', think that it is acceptable to engage  
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49 in such behaviors and they also perceive that they can easily perform them. Therefore, they  
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51 should have strong intentions to engage in environmental activism. On the basis of Stern's  
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(2000) VBN model, McFarlane and Hunt (2006) tested a social–psychological model of environmental activism in the context of forest management, finding support for the predicted relationships between values, attitudes toward forest management, and activism. Gousse-Lessard, Vallerand, Carbonneau and Lafrenière (2013) applied the dualistic model of passion to the understanding of environmental activism, suggesting that *passion* matters for environmental activists regarding the type of behaviors performed for the environmental cause (mainstream vs. radical). Specifically, the authors found that obsessive passion was associated with the intention to perform both mainstream and radical behaviors, whereas harmonious passion was associated with mainstream behaviors only. Another theoretical framework that has been used to understand pro-environmental behaviors is Self-Determination Theory (SDT; Deci & Ryan, 2002). This theory focuses on the motivations that guide the individual in decision-making and behavior, and in particular the role of intrinsic motivation, considered in a developmental perspective, and based on the psychological needs of autonomy, competence, and relatedness. Past research has shown that self-determined motivation was associated with a higher occurrence of difficult pro-environmental behaviors (Green-Demers et al., 1997). In the realm of identity theories, Fraser, Clayton, Sickler and Taylor (2009) demonstrated that working as a volunteer in a zoo enhances one’s collective identity on the basis of shared values and a sense of purpose. Within the theoretical framework of pro-environmental competency, Kaiser, Roczen, and Bogner (2008) argued that behaviors aimed at environmental conservation can be better understood if they are viewed as motivated activities aimed at achieving a pro-environmental goal. Indeed, the propensity to enact demanding pro-environmental behaviors depends on the extent to which the person is motivated to invest effort into pursuing the goal of nature protection and conservation. The greater the motivation, the greater is the propensity to invest effort into the pro-

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3 environmental cause (Kaiser et al., 2008). On the basis of the above-mentioned theories, it  
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5 appears that an external influence is necessary to trigger the pro-environmental behavior. This  
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7 influence is the social context, in terms of values and norms (e.g., VBN, Stern, 2000). Moreover,  
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9 since environmental activism requires high levels of energy investment, a strong personal  
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11 motivation seems to be necessary in order for such behaviors to occur, e.g., passion (Gousse-  
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13 Lessard et al., 2013), and self-determination (Deci & Ryan, 2002). A theoretical model that  
14  
15 includes both a motivational force and an external social influence is the Significance Quest  
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17 Theory (SQT; Kruglanski, Chen, Dechesne, Fishman, & Orehek, 2009; Kruglanski et al., 2013).  
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#### 24 **Theoretical approach to studying extreme behaviors: Significance Quest Theory**

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26 The SQT is a theoretical framework developed to study violent extremism. SQT has,  
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28 therefore, been applied mostly to the study of terrorism and radicalization. SQT assumes that the  
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30 search for significance in life is the motivational force that prompts individuals to enact extreme  
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32 behaviors. Possession of meaning in life is broadly defined as the subjective experience that one  
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34 matters and is worthy of respect (Steger, Frazier, Oishi, & Kaler, 2006). In general, a sense that  
35  
36 one's life is significant and worthy of respect is a fundamental component of human well-being  
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38 (Allan, Duffy, & Douglass, 2014; Pratt & Ashforth, 2003; Steger, Dik, & Duffy, 2012), therefore  
39  
40 living a worthwhile life is a basic human motivation. Kruglanski and co-authors define SQT as  
41  
42 the desire to excel in what is culturally prescribed in order to gain the admiration of others  
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44 (Kruglanski, Bélanger et al., 2013; Kruglanski, Chen, Dechesne, Fishman, & Orehek, 2009;  
45  
46 Kruglanski, Gelfald et al., 2014), i.e., to be important for others and society, reflecting people's  
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48 need to "make a difference", "to matter", "to be someone" in socially prescribed ways. The  
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50 "others" to whom the SQT definition refers are people who are part of a reference group that  
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3 matters to the person. According to SQT (Kruglanski, Chen et al., 2009; Kruglanski, Gelfald et  
4 al., 2014), the activation of significance quest could be aroused in three general cases: 1)  
5  
6 significance loss (i.e., group or personal humiliation, loss of meaning, failure in pursuit of an  
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8 important goal), 2) threat of significance loss (i.e., worries about failing to comply the normative  
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10 pressure to pursue a goal), and 3) significance gain (i.e., when an opportunity for a great  
11  
12 significance gain may arise).  
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17         However, the SQ activation (i.e., activation of the goal of meaning gain) is not in itself  
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19 sufficient to cause behavior. Indeed, the ideology of one's group plays a major role in  
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21 determining what means should be chosen to pursue the goal of gaining meaning. In summary,  
22  
23 based on SQT, engagement in terrorist behaviors takes place when the search for meaning  
24  
25 occurs, which activates the goal of meaning restoration. But it is only when someone is part of or  
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27 is identified with a group that subscribes to a specific and violent ideology that the person will  
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29 engage in violent behaviors. According to that aspect of the theory, if the group has a benevolent  
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31 ideology, instead of a violent one, and the individual subscribes to it, he or she will act in  
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33 extreme albeit pro-social ways. Therefore, SQ is theoretically equally conceived to predict both  
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35 violent and benevolent behaviors (Kruglanski et al., 2013). Applying this theoretical framework  
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37 to benevolent behaviors (i.e., pro-environmental actions), when the goal of acquiring  
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39 significance is activated, the person could be disposed to engage in specific committed actions  
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41 such as difficult pro-environmental behaviors. The action that one chooses as a means to restore  
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43 significance is based on "a collective belief system to which an individual subscribes"  
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45 (Kruglanski et al., 2014, p. 564); i.e., the ideology to which one is exposed and that one  
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47 embraces, i.e., pro-environmental ideology in our target case.  
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### **The current research**

In accordance with SQT, behaviors that do not require a strong commitment to be performed, namely easy behaviors, and behaviors that could be performed by most people cannot be essential in restoring life's significance. Indeed, we cannot feel significant and uniquely important when enacting a behavior that is enacted by everyone else (e.g., recycling cans), but we would probably feel significant when we do something that is evaluated as important by others and that only we, or a small proportion of the population, are able to perform (e.g., organizing a movement to protect a threatened natural park). The first type of behavior, compared to the second type, require lower investment of time, energy, commitment, and similar personal resources to be successfully carried out. In other words, the quest for significance is more likely to be fulfilled by a difficult behavior that requires strong personal dedication, personal sacrifices, and full commitment, and that relatively few people may be capable of. Additionally, when the goal of acquiring meaning is activated, it can direct the action (i.e., the avenues to achieve the meaning goal), in different directions; the direction is set by the ideology to which the individual subscribes (i.e., pro-environmental ideology in the case of pro-environmental behaviors).

The present two studies were designed to explore that hypothesis. Specifically, we investigated (1) whether the quest for significance can motivate people to act in an eco-friendly manner; (2) whether, in the service of significance quest, individuals would be more willing to make sacrifices and to enact difficult behaviors than easy ones; and (3) whether there is a role for pro-environmental ideology in causing pro-environmental behavior under the question for significance motivation. Study 1 is a qualitative study that investigates the significance quest as the motivational force that can lead people to be extremely committed to either pro-social or pro-environmental actions. The principal question addressed in this study is whether comparing two

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3 groups of actors can highlight differences in terms of the search for significance activation; as  
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5 well as whether the relevant ideology (pro-environmental *vs.* pro-social) differs between the two  
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7 contrasted groups. In this study activation of the quest for significance was explored  
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9 qualitatively. Moreover, the ideologies that characterize the two groups of actors are also  
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11 analyzed since SQT posits that when the quest for significance is activated, behavior will be  
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13 ideologically driven. Study 2 is a correlational study that uses the SQT to examine quantitatively  
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15 the process that leads people to be active on behalf of environmental protection. In testing the  
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17 SQT in the realm of benevolent behaviors, in this work we focus on the mechanisms of the SQT  
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19 concerning the loss of significance. These mechanisms have been accorded major attention in  
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21 prior SQT research on violent extremism; therefore, it seemed reasonable to investigate whether  
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23 they function in the same way in the domain of non-violent pro-social action.  
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## 30 **Study 1**

