*Applied Linguistics 2019: 0/0: 1–26*
doi:10.1093/applin/amz046

# Towards a Green Applied Linguistics: Human–Sea Turtle Semiotic Assemblages in Hawai'i

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This article argues that human–animal relationships are a key conceptual terrain for applied linguists to intervene in emerging interdisciplinary debates on how to address problematic human–environment relations in a time of growing ecological degradation. The scientific diagnosis of the Anthropocene has further generated critical discussion in the social sciences on the need to understand the diversity of local cultural responses to global environmental crises, ranging from climate change to species extinction. This article proposes that a 'green applied linguistics' can offer empirical insights into the role of language and discourse in mediating diverse human relationships with animals and nature. Taking human interactions with protected wildlife as one aspect of these wider socio-environmental debates, this article builds on recent embodied, materialist and posthumanist research in applied linguistics to suggest that nexus analysis offers a holistic methodology to examine the problematic ways people become caught up with threatened species through their semiotic practices. I illustrate these ideas through examples from my ethnographic research on the convergence of sea turtle conservation and ecotourism practices at Laniākea Beach, Hawai'i.

## INTRODUCTION

A growing number of scientists, environmentalists, and scholars are referring to the era we are entering in as the 'Anthropocene'. Over the past few hundred years, human exploitation of nature has unraveled ancient threads of ecological interdependence, altering the planet's geochemistry and ecosystems to such a degree that humans have become a global 'force of nature'. In other words, human beings as a collective species, or 'Anthropos', now account for the primary force shaping the Earth's natural landscapes and ecosystems. In seeking to address the scale of human-induced ecological crises enveloping the world, from climate change to species extinction, scholars across the social and natural sciences are increasingly asking how their research can address the complex but necessary task of fostering more 'life-sustaining relationships of humans with other humans, other organisms and the physical environment . . .' (Stibbe 2015: 9).

The recognition that we have entered the era of the Anthropocene calls on applied linguists to critically examine how the natural world is caught up in our semiotic practices. In other words, it encourages the field to develop a *green applied linguistics* that investigates the role of language in problematic human–environment relations. Halliday (1990) made this point almost 30 years ago when he argued that 'classism, growthism, destruction of species, pollution and the like—are not just problems for the biologists and physicists. They are problems for the applied linguistic community as well' (199). Applied linguists are now exploring some of the implications of the Anthropocene in developing a 'posthumanist applied linguistics', suggesting that this idea 'potentially marks the end of the nature/culture divide that has been a central part of the thinking of Western modernity (inhuman nature, human culture)' (Appleby and Pennycook 2017: 254). From this perspective, we need to rethink the conceptual boundaries between humans and the material world that this nature/culture divide reinforces in a way that 'allows us to understand subjects, language, and cognition not as properties of individual humans but rather as distributed across people, places, and artefacts' (Pennycook 2018: 446). Building on these posthumanist concerns, in this article, I suggest that recent interdisciplinary efforts in the social sciences investigating human–animal relationships in diverse sites around the world offer new possibilities for applied linguists to critically intervene in emerging debates on how best to foster healthy human–environment relationships after the diagnosis of the Anthropocene.

If, as Brumfit (1995) argued, applied linguistics is 'the theoretical and empirical investigation of real-world problems in which language is a central issue' (27), then our contemporary ecological crisis certainly qualifies as one of these problems. Here are just a few pressing ecosocial questions being raised by applied linguists: How does engaging ecologically in applied linguistics transform approaches to critical language education, pedagogy, and policy (Appleby and Pennycook 2017; Goulah and Katunich in press)? What does environmental sociolinguistic justice (Piller 2016: 6) look like when we examine 'how colonialism, capitalism, and their associated unequal power relations play out within a broader web of life' (van Dooren *et al.* 2016: 3)? And, how do our discursive practices entangle us with animals and the natural environment in both damaging and life-sustaining ways (Stibbe 2012; Cook 2015)? Previous special issues in this journal have proposed 'the development of a new more wide-ranging and more socially engaged applied linguistics' (Cook and Kasper 2005: 481), grounded in the field's ongoing 'empirical mandate to identify, analyze, and possibly solve practical problems of language and communication . . .' (Kramsch 2015: 461). In this article, I build on this recognition of applied linguistics' empirical grounding in everyday language practices as being of broad relevance to a wide range of societal issues including environmental problems.

In the sections below, I argue that applied linguistics is well placed to shed light on the dynamic, socioculturally specific, and ethically problematic ways

we become caught up with the natural world through our semiotic practices. In particular, this article suggests that human–animal relations are a rich but underexplored context for an ecologically engaged applied linguistics to examine the problematic society–nature entanglements emerging in the Anthropocene. I suggest that the concept of *assemblage* (Deleuze and Guattari 1987), which is increasingly being mobilized in the social sciences, and more recently in applied linguistics, offers an important concept for applied linguists seeking to address the central role of discourse in mediating human relationships with wildlife and nature. This is because the concept of assemblage directs attention to the situated interconnectivity among meanings, bodies, objects, infrastructure, and places that converge to produce both healthy and damaging human–animal relationships. Bringing *nexus analysis* (Scollon and Scollon 2004) into conversation with the concept of assemblage provides empirical insights into how dominant discourses about animals and nature come to have an effect on people's situated interactions with a diverse range of species, whether to protect, admire, or exploit them. To illustrate these admittedly wide-ranging and challenging themes in a more concrete way, I draw on some examples from my ethnographic research on the discursive practices of sea turtle conservation and ecotourism in Hawai'i.

In the sections further, I first bring into conversation two bodies of work in critical discourse analysis and interactional research to explore how applied and sociocultural linguists are investigating the role of discourse in shaping human relations with a diverse range of animals. I draw particular attention to emerging research on human relations with threatened wildlife in conservation and tourism activities. I will argue that applied linguists can provide important empirical insights into the local dynamics and sociocultural specificities of human–animal relationships by uncovering the central role of language and discourse as mediational means in these assemblages.

## DISCURSIVE REPRESENTATIONS OF ANIMALS

Discourse analytic research on representations of animals has explored the question of how we view and talk about animals and what consequences these ways of viewing and talking have for human interactions with animals and the wider natural world (Dunayer 2001; Goatly 2006; Stibbe 2012; Sealey and Oakley 2013; Cook 2015). Cook and Sealey (2017) provide an overview of this emerging area of research as a key site of investigation in ecolinguistics. Much of the research on discursive representations of animals, however, is on contemporary discourse in Western/English-speaking contexts, and there is need for future research on other historical periods and sociocultural/linguistic contexts (but see Stibbe (2012) on the Japanese context, and Todd (2014) on the Indigenous Inuvialuit context). As people have grown increasingly more urbanized and dependent on industrial-scale agriculture and meat industries for food, their relations with animals have also changed over time. In particular, one consequence of these changes is that many people in late modern

society have become physically distanced and disconnected from animal lives that are increasingly 'encountered only as meat, pets, pests, or vicariously in fiction and documentaries . . .' (Cook 2015: 1). In this sense, discourse analysis of talk about animals describes the *erasure*, both physically and conceptually, of animals from human experience (Stibbe 2012).

