

Sustaining the Conservationist

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Abstract

Environmental work is emotionally laden because of the struggle on behalf of ethical positions and the daily experience of loss and frustration. Such ongoing stressful experiences may be understood better within a trauma-based framework that acknowledges their implications, similar to clinical diagnosis and treatment of acute stress disorder and posttraumatic stress disorder. This paper reports on two studies of the emotional experience of environmentalists, conservationists, and environmental educators working with profound awareness of how current human behavior is degrading the environment, some would say beyond recovery. It explores the question of whether these environmentally aware workers may suffer from a subtype of acute stress disorder and posttraumatic sequelae. The results suggest that there is reason to believe this subtype exists and is mediated by cortical assessments of salience and urgency. This paper suggests results that are ominous for mental health professionals—that indicators of depression, anxiety, and enervation are significantly elevated in those arguably most needed to help society come to terms with the problems we face in a degrading biosphere. We conclude that mental health professionals are urgently needed to help those who are at risk of becoming debilitated by their knowledge of the consequences of human impact on the planet and recommend that these professionals work to develop a new language, context, and treatment for this subtype condition.

We have proposed that, consciously or subconsciously, conservationists live with a high degree of negative emotional experience as part of their daily awareness of the problems that ensue from human degradation of the natural environment (Fraser & Brandt, in press; Fraser et al.,

2008; Lipsky, 2009; Pantesco et al., 2008). Analogous to the Cassandra complex, described as a dominant narrative in the conservation movement (Redford & Sanjayan, 2003), prophecies of a doomed planet may not only miss their intended audience but may also cause extreme emotional distress among those working in environmental advocacy. Constant contact with evidence of environmental degradation as part of one's daily work and awareness of the challenges facing the environment at the local level, such as habitat loss to development, and the global scale, with issues like climate change, may lead to acute stress experiences that may potentially be severe enough to be diagnosed as acute stress disorder, according to the current edition of the *Diagnostic and Statistical Manual of Mental Disorders IV-Text Revision* (American Psychiatric Association, 2000) criteria. Such a condition persisting over time may result in diagnoses of symptoms that appear to map against posttraumatic stress disorder (PTSD). For example, negative personality traits such as neuroticism, susceptibility to guilt, shame, and fear of death have all been found to correlate with PTSD (Charlton & Thompson, 1996; Chung et al., 2005; Lee et al., 2001). Recent studies have pointed toward the role of negative narratives or the witness of local degradation of the environment as the source of unintended stressors that lead to denial and limit behavior change (Ojala, 2007) or produce an irreconcilable melancholy dubbed "solastalgia" (Albrecht et al., 2007). Some research has demonstrated that subjective reporting of physical (medical) symptoms is governed not merely by "bottom up" bio-sensory mechanisms but also by many "top down" (cortical) factors that are psychological, social, and cultural (Williams & Martin, 2002, p. 534). Thus, it seems that persistent exposure to negative environmental narratives and situations may produce persistent negative emotional states that place environmental workers at risk of developing PTSD-like symptoms over time.

The likelihood of ensuing psychiatric disorders from this or any other stressor is increased by two factors—the proportion of the individual's usual activities in which uncontrollable negative changes take place following a major negative event, and the centrality of the uncontrollable changes within the individual's important goals and values (Dohrenwend, 2000, as cited in Freeman & Stansfeld, 2008).

For environmentalists, these factors appear to be persistent features of their professional and personal lives and persistent reports about local and global environmental problems.

The cultural system in which environmentalists work may exacerbate the distress and stress. Specifically, educational systems and cultural norms that degrade or dismiss the role of emotion, relying primarily on intellectual analysis and environmental learning processes, may not afford environmentalists the opportunity to express emotions that plague them continually. Repressing these emotions may well increase their chances of later severe psychological distress (Zembylas, 2005). Perceptions that their in-group status as environmentalists separates them from larger society or the communities where they work can also engender feelings of isolation or the sense that their work is unwanted.