### 31 **Aims**

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35 The aim of Study1 was to explore via qualitative evidence whether SQ (Kruglanski et al.,  
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37 2009) can be a motivational force leading people to be extremely committed to pro-social or pro-  
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39 environmental actions. In this study, search for significance activation sources were explored  
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41 qualitatively by comparing two groups of committed actors (actors engaged in nature and  
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43 biodiversity protection *vs.* actors engaged in actions for society). In line with SQT, we expect  
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45 that negative experiences activate the search for significance (Kruglanski, Bélanger et al., 2013;  
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47 Kruglanski, Chen et al., 2009), and this is what we looked for in interviews carried out with  
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49 actors belonging to the two groups.  
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54 Beyond the sources of activation of the significance quest, since SQT postulates that  
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56 when the search for significance is activated, the ideology embraced will direct behavior, the  
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3 ideologies that characterize the two groups of actors was also examined. In other words, the  
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5 principal questions of this study are whether the two groups being compared (committed actors  
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7 for nature and biodiversity *vs.* committed actors for society) both exhibit the quest for  
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9 significance (Aim 1), and whether different ideologies (pro-environmental *vs.* pro-social)  
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11 characterize the two groups (Aim 2). Finally, since SQT argues that the behavior enacted is a  
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13 means to restoring significance, the presence of narratives related to the gain of meaning in life  
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15 through pro-environmental actions was also looked at (Aim 3).  
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## 21 **Method**

### 22 **Participants**

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26 Actions for biodiversity and nature conservation take place in many different sectors and  
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28 occupations within our society, from farmers who decide to implement sustainable agriculture in  
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30 their farm, to schools' teachers who stimulate a wonder for nature in children. To cover this  
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32 diversity, committed actors (for nature and biodiversity *vs.* society) were identified on the basis  
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34 of their activities in the following sectors: a) business (including fishing, farming, forestry, food  
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36 production, corporate land ownership and companies involved in tourism); b) civil society  
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38 (including school teachers, NGOs, foundations, media professionals, civil activists); c) public  
39  
40 society (including local governments, city parks and projects part of Natura 2000 and UNESCO-  
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42 MAB networks). For each specific category, committed actors for biodiversity were identified on  
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44 the basis of their public recognition as persons who spent time or energy on their activities, who  
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46 received prizes and acknowledgment for their commitment, and obtained results in their action  
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48 for biodiversity protection *vs.* action for society. For example, in the NGO category, one person  
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50 was the founder of an NGO that aims to protect a natural reserve and another person was the  
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52 founder of an NGO that fights against the mafia, both being recognized by the public as  
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3 important and highly committed to pursue their goals. Following this logic, two groups of people  
4 were created: Committed Actors for Nature (CANs,  $n = 25$ ) and Committed Actors for Society  
5 (CASs,  $n = 15$ ). Even though our focus was to understand pro-environmental behaviors we  
6 decided to add a comparison group to assess whether the SQ motivational processes can apply to  
7 the broad pro-social realm as well. Participants were recruited in different European Countries  
8 i.e., Belgium (5%), Finland (12.5%), Germany (7.5%), Italy (27.5%), Slovenia (10%), The  
9 Netherlands (17.5%), UK (20%): within the BIOMOT 7FP project (De Groot, Bonaiuto,  
10 Dedeurwaerdere, & Knippenberg, 2015).  
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### 24 **Instrument**

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26 The method utilized consisted of a semi-structured life-story. The life history interview  
27 method was chosen because it permits the researcher to go through the life journey of the  
28 interviewees and to recreate “one’s entire experience of life as a whole, highlighting the most  
29 important aspects” (Atkinson, 1998, p. 8); as well as to see the entire process and factors  
30 (contextual and individual) that led him/her to the present. Indeed, the life-history interview was  
31 structured in such a way as to encourage the interviewees to *ruminate* about their motivations to  
32 act for nature and biodiversity conservation and/or society. First, the interviewee was asked to  
33 describe his or her main work activity, the goal that he or she aims to achieve in his/her own life  
34 (promotion and conservation of nature and biodiversity and/or action for society), and the goal to  
35 which he/she devotes his/her daily energies and commitment. Then, an exploration of the  
36 interviewee’s life history followed, in which the roots and development of the interviewee’s  
37 main interest are traced back to her or his childhood and the specific environments and social  
38 milieu of her/his own past time, until the present. Three main life stages were considered: 0-15  
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3 years old, 15-25 years old, 25 years old and above.  
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### 5 **Procedure**

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7 First, each participant was contacted via e-mail and/or phone in order to obtain his/her  
8 consent to participate in the research. Once consent was obtained, the interview was set up and  
9  
10 conducted by one of two expert interviewers trained in order to guarantee coherence, and  
11  
12 standardization of the interview protocol and process across partners' countries. The interviews  
13  
14 were conducted during the years 2013-2014 in the interviewee's own language and were then  
15  
16 translated into English. Each interview was appropriately coded. The coding process followed  
17  
18 multiple steps. Following the open coding method of Strauss and Corbin (1990) combined with a  
19  
20 phenomenological approach (Stewart & Mickunas, 1990), some initially useful concepts were  
21  
22 coded on the basis of key phrases and experiences that could be related to the motivation to act  
23  
24 for nature and biodiversity vs. society. In this way, an initial list of codes was obtained. In the  
25  
26 second step, codes were selected and theoretically organized within the framework of the  
27  
28 *Significance Quest Theory* (Kruglanski et al., 2009). Resulting from these first and second steps,  
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30 a coding book was created, and it was then used in the third step of the coding process, wherein  
31  
32 the relationships between the codes were investigated. In this last step, the interviews were coded  
33  
34 by two coders specifically trained (they were different persons from those who carried out the  
35  
36 interviews). Their work showed an inter-coder agreement of 97 % on a sample of 20% of the  
37  
38 interviews. In the course of exploring the principal question of this study, Strauss and Corbin's  
39  
40 "Grounded Theory" (GT) approach (1990) was chosen as a starting point. The interviews  
41  
42 consequently served as the basis for the subsequent coding and categorization of the contents, in  
43  
44 order to examine the motives of the subjects as well as any similarities or differences in themes  
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46 between the interviews. Interviews were examined with a text-analysis software (MAXQDA).  
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## Coding, Analysis and Results

Coding focused on identifying the elements that drove the interviewees to act for nature and biodiversity *vs.* society across three life-ages (0-15yrs; 15-25yrs; 25yrs until now), highlighting differences and similarities between the two groups (CANs *vs.* CASs).

### Sources of the activation of the search for meaning in life

According to Kruglanski et al. (2009, 2014) personal losses, traumas, humiliation, and frustrating events are all sources of personal significance loss, and will consequently activate the search for significance in one's life. In order to identify the search for significance activation in the two groups (Aim 1), we focused on coding negative experiences described as strongly negative emotional events, which were presented as a turning point in the life of the interviewee and as a key moment for directing her/his interests and actions.

In identifying the source of personal significance loss, three different levels of negative experiences were taken into account: 1) personal level, 2) social level, 3) environmental level. Kruglanski et al. (2009; 2014) conceptualized a personal loss as another possible loss of significance: accordingly, the death or loss of a close relative is here considered a personal loss of significance. Moreover, Kruglanski et al. (2014) conceptualized a social-level significance loss as one that is related to the individual's group identity. Since the interviewees in this study did not belong to specific groups and are simply actors committed to specific behaviors, the social level of loss of significance is here operationalized as frustration induced by a social context (i.e., school or work). Finally, the environmental level of loss of significance is considered here as well. This type of negative event has not been taken into account in previous studies, which focused on terrorist behaviors. However, like any other traumatic event, an environmental event could be a source of significance loss. For example, someone who is