However, discourse analysis has also examined the counter-discourses that work to thwart this erasure of animals, for example, through the linguistic innovation of animal welfare and animal rights discourse. Research examining the relation between contrasting discourses about animal ethics reveals an underlying philosophical tension between beliefs in *human exceptionalism* and beliefs in *animal rights* (Cook 2015; Heise 2016). Human exceptionalism is the idea that humans are separate from and superior to animals, where the value of nonhuman beings is defined only in relation to their instrumental fulfilment of human needs (Plumwood 2002). This idea undergirds and legitimates a diverse range of human practices such as meat eating, pet ownership, pest extermination, and trophy hunting.

Research has also examined the discursive transformation around certain wild animals and especially 'charismatic' species, often endangered wildlife with widespread popular appeal, that have increasingly become targets of conservation and tourism activity (Mühlhäusler and Peace 2001). Over the course of the last century, for example, orcas 'have significantly transformed in Western consciousness from 1940s villainous blackfish shot at by commercial fishermen and used for target practice by the Royal Canadian Air Force, to 1960s and 1970s commodities captured to supply a succession of SeaWorld's first ''Shamus,'' to today's nature tourism icon and pulse of oceanic health as top oceanic predators' (Milstein 2008: 231–2). Tracing the historical transformation of discourse around charismatic species like orcas reveals how these creatures have become sites of intense discursive struggle over time. In particular, the rapid neoliberalization of environmentalism since the 1980s has dramatically shifted discourses around charismatic wildlife as spectacles for a human audience, both on the screen and in real life, leading conservation efforts only in the past few decades to propose commodification 'as the solution to, rather than the cause of, environmental problems' (Lorimer 2015: 142).

## HUMAN–ANIMAL INTERACTION

Discourse analysis of representations of animals, as briefly outlined earlier, provides insight into how humans view and talk about different animals. These studies have foregrounded how animals are being physically and discursively erased from everyday human life, as well as how the animals that do find entry into our lives tend to be a very narrow subset of 'charismatic species'. But this research also raises empirical questions about how animal and environmental discourses come to shape actual embodied encounters between humans and a diverse range of species. Here, it is helpful to turn to a growing number of language scholars drawing on a combination of interactional and

ethnographic tools. In doing so, these scholars have argued for the need to move beyond an anthropocentric focus on 'the human' in order to address 'the more symmetrical and empirical question: what do they (i.e. both humans and animals) do [in interaction] and what ongoing partnerships are produced as a result?' (Franklin *et al.* 2007: 55).

As domesticated animals, pets, and livestock are the species humans most commonly build intimate relationships with, and emerging interactional research is exploring the embodied semiotic resources, both human and nonhuman, that are involved in these interactions. For example, in her innovative study on human-steer interaction among high school students on a rural Californian farm, Bucholtz (2015) argues that embodied interaction analysis can make important contributions to emerging questions about how the agency of animals contributes to meaningful human–animal interaction. Notably, she considers how humans and animals build caring intersubjective relations through embodied and skillful joint interactional accomplishments. Adapting conversation analytic methods to human–animal interaction, she argues, '. . . it is only within embodied encounters . . . that humans and animals engage with and enter into social and affective relations or partnerships with one another' (3). This study foregrounds how bodies become the vital medium through which to bridge human and nonhuman modes of communication (see also Bucholtz and Hall 2016).

Dogs, owing to their deep cultural and historical ties to human societies as 'companion species' (Haraway 2008), have been at the forefront of research on embodied human–animal interaction. In part, this research has explored how dogs are recruited as resources to accomplish different interactional goals with other human conversational partners in, for example, families, among friends, or in veterinary diagnostic talk (Stivers 1998; Obeng 1999; Tannen 2004). In these studies, animals are analysed as mediational tools in human interaction, more as interactional resources than as active agents themselves. However, recent research in linguistic anthropology has sought to reconsider animals as agentive participants in human–animal interaction, arguing that human language is not radically separate from (or exceptional to) animal forms of communication but built on shared semiotic processes used by all living organisms to sense and act in the world around them. (Kohn 2007; Goodwin 2009). These studies also raise questions about human interaction with wild animals, such as the sea turtles I explore in more detail further, suggesting that 'to understand more fully the workings of human-animal interaction, it is . . . necessary to consider a broad range of species, situations, and relationships' (Bucholtz 2015: 4).

The study of human interaction with wildlife, in contrast to domesticated species, requires attention to the often conflicting values associated with proximal human engagement with these creatures (Candea 2010). For example, in Australia, there is a discursive clash around sharks between an environmentalist discourse of shark protection and an alarmist discourse in the media that demonizes sharks (Appleby and Pennycook 2017). Here, conflictual 'shark talk' emerges at the nexus of various forms of human–shark engagement,

from shark conservation programmes to ecotourism practices like shark diving tours, and even efforts to cull shark populations that live near popular beaches. But as the authors suggests, these divergent discourses are more than ways of structuring different human perceptions and relations with sharks. From this perspective, discourse is no longer purely human as it is rubs up against the livingness of sharks and as sharks' ways of experiencing their worlds demand attention from human discourse and practice. In considering the implications of this 'more-than-human' approach to discourse for critical language research, the authors argue that to engage ecologically requires a need to pop our anthropocentric bubble and shift the unit of analysis from a focus on human-centered relations to a more distributed network of 'nature-culture assemblages and entanglements'(253).

## INVESTIGATING HUMAN–WILDLIFE ASSEMBLAGES IN THE ANTHROPOCENE

The wide-ranging research briefly outlined earlier serves to highlight how applied and sociocultural linguists are contributing empirically rich insights into the discourses and practices mediating human relations with a diverse range of species. An important factor motivating the urgency of this research is a recognition of 'the very real material changes brought about by climate change and the Anthropocene' (Appleby and Pennycook 2017: 254). The Anthropocene has sparked a flurry of academic and public debate since the term was first coined by the geoscientists Crutzen and Stoermer (2000), perhaps no more so than in the environmental movement, where it has reignited concerns that conservation campaigns are failing (Lorimer 2015). Two radically contrasting narratives about the future of conservation have emerged from these debates. For many conservationists, the Anthropocene is a wakeup call to protect nature now more than ever, demanding a rapid expansion of strictly protected wilderness areas around the world. In contrast, others celebrate human ingenuity to know and shape nature, arguing that the Anthropocene calls on us to embrace our newfound role as managers of an ecologically changing planet.

