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Dragon Blood Trees, (*Dracaena cinnabari)* in the Haghier Mountains, Island of Socotra, Yemen, © M. C. Tobias

Hotspots Exclusive Interview

Sarah Dumas with Dr. Michael Charles Tobias

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Dr. Michael Charles Tobias is the 2016 Martha Daniel Newell Visiting Scholar at GCSU (Georgia College & State University), and President of the Dancing Star Foundation (DSF), a global ecological non-profit.

In this final presentation, Dr. Tobias presented his feature documentary, *Hotspots*, which was filmed in parts of the US, Madagascar, Peru, Easter Island (Chile), Brazil and New Zealand. Hosted by renowned scientist Dr. Russell Mittermeier, this film reveals newly discovered species in real-time and dissects conservation strategies inherent to the hotspots methodology.

An expeditionary film, what many audiences and critics have responded to particularly in this feature is that it is not just another wildlife production, but a true conservation biology feature film. It provides a rare window on the working of wildlife conservation in the field in some of the most biologically rich and threatened areas of the planet. An uplifting and penetrating look at what it is going to take to protect future life on Earth. Following the screening, Tobias discussed the making of the film and took questions.

Below is an exclusive interview with Dr. Michael Charles Tobias:

Victoria Crowned Pigeon (*Goura victoria*), New Guinea © M. C. Tobias

Her Campus: For audience clarification, will you please define the term *hotspot*.

Michael Tobias: To qualify as a terrestrial, biological hotspot, here is Conservation International's definition: "It must have at least 1,500 vascular plants as endemics — which is to say, it must have a high percentage of plant life found nowhere else on the planet. A hotspot, in other words, is irreplaceable. It must have 30% or less of its original natural vegetation. In other words, it must be threatened." There are also hotspots within hotspots, as well other methodological approaches. For example, over 11,000 Important Bird Areas recognized by BirdLife International, 200 critical Global Ecoregions identified by the World Wide Fund for Nature, and at least 595 priority sites described by the Alliance for Zero Extinction. These are each important perspectives and calls for action that index and catalogue our focusing upon, and prioritizing our efforts at protecting and restoring vulnerable regions of the planet. PETA (People for the Ethical Treatment of Animals) as well as the Humane Societies of the world, and hundreds of other animal protection foundations, have also given us outstanding and critically illuminating approaches to shutting down the perpetual torment of other species and individuals by societal indifference to habitat loss and suffering; and consumer ignorance with respect to fur bearing animals, animals exploited for food, entertainment, etc. The slaughter of those innocents – nearly 3 trillion vertebrates per year by humans – is an Auschwitz every minute, 24/7, which could easily be converted to a kindness that saves the world, every minute, 24/7.

Namibian cheetah, (*Acinonyx jubatus jubatus*) © M. C. Tobias

HC: What are the biggest key factors that lead to hotspots?

MT: These *factors* are known cumulatively as biological stressors. They include, most importantly, loss of habitat from any number of countless human forms of trespass and concomitant exploitation: burning of forests and understory, road building, uncurtailed development of all kinds (like the trans-Amazonian highway), mining and a myriad of resource extractions, poaching of plants and animals, replacing of vast tracts of precious wilderness with totally unsustainable agro-forestry or ruinous agriculture, climate change, the multinational patenting of animals and of seeds and pharmaceutical products, and finally, human poverty which forces whole nations, communities, and individuals to act out of desperation and destroy precious parcels of land, and life-forms for economic survival, however marginal and short-term those last ditch efforts may be. There seems to be a widespread belief among newer generations, but older ones as well, that individual actions do not make noteworthy changes.

Marieta van der Merwe and Friend, Harnas Wildlife Foundation, Namibia, © M. C. Tobias

HC: Can you please give our readers some examples of ways to contribute towards the preservation of this earth on an individual level.

MT: Jump-start your professional career by focusing upon philanthropy that is street smart and predicated upon practical solutions. I call it *pragmatic idealism*, and this is not merely a glib juxtaposition of words, but a grounded methodology for approaching solutions-based opportunities. Within the environmental world there are endless choices an individual can make every day, until these choices begin to add up to a profile, a personal CV, if you will; a coherent pathway towards ameliorating pain that an individual perceives among others.

This is the heart of empathy, and also happens to be at the core of ecological activism. It begins with a convergence of your personal kindness towards all others, by which I refer to the others of *all* species, and getting informed voraciously on topics that matter most to you, and then taking that personal collective of data, and the (hopefully) virtuous choices one continues to make, into the field. *Into the field* means, joining a team; working with others to solve problems vigorously, humbly, and selflessly, out there, out in the world, not confined to a computer indoors. It entails both animal rights, animal liberation and conservation biology. These have been the cornerstones of my life, and also of the Foundation that I run with my partner, best friend and wife, Jane Gray Morrison: Dancing Star.