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3 strongly attached to a place, and who experiences its loss or destruction, could be traumatized by  
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5 the experience (as for example in the increasing literature on “solastalgia” and other social-  
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7 psychological effects related to the interplay among natural hazards, places transformations, and  
8  
9 the inhabitants’ levels of place attachment and identity; e.g., Bonaiuto, Alves, De Dominicis &  
10  
11 Petruccelli, 2016). Consequently, the event could lead to the search for significance.  
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14  
15 In summary, the three kinds of negative events that we considered were: 1) death of a  
16  
17 relative; 2) frustrations caused by one’s social group at school or work; and 3) environmental  
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19 events implying the direct loss of an important place (e.g., pollution of the area in which one  
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21 lives or used to live) or the indirect loss of a natural place through watching TV or reading books  
22  
23 and newspapers (e.g., pollution of a natural place in a different part of the world). These three  
24  
25 kinds of negative events and the consequent search for significance are examined in terms of  
26  
27 their recall by CANs and CASs in the three major periods of life considered in the adopted  
28  
29 procedure protocol. Regarding the first source of loss of significance, both CANs and CASs were  
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31 likely to recall the death of a relative during the three periods of life: 4% of CANs and 20% of  
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33 CASs experienced a death during the period 0-15 yrs; 4% of CANs and 7% of CASs experienced  
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35 a death during the period 15-25 yrs; 4% of CANs and 0% of CASs experienced a death during  
36  
37 the period 25 yrs until now (see Table 1), e.g.: *“In that time both my mother’s parents died. [...]*  
38  
39 *my grandmother, yes. Somehow I reacted very badly to it, because she died of cancer quickly*  
40  
41 *and she was also very religious, that she was actually very good and it didn’t help her. My*  
42  
43 *grandmother was very social, she was completely burned, but she always liked to go working,*  
44  
45 *potato picking and the like, and I used to follow her around the village.”* (interview SLO\_10;  
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51 section 82-84; CAS; 0-15 yrs).  
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54 We found that both CANs and CASs were equally likely to recall the second type of  
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3 negative events (social frustration) during the three periods of their life. Indeed, for both sampled  
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5 groups, the frustration occurred during adolescence (late first period of life, 0-15 yrs) and early  
6  
7 adulthood (early second period of life, 15-25 yrs): 16% of CANs and 20% of CASs recalled a  
8  
9 frustration during the period 0-15 yrs; 44% of CANs and 47% of CASs recalled a frustration  
10  
11 during the period 15-25 yrs; 8% of CANs and 13% of CASs recalled a frustration during the  
12  
13 period 25 yrs until now (see Table 1), e.g.: *“I guess it was my parents’ divorce [...], it took place*  
14  
15 *quite early in 1960s. At that time when you were getting a divorce, you had to live apart for two*  
16  
17 *years. Then, there was the obligatory trial and so on. It did affect me but it also drew me outside,*  
18  
19 *so I spent more time outdoors. Whenever I was sad or worried, I went to the rock xxx. I guess*  
20  
21 *that was the most dramatic experience”* (interview FIN\_15; section 55; CAN, 0-15yrs).

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26 The third source of search for significance (environmental events) is the only one that  
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28 differed between the two groups of interviewees (CANs vs. CASs). CASs did not recall any  
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30 environmental events, but 44% of CANs did recall such events. In particular, 28% of CANs  
31  
32 recalled these events from the first period of life, 12% from the second period of life, and 4%  
33  
34 from the third period of life. A clear example from CANs is the following: *“The articles on*  
35  
36 *environmental disaster, the climate change, and everything else that I read made me start to*  
37  
38 *constantly think about how humankind is not acting well or that we are causing massive*  
39  
40 *problems on earth, and I felt guilty.”* (interview FIN\_17; section 50; CAN, 0-15 yrs).

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45 Finally, the 88% of CANs who experienced a negative event (frustrations, deaths, and  
46  
47 environmental events) described them as a turning point, a moment of awareness about the  
48  
49 environment and nature issues (c.f. Table 1), e.g.: *“I also had what I considered to be my*  
50  
51 *spiritual awakening when I was there, where I came to the realization that there was something*  
52  
53 *more to life than just the physical outer world; it wasn’t just one dimension and that sort of, you*  
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3 *know, reinforced the sense that you can do something to make the world a better place. It was*  
4 *the early seventies, it was the tail end of the sixties era, of the idealism, and we can change the*  
5 *world. I really felt I needed to do something because I wasn't satisfied with the world as it was*  
6 *presented to me, all this pain, suffering, and problems.”. (interview UNI\_25; section 26; CAN).*  
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12 In the same way, 72% of CASs who experienced these kinds of negative events  
13 (frustrations and deaths) described them as a turning point and as a moment that initiated their  
14 interest in societal issues. These results showed that the search for meaning was activated in both  
15 groups, but that the source of activation differed between CANs and CASs: for both CANs  
16 (68%) and CASs (80%), general frustrations led to a search for significance. Only for CANs  
17 (44%), however, was this source rooted in an “environmental event”.

## 26 **Ideology**

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28 To identify whether the two groups we considered are characterized by different  
29 ideologies (Aim 2), we coded extracts for biospheric (preventing pollution; respecting the Earth;  
30 unity with nature; protecting the environment) and altruistic (equality; a world of peace; social  
31 justice; helpful) values (Stern, 2000; Stern & Dietz, 1994). In particular, biospheric values  
32 emphasize the environment, as well as biosphere protection and respect, as important principles  
33 in life. Moreover, in order to identify pro-environmental ideology, concepts expressed by the  
34 New Human Interdependence Paradigm (NHIP; Corral-Verdugo, Carrus, Bonnes, Moser, &  
35 Sinha, 2008) were taken into account. Those who embrace the NHIP's ideology consider nature  
36 to be as important as humankind; moreover, the balance between technological progress and  
37 respect for nature is viewed as necessary for human survival. We considered the above-  
38 mentioned concepts to be related to pro-environmental ideology and coded some extracts as  
39 containing pro-environmental ideology on that basis too. One example of such an extract is the  
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3 following: “*there is not an absolute difference between humans and animals*” (interview  
4 NED\_27; section 100; CAN).  
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8 On the other hand, pro-social ideology is conceptualized as values reflecting concern for  
9 the welfare of others, i.e., focusing on the importance of helping other people. We considered the  
10 above-mentioned concepts to be related to pro-social ideology; as a result, extracts such as the  
11 following one were coded as containing pro-social ideology: “*One can deal with each other  
12 peacefully and solving conflicts in a peaceful way, I find that are also very important aspects  
13 that aren't taken for granted*” (interview GER\_12; section 13; CAS).  
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21  
22 In general, pro-environmental ideology was more prevalent among CANs (88%), whereas  
23 pro-social ideology was more prevalent among CASs (80%; see Table 2). This is in line with the  
24 actions that each group of interviewees are committed to: CANs are committed to action for  
25 environmental protection and they more frequently embrace a pro-environmental ideology;  
26 CASs are committed to action for society and more frequently embrace a pro-social ideology.  
27  
28 Moreover, 28% of CANs also embraced a pro-social ideology, while 40% CASs also embraced  
29 the pro-environmental one. This means that there are shared values between the two groups of  
30 actors. The overlap in ideologies between the two groups of actors is not surprising. Indeed,  
31 altruistic values are also related to pro-environmental behaviors, because the altruistic value  
32 orientation is motivated by its consequences for other people, and altruistic people are aware that  
33 their pro-environmental behavior could also have positive consequences for others. Thus, acting  
34 in a pro-environmental manner could also serve as a means of acting altruistically. In particular,  
35 as Corral-Verdugo (2012) indicated, “altruistically and environmentally concerned people have  
36 the idea of protecting both the natural environment and their fellow humans” (p. 656) through  
37 pro-environmental actions. Moreover, the coded narratives show how exposure to ideology (pro-  
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3 social vs. pro-environmental) happens through the social context. For example, exposure to pro-  
4 environmental values often occurred through a relative or other important person who shared the  
5 ideology with the interviewee during childhood of the interviewee, e.g.: “*Well it was respectful*  
6 *of nature [referring to the relationship that he had with nature]. It has always been. My*  
7 *grandfather taught me forestry and the kind of thing that, when you take care of the forest and*  
8 *treat it well, you will always get wood from it. It will always produce and you have to respect it*  
9 *and know which trees can be chopped down, and how to use it sensibly”* (interview FIN\_10;  
10 section 104; CAN).

11  
12 The process is also the same for the pro-social ideology: “*I saw the appreciation for that.*  
13 *My father cured people, they were ill, he cures them and he was also a very beloved family*  
14 *doctor who was liked by people and altruistic, too. He always acted with good intentions. I*  
15 *always got the example like that”* (interview NED\_20; section 71; CAS).