Despite the differences between these two perspectives, a growing body of critical work argues that both share a similar view of nature as an 'ontologically prior object' to humans, which must either be protected from human impact, or in contrast, controlled and managed to serve human ends (Wapner 2014). At the same time, construing nature as an external object to humans has a homogenizing effect on human difference, rendering humans a unified, species-level force. The concept of *assemblage* (Deleuze and Guattari 1987) is being mobilized in critical social scientific work as part of a larger effort to move beyond this 'paralyzing' human–nature dualism, which organizes much of environmental politics today (Latour 2004). An important aim of assemblage thinking is to counteract a singular and disembodied view of humanity in dominant Anthropocene narratives, as this global view not only fails

to account for the diversity of human relationships with animals and nature but also blurs together the human culprits and victims of environmental crises into a unified force (Lövbrand *et al.* 2015). Instead, assemblage thinking collapses this human–nature dualism into an interactive process to bring empirical focus to the situated interactional work involved in actually assembling a diverse range of human–nature relationships.

I draw inspiration in particular from research on human–animal assemblages in the context of wildlife conservation. This work emphasizes two theoretical commitments of assemblage thinking that capture a suite of analytic orientations to doing empirical research. First, human–animal assemblages have a geography (Whatmore 2002). This foregrounds how an assembly of human and nonhuman bodies, materials, discourses, and places are consistently gathered together as a *terrain for action*. But the spatiality of this terrain is not defined primarily by nested scales or physical distance between elements but rather by the contingent networking among elements across material-semiotic lines of connection. For example, Lorimer (2015) draws on the concept of assemblage to examine how conservation efforts centered around elephants in Sri Lanka proceed through various communicative strategies to consolidate not only a geography of interconnectivity among human and nonhuman bodies but also documents, maps, territories, fences, guns, films, websites, and more. The important point is to recognize that through the strategic linking of bodies, objects, discourses, and places into various relational geographies of action, '[a]ssemblages allow certain actors to speak for, commodify, govern, and thus shape the world, often in conflict with other representations' (10).

Second, this last point leads to a recognition that human–animal relationships are not shaped by a single geography but emerge within a *multiplicity* of overlapping geographies that dynamically converge and conflict to enable and legitimate certain human-wildlife relationships over time (Hinchliffe et al. 2005). Cloke and Perkins (2005), for example, draw on the concept of assemblage to examine the cetacean ecotourism practices in Kaikoura, New Zealand. Here they investigate how the whale-watching industry strategically organizes an ensemble of materials, bodies, technologies, money, and infrastructures to assemble a whale ecotourism project amidst a multiplicity of other assemblages operating in the same place such as indigenous practices and whale conservation efforts. But through their ethnographic research, they also show how whales continually disrupt and transform these assemblages too: by not showing up to perform, swimming further out to sea, or otherwise thwarting human efforts to predict and control their movements. In other words, this commitment to multiplicity also requires empirical attention to how human–wildlife assemblages only emerge as 'a relational achievement' spun from multiple human *and* nonhuman geographies of interconnection (Whatmore 2002).

In sum, assemblage thinking calls for empirically rich accounts to trace the labor involved in assembling heterogenous elements to cohere a distinct formation of human–wildlife relationships. However, this raises challenging methodological questions about how interconnections across heterogenous

entities are actually made and what kinds of (un)ethical human–wildlife relationships emerge as a result. Applied linguists have recently taken up these methodological challenges in mobilizing assemblage thinking to re-theorize semiotic repertoires and linguistic competencies. This approach suggests that these are not individual capacities but relational achievements spun from interacting bodies, objects, practices, discourses, technologies, and spatial layouts (e.g. Pennycook and Otsuji 2017). However, as Canagarajah (2018) argues, while the concept of assemblage offers useful empirical commitments to situate semiotic practices and structural effects within the material networks that enable them, they also raise numerous methodological challenges as well. In particular, '[h]ow do we define the unit and focus of analysis when everything is connected to everything else?... what are the meaningful cuts for analysis?' (21). This resonates with broader interdisciplinary concerns that despite the tremendous uptake of assemblage thinking, there has been little explicit discussion of assemblage-as-methodology in a holistic fashion (e.g. Baker and McGuirk 2017). In the sections to follow, I suggest that nexus analysis offers a holistic yet open-ended methodology for activity-based applied linguists seeking to critically investigate human-animal assemblages, and potentially intervene in how people become caught up with animals in problematic ways through their semiotic practices.

## NEXUS ANALYSIS

Nexus analysis is an ethnographic sociolinguistic approach to discourse analysis that is theoretically grounded in mediated discourse analysis (MDA) (Scollon and Scollon 2004; Lane 2014). MDA takes the mediated action, rather than language, as its focal unit of analysis. This approach treats language as one of many available resources alongside other semiotic-material elements that contribute to meaningful action-formation in the here and now (Scollon 2001; Norris and Jones 2005). Mediated actions are formed at a 'site of engagement' or a real-time window that is opened up when discourses in place, historical bodies, and the interaction order weave together to make certain actions possible. The notion of *discourses in place* (Scollon and Scollon 2003) describes the discursive pathways embedded in material objects, historical bodies, and the built and natural environment that aggregate in particular places to enable and constrain certain actions, as well as legitimate, or conversely, illegitimate other actions. The idea of the *interaction order* explores the nexus point at which lively human and animal bodies and aspects of the semiotic and material environment all intersect in ongoing moments of action to enable certain attentional fields, social identities, and ethical relations among human and nonhuman participants. And finally, the *historical body* refers to how these interactional experiences with the semiotic and material world become internalized in the living body in the form of more enduring habits, knowledges, and bodily attunements (Figure 1).