Present research

The stress of environmentalists' daily experience may have immense impact on their emotional and mental well-being. In the first study, a convenience sample of front-line conservationists gave some support to these speculations. A follow-up qualitative study was undertaken with environmental educators and climate science graduate students to explore more deeply how issues surrounding climate science might offer specific insight into environmentalists' emotional experiences of environmental degradation in a politically contested subject.

Study 1

Method

A sample of conservation biologists, environmentalists, and conservation educators completed an online survey to assess the emotional toll of participating in conservation advocacy and research. We also examined the extent to which these experiences mirrored or paralleled those expressed by victims of trauma or acute stress.

Respondents and procedure. One hundred eighty-two participants completed an online survey posted through the Zoomerang consumer survey server (Markettools Inc.). E-mail invitations soliciting participation in a survey about experience working in the environmental community were distributed to adult members of the Society for Conservation Biology, the National Environmental Education Teachers Foundation, and the Union of Concerned Scientists via their Listservs. Others were identified through discussions with Listserv managers, and similar e-mails were sent to them as well. All responses were anonymous.

Measures. For the purpose of this new exploratory survey, measures were developed to anchor responses to participants' knowledge, experience of environmental degradation, and then self-assessments to describe their emotional experience and the degree to which they felt their family and workmates shared their environmental values (see Supplementary Material, available online at www.liebertonline.com/eco).

Confidence in knowledge. Respondents reported on their degree of confidence in their own knowledge about the state of the environment, rated on a 7-point scale (1 *No confidence at all* to 7 *Extremely confident*).

Concern. Respondents indicated their degree of concern for (1) current and (2) future state of the environment on a 7-point scale (1 *Not at all concerned* to 7 *A constant and persistent worry*).

Emotional response to specific topic. Respondents were asked to relate whether there was an incident in which they had heard news or received information on a specific environmental event that had deeply impacted them (*Yes, No, Not sure*). In order to make this event concrete for each participant, respondents who said yes were asked to describe that experience in a short paragraph. Next, they indicated on a 5-point scale (1 *Completely inappropriate* to 5 *Completely appropriate*) how accurately each of 14 emotions described their reaction to this event (*ambivalent, angry, anxiety, depression, energizing, enraged, hopeless, motivational, mourning, numb, regret, resigned, serenity, traumatic*). They were also asked to what extent they suddenly experienced fear or panic on a 5-point scale (1 *Not at all* to 5 *Longer than a day, or Not applicable*).

Inclusion. Using two separate items, respondents indicated the extent to which their personal values were consistent with others in their family or at work. Both were measured on a 7-point scale (1 *We share the same values* to 7 *I feel completely apart*).

Results

Confidence in knowledge about environmental problems. While only 19% ($n=35$) rated their confidence in knowledge at the highest level, 68% ($n=124$) selected the next highest category (see Table 1). Together, 87% ($n=159$) were above the midpoint of the scale, suggesting that the majority felt they were aware of substantive environmental problems and the role of human activity in these problems.

Table 1. Confidence in Knowledge About How and Why Human Activity is Changing the Environment

CONFIDENCE IN KNOWLEDGE	<i>n</i>	%
No Confidence	0	0.0%
2	2	1.1%
3	3	1.6%
4	18	9.9%
5	60	33.0%
6	64	35.2%
Extremely Confident	35	19.2%
Total	182	

Concern. Respondents' degree of concern about the current environmental conditions of our planet was also high (see Table 2). Most participants (77%, $n=139$) reported living with a high degree of concern, with more than a third experiencing worry constantly (35%, $n=63$). Respondents were also greatly concerned about the future environmental conditions of our planet (see Table 3), with 88% ($n=159$) expressing great concern.

Emotional response to specific topics. Nearly all respondents (94%, $n=149$) had been affected by information about a specific envi-

Table 2. Degree of Worry About the Current Environmental Conditions on the Planet

AGREEMENT	<i>n</i>	%
Not Concerned	1	0.55%
2	2	1.10%
3	0	0.00%
4	14	7.69%
5	26	14.29%
6	76	41.76%
Constant Worry	63	34.62%
Total	182	

Table 3. Degree of Worry About the Future Environmental Conditions on the Planet

AGREEMENT	<i>n</i>	%
Not Concerned	1	0.5%
2	2	1.1%
3	0	0.0%
4	7	3.8%
5	13	7.1%
6	70	38.5%
Constant Worry	89	48.9%
Total	182	

ronmental problem, as indicated in Table 4. In relation to a specific event, Table 5 indicates the words that participants felt characterized their reactions to the environmental event. Most frequently mentioned anger as accurately describing their emotional experience as well as other negative states such as anxiety and hopelessness.