### 16 17 **Means to restore the significance loss**

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19 According to SQT theory (Kruglanski et al., 2009), the behaviors that one enacts in the  
20 service of an ideology serve as a means to satisfy the goal of having significance in life (Aim 3).  
21 Therefore, someone who experiences a loss of significance tries to restore it by being committed  
22 to actions that are considered important by others. In particular, acting on behalf of nature or  
23 people are the respective means that CANs and CASs use to restore their significance. Indeed,  
24 both CANs and CASs are committed to their actions because they think that it is essential to do  
25 something important, something useful for people and future generations, in order to live a  
26 worthwhile life. Both CANs and CASs define their activity and commitment as motivated by the  
27 need to do something useful, which makes their life meaningful, and lends them significance.  
28 This concept is expressed as a motivational force that prompts action and helps individuals  
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3 maintain an active commitment to the cause. The interviewees usually described the main  
4 activity to which they are committed as meaningful, e.g.: *“in my life I’ve always chosen to look*  
5 *at how can I contribute to find solutions. From a critical point of view, but still how can we do*  
6 *something, how can we improve, how can we change society in the right way; and that has been*  
7 *a constant thing through all my engagements and work.”* (BEL\_14; section 44; CAN).  
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15 Thus, interviewees defined their activities as meaningful and significant. Expressions  
16 attesting to that were more frequent at later stages of life, particularly during middle and late  
17 adulthood (see Table 3). Such descriptions are present in both CANs and CASs. Indeed, both  
18 types of actors (CANs vs. CASs) indicated that being engaged in actions to protect nature (for  
19 CANs) and being engaged in action for society (for CASs) makes their life meaningful. This  
20 means that the actions they carry out are explicitly considered a means to restoring or gaining  
21 significance in their life. This result is in line with Erikson’s (1950) theory of psychosocial  
22 development, which suggests that middle adulthood is a particularly important period for  
23 developing meaning in life. Indeed, during middle adulthood people enter the developmental  
24 period of generativity vs. stagnation, in which they try to find a way to contribute and give back  
25 to the world (Allan et al., 2014). Generative adults dedicate themselves to activities that will  
26 outlive the self and successfully find ways to contribute to the next generation (McAdams, de St  
27 Aubin, & Logan, 1993) and society.  
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## 47 **Discussion**

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49 It is important to notice, that within this study, we focused specifically on detecting loss  
50 of significance events assuming that those would be easier to be recognized by the participants as  
51 a turning point in their life. During the coding process this assumption was indeed confirmed.  
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56 Participants were clearly highlighting such significance loss occurrences. Opportunity for  
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3 significance gain events as well as those related to a future threat to significance, were not  
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5 present in the life history narratives of our sample. On the whole, these results suggest that SQ is  
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7 a motivational force that can lead individuals to be strongly committed to benevolent actions.  
8  
9 Indeed, SQ was observed in the first two periods of life in both groups (CANs and CASs). Both  
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11 groups showed similar levels of search for significance in life, which suggests that this particular  
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13 motivation had the same role for all of the actors (Aim 1). However, an important difference was  
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15 found regarding the type of loss the two groups experienced; the third level of loss was indeed  
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17 only present in the CANs groups and not in the CASs. Even though the SQT has not tested this  
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19 possibility yet, it is possible that the type of frustration (environmental) made CANs more prone  
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21 to embrace an ideology (i.e., pro-environmental one) that allows restoring their lack of meaning  
22  
23 in that specific realm. Moreover, both groups chose to be strongly committed to an activity that  
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25 is considered valuable and lends significance to their members' lives (Aim 3). This is in line with  
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27 the argument advanced above, that a loss of significance leads people to be engaged in actions  
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29 that require a strong commitment, because these actions are viewed as instrumental to restoring  
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31 life's significance. Moreover, in line with Kruglanski et al. (2014), results suggested that it is not  
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33 the loss of significance in itself that influences the type of behavior enacted (for example, pro-  
34  
35 environmental or pro-social); rather, it is the ideology that focuses the behavior in a particular  
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37 direction. Indeed, in this study the degree of significance loss was similar across groups, but their  
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39 ideology differed (Aim 2). In particular, ideology was qualitatively shown to push the attention  
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41 towards a pro-environmental direction for CANs, and a pro-social direction for CASs. That is,  
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43 committed actors are engaged in pro-environmental or pro-social activities on the basis of the  
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45 ideology that they embraced in one direction or the other, which directs their quest for personal  
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47 significance.  
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## Study 2

The aim of Study 2 was to examine the process that leads people to be active on behalf of environmental protection, using a correlation methodology. Given the promising qualitative evidence found in Study 1, the following study examined the variables that SQT theory suggests will lead to extremism, to explain committed (i.e., difficult) pro-environmental behaviors.

### Aim and Hypotheses

Study 2 assessed the relationship between search for meaning in life and committed pro-environmental behaviors, operationalized as difficult behaviors. Specifically, we proposed that the stronger the search for meaning, the more likely difficult pro-environmental behaviors should be undertaken (H1). By the same token, the search for meaning is not expected to correlate with average or easy pro-environmental behaviors (H2). The effect of the search for meaning on difficult behaviors should be mediated by the willingness to make sacrifices for protecting the environment. According to the SQ theory, indeed, self-sacrifice constitutes an important means to significance restoration (Dugas et al., 2016) that leads to enacting committed behaviors. However, as explained beforehand the sole activation of search for meaning does not direct the behavior in a specific domain but the ideology to which one subscribes provides the means (i.e., the behaviors) that will be most likely be admired by the group and therefore that are instrumental to restore the lack of meaning. Accordingly, we hypothesized that the proposed path from search for meaning to difficult pro-environmental behaviors through willingness to sacrifice occurs when the relevant ideology (i.e., pro-environmental ideology) is adopted (i.e., high pro-environmental ideology) (H3) (see Figure1 for graphical representation of H3).

## Method

### Participants

One-hundred and thirty-one participants (76 men, 53 women, 1 missing;  $Min_{age} = 20$ ,  $Max_{age} = 65$ ,  $M_{age} = 33.66$ ,  $SD_{age} = 9.73$ ) were recruited from the United States via Amazon Mechanical Turk website. Each participant was paid US\$ 0.70.

### Tool and Procedure

Participants were asked to participate in a survey collecting information about daily behaviors. The survey included the following variables: *Meaning in life* (search of meaning 5 items subscale by Steger et al., 2006) ( $\alpha = .95$ ) (1 = Absolutely Untrue – 7 = Absolutely True); *Biospheric Values* were used to measure pro-environmental ideology (4-items by de Groot & Steg, 2008) ( $\alpha = .93$ ) (1 = Not at all – 7 = Totally); *Willingness to sacrifice*, (3- adapted items from Stern et al., 1999, e.g., “I would be willing to accept a change in my standard of living to protect the environment and nature”) ( $\alpha = .94$ ) (1= Strongly disagree – 7 = Strongly agree).

*Pro-environmental behaviors*. A 15-item scale, developed in a pilot study, was used to measure Pro-environmental behaviors. Even though a scale exists that differentiates three level of difficulty of pro-environmental behaviors (Green-Demers et al., 1997), within the current study the set of behaviors included was extended and diversified. More importantly within the difficult behaviors category, we included not only self-educating behaviors (Green-Demers et al., 1997), but also behaviors more specifically associated with environmental activism and committed actions (e.g., “doing voluntary work in environmental groups [Séguin, et al., 1998]). We avoided behaviors with a political meaning as, for example, “taking part in protests”, since these can be associated with particular political parties and political ideologies.

To test the new scale, 120 participants (49 men, 70 women, 1 missing;  $Min_{age} = 18$ ,