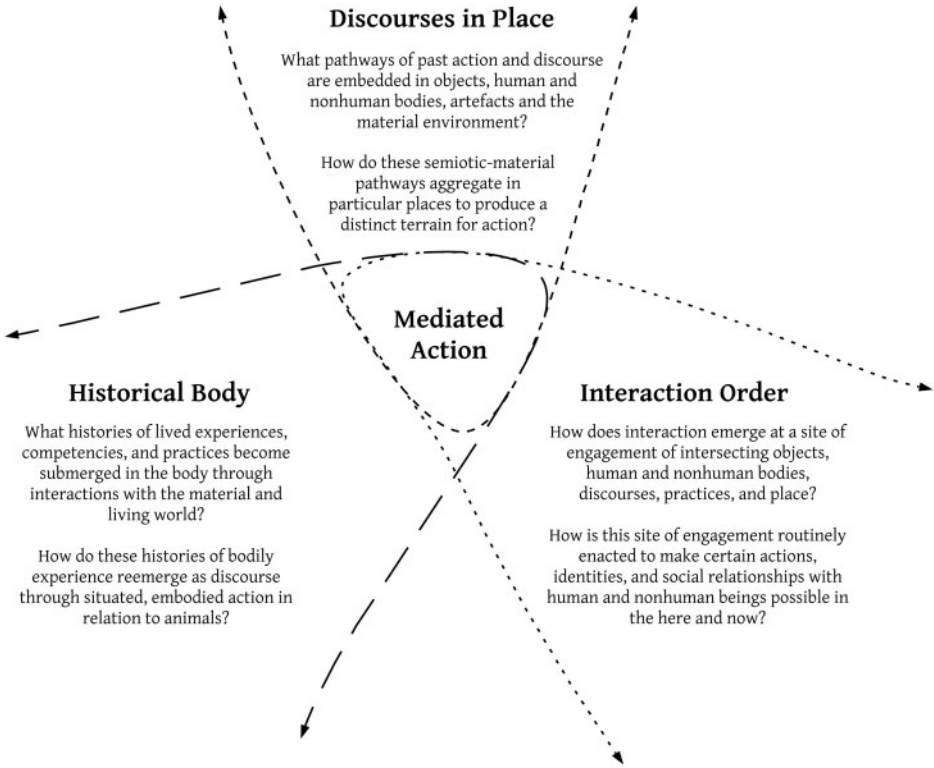


*Figure 1: Intersecting discursive pathways in a nexus analysis (adapted from Hult 2017)*

The important point nexus analysis makes is to recognize how moments of action emerge from the entanglement of these intersecting discursive flows—discourses in place, interaction order and historical body—and how the interdiscursive relations among these flows contribute to and transform social practices over time (for applications, see e.g. Dlaske 2015; Izadi 2017; Pietikäinen 2015; Scollon 2015). The Scollons draw on various organic metaphors to describe these intersecting flows of discourse, for example, as a water cycle where rain absorbs new elements and minerals as it falls through the air and into the ground and evaporates again in an ongoing cycle of 'resemiotization' (Iedema 2001). This highlights how a particular discourse is continually invested with new sociocultural meanings and material qualities when remediated and repurposed across new moments or sites of engagement (Scollon and Scollon 2004: iii). And finally, when an identifiable site of engagement is repeated to produce similar actions and identities for specific purposes (e.g. buying coffee, protecting sea turtles), nexus analysis refers to this trajectory as a 'nexus of practice'.

In this article, I argue that the notion of a nexus of practice is equivalent to the concept of assemblage. Conceptually, the concept of assemblage directs attention to the processual labor of social actors and institutions to consistently draw together an array of elements that compose a particular discourse and enable it to spread through the material world. But also how, in efforts to assemble a distinct discourse and make it persist in the world, this requires continually redefining and remaking sites of engagement to enable a discourse to fit through the contingent and syncretic circumstances of situated action. I suggest that nexus analysis provides a useful 'meta-methodology' (Hult 2017) to investigate the circulation of discourses about animals and nature, which enables certain actions and identities in relation to animals, and contributes to the ecosociogenesis of more enduring social practices with and around particular species like sea turtles. As a meta-methodology, nexus analysis offers an approach that locates social issues and discourses in relation to the actions that actually produce them, directing researchers to trace the three flows discussed earlier as they become relevant in making these actions possible. The aim is not to categorize or code data in this way but to offer a principled yet flexible approach to guide data collection and analysis and which remains sensitive to the multi-scalar 'layered simultaneity' (Blommaert 2005) of concrete moments of social action.

## ETHNOGRAPHIC BACKGROUND AND DATA ANALYSIS

My research at Laniākea Beach on the north shore of O'ahu in Hawai'i extended over a two-year period from January 2016–January 2018. My participant observations primarily involved being an active volunteer with *Mālama na Honu*, meaning 'care for the sea turtles' in Hawaiian, which is the volunteer-based sea turtle conservation group that maintains a daily presence at the beach, and whose protective efforts are supported by the National Oceanic and Atmospheric Administration (NOAA). I also observed and collected data at the site for many hours in a non-volunteer capacity. I volunteered with this organization for over 100 hours, participating in three hour shifts three to four times per month over this period. Data collected at the field site included over 50 hours of audio recorded interviews with a range of actors, including not only volunteers and tourists but also sea turtle scientists, conservation officials, and other stakeholders at the site such as surfers, fishers, lifeguards, and local community members. I also collected over 30 hours of video-recorded face-to-face interactions among '*honu* guardians' (sea turtle protectors)—primarily white, American, English-speaking adults—and international 'turtle tourists' coming from a variety of sociocultural and linguistic backgrounds. Over the course of my fieldwork, I collected documents associated with sea turtle protection and ecotourism activities, as well as hundreds of photographs of the site as well. In the sections further, I move through each of the intersecting

discourses of a nexus analysis—discourses in place, the interaction order and the historical body—examining how these three discourses cycle through moments of human–sea turtle encounters at Laniākea Beach. I argue that this dynamic approach helps bring empirical focus to how dominant discourses about wildlife actually come to have an effect on people's situated encounters with a diverse range of species.

## DISCOURSES IN PLACE

When sea turtles crawl onto the sand to rest on the beach throughout the day, *honu* guardians place red ropes, warning banners and regulation signs around these creatures, as well as hand out educational brochures to tourists. Honu guardians wear special uniforms and official laminated badges as they stand watch over sea turtles, ensuring tourists maintain a respectful minimum distance. Through these protective and educational actions, volunteers strive to encourage tourists to 'view *Honu* with Aloha'. Figures 2–4 serve to illustrate some of the elements that compose the *discourse in place* of sea turtle protection that enables and legitimates these actions at Laniākea Beach. The notion of discourse in place draws attention to how all environmental actions occur at a