New Zealand South Island Takahē (*Porphyrio hochstetteri*) © M. C. Tobias

The world is in pain and the issues are much bigger than any one of us, to be sure. Ecological illiteracy, the extinction of wilderness experiences, is a huge crisis for human civilization, especially for children in ever-growing urban megacities where those young people are bereft of natural encounters, what we call *nature deficit disorder*. But any one of us can wake up tomorrow and decide: *OK, this is the day, here I go. I'm doing it and I'm taking my kids with me. It starts now. I'm a new person, we're a new family, and we intend to contribute meaningfully to a new human nature, a new collective. I've never experienced this day before now, and I am going to insist on myself, as Thoreau reminded us, in order to help make a difference in this world.*

I know, quite literally, thousands of people who are doing just that in regions across the planet. I just spent part of a day with one such person here in Georgia, at what might be the most important biological preserve for plants, fungi and lichens in the whole Southeastern United States. A mini-hotspot within the South. This one man – a long-time biology professor in Douglas, Georgia, Frankie Snow – persuaded the Nature Conservancy many years ago to buy the land and preserve it in perpetuity. For thirty years he has been *married* to ensuring that this precious piece of turf, many thousands of acres with nearly 700 plant and fungi and lichen species thus far identified, as well as endangered animal species (like the Eastern Indigo Snake and Gopher Tortoise, not to mention some of the best longleaf pine and "whistling" wiregrass habitat), remain protected. That's the kind of decency, insight, experiential knowledge base, deep wisdom and inspiration that is the best of our species. Dr. Wayne Clough, 12th Secretary of the Smithsonian Institution, and also from Douglas, was kind enough to make the introduction for me. And we all have that in us. We just need to find that voice and turn theory into action; metaphysics into protection and sanctuary, as my wife Jane Gray Morrison and I have for many years described those crucial, time-sensitive transformations, epiphanies, effective and expeditious soul-searching, in various books and films of ours.

Male proboscis monkey (*Nasalis larvatus*), Borneo © M. C. Tobias

HC: If humans do not change their individual and collective behaviors to help mitigate the proliferation of hotspots, and continued depredation of other biomes that are verging upon hotspot status, how will the endangerment and extinction rate for different species be affected?

MT: We don't know habitat particulars, at least not with precision. We do know how many years certain critically endangered species have, at present trends, and given their known fertility rates and life-cycles. As a rule of thumb in endangered species work, we tend to think in terms of one-to-three species going extinct every one-to-ten million years, certainly during the past 550 million odd years. Today, we could be losing hundreds of species, and approximately 44,000 populations of organisms every single day. Such daunting statistics should loom large in our minds and hearts; they are the biggest headline in the history of our species, of any species, since the Cretaceous–Paleogene (KT Extinction Event) approximately 65 million years ago.

Wrangell-St. Elias National Park and Preserve, Alaska © M.C. Tobias

There are a known 35 terrestrial hotspots which comprise about 2.3% of the terrestrial planet. A multitude of scientists from many disciplines are working assiduously to determine the number of hotspots in the marine environments. There have been many approximations at what it would cost annually to save the hotspots. The number, in relation to military spending is not that mind-boggling, roughly $300 billion per year. For starters, to put this number in context, our military budgets are much larger, while 9 nations maintain the insanely ridiculous arsenals of nearly 16,000 nuclear warheads. We spend something like $18 billion a year on Halloween costumes and firecrackers. We drop vast fortunes for cigarettes, and for food that is killing us in the form of animal secondary impacts – and, of course, killing all those animals and their habitat.

The other enormous dilemma, or gap in human logic, is that the majority of all philanthropy is not conservation driven, in fact fewer than 2% of it is. That's utterly misguided thinking. We are turning ourselves emotionally and psychologically into victims simply because we refuse to concede that all other Beings are sentient and sapient and have an equal place, an equal say about life on earth. We are talking about the future of biodiversity, of evolution, of our own children and grandchildren. But also, about hundreds of trillions of other individuals. We can certainly count the *dead-zones* throughout the oceans, but we are mostly worried about the fact that so far less than 4% of the oceans have any form of protection – and very few *No Kill Zones*; whereas nearly 13% of the terrestrial earth is protected, and that percentage appears to be growing with more and more wildlife reserves, parks, protected corridors, and trans-boundary conservation between nations (like the U.S. and Canada). But with, at the very least, 8-to-12 million species out there, not counting microbial and viral species, and a vast unknown quantum of undiscovered invertebrates whose numbers can be extrapolated from places like the Tropical Andes, or Yasuní National Park in northwestern Ecuador, it is clear that the stakes are enormous: the future of genetic evolution on earth, as I've pointed out.