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3  $Max_{age} = 36$ ,  $M_{age} = 27.31$ ,  $SD_{age} = 5.73$ ) were recruited from the United States via Amazon  
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5 Mechanical Turk website. Each participant was paid US\$ 0.30. Participants were asked to rate  
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7 their willingness to enact the listed pro-environmental behaviors and then to rate the level of  
8  
9 difficulty of each listed behavior, using a 7-point scale (1 = Not very difficult, 7 = Very  
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11 difficult). An Exploratory Factorial Analysis was conducted using an Oblimin Oblique rotation  
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13 technique on the scale measuring the willingness to enact pro-environmental behaviors. Results  
14  
15 showed a clean 3-factor solution, accounting for 69% of the variance observed in the data. The  
16  
17 cross-loaded items with a factor loading values over .40 on two or three factors were eliminated  
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19 (see details in Table 4). From the 20 initial items of the pro-environmental scale, the following  
20  
21 three-factor solution was obtained: recycling and use of environmentally friendly products (4  
22  
23 items;); environmentally friendly purchases and energy saving (4 items); educating oneself and  
24  
25 voluntarism (7 items) (see Table 4). The perceived difficulty of the environmental behaviors  
26  
27 was examined next. Behaviors related to recycling and use of environmentally friendly products  
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29 ( $M = 2.73$ ,  $SD = 1.57$ ,  $\alpha = .92$ ) displayed the lowest perceived levels of difficulty (henceforth,  
30  
31 easy behaviors); the level of difficulty of behaviors related to environmentally friendly purchases  
32  
33 and energy saving ( $M = 3.04$ ,  $SD = 1.44$ ,  $\alpha = .87$ ) was somewhat higher (henceforth, average  
34  
35 behaviors); and behaviors related to educating oneself and voluntarism ( $M = 4.12$ ,  $SD = 1.51$ ,  $\alpha =$   
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37 .90) scored the highest level of perceived difficulty (henceforth, difficult behaviors). A one-way  
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39 repeated measure analysis of variance (ANOVA) indicated a significant difference between the  
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41 means of the three levels of perceived difficulty (Wilks's Lambda = .63,  $F(2, 118) = 34.95$ ,  $p <$   
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43 .01). Follow up comparisons (Bonferroni) indicated that each pair-wise difference of the means  
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45 was significant ( $p < .01$ ). Therefore, on the whole, results confirmed the differences in the  
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47 perceived difficulty of the three groups of behaviors.  
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3 In Study 2, the scale developed in the pilot study was then used to measure pro-  
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5 environmental behaviors: 1) easy behaviors ( $M = 4.76$ ,  $SD = 1.24$ ,  $\alpha = .86$ ); 2) average behaviors  
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7 ( $M = 4.70$ ,  $SD = 1.10$ ,  $\alpha = .75$ ); 3) difficult behaviors ( $M = 4.05$ ,  $SD = 1.35$ ,  $\alpha = .94$ ). Participants  
8  
9 gave their answers on a 6-point scale ranging from 1 (*Not at all*) to 6 (*Very much so*). Together,  
10  
11 the three factors accounted for 48% of the variance observed in the data. All items loaded on  
12  
13 their target factor ( $L > .52$ ; Comrey & Lee, 1992) except items “*Turn off the computer when I'm*  
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15 *not using it*” (factor loading = .311) and “*Use energy-efficient bulbs*” (factor loading = .380), and  
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17 for this reason those two items were excluded.  
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### 23 **Analyses**

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25 H1 and H2 were tested using bi-variate correlation. H3 (Model 7 in PROCESS) was  
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27 tested using the bootstrapping method with bias-corrected confidence estimates (MacKinnon,  
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29 Lockwood, & Williams, 2004; Preacher & Hayes, 2004).  
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### 33 **Results**

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35 In Table 5, bi-variate correlations between variables are reported. As expected, search for  
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37 meaning in life was positively and significantly correlated ( $r = .22$ ,  $p < .01$ ) with difficult pro-  
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39 environmental behaviors (H1) and it was not significantly correlated with easy ( $r = .04$ ,  $p = .69$ )  
40  
41 nor average ( $r = -.02$ ,  $p = .78$ ) behaviors (H2). To test the moderated mediation hypothesis (H3),  
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43 a moderated mediation analysis was conducted, using the intention to perform difficult pro-  
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45 environmental behaviors as a dependent variable. Search for meaning in life was included as a  
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47 predictor, willingness to sacrifice for the environmental cause was treated as the mediator, and  
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49 biospheric values were considered as a moderator of the search for meaning-willingness to  
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51 sacrifice path (see Figure 1). Age and gender were also included as covariates. Results showed  
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53 that search for meaning had a significant and positive effect on the willingness to sacrifice ( $B =$   
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.27,  $SE = .09$ ,  $t(123) = 2.88$ , 95% CI [.08, .46],  $p < .01$ ); further, the biospheric values had a positive and significant effect on the willingness to sacrifice ( $B = .62$ ,  $SE = .10$ ,  $t(123) = 6.06$ , 95% CI [.42, .83],  $p < .001$ ). The interaction effect between search for meaning and biospheric values on willingness to sacrifice was found significant ( $B = .09$ ,  $SE = .04$ ,  $t(123) = 2.17$ , 95% CI [.01, .18],  $p = .03$ ). The effect of willingness of sacrifice on difficult behaviors was found positive and significant ( $B = .46$ ,  $SE = .06$ ,  $t(123) = 7.54$ , 95% CI [.34, .58],  $p = .03$ ). The indirect effect of search for meaning on difficult behaviors mediated by willingness to sacrifice, estimated with 5,000 bootstrapped samples, was significant for a high level of biospheric values ( $B = .19$ , 95% CI [.08, .33]), but not significant for a low level of biospheric values ( $B = .06$ , 95% CI [-.03, .15]). The index of moderated mediation was significant ( $B = .45$ , 95% CI [0.01, 0.09]). The direct effect of search of meaning in life after controlling for willingness to sacrifice was not significant ( $B = .28$ ,  $SE = .20$ ,  $p = .176$ ). The entire model was significant ( $F(4,124) = 19.93$ ,  $p < .001$ ,  $R^2 = .45$ ). Results confirmed H3. Specifically, the mediated effect of search for meaning on difficult pro-environmental behaviors through willingness to sacrifice was moderated by biospheric values. The higher the biospheric values, the stronger the mediated effect. No significant effects of the covariates were found on difficult behaviors.

## Discussion

Results confirmed the hypotheses. First, search for meaning in life was positively and significantly correlated with difficult pro-environmental behaviors (H1), and it was not correlated with average and easy ones (H2). The moderated mediation hypothesis was confirmed (H3): the greater the search of meaning, the greater the tendency to sacrifice oneself for the environmental cause; this in turn finally brings about a greater likelihood to enact pro-

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3 environmental difficult behaviors, but only under the condition of high pro-environmental  
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5 values.  
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### 8 9 **General discussion and Implications**

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11 The objective of the present studies was to understand *why* individuals engage in pro-  
12 environmental behaviors that require a large amount of energy and commitment within the SQ  
13 theoretical framework. Using different methodologies (life-history and survey), this research  
14 demonstrated that SQT may explain not only violent extremism (Kruglanski et al., 2009;  
15 Kruglanski et al., 2014), but also benevolent behaviors (e.g., pro-environmental behaviors), as  
16 long as the behavior requires a certain amount of commitment to be performed (i.e., a difficult  
17 action) and is in line with one's own ideology. More specifically, Study 1 qualitatively  
18 confirmed that SQ is a motivational force that can lead individuals to be strongly committed to  
19 benevolent actions relevant for nature biodiversity and protection and maintenance of the  
20 environment. Indeed, the SQ was found in the first two periods of life in both groups (CANs and  
21 CASs). In both groups, the search for meaning in life was nearly equal, demonstrating that it  
22 plays the same motivational role in the two groups of actors (active for nature and active for  
23 society). In line with Kruglanski et al. (2014), these results suggest that it is not the loss of  
24 significance *per se* that determines the type of behavior enacted; rather, it is the ideology that  
25 focuses action in a particular direction. Indeed, in this study, loss of significance was roughly  
26 equal across both groups, but the ideology they embraced (in terms of subscribed ideology pro-  
27 environmental *vs.* pro-social) was related to the specific actions they became committed to.  
28 Several studies (e.g., Chawla, 1998, 1999) that focused on significant experiences and  
29 environmental activism show how behaviors directed to protect nature are related to positive  
30 experiences with nature. However, within these studies the motivational process that leads from  
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3 the experiences to pro-environmental behaviors is not clear. The current research provides an  
4 explanation of a motivational process that leads toward protecting the environment, focusing on  
5 the other side of the equation (i.e., negative experiences). However, a better understanding of the  
6 motivational process triggered by positive events might provide a more complete explanation of  
7 *why* some people are strongly committed to protecting the environment.  
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14           Study 2 confirmed the relationship of SQ to pro-environmental behaviors. Specifically,  
15 consistent with the SQT theory, we found that the greater the search for meaning, the greater the  
16 tendency to perform difficult behaviors (but not average and easy behaviors, as was expected).  
17 Moreover, we found that the greater the search for meaning, the greater the tendency to sacrifice  
18 oneself for the environmental cause that finally brings about a greater tendency to enact pro-  
19 environmental difficult behaviors, but only under the condition of high pro-environmental  
20 values. Additionally, the results provide support for applying SQ theoretical framework to  
21 explain any desirable committed action, such as pro-social and pro-environmental volunteerism.  
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33           In applied terms, this research has implications for the development of strategies that  
34 promote behaviors for the protection of nature biodiversity and the environment in general. The  
35 results obtained in Study 1 showed that the search for meaning is a broad motivational force that  
36 is more likely to be activated during late adolescence and early adulthood by negative events (in  
37 terms of their immediate effects on the person's subjective meaning in life). Special programs  
38 addressed toward people who have experienced traumatic events (e.g., harassment, loss of a  
39 close relative, etc.) could be developed in order to expose them to a benevolent ideology and in  
40 turn facilitate significance gain through pro-social and/or pro-environmental actions. This  
41 process is probably most relevant for those people who are more likely to see the search for  
42 meaning activated, not only because they experienced a negative event, but also because they are  
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3 in the generativity stage of their life: namely, according to Erikson (1950), the period of life in  
4 which the search for meaning will be more active. Moreover, the results showed that personal  
5 and social negative experiences are not the only possible sources of loss of significance;  
6 experiences at the environmental level (i.e., negative environmental events) can have the same  
7 effect. These two findings suggest that people who, for example, experienced a natural disaster  
8 or who live in a polluted place are likely to experience a loss of significance. Moreover, people  
9 are probably more open to embracing an ideology and then enacting the behaviors that the  
10 ideology promotes. Here a role of a pro-social and pro-environmental ideology could be  
11 envisaged, possibly as a competitor force against anti-social and anti- pro-environmental  
12 ideologies. Future research can focus on developing interventions that aim to promote desirable  
13 ideologies within the SQ framework. Future research could, for example, build upon Arieli,  
14 Grant, and Sagiv's (2014) work, in which they presented an intervention designed to enhance  
15 benevolence values; or focus on educational programs and learning opportunities that aim to  
16 promote pro-environmental ideologies (cf. Monroe, 2003).  
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### 38 **Limitations and Future Directions**