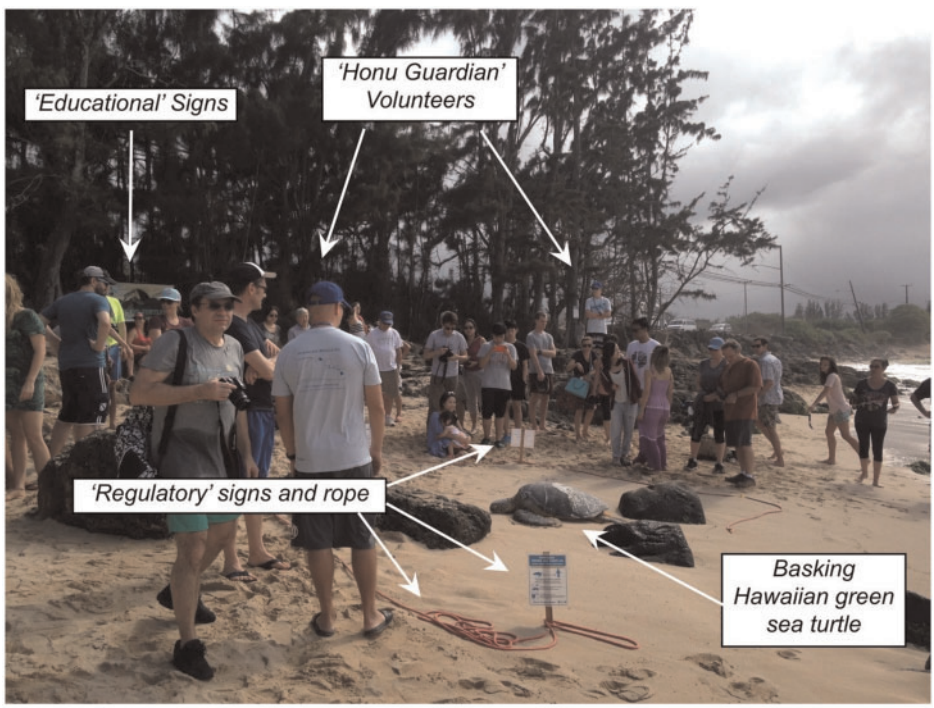


*Figure 2: A daily scene at Laniākea Beach*

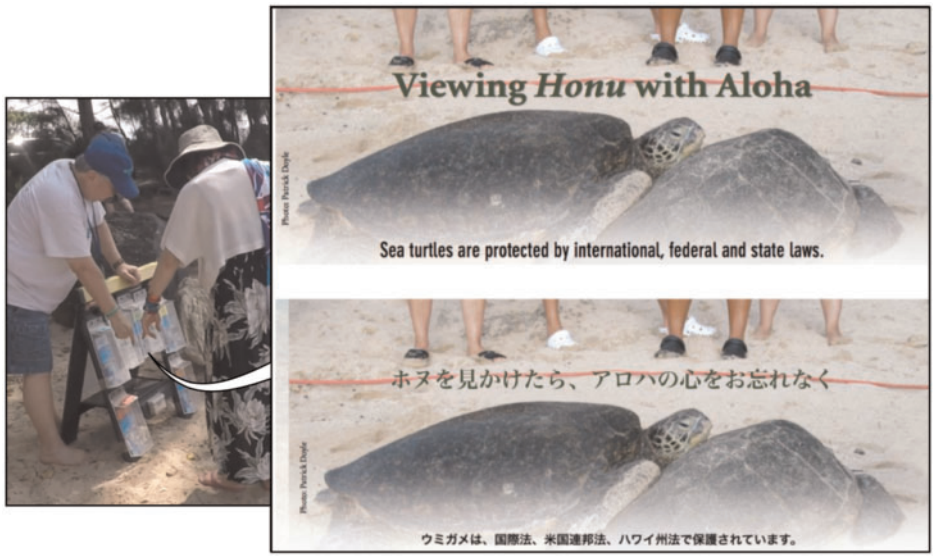


*Figure 3: 'Viewing honu with Aloha' brochures available in both English and Japanese at Laniākea Beach. 'Aloha' is a Hawaiian word that refers to respect, affection, or compassion*

specific place in the material world and how the discourses that routinely aggregate there make it easier or harder for social actors to take certain actions and to enact certain identities with others in relation to wildlife.

Figures 2–4 illustrate the various objects that enable honu guardians to assemble a nexus of practice of sea turtle protection at Laniākea Beach. Here, the discourse of sea turtle protection materialized in these artifacts enable volunteers' to consistently choreograph certain kinds of encounters that are both enabled *and* prevented from happening here, such as tourists touching, feeding, riding, crowding, and otherwise 'harassing' sea turtles. The notion of discourse in place directs researchers to ethnographically trace how actions to protect sea turtles here become linked through mediational means to a wider 'geography of discursive infrastructure' (Scollon 2013). This geography of discourse in turn affords the actions of volunteers to assemble a distinct human–sea turtle nexus of practice that protects sea turtles and that enlists a network of threatened species laws that are often expressed through Hawaiian language resources and ecocultural values (e.g. view *honu* with *aloha*, and *Mālama na honu*) to legitimate their wildlife protection goals (cf. Goldberg-Hiller and Silva 2011). For example, we can trace back the trajectory of actions: a volunteer emplaces a multilingual regulation sign next to a sleeping sea turtle, which was designed in conversations between the volunteer organization and sea turtle management officials at NOAA. These conversations were preconditioned by a


*Figure 4: Sea turtle regulation sign placed at Laniākea Beach with English-Japanese translation. The visual and linguistic semiotics of this sign are reproduced in varying forms on multiple signs and banners emplaced at the beach*

legal mandate for NOAA to protect green sea turtles as codified in the Endangered Species Act (ESA). Tracing the remediation of this discourse across a chain of sites and events reveals not only how it becomes available as a discursive tool at the beach but when enlisted in action, links the social actor using it as a mediational means to this vaster network of wildlife conservation history and activity. By linking their actions to this wider geography of discursive infrastructure, volunteers not only ratify this discourse geography of sea turtle protection but are empowered and legitimated by it as well.