Shared values. Table 6 offered some evidence indicating that social support is related to the severity of the negative emotional experiences, that is, those who perceive their environmental values as shared by family and/or coworkers correlated to lower reported feelings of fear or panic than those who felt their values diverged, suggesting that perceptions of support from close in-groups may be an important ameliorating factor for environmental knowledge as an emotional stressor.

Table 4. Environmental Educators Who Have Seen Human Activity Detrimental to the Environment That Has Affected Them

RESPONSE TO QUESTION	<i>n</i>	%
Yes	149	94.30%
No	5	3.16%
Not Sure	4	2.53%
Total	158	

Table 5. Correspondence in Rating of Appropriateness to Inappropriateness of Word Descriptors to the Emotional Experiences of a Significant Event Causing Harm to the Environment

FREQUENCY WORDS WERE RANKED AS LEAST APPROPRIATE TO THE EMOTIONAL EXPERIENCE		FREQUENCY WORDS WERE RATED AS MOST APPROPRIATE TO THE EMOTIONAL EXPERIENCE			
Least	13	angry	angry	123	Most
	36	enraged	enraged	82	
	38	motivational	regret	81	
	41	anxiety	anxiety	79	
	43	regret	hopeless	76	
	46	hopeless	motivational	67	
	47	depression	depression	65	
	48	mourning	mourning	52	
	64	traumatic	traumatic	51	
	67	energizing	energizing	48	
	78	resigned	numb	37	
	80	numb	resigned	36	
	102	ambivalent	ambivalent	18	
Most	128	serenity	serenity	5	Least

Note: The words selected as emotional descriptors were drawn from the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2000). Words are not necessarily of the same order, and each word was asked as an independent rating of appropriateness. Ranking between most and least does not correspond for words indicated in bold but still represents little variation in overall order.

Discussion

Though tentative, these results suggest that environmentalists who recall witnessing negative anthropogenic impacts on the environment (both large-scale damage and small) described the experience using language similar to people describing the anger and hopelessness characteristic of PTSD as illustrated by their responses to the same prompts as are used to diagnose PTSD triggers. Moreover, in this small sample more than 11% mentioned that these symptoms persisted longer than would be considered healthy. It would seem

that the way we understand environmental degradation can promote conditions that abet internal repression that surfaces stress responses. That is, increased awareness of environmental problems, coupled with seeming political and social indifference to that situation by others in one’s social support network, may represent a constant trigger for psychological stress. We also suggest that long-term repercussions, if left unmanaged, may create more persistent problems, especially for those who feel unsupported by their family or at work. Given these results, it is likely that a breaking point will be reached eventually for most environmentalists, when such suppressed stress becomes overwhelming and manifests symptomatically.

The results of this study suggested that increased knowledge about the causes and consequences of environmental degradation is a significant stressor that has potentially damaging impacts on emotional well-being. These results led to our second qualitative study to explore more deeply how the emotional experience of working with environmental interpretation impacts self-efficacy and perceived well-being.

Study 2

Method

Data for the second study was collected from interviews conducted as part of the front-end evaluation of the National Science Foundation-funded National Network for Ocean and Climate Change Interpretation (NNOCCI) project being led by the New England Aquarium. The project aimed to build a community of practice through a national training program for those who interpret climate change in informal settings. The data reported here represents participants’ emotional experiences as environmental educators, prior to their entry into the program.

Participants and procedure. A written survey and follow-up telephone discussion assessed participants’ information, attitudes, and knowledge about their perceptions of the context that frames their work in climate change interpretation. The initial seven-question survey was distributed by e-mail to all participants and included questions about their knowledge related to climate change interpretation, interest in training, prior experience with initiating a discussion using values frames, latitude to manage messaging, and professional development practice. Based on responses to this survey, the discussion guide was modified for each participant to explore attitudes and knowledge in more detail to guide development of the NNOCCI program. The latter two discussion questions explored more deeply how participants engaged with their emotional experiences as environmental educators.