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40 There are some limitations that must be discussed. First, retrospective qualitative studies  
41 (i.e., Study 1) are limited by the accuracy of the memories recalled by the interviewee. The  
42 hypotheses and results of Study 2 should be replicated in further experimental studies in order to  
43 re-test the hypotheses and reinforce the results that were obtained. Within SQT, moreover,  
44 significance loss is not the only important motivational state; the opportunity for significance  
45 gain can also be a critical motivational force. This means that actors could be driven not only by  
46 having experienced negative events that threatened their meaning in life, but also by positive  
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3 future opportunities that promise greater meaning in their life. Such a "gain" (vs. "loss")  
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5 framework (Kruglanski et al., 2009, 2013) may prove equally useful for motivating individuals  
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7 towards pro-biodiversity, pro-nature, and more general positive and pro-environment behaviors.  
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9 Finally, in Study 1 we analyzed three levels of frustrations for CANs; however, this analysis was  
10  
11 not mirrored for CASs. The third level of analysis was not evident for the CASs. It is plausible to  
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13 assume that for pro-social individuals, the third level of analysis would be related to frustration  
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15 occurring at the societal level (e.g., group discrimination). Future research that aims to  
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17 understand broad pro-social behaviors within the SQT framework can look at this level of  
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19 analysis for pro-social behaviors as well.  
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35  
36 FP7 282625).  
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### 40 **References**

- 41  
42  
43 Allan, B. A., Duffy, R. D., & Douglass, R. (2014). Meaning in life and work: A developmental  
44  
45 perspective. *The Journal of Positive Psychology, 10*(4), 323-331. doi:  
46  
47 10.1080/17439760.2014.950180  
48 Ajzen, I. (1988). *Attitudes, personality, and behavior*.  
49  
50 Chicago: Dorsey Press. doi: 10.1016/S0065-2601(08)60411-6  
51  
52  
53 Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision*  
54  
55 *Processes, 50*(2), 179-211. doi: 10.1016/0749-5978(91)90020-T  
56  
57  
58  
59  
60

- 1  
2  
3 Arieli, S., Grant, A. M., & Sagiv, L. (2014). Convincing yourself to care about others: An  
4 intervention for enhancing benevolence values. *Journal of Personality*, 82(1), 15-24.  
5  
6 doi.org/10.1111/jopy.12029  
7  
8  
9  
10 Atkinson, R. (1998). *The life story interview*. Newbury Park, CA: Sage. doi:  
11  
12 10.4135/9781412986205  
13  
14 Bonaiuto, M., Alves, S., De Dominicis, S., & Petruccioli, I. (2016). Place attachment and natural  
15 environmental risk: Research review and agenda. *Journal of Environmental*  
16  
17 *Psychology*, 48, 33-53. doi: [10.1016/j.jenvp.2016.07.007](https://doi.org/10.1016/j.jenvp.2016.07.007)  
18  
19  
20  
21 Chawla, L. (1998). "Significant life experiences revisited: a review of research on sources of  
22 environmental sensitivity." *The Journal of Environmental Education*, 29(3), 11-21. doi:  
23  
24 10.1080/00958969809599114  
25  
26  
27  
28 Comrey, A. L., & Lee, H. B. (1992). *A first course in factor analysis*. Lawrence Erlbaum  
29 Associates. Hillsdale, NJ.  
30  
31  
32  
33 Corral-Verdugo, V. C. (2012). The positive psychology of sustainability. *Environment,*  
34  
35 *Development and Sustainability*, 14(5), 651-666. doi: [10.1007/s10668-012-9346-8](https://doi.org/10.1007/s10668-012-9346-8)  
36  
37  
38 Corral-Verdugo, V., Carrus, G., Bonnes, M., Moser, G., & Sinha, J. B. (2008). Environmental  
39 beliefs and endorsement of sustainable development principles in water conservation:  
40  
41 Toward a new human interdependence paradigm scale. *Environment and Behavior*, 40(5),  
42  
43 703-725. doi: [10.1177/0013916507308786](https://doi.org/10.1177/0013916507308786)  
44  
45  
46  
47 Deci, E. L., & Ryan, R. M. (2002). *Handbook of self-determination research*. University  
48  
49 Rochester Press. doi: [10.12691/ajap-5-1-2](https://doi.org/10.12691/ajap-5-1-2)  
50  
51  
52 De Groot, W. T., Bonaiuto, M., Dedeurwaerdere, T., & Knippenberg, L. (2015). *A Theory of*  
53  
54 *Committed Action for Nature*. Nijmegen: The BIOMOT project, ISIS, Faculty of Science,  
55  
56  
57  
58  
59  
60

1  
2  
3 Radboud University Nijmegen. Retrieved from <http://www.biomot.eu/outcomes.php>

4  
5 De Groot, J. I., & Steg, L. (2008). Value orientations to explain beliefs related to environmental  
6  
7 significant behavior: How to measure egoistic, altruistic, and biospheric value  
8  
9 orientations. *Environment and Behavior*, 40(3), 330-354. doi:  
10  
11 [10.1177/0013916506297831](https://doi.org/10.1177/0013916506297831)

12  
13  
14 Dugas, M., Bélanger, J. J., Moyano, M., Schumpe, B. M., Kruglanski, A. W., Gelfand, M. J., ...  
15  
16 & Nociti, N. (2016). The quest for significance motivates self-sacrifice. *Motivation*  
17  
18 *Science*, 2(1), 15-32. doi: [10.1037/mot0000030](https://doi.org/10.1037/mot0000030)

19  
20  
21 Erikson, E. H. (1950). *Childhood and society*. New York: Norton. doi:  
22  
23 [10.1126/science.113.2931.253](https://doi.org/10.1126/science.113.2931.253)

24  
25  
26 Fielding, K. S., McDonald, R., & Louis, W. R. (2008). Theory of planned behaviour, identity and  
27  
28 intentions to engage in environmental activism. *Journal of Environmental*  
29  
30 *Psychology*, 28(4), 318-326. doi: [10.1016/j.jenvp.2008.03.003](https://doi.org/10.1016/j.jenvp.2008.03.003)

31  
32  
33 Fornara, F., Carrus, G., Passafaro, P., & Bonnes, M. (2011). Distinguishing the sources of  
34  
35 normative influence on pro-environmental behaviours: the role of local norms in  
36  
37 household waste recycling. *Group Processes and Intergroup Relations*, 14(5), 623-635.  
38  
39 doi: [10.1177/1368430211408149](https://doi.org/10.1177/1368430211408149)

40  
41  
42 Fraser, J., Clayton, S., Sickler, J., & Taylor, A. (2009). Belonging at the zoo: Retired volunteers,  
43  
44 conservation activism and collective identity. *Ageing and Society*, 29(03), 351-368. doi:  
45  
46 [10.1017/S0144686X08007915](https://doi.org/10.1017/S0144686X08007915)