The concept of assemblage further challenges accounts of human interactions with wildlife as determined by a singular, dominant geography of discourse, such as 'turtles need protection from people'. In the context of Laniākea

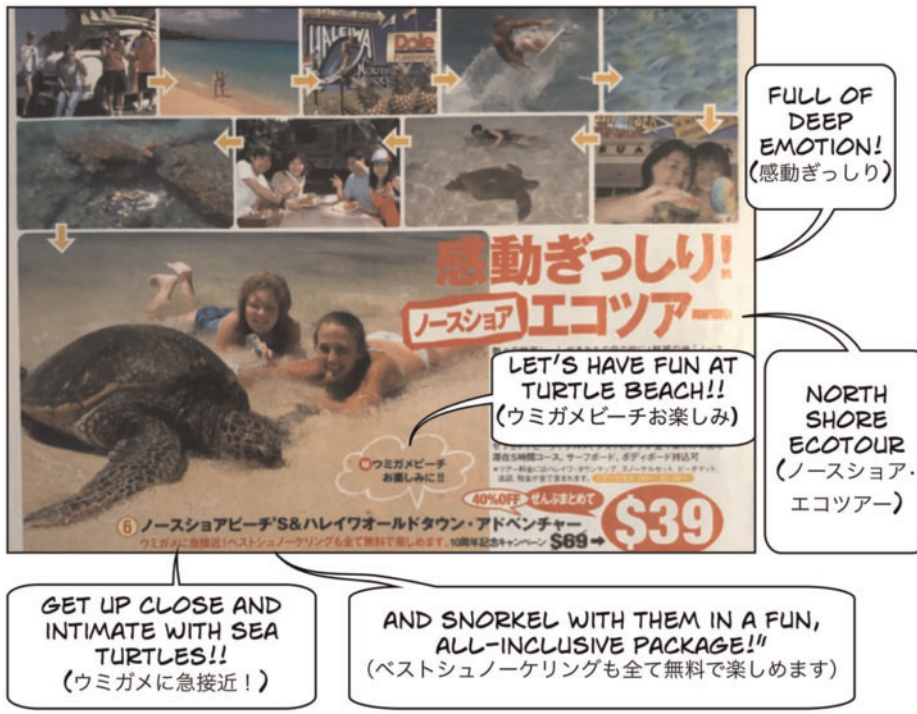


*Figure 5: Advertisement for a 'turtle tour' in a print magazine designed for Japanese tourists visiting Hawai'i*

Beach, this directs attention to how multiple geographies of discursive infrastructure intersect, mix, and conflict in the same place to groove action among people and sea turtles. For example, the presence of a discourse of sea turtle protection at this beach only emerged in relation to another geography of discourse overlapping this same place: sea turtle ecotourism. (Figures 5 and 6)

Figures 5 and 6 come from offline and online English and Japanese language tourism materials promoting Laniākea beach as a spectacular sea turtle ecotourism destination (Lamb in press). This discourse aggregates at Laniākea Beach in tourists' embodied performances with sea turtles, such as taking digital sea turtle selfies and swimming and snorkeling with them. This discursive infrastructure of sea turtle ecotourism channels thousands of tourists to Laniākea Beach every day, assembling tourists' imaginations and expectations of up close encounters with sea turtles well before ever arriving at the beach itself. Tourists arriving at 'Turtle Beach' have typically only encountered this spectacularizing discourse of the sea turtles and are often surprised to encounter an alternative discourse of sea turtle protection that challenges their entitlement to touch sea turtles.

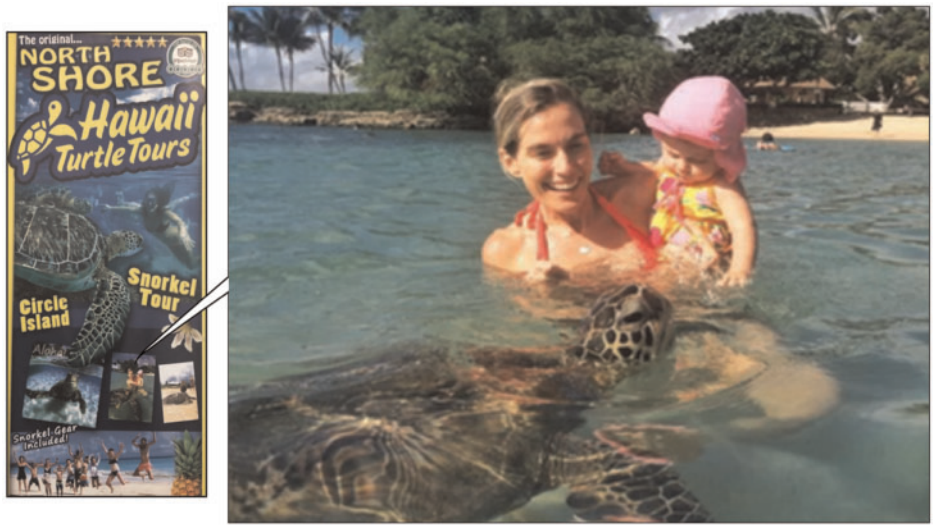


*Figure 6: Advertisement of an English language brochure for 'turtle tours' to Laniākea beach*

When the two discourse geographies of sea turtle protection and tourism converge at this beach, they assemble a syncretic nexus of practice of human–sea turtle interaction. This highlights how the human–sea turtle interactions that emerge at this beach are not the linear and predictable outcome of a single discourse structure or system. Rather these interactions emerge at the nexus of multiple geographies of discourse that only come to exert their structural effects within the dynamic, real-time sites of engagement of human–sea turtle encounters at the beach. Understanding how these two sets of discourses operate in the nexus is important for both conservation efforts and applied linguists to unpack the kinds of human relationships taking shape with protected species in particular places as an assembly of multiple and often conflicting geographies of discourse enlisted to shape human relationships with animals and nature.

## THE INTERACTION ORDER

The *interaction order* foregrounds the situated, real-time encounters between honu guardians, tourists, and sea turtles where distinct actions and identities are continuously enacted, negotiated, ratified, and contested. Nexus analysis takes up the investigation of the interaction order by examining how it unfolds at a site of engagement. In other words, a focus on the interaction order brings focus to the interactional labor involved in assembling a discourse of sea turtle protection from a dynamic ensemble of bodies, materials, and semiotic practices that are consistently drawn together to enable volunteers to take certain actions

and enact certain identities with tourists at the beach. A close examination of the interaction order can thus identify transformative possibilities that emerge in this interactive process as volunteers creatively attune a discourse of sea turtle protection to remain persuasive and authoritative in the interactional contingencies of interaction with tourists by adding or subtracting new semiotic and material elements into the mix (Callon 1999).