We are at a tipping point, biologically speaking. The whole house of ecological cards – in the manner of a eutrophic pond that can quite literally suffocate overnight, killing most of its inhabitants – could come falling down. Some have labeled this, *collapse*. Others *the death of nature*, or the *Sixth Extinction Spasm* and *The Annihilation of Nature* – the title of a recently published "must read" by Gerardo Ceballos, Anne H. Ehrlich, and Paul R. Ehrlich. I have long referred to this colossal No Exit, as World War III – the war our species is waging against the earth. The biological bottom-line: this is the make-or-break generation. *Breakthrough or Breakdown*, as the systems philosopher and founder of the Club of Budapest, Ervin László, has called it. At present trends of human industrialization, continuing rapid population expanse (83.2 million new consumers added to the planet every year, over 228,000 people per day, at current TFRs, or Total Fertility Rates), over- development and exploitation of nature, we are more than likely to see at least 50% of all vertebrate life, and a vast proportion of angiosperms (flowering) plants, as well as Bryophytes and Thallophyta (Prostisa) go extinct in our lifetime. That means more emergent hotspots.

Milford Sound, Fiordland National Park, New Zealand © M.C. Tobias

HC: We live in a world where, sadly, if something does not directly affect a person, that something is deemed *unimportant*. Will you please explain how individuals will be directly affected by the continuing growth of hotspots?

MT: Nearly every existing hotspot is within ten kilometers of economically marginalized communities, where the lack of fresh drinking water, sanitation, electricity and medical care, along with a rash of other woes -micronutrient deficiencies, chronic malnutrition, civil wars, some being fought, not surprisingly, over water (probably at the heart of the Syrian civil war), and frequently high fertility rates and lack of women's and child empowerment; all this has worked against the remedies desperately needed to turn people away from destructive behavior which is, ultimately, self-destructive.

Ecological economics tells us the whole story: someone who is hungry is not likely to be motivated to save a rare orchid, or skink, or even a desperately endangered Mountain Gorilla. Moreover, many of the hotspots contain crisis points, unstable governments, and struggles for survival by people who constitute political constituencies, and whose lives could be so easily improved if the hotspots were ratcheted down in terms of their dire vulnerability. There is empirical data supporting triumphant reciprocity when governance is transparent and inspired to set out to alleviate suffering and create large national parks and nature reserves that incorporate the private sector, indigenous peoples, and the market place. And there are undoubtedly a poignant combination of canny partnerships when the largesse I believe we all have in our hearts, is targeted at the humility necessary to revivify a living planet in terms of *her* needs, not merely ours; remarkable ways to tap into biomimicry that could utterly transform human medical cures, and every point on the compasses of STEM (science, technology, engineering and mathematics), as applied towards sustainability and ecological ethics.

The Ahu Tongariki Moai, facing away from the Pacific, Easter Island (Rapa Nui), Chile © M. C. Tobias

Easter Island (Rapa Nui), a part of Chile since 1888, is a classic case in point. Medieval Rapa Nui residents chopped down every last tree on the island, dooming its human population to virtual extinction. Today, the more than 3,000 local residents of Rapa Nui are working hard to restore their finite ecosystems. This story is told in our film *Hotspots*. It is a worst-case scenario, but one that is being turned around to restore a virtually barren landscape that was once home to an abundance of biodiversity.

The Tambopata River, Southeastern Peru © M. C. Tobias

Countless other positive transformations are occurring in nearly every nation, from Suriname to Bhutan; from Madagascar to parts of Italy (Abruzzo and Tuscany); from New Zealand (with severe caveats) to France (Burgundy, particularly), from the Danube Delta and Denmark (again with caveats) to many areas of the United States. Indeed, we have increased the number of protected areas on the planet from a few dozen in the 19th century to well over 210,000 parks and nature preserves today. But the systemic engine of human self-indulgence, and the many problems that flow from it, persist, for now, and they are emblematic of the reality that is super-abundantly clear: we depend on natural capital for our survival. The air we breathe, the water we drink, the food we consume, the solace of a shade tree. Those, for the most part, are nature's gifts to us. While no one wants to monetize nature, given the dominance of economics within human societies, and the virtual universality of capitalism, it is clear that until we understand the true value of a living elephant or tree versus a dead one; of a glass of potable water versus polluted water (ask most people in Flint, or across parts of drought-ridden Africa, or Yemen, or just earlier this month for a few days here in Milledgeville, Georgia