Table 6. Relationship Between Acceptance by Family and/or Work and Degree of Fear/Panic About the Environment

DURATION OF FEAR/PANIC	NO ACCEPTANCE OF ENVIRONMENTAL VALUES BY FAMILY OR WORK		ACCEPTANCE OF ENVIRONMENTAL VALUES BY FAMILY OR WORK		ACCEPTANCE OF ENVIRONMENTAL VALUES BY BOTH FAMILY AND WORK	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Not at all	24	40.5%	26	38.7%	67	48.1%
Just for a moment	13	11.9%	7	21.0%	25	13.0%
For a short while	10	28.6%	9	16.1%	31	16.7%
For about a day	0	2.4%	0	0.0%	1	0.0%
Longer than a day	8	11.9%	8	12.9%	21	14.8%
Not applicable	7	4.8%	4	11.3%	13	7.4%
Total	62		54		158	

Note: For simplicity in reporting these data, a dichotomous measure of acceptance was created by grouping responses 1 to 3 as lack of acceptance and those indicating responses 5 and above as accepted.

A total of 44 program participants (staff from each of the 20 aquariums/science centers, or conservation sites and climate science researchers) were interviewed between the spring and fall of 2010. Interviews were scheduled as convenient for both staff populations. All but two interviews were conducted as dyad interviews (one researcher and two staff from the same institution). To accommodate schedules, two interviews had to be conducted one-on-one. Interviews lasted approximately 45 minutes and were audio recorded with the permission of the participants.

Measures. Data consisted of a baseline assessment of participants' preexisting knowledge of and attitudes toward climate change information and strategies for interpreting the climate change topic to other informal science educators and the public. For the specific purpose of Study 2, select questions were analyzed. From the written survey, items asked about participants' opinions and knowledge about climate change and their audiences' receptivity to climate change information. From the interviews, items asked about their confidence in communicating to audiences about climate change, resources needed to communicate more effectively, their emotional experiences of the topic of climate change, and their personal resilience strategies.

Data analysis. Data was analyzed using a coding scheme informed by Study 1 results (see Supplementary Material). Analysis for Study 2 affirmed that environmental educators' experience of communicat-

ing climate change information with audiences is emotionally taxing yet is possibly unrecognized by them. Thus, participants' written or verbal responses were closely examined for indicators of the emotional cost of communicating climate change information. Four themes emerged in the data analysis. General categories of negative emotions were associated with acknowledging the reality of climate change, lack of social support, and the persistent experience of negative messaging. Within these codes, specific emotional states were explored in relation to motivations or the degree to which they thwart engagement in interpretation. And lastly, these codes were examined to determine the extent to which the negative states persisted over time and how participants described their resilience strategies. While some participants did not explicitly discuss their emotional reactions in these narratives, we coded the interviews for tone, word choice, and expressions that allowed us to infer their sentiments.

Results

Emotional triggers. Participants' responses suggested two dominant emotional triggers most prevalent in their daily work as climate change interpreters. One was their ongoing encounter with information and knowledge about the loss and decline of nature. When speaking about the realities of climate change, it was evident that their explicit acknowledgement of its environmental implications presented severe emotional distress. Concern about climate change

featured in these responses, including feelings of heightened sadness and other expressions of grief.

Climate change really does invoke emotion in me. I see the impacts and I know the data. For me when I hear climate change I feel sad, melancholy. I don't feel my inner Pollyanna coming out... We don't have that warm sunny feeling when I hear climate change.

Others described feeling overwhelmed by the enormity of the climate change problem, noting their own sense of helplessness in the face of this global phenomenon. While their responses were often associated with terms like stress or distress, they again suggested persistent feelings of loss and grief.

It's really stressful because this huge thing is happening, it's overwhelming, and it's a complicated issue...there is so much information not explained in a way that a regular person can understand.