For example, an important goal of sea turtle outreach training is to preempt the aggressive tactics of new honu guardians who often see their role less as outreach educators and more as 'turtle police'. In this effort, this training provides guidance not only on what to say to transgressive tourists ('a respectful viewing distance is ten feet') but also how to say it ('never yelling and always with Aloha'). In actual moments of doing outreach, volunteers are confronted with an array of ever-shifting interactional contingencies involving various 'transgressive' tourist–sea turtle encounters. To successfully navigate these situational contingencies, volunteers enlist an official discourse of sea turtle protection, but they also assemble an idiosyncratic array of discursive and embodied resources in their efforts to protect sea turtles. In excerpt 1 below, for example, a honu guardian enacts a discourse of sea turtle protection with several tourists touching sea turtles in the nearshore waters at Laniākea Beach:[1]

EXCERPT 1: 'THEY HAVE DISEASES'

HG: Honu Guardian, T1: Tourist standing at shoreline,T2: Tourist with hat in water touching sea turtles

{talk} indicates moment of screen capture

| | | | |
|---|---|---|---|
| 1 | HG: | TEN FEET, TEN FEET, TEN FEET, TEN FEET, {TEN FEET,} | moment 1 |
| 2 | | \|NO {NO} NO NO NO (.) no no (.) no no no (.) | moment 2 |
| 3 | | \|((crosses arms in 'X' gesture)) | |
| 4 | | (1.0) \|Sorry | |
| 5 | | \|((makes more subtle 'x' gesture again)) | |
| 6 | T2: | \|No touch? | |
| 7 | | \|((directs gaze to HG while exiting water)) | |
| 8 | | (2.0) | |
| 9 | T1: | \|{No touch?} | moment 3 |
| 10 | | \|((directs gaze to HG, waves open right hand back and forth)) | |
| 11 | HG: | No touch (2.0) Sorry (4.0) besides you can get sick | |
| 12 | | (1.5) <you can get sick from touching them (.5) | |
| 13 | | they have {disea::ses}> | moment 4 |
| 14 | T2: | Oh::: okay ((spoken out of frame)) | |


In this brief excerpt, HG enacts a discourse of sea turtle protection to invoke the rights and responsibilities associated with his identity as a honu guardian, as well as attribute a transgressive or 'disrespectful' identity to the tourists touching sea turtles in order to carry out his overall communicative goal of encouraging 'respectful' human–sea turtle interactions. As an experienced volunteer, HG successfully not only deploys this discourse but also adds new elements I had not seen other volunteers use before, notably a cross-armed 'x' gesture (moment 2), and the idea that 'you can get sick from touching' sea turtles (moment 4). Neither of these embodied and discursive resources were officially taught to honu guardians, but I later learned that the cross-armed 'x gesture' circulated by word-of-mouth among honu guardians as an effective means to enact a discourse of sea turtle protection with tourists they attribute with an 'Asian' raciolinguistic identity. As one honu guardian described to me and another volunteer, 'Someone told me do this (does x gesture) if you really want 'em [''Asian tourists''] to stop! That's universical [*sic*] (does x gesture again), STOP!, and I have used that a few times and it has worked!' These interactions indicate how honu guardians assemble a discourse of protection through the official discursive pathways they were instructed to use in their training. But they also continually add

new discursive and material resources to a discourse of sea turtle protection to reattune its rhetorical effectiveness to the dynamic contingencies of ever new interactions, transforming it in the process (Latour 2005; Scollon 2008). These contingencies include a shifting matrix of participation frameworks, semiotic-material resources, perceived raciolinguistic differences (Alim 2016) tied to divergent ecocultural norms and attitudes, and the movements of sea turtles themselves as they crawl up on the beach at unpredictable intervals. Such examples of how the guardians interact with tourists and endeavour to promote a discourse of sea turtle protection by reattuning and transforming it across encounters can inform similar educational outreach projects seeking to improve human–wildlife interactions in ecotourism contexts (e.g. Ham and Weiler 2002).

## THE HISTORICAL BODY

Finally, the notion of the historical body (Nishida 1959) draws inspiration from Bourdieu's notion of *habitus* (1977), but whereas habitus tends to focus attention on structured bodily dispositions as engines of social *reproduction*, a nexus analysis emphasizes the body as a dynamic material-somatic zone of social *transformation* (Scollon and Scollon 2005). In this case, this idea directs attention to how a particular practice associated with sea turtle protection enters into the historical body of a volunteer through the various actions they routinely take to protect sea turtles at the beach. As these recurring actions of sea turtle protection take root in a volunteer's historical body as a distinct set of practices, they do not remain stable and unchanging units but continually 'rub up against' (Jones 2008: 248) a network of other commensurate and incommensurate practices associated with an individual's unique history of embodied life experiences with animals, discourses, objects, people, and places. From this perspective, an individual's historical body is a rhizomatic 'compost heap' of old and new practices, where 'the detritus of old practices becomes humus for new' (S. Scollon 2003: 187). We can empirically examine the embodied nexus of practices that composes the historical body of a volunteer by investigating concrete moments of action when they externalize their historical body as spoken discourse.

One crucial place to investigate such moments is in honu guardians' retrospective tellings about their experiences with using a discourse of sea turtle protection with tourists. For example, the excerpt below provides one example of how the historical body becomes an important discursive tool for honu guardians to reflect on and make sense of human–sea turtle relationships. In this case, it highlights how these tellings enable them to reflect on a particular practice they routinely enact at the beach, such as enlisting Japanese language resources to warn Japanese tourists to not touch sea turtles and how they make sense of this practice through its entanglement with a network of other practices submerged in their historical body. In this instance, a white,

female American volunteer recounts such an event when she failed to persuade a 'Japanese lady' to stop touching a sea turtle:

EXCERPT 2: 'YOU CAN TELL WHEN A JAPANESE PERSON SPEAKS ENGLISH'

Vol: Honu Guardian volunteer, Me: Gavin

14 Vol: like this was a day where I don't remember if it was just me or it was her,
15 but she kept trying to touch the turtle
16 and she kept trying to touch the turtle and I know the
17 Asian |culture is that it's |lucky to touch one but |goddammit
18 |((hands |clapping |together))
19 Um (1.0) you know like I tried in Japanese to tell her to knock it off (1.2)
20 like, I had already explained to her like that she can't touch it
21 it's against the law (.5) she's in the United States here
22 you need to respect our laws like I would respect mine
23 when I go to your country you need to respect ours,
24 like really nicely, she pretended not to speak English
25 but I knew she did, I knew she did.
26 Me: How?
27 Vol: You can tell
28 Me: Oh okay
29 Vol: You can tell when a Japanese person speaks English
30 Me: ((laughter))
31 Vol: Um (.) I'd given her a brochure, like I tried everything

There are two points about the historical body as a site of social transformation this excerpt serves to illustrate. First, as briefly mentioned earlier, retrospective tellings enable volunteers to reflect on how the various practices they enlist to protect sea turtles are embroiled within a network of multiple other discourses and practices submerged in their historical body. For example, in the excerpt earlier, the discourse–practice linkages this volunteer assembles to compose her past self in this confrontational encounter include use of spoken Japanese discourse to scold this tourist (line 19), stereotyped practices associated with 'Asian culture' (lines 17, 29), and legitimating legal discourses of sea turtle protection (lines 20–23). By creating these discourse-practice linkages through her telling, this enables her to externalize her historical body as a new piece of discourse in the here and now, allowing her to compose new selves in relation to sea turtles that she can marshal in subsequent interactions.