47  
48  
49 Gousse-Lessard, A. S., Vallerand, R. J., Carbonneau, N., & Lafrenière, M. A. K. (2013). The role  
50  
51 of passion in mainstream and radical behaviors: A look at environmental activism.  
52  
53 *Journal of Environmental Psychology*, 35, 18-29. doi: [10.1016/j.jenvp.2013.03.003](https://doi.org/10.1016/j.jenvp.2013.03.003)



- 1  
2  
3 Green-Demers, I., Pelletier, L. G., & Menard, S. (1997). The impact of behavioural difficulty on  
4 the saliency of the association between self-determined motivation and environmental  
5 behaviours. *Canadian Journal of Behavioural Science*, 29(3), 157-166. doi:  
6  
7  
8 10.1037/0008-400X.29.3.157  
9  
10  
11  
12 Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A*  
13 *regression-based approach*. New York, NY: The Guilford Press. doi:  
14  
15 10.1111/jedm.12050  
16  
17  
18  
19 Kaiser, F. G., Roczen, N., & Bogner, F. X. (2008). Competence formation in environmental  
20 education: Advancing ecology-specific rather than general abilities. *Umweltpsychologie*,  
21  
22 12(2), 56. doi: [10.5167/uzh-9249](https://doi.org/10.5167/uzh-9249)  
23  
24  
25  
26  
27 Kruglanski, A. W., Bélanger, J. J., Gelfand, M., Gunaratna, R., Hettiarachchi, M., Reinares, F.,  
28 ... & Sharvit, K. (2013). Terrorism—a (self) love story: Redirecting the significance quest  
29 can end violence. *American Psychologist*, 68(7), 559-575. doi: 10.1111/josi.12022  
30  
31  
32  
33  
34 Kruglanski, A. W., Chen, X., Dechesne, M., Fishman, S., & Orehek, E. (2009). Fully committed:  
35  
36 Suicide bombers' motivation and the quest for personal significance. *Political*  
37 *Psychology*, 30, 331-557. doi: 10.1111/j.1467-9221.2009.00698.x  
38  
39  
40  
41 Kruglanski, A. W., Gelfald, M., Belangér, J.J., Sheveland, A., Hetiarachchi, M., & Gunaratna, R.  
42  
43 (2014). The psychology of radicalization and deradicalization: How significance quest  
44 impacts violent extremism. *Advances in Political Psychology*, 35, 69-93. doi:  
45  
46 10.1111/pops.12163  
47  
48  
49  
50 Lynne, G. D., Casey, C. F., Hodges, A., & Rahmani, M. (1995). Conservation technology  
51 adoption decisions and the theory of planned behavior. *Journal of Economic Psychology*,  
52  
53 16(4), 581-598. doi: [10.1016/0167-4870\(95\)00031-6](https://doi.org/10.1016/0167-4870(95)00031-6)  
54  
55  
56  
57  
58  
59  
60

- 1  
2  
3 MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect  
4 effect: Distribution of the product and resampling methods. *Multivariate Behavioral*  
5 *Research*, 39(1), 99-128. doi: [10.1207/s15327906mbr3901\\_4](https://doi.org/10.1207/s15327906mbr3901_4)  
6  
7  
8  
9  
10 Mannetti, L., Pierro, A., & Livi, S. (2004). Recycling: Planned and self-expressive behaviour.  
11 *Journal of Environmental Psychology*, 24(2), 227-236. doi: [10.1016/j.jenvp.2004.01.002](https://doi.org/10.1016/j.jenvp.2004.01.002)  
12  
13  
14 Matsuba, M. K., & Pratt, M. W. (2013). The making of an environmental activist: A  
15 developmental psychological perspective. *New Directions for Child and Adolescent*  
16 *Development*, 142, 59-74. doi: 10.1002/cad.20049  
17  
18  
19  
20  
21 McAdams, D. P., de St Aubin, E. D., & Logan, R. L. (1993). Generativity among young, midlife,  
22 and older adults. *Psychology and Aging*, 8(2), 221-230. doi: 10.1037//0882-7974.8.2.221  
23  
24  
25  
26 McFarlane, B. L., & Hunt, L. M. (2006). Environmental activism in the forest sector social  
27 psychological, social-cultural, and contextual effects. *Environment and Behavior*, 38(2),  
28 266-285. doi: 10.1177/0013916505277999  
29  
30  
31  
32  
33 Monroe, M. C. (2003). Two avenues for encouraging conservation behaviors. *Human Ecology*  
34 *Review*, 113-125.  
35  
36  
37  
38 Palmer, J. A., Suggate, J., Bajd, B., & Tsaliki, E. (1998). Significant influences on the  
39 development of adults' environmental awareness in the UK, Slovenia and Greece.  
40 *Environmental Education Research*, 4(4), 429-444. doi: [10.1080/1350462980040407](https://doi.org/10.1080/1350462980040407)  
41  
42  
43  
44  
45 Pratt, M. G., & Ashforth, B. E. (2003). Fostering meaningfulness in working and at work. In K.  
46 S. Cameron, J. E. Dutton, & R. E. Quinn (Eds.). *Positive organizational scholarship:*  
47 *Foundations of a new discipline*, (pp. 309-327). San Francisco: Berrett-Koehler  
48  
49  
50  
51 Preacher, K.J. & Hayes, A.F. (2004). SPSS and SAS procedures for estimating indirect effects in  
52 simple mediation models. *Behavior Research Methods, Instruments, & Computers*,  
53  
54  
55  
56  
57  
58  
59  
60

- 36(4), 717-731. doi: 10.3758/BF03206553
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F. S., Lambin, E. F., ... & Nykvist, B. (2009). A safe operating space for humanity. *Nature*, *461*(7263), 472-475. doi: [10.1038/461472a](https://doi.org/10.1038/461472a)
- Schultz, P. W. (2011). Conservation means behavior. *Conservation Biology*, *25*(6), 1080-1083. doi: 10.1111/j.1523-1739.2011.01766.x
- Scopelliti, M., Molinario, E., Bonaiuto, F., Bonnes, M., Cicero, L., De Dominicis, S., ... & de Groot, W. (2018). What makes you a 'hero' for nature? Socio-psychological profiling of leaders committed to nature and biodiversity protection across seven EU countries. *Journal of Environmental Planning and Management*, *61*(5-6), 970-993. doi: <https://doi.org/10.1080/09640568.2017.1421526>
- Séguin, C., Pelletier, L. G., & Hunsley, J. (1998). Toward a model of environmental activism. *Environment and Behavior*, *30*(5), 628-652. doi: [10.1177/001391659803000503](https://doi.org/10.1177/001391659803000503)
- Shepherd, E., Milner-Gulland, E.J., Knight, A.T., Ling, M.A., Darrah, S., Soesbergen, A. & Burgess, N.D. (2016). Status and trends in global ecosystem services and natural capital: Assessing progress toward aichi biodiversity target 14. *Conservation Letters*, *9*(6), 429–437. doi: 10.1111/conl.12320
- Steger, M. F., Dik, B. J., & Duffy, R. D. (2012). Measuring meaningful work: The work and meaning inventory (WAMI). *Journal of Career Assessment*, *20*(3), 322–337. doi: 10.1177/1069072711436160
- Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, *53*(1), 80-93. doi: [10.1037/0022-0167.53.1.80](https://doi.org/10.1037/0022-0167.53.1.80)
- Stern, P. C. (2000). Toward a coherent theory of environmentally significant behavior. *Journal*