It is certainly distressing on many levels. It depends on my moods. Sometimes I feel like I should go out and see all the reefs before they disappear, or eat all the sushi while I still can...it's sad to imagine that things that I saw growing up might not be around later.

A few participants elaborated on how their mood states fluctuated between urgency to experience nature before it is lost and the sadness of seeing things in decline. One participant labeled the experience as "bipolar," characterized by tumultuous feelings of loss and resignation about climate change cycling with heightened pleasure associated with experiencing nature as it is today. For this person, the result was an eventual withdrawal from all efforts to engage in proactive efforts, a feeling that they had given up.

Most seemed to feel that the job requirement to reiterate the same distressing climate change information added to their emotional burden by repeating occasions in which they again internalized the awful information, perhaps even taking personal responsibility for being unable to address it.

The more you tell people the more overwhelming it gets. Sometimes it's hard to argue with that because I don't know myself what the correct answer is...If we find ourselves bogged down, then imagine the general public.

The other main emotional trigger to emerge in the analysis was the negative experience of encountering climate change denial by casual visitors.

[A] frustrating aspect is not knowing as much as we could and having really good arguments for climate change. There are a lot

of people around here that have really good arguments against climate change. They might think they know more than we do.

These encounters were described as frustrating and a source of stress in their jobs. They also anticipated enduring continued negative encounters. A few felt the need for strategies to tailor messages to engage audiences based on their beliefs or resistance.

I am prepared to get a lot of push back from some volunteers who don't agree with the science.

Participants were constantly modifying interpretive strategies that appropriately balanced the message content, to prevent audiences from perceiving the messages too negatively. They seemed to believe that their audience would disengage from the conversation otherwise. They believed such withdrawal to be based on fear or anger. A few participants also found it challenging and stressful to determine how to address climate change appropriately to a given audience, either due to particular location or a specific age group.

I'm not afraid of talking about it...the people that we work with are really eager to learn what is out there, but the younger constituency—how do we do it in a way that is positive?

Some of these participants expressed the importance of learning about their audiences first before providing climate change information. It was also evident that although they recognized the value of audience assessment, they were also concerned about it, perhaps because of apprehension about encountering "deniers" who could trigger distressing emotional states in them. For example, one of the educators expressed contradictory thoughts about being uncomfortable about learning audiences' perspectives while acknowledging that this process would enrich this participant's work:

The one area that I am not comfortable is listening first to our guests to assess where they are, because meeting them where they are is crucial to the success of all the climate change messaging.

Participants' responses also revealed the importance of openness to discussing climate change information in interpreters, educators, and audiences. In their experiences, these desired dispositions appeared to be lacking, leaving them somewhat exasperated. This seemed to link with perceiving a social norm that denies expression of negative emotions.

I'm comfortable with the issue itself. But this is a sensitive issue. Oftentimes I feel like people, myself included, will tiptoe around it.

Few participants focused on whether their family or colleagues shared their environmental values and how that experience played

into their emotional state. One educator characterized their colleagues as cautious, advising one another to avoid talking about conservation issues when discussing climate change out of fear of “sounding too preachy” or confrontational in public presentations.

These data suggest that being an environmental educator tasked with teaching the principles of climate change is associated with feelings of grief, desire to avoid confrontation, and the stress of being reminded about the impending loss of nature in the near future. The process of teaching climate change facts without alienating certain groups or producing fear appeared fraught with emotional descriptors such as fear and sadness that can result from confrontation.

Resilience strategies. Participants' descriptions of their emotional experiences also indicated strategies they undertook to maintain resilience in the face of the overwhelming nature of climate change. A stoic attitude was evident in several participants, indicating active repression of their negative emotional states. In a few cases, participants explored their reactions to climate change as a detached observer of an inevitable doom that did not affect them personally. They described being detached from the subject and spoke objectively, almost as outsiders witnessing a failed cultural conflict that they kept at arms' length. The latter type of response was linked to feelings of frustration with “people” in general. One respondent suggested that resignation was a subconscious strategy to suppress the intense emotional experience of dealing with climate change on a daily basis.

Another educator who offered a detached perspective mentioned that her work situation allowed her access to professional advice that helped her address the emotional stress of working with environmental degradation.