Furthermore, retrospective tellings only emerge in the here and now moments of situated interaction with a story recipient(s), in this case, with me in the role of a participant researcher. For example, in her telling to me, Vol enlists these discourse-practice linkages to portray her past self as an ethical person in contrast to this transgressive Japanese tourist. This highlights how the historical body is an important discursive tool for volunteers not only to make sense of their own past interactions with tourists and sea turtles but also to realign and transform how their interlocutors make sense of these interactions too.

Second, these retrospective tellings are not merely one-off interactional events but are also resemiotized across volunteer conversations, written down in shared 'honu journals' kept permanently at the beach, and discursively remediated as pedagogic devices in volunteer training sessions to demonstrate 'best practices' for confronting transgressive tourists. As with the example above where the volunteer tells me about learning to use the 'cross-armed' gesture, talk about these embodied and discursive resources packages them as a metadiscursive product, enabling volunteers to pass them along and do new things with them in interaction. Over time, this process 'technologizes' (Scollon 2001) a volunteer's historical body as a metadiscursive tool that becomes continually available for other volunteers to reflect on, revise, and transform in their subsequent interactions. As Jones (2016) argues, 'technologization is at the root of social change; it allows us to develop new technologies to deal with our ever-changing material and social circumstances' (72). From this perspective, the historical body of volunteers is composed from multiple moments of past, present, and potential action that link together various discourses and practices in their embodied experience. These linkages constitute the tools that enable volunteers to make sense of their past interactions with people and sea turtles, and they inform their future encounters.

## CONCLUSION

An important motivation for carrying out a nexus analysis of human–wildlife interaction is to examine how a seemingly simple moment of mediated action with wildlife, like placing a regulation sign next to a basking sea turtle, is embroiled within a dynamic nexus of practice that links a social actor to many other human and nonhuman actors, materials, discourses, events, and places, both immediate and far flung in time and space. From this perspective, all moments of human action in relation to animals emerge from a nexus of three pathways of discourse through the embodied and material world: discourses in place (the geography of discursive infrastructure that aggregates in a particular place to empower and legitimate certain actions), the interaction order (the real-time, processual and interactive work involved in actually assembling the actions that constitute human–animal encounters), and the historical body (the histories of lived experiences with animals that become sedimented in the body, and that manifest in embodied and spoken discourse in concrete moments of action). In this way, nexus analysis offers 'a way of

seeing how those moments [of human-animal connection] are constituted out of past practices and how in turn they lead to new forms of action . . .' (Scollon and Scollon 2004: 29). I suggest that this approach provides applied linguists with a holistic but open-ended methodology to examine the diverse and often problematic relationships humans create with animals by guiding data collection and analysis of how these three discursive pathways are consistently drawn together to assemble a distinct nexus of practice of human–animal relationships.

A broader question this approach seeks to address is how discourses about animals and nature actually come to have an effect on our actions in relation to animals. This question stems in part from recent calls in ecolinguistics to develop a better understanding of the causal links between discourse and action that shape the environmental behaviours people engage in with animals and the natural world (Steffensen 2017). This is because we still have 'little understanding of how climate change discourses [as well as other environmental discourses] come to have an effect – what they mediate – in specific sites of engagement, and just what ordinary people 'do' when called upon to act by a campaign' (McIlvenny 2009: 308). With a better foundation in this link, this approach seeks not just to critique negative ecological discourses but to effectively circulate positive eco-discourses in relation to animals and nature (Stibbe 2015, 2017).

In endeavours to improve problematic human–animal relationships, nexus analysis encourages researchers to explore ways to intervene in these discourse-action linkages by 'changing the nexus of practice' (Scollon and Scollon 2004). For example, through engaging the nexus of practice of sea turtle protection that converged at Laniākea Beach through my research and subsequent sharing of findings with stakeholders, I help set in motion certain small institutional shifts in conservation practice by opening up new communicative pathways between honu guardians, NOAA's sea turtle management programme, my university, and the tourism industry in Hawai'i. By sharing my research observations and questions about the nexus of practice at Laniākea Beach, new trajectories of (inter)action across these various social actors began to take shape, such as collaborative efforts to improve positive sea turtle tourism messaging to a multilingual tourist audience in Hawai'i. At the same time, however, various stakeholders at Laniākea Beach, including prominent sea turtle scientists, Native Hawaiian cultural practitioners, local community members, and the founders of the volunteer organization itself expressed concerns in interviews with me that the well-meaning efforts of volunteers to protect sea turtles at this beach were not without problems. These concerns ranged from local community members' negative experiences with over-aggressive volunteers to views among some in the sea turtle research community that green sea turtles have successfully rebounded to the point that they no longer need such strict protection from non-lethal human contact. My point here is that it will be important for applied linguists to remain critical of well-intentioned projects to improve human–wildlife

assemblages, unpacking them as an assembly of multiple and often conflicting actors, practices, discourses, and environmental ambitions (e.g. Liu and Leung 2019).

Finally, the central importance of language as a mediating factor in human–animal assemblages suggests fruitful avenues of research for applied linguists seeking to intervene in and make an impact (Lawson and Sayers 2016) on academic, public, and policy discussions increasingly engaging with the Anthropocene as a keyword for debate (Castree 2014). As dominant narratives of the Anthropocene increasingly frame the complex environmental crises enveloping the world from a global view, this not only tends to obscure the local contingencies through which diverse human relationships with animals and nature are actually enacted but also further 'removes [environmental] problems from the realm of immediacy where meaningful action is possible and most likely to be effective' (Litfin 1997: 38). The development of a 'green applied linguistics' might find critical footing in these debates by bringing focus to the sociocultural, embodied, and discursive specificities that produce diverse human entanglements with a range of threatened species and places around the world.

## NOTES

1 Transcription conventions are as follows:

| | |
|---|---|
| (1.0) | One second pause |
| . | Falling intonation |
| ? | Rising intonation |
| , | Continuing intonation |
| \| | Punctuation of nonverbal resource |
| ((gesture)) | Transcriber's description of verbal/nonverbal resource |
| (.) | Micropause |
| {talk} | Moment of screen capture |
| = | Latched talk |
| Talk | Emphasis. |
| TALK | Loud/yelling |

*Conflict of interest statement*. None declared.

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## NOTES ON CONTRIBUTOR

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