# Moving Beyond Parachute Science in the Sea Turtle Community

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Remember when you first became aware of sea turtles? Beyond the thrill of stalking a strange reptile on a moonlit night was the lure of remote beaches in faraway lands. For some of us, it was the Andaman Islands, Baja California Sur, Playa Grande, Chacocente, Oaxaca, or the Gulf of California. For others, it may have been Aldabra, Seychelles, Gabon, Ascension Island, Sabah, Solomon Islands, Terengganu, Hawaii, or Cyprus. Such places roll off the tongue of any self-respecting sea turtle biologist. The magnificent marine vertebrates that traversed the world's oceans demanded the same of us. We called them voyagers, ambassadors, and flagships. And we thought of ourselves in the same way. It was a badge of honor to follow the turtles to distant lands. And we did so—with determination, passion, and pride.

But did we stop to consider that our "field" was another person's home? That we might be trespassing in some way? That we should take time to listen and learn from the locals before rushing to deploy our scientific research tools in their area? That our quest for knowledge and discovery might be just another form of pillaging, not unlike looting the silver of the natives, as colonizers of all hues had done for centuries? That our professional development and success, defined through Western-centric criteria, owed much to that very pillaging? Or that our research had the power to shape policy and alter peoples' lives, perhaps contrary to their desires? Or that those living in "the field" must live with the effects (foreseen or not, positive or not) of our inquiries—without having a say in those effects after we were long gone?

This phenomenon is referred to colloquially as "parachute science" or "helicopter research," is described in scholarly circles as "neo-colonial" research or science, is humorously called "safari study," and with brutal honesty is named "parasitic research." Broadly, it is when researchers "drop in" to marginalized locations to conduct research, travel back home to analyze data and samples, and then publish results with little or no involvement of local researchers or community members. Although this approach is largely associated with researchers from wealthier countries traveling to low- and middle-income countries, parachute science can happen within countries. Regardless of scale, parachute science occurs when researchers perpetuate power imbalances on historically marginalized people, such as indigenous or Afro-descendant residents, rural dwellers, or communities with lower socioeconomic status.

If this description sounds familiar and made you cringe, you are not alone. It's not a stretch to say that the roots of our discipline—and many of our very careers—are steeped in parachute science. Without justifying it, we must nevertheless acknowledge that scientific progress in natural history, ecology, and evolution were enabled by the knowledge extraction that accompanied other colonial expansionist endeavors. The pioneering expeditions and enormous collections of rocks, plants, and animals that came from the likes of Linnaeus, Cuvier, Darwin, and (Alfred Russel) Wallace enabled the discovery of biogeography and evolution. Throughout the nineteenth century, phyto- and zoogeographers, also geologists, and anthropologists traveled to the far reaches of the world to study nature. We stand on the shoulders of those giants. We may denounce some of them as being racist or ethnocentric and decry their worldviews—an easier task with the distance of time. But the more important question is, Are we able to recognize the remnants of that racism, classism, or cultural bias in ourselves and our current conservation practices? Might we all be parachute scientists to some degree?

Sea turtle biology and conservation are not exempt from this complicated history. Conservation and research programs worldwide have often been designed on the basis of the priorities, values, and sensibilities of organizations and funders in wealthy countries, or from bureaucracies and urban centers,

Parachute science is when researchers "drop in" to marginalized locations to conduct research, travel back home to analyze data and samples, and then publish results with little or no involvement of local researchers or community members. © Brian J. Hutchinson

with little or no involvement from the communities that actually live near and interact with sea turtles day to day. Some efforts may be made to promote participation of local stakeholders, but those attempts all too often fall short of meaningful, culturally appropriate engagement and may be instrumental, condescending, and even manipulative. In many cases the implications of parachute science are not limited to the scientific sphere. Such efforts may result in policies that, well intentioned as they may be, can have disastrous effects on the communities in which they are implemented by failing to adequately incorporate the perspectives and practices of local communities and stakeholders. Such outcomes are detrimental to both people and sea turtles.

Over time, international sea turtle conservation history has been filled with cases that range from reckless parachute science to respectfully integrated science and conservation. Collectively, we have many experiences—good, bad, and ugly—from which to learn or to be inspired. We have the responsibility to learn from these experiences, improve our practices, and foster equitable and mutually beneficial outcomes. But we still have a lot of work to do, much of which begins with listening to and learning from people who live where we work. This approach means (a) respectfully acknowledging each community's distinctive rules, values, and ethics in relation to sea turtles and having the humility not to work as "authoritarian biologists"; (b) creating access to relevant knowledge—scientific or otherwise—toward local capacity building and ensuring that knowledge sharing is a two-way street; and (c) establishing community self-determination as a guiding principle of conservation science and practice.

We welcome the initiative of the SWOT program to create a space in which to have this conversation and look forward to continuing it into the future. A list of further reading on this topic is appended to the online version of this article, which can be viewed at www.seaturtlestatus.org/articles. •