I work with a number of professionals including psychiatrists and they talk about the various problems that occur with people in terms of climate change education and what not. I feel like I have resources to fall back on.

Another educator sought to control the emotional burden of the work by “picking battles.” This educator claimed to be more vocal at home and in communities that are more likely to share similar environmental values.

Some participants found solace by drawing on their negative emotional experiences as motivations to persist in public advocacy. These participants found that focusing on potential new action strategies or audiences helped them cope with their negative emotions. Even though they spoke about others becoming crippled and

stifled from the weight of information they receive about climate change, these participants did not feel they were personally afflicted by these emotions.

What can I do to make a difference? It can be purchasing sustainably harvested furniture. It's motivating people who do believe in climate change but aren't participating in green practices.

The evaluative rather than clinical focus of this research precluded questions about persistence of negative emotions in information recipients. One participant, however, referred to the latent stress and the consequences experienced by their audiences when receiving climate change information:

As informal educators we may only talk with someone for 15 minutes, we don't see the emotional changes. So the distress that they are experiencing may happen three hours later, it might happen later when they are watching the news...It may take a little while to register what that really means. So we don't feel a lot of the after-effects.

A secondary review of this transcript revealed evidence to suggest that the participant was projecting his or her personal negative emotions and triggers on those he or she sought to teach. This led us to explore other transcripts and revealed some degree of this projection of future feelings of distress by audiences in many cases. It was not possible to determine if these educators were using projection as a means of coping with their own distress or were simply interpreting their own slow realization of the scale of the problem as a logical consequence of the interaction. In any case, they felt that increased feelings of distress were a direct result of increased knowledge of environmental degradation.

Some educators indicated their reliance on colleagues as a resilience strategy. Of these, a few expressed the need to focus on positive messaging about climate change to maintain their sanity as they contemplated the state of the earth. Most educators, however, find solace in speaking with other interpreters about their strategies to mitigate stress and ease their emotional turmoil. They expressed the need for tools to get social support for their work.

I'm anxious to work with other aquariums and how they incorporate climate change. Being able to have access to people all over the country and getting that support.

These educators' responses suggested the need for psychological support from peers and like-minded individuals to help alleviate discipline-specific distress and the pervasive exposure to emotional triggers in their lives.

Discussion

Study 2 participants recognized that their job placed them in emotionally stressful situations. Working to assemble new information about the anticipated environmental problems resulting from climate change, helping others develop greater understanding about this emotionally and politically charged topic, and risking interaction with climate change deniers were all related to negative emotional states and sequelae. Moreover, these educators revealed a normative preference in the profession to avoid emotionally sensitive subject matter, a norm that adds to their personal stress. They acknowledged the daunting emotional landscape of their work, recognizing the pervasiveness of emotional triggers in their daily lives and the persistently elevated levels of stress, frustration, and hopelessness. Their professed detachment suggests that they are suppressing emotional work as a short-term resilience strategy despite its long-term harmful implications. The severity of emotional impacts on personal well-being was downplayed consistently, dismissed as a normative experience in the environmental community, where persistent anxiety is simply part of the job and not cause for concern.

These respondents did claim that they had sought out opportunities to express grief and frustration with their peers as part of their professional networking. They described these convenings as a safe place to share emotional experiences, suggesting that values alignment was an important aspect of their resilience practices. While we saw them describe such gatherings and noted that they found comfort in talking with their peers about shared emotions, most of these descriptions were limited to affirming shared feelings of negative emotions. That is to say, among these respondents there seemed tacit acknowledgement that being involved in environmental work carries with it a negative emotional burden.

Study 2 highlighted the enormous amount of cognitive adjustment work borne by educators as they apprehensively assess the audience's receptivity and restructure disturbing information into palatable frames. Moreover, all such mindful strategizing occurs in the backdrop of their profound understanding of the distressful reality of climate change. In effect the intense emotional work inherent in climate change interpreters' daily professional lives was ratified. Participants' propensity to refrain from expressing their negative emotions and the resultant long-term toll on their psychological health has serious implications. This is a clinical as well as professional cause for concern.