- 1  
2  
3           *of Social Issues*, 56(3), 407-424. doi: 10.1111/0022-4537.00175  
4  
5 Stern, P. C., & Dietz, T. (1994). The value basis of environmental concern. *Journal of Social*  
6  
7           *Issues*, 50(3), 65-84. doi: 10.1111/j.1540-4560.1994.tb02420.x  
8  
9  
10 Stern, P. C., Dietz, T., Abel, T. D., Guagnano, G. A., & Kalof, L. (1999). A value-belief-norm  
11  
12           theory of support for social movements: The case of environmentalism. *Human Ecology*  
13  
14           *Review*, 6(2), 81-97.  
15  
16  
17 Stewart, D., & Mickunas, A. (1990). *Exploring phenomenology: A guide to the field and its*  
18  
19           *related literature*. Athens: Ohio University Press.  
20  
21  
22 Strauss, A., & Corbin, J. M. (1990). *Basics of qualitative research: Grounded theory procedures*  
23  
24           *and techniques*. Thousand Oaks, CA, US: Sage Publications, Inc.  
25  
26  
27 Vining, A., & Merrick, M. (2012) Environmental epiphanies: Theoretical foundations and  
28  
29           practical applications. In S. D. Clayton (Ed.). *The Oxford handbook of environmental*  
30  
31           *and conservation psychology*, (pp. 485-508). New York: Oxford University Press. doi:  
32  
33           10.1093/oxfordhb/9780199733026.013.0026  
34  
35  
36 Wells, N. M., & Lekies, K. S. (2006). Nature and the life course: pathways from childhood  
37  
38           nature experiences to adult environmentalism. *Children Youth and Environments*, 16(1),  
39  
40           1-24.  
41  
42  
43 Whitmee, S., Haines, A., Beyrer, C., Boltz, F., Capon, A. G., de Souza Dias, B. F., ... & Horton,  
44  
45           R. (2015). Safeguarding human health in the Anthropocene epoch: Report of The  
46  
47           Rockefeller Foundation–Lancet Commission on planetary health. *The*  
48  
49           *Lancet*, 386(10007), 1973-2028. doi: 10.1016/S0140-6736(15)60901-1  
50  
51  
52  
53  
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## Tables and Figures

**Table 1.**

Sources of the search for meaning

Period of life	Negative experiences	CANs		CASs	
		Frequency	%	Frequency	%
0-15 yrs	Death	1	4	3	20
	Frustration	4	16	3	20
	Environmental event	7	28	0	0
15-25 yrs	Death	1	4	1	7
	Frustration	11	44	7	47
	Environmental event	3	12	0	0
25 yrs until now	Death	1	4	0	0
	Frustration	2	8	2	13
	Environmental event	1	4	0	0
Total	Death	3	12	4	26
	Frustration	17	68	12	80
	Environmental event	11	44	0	0
	Experience as a turning point	16	88	8	66
	Total coded Interviews	18	72	12	73
	Missing	7	28	3	27
	Total Sample	25	100	15	100

Note: In the row "missing" are reported the number of interviews where narratives related to the codes were not found

**Table 2.**

Ideology embraced by CANs and CASs

Ideology	CANs		CASs	
	Frequency	%	Frequency	%
Pro-environmental	22	88	6	40
Pro-social	7	28	12	80
Total interviews coded	24	96	14	93
Missing	1	4	1	7
Total sample	25	100	15	100

Note: In the row “missing” are reported the number of interviews where narratives related to the codes were not found

**Table 3.**

Means to restore the significance loss

Do something important	CANs		CASs	
	Frequency	%	Frequency	%
0-15 yrs	2	48	0	0
15-25 yrs	5	20	0	0
25 yrs until now	12	8	11	73
Total interviews coded	14	56	11	73
Missing	11	44	4	27
Total sample	25	100	15	100

Note: In the row “missing” are reported the number of interviews where narratives related to the codes where not found.

**Table 4**

Exploratory Factor Analysis of the pro-environmental behaviors (Study 2)

Items	Recycling and use environmentally friendly products	Environmentally friendly purchases and energy saving	Educating oneself and voluntarism
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 Recycling and use of environmentally friendly products

 ( $M = 5.19, SD = 1.43, \alpha = .89$ )

Recycle glass jars and bottles.	.888
Recycle steel and aluminum cans.	.825
Recycle newspapers.	.769
Use energy-efficient bulbs.	.528

## Environmentally friendly purchases and energy saving

 ( $M = 4.93, SD = 1.12, \alpha = .70$ )

Do full load laundries.	.767
Turn off the computer when I'm not using it.	.575
Buy fruits and vegetables from the open bins.	.525
Buy products without excessive packaging.	.521

## Educating oneself and voluntarism

 ( $M = 4.12; SD = 1.51, \alpha = .93$ )

I attend public hearing or meeting about the environment and nature protection.	.945
Contribute money to an environmental or wildlife conservation group.	.892
Read books or magazines on the environment or nature.	.842
Do voluntary work in an environmental or wildlife conservation group.	.802
Be member of an environmental organization.	.778
Seek out information on environmentally- conscious behaviors.	.732
Exchange environmental information with friends.	.679

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*Note: Cross loaded items with a factor loading values >.40 on two or three factors had been eliminated:*

*"Voted for or against a political candidate, in part, because of his or her position on the environment", "Point out an unecological behavior to someone", "Modify the diet to protect the nature and environment (e.g., choose seasonal vegetables)", "Buy biodegradable products", "Buy products that do not damage the environment (e.g., phosphate-free soap)."*

**Table 5**

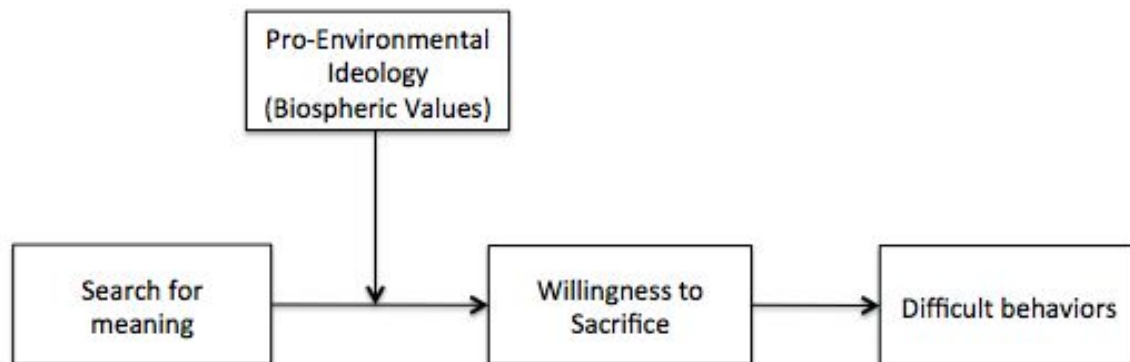
Means, standard deviations, and bivariate correlations. (Study 2)

	<i>M</i>	<i>SD</i>	2	3	4	5	6	7	8
Searching for Meaning in life (1)	4.56	1.67	.42**	.20*	.02	.01	.30**	-.28**	.10
Willingness to Sacrifice (2)	4.02	1.85		.53**	.23*	.18*	.67**	-.40**	.20*
Biospheric Values (3)	5.36	1.27			.36**	.32**	.70**	-.21*	.11
Easy Behaviours (4)	4.76	1.24				.46**	.44**	.10	.17
Average Behaviours (5)	4.70	1.10					.41**	-.06	.15
Difficult Behaviours (6)	4.05	1.35						-.28**	.21*
Age (7)	33.66	9.73							.0
Gender (8)	1.41	.49							

Note: † marginally significant, \*  $p < .05$ , \*\*  $p < .01$

**Figure 1.**

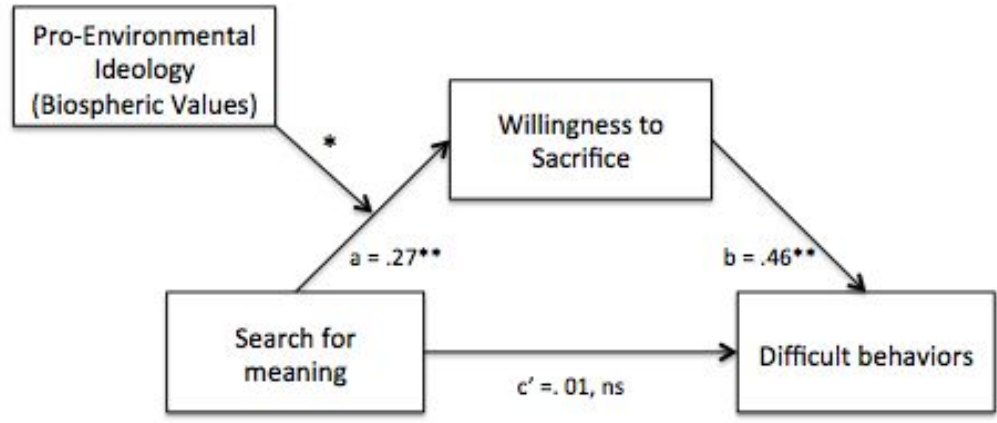
Graphical representation of the moderated mediation hypothesis (H3) (Study 2).





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**Figure 2.**  
Graphical representation of the results of the moderated mediation (Study 2).



Note: \*  $p < .05$ ; \*\*  $p < .001$