General Discussion

The two studies provide evidence of the emotionally charged nature of environmentalists' daily professional lives. By anchoring re-

sponses to a specific, personally relevant instance of environmental degradation, Study 1 was able to document the severe emotional stress environmental workers encounter consistently in their work. Moreover, they described their emotional experiences as "anger," "anxiety," and "hopelessness," highlighting the negativity that is an ongoing experience. Study 2, through in-depth interviews with people working with climate change information, demonstrated similar emotional registers in daily encounters with visitors. In addition to supplementing the results of the first study, the second further highlighted a range of situations where environmental workers encounter recurring negative emotional triggers. While many are aware of the emotional challenges related to the work, the resilience strategies they describe appear to be insufficient to address the deep-seated nature of the problem and the unavoidable nature of the triggers. While not assessed in these studies, employing discrepant strategies for coping (explicitly stated ones like engaging in professional networks and subtle ones like expressing stoicism) may evoke cognitive dissonance from holding two conflicting beliefs accompanied by extreme psychological discomfort (Festinger, 1957). Thus, environmental workers' awareness and repeated experiences with environmental degradation are associated with negative emotional responses that, if left unattended, may eventually rise to proportions similar to those experienced by exposure to traumatic events.

As outlined in our theoretical propositions (Fraser & Brandt, in press; Fraser et al., 2008; Pantesco et al., 2008), we find support for our call for a new approach to addressing the negative emotional impacts of environmental work. As a first step, acknowledging the emotionally taxing nature of the work and daily life for environmentally engaged people is a prerequisite to proposing strategies to ameliorate the problem. These two exploratory studies have revealed that environmental workers are aware of the scale and risk they face from the negative emotions they experience in their work. While acknowledging the condition is a good first step toward addressing the problem, it would also seem that the ongoing expectation by many to suppress their emotions or conform to externally imposed norms that do not acknowledge the grieving process associated with recognizing environmental losses that we will all see in the near future will continue to exert a toll.

The field of ecopsychology has changed since Rozak, Gomez, and Kanner (1995) proposed ways of thinking through the links between psychological well-being and environmental health. In parallel to our research, and apparently confirming and supporting the hypotheses we explored here, other scholars have started to delve into the psychological processes that can be used to build resilience in

those who are encountering deep levels of emotional distress from their experience and knowledge of environmental degradation (i.e., Buzzell & Chalquist, 2009; Macy & Johnson, 2012). We see these parallel developments as incredibly positive signs that attention is being drawn to the problem and that there are attempts to describe this condition. However, these findings reveal one significant factor that seems to challenge some of the resilience-building recommendations promoted by Buzzell and Chalquist—that nature experience has restorative value for those who feel hurt at the plight of the ecological world. We note that our data seem to suggest that any work to explore this domain be entered into with caution for the knowledgeable conservationist because they cannot be in nature without full awareness that they are in the presence of evidence of intractable degradation. We agree with Macy and Johnson that there is need to explore how to develop “active hope,” a practice of understanding the power of the collective to tell new stories, in part by honoring and giving voice to the pain environmentalists feel for the world. The practices they propose may all have psychological value for addressing the negative psychological sequelae that flow from what Albrecht and colleagues (2007) dub “solastalgia,” but again we suggest that the mental health professionals need to look carefully at the ubiquity of triggers that surround professional environmentalists and not assume the nature environmentalists see is the same as what the therapist believes they see.

While both studies were small in nature, their results support the need for future research into environmental knowledge as a source of traumatic experience. The first highlighted the risk of isolation from social groups due to awareness of environmental problems as a risk factor for negative psychological sequelae, that is, that isolation from others who share environmental values has the potential to magnify and increase risk of stress to unmanageable levels. The second documented the emotionally challenging risks of working and living in a world that, as Macy and Johnson describe, promotes a social norm of denial of the negative emotions that challenges conservation workers as the environment around us deteriorates. It appears that social support may be a critical factor that could shield against perpetuating the negative emotional toll, but current strategies being employed by those in the field appear inadequate given the scale of the problem.

Conclusion

These studies suggest that psychological research and experimental interventions for those working in the environmental conservation industry are urgently needed. It appears that more detailed explorations of both the condition and recommendations for sound

psychological practices are needed by those in the frontlines of the environmental field. And more importantly, it appears that the case studies that will begin to explore this project require publication in order to build a literature on resilience that can be of benefit to the workers in the field and for those who will begin to witness widespread systemic collapse as climate change takes its toll in the coming decades.

This research documenting the prevalence of intense emotional loads borne by environmental educators on a daily basis, and their longer-term implications, is considered a critical first step. We contend that efforts by psychologists to help those environmental conservation workers already impacted by the problem to find proper, supportive conditions, to explicate the intense emotional challenges to develop resilience strategies for those who will enter the field, and to encourage healthier processing of the distress and trauma that are associated with this growing field.

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REFERENCES

- Albrecht, G., Sartore, L. C., Higginbotham, N., Freeman, S., Kelly, B., Stain, H., Tonna, A., & Pollard, G. (2007). Solastalgia: The distress caused by environmental change. *Australasian Psychiatry, 15*, 95–98.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: American Psychiatric Association.
- Buzzell, L., & Chalquist, C. (Eds.). (2009). *Ecotherapy: Healing with nature in mind*. San Francisco, CA: Sierra Club Books.
- Charlton, P. F. C., & Thompson, J. A. (1996). Ways of coping with psychological distress after trauma. *British Journal of Clinical Psychology, 35*, 517–530.

- Chung, M. C., Dennis, I., Easthope, Y., Werrett, J., & Farmer, S. (2005). A multiple-indicator multiple-cause model for posttraumatic stress reactions: Personality, coping, and maladjustment. *Psychosomatic Medicine*, *67*, 251–259.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.
- Fraser, J., & Brandt, C. (in press). The emotional life of the environmental educator. In M. E. Krasny & J. Dillon (Eds.), *Trading zones in environmental education: Creating transdisciplinary dialogue*. Oxford, UK: Peter Lang Ltd.
- Fraser, J., Pantesco, V., & Harris, C. (2008, August). *Sustaining the conservationist: The psychology of working with environmental deterioration*. Paper presented at the Annual Conference of the American Psychological Association, Boston, MA.
- Freeman, H. L., & Stansfeld, S. A. (Eds.). (2008). *The impact of the environment on psychiatric disorder*. London, UK: Routledge.
- Lee, D. A., Scragg, P., & Turner, S. (2001). The role of shame and guilt in traumatic events: A clinical model of shame-based and guilt-based PTSD. *British Journal of Medical Psychology*, *74*, 451–466.
- Lipsky, L. v. D. (2009). *Trauma stewardship: An everyday guide to caring for self while caring for others*. San Francisco, CA: Berrett-Hoehler.
- Macy, J., & Johnson, C. (2012). *Active hope: How to face the mess we're in without going crazy*. Novato, CA: New World Library.
- Pantesco, V., Fraser, J., & Zane, J. (2008, August). *Sustaining the conservationist*. Paper presented at the Annual Conference of the American Psychological Association, Boston, MA.
- Ojala, M. (2007). Confronting macrosocial worries: Worry about environmental problems and proactive coping among a group of young volunteers. *Science Direct*, *39*, 729–745.
- Redford, K., & Sanjayan, M. A. (2003). Retiring Cassandra. *Conservation Biology*, *17*, 1473–1474.
- Rozak, T., Gomez, M. E., & Kanner, A. D. (1995). *Ecopsychology: Restoring the earth, healing the mind*. New York, NY: Crown Publishers.
- Williams, M. A., & Martin, M. Y. (2002). Symptoms, signs and ill-defined conditions. In T. J. Boll, S. B. Johnson Jr., N. W. Perry, and R. H. Rozensky (Eds.), *Handbook of clinical health psychology: Medical disorders and behavioral applications* (Vol. 1, pp. 533–553). Washington, DC: American Psychological Association.
- Zembylas, M. (2005). Three perspectives on linking the cognitive and the emotional in science learning: Conceptual change, socio-constructivism and poststructuralism. *Studies in Science Education*, *41*, 91–116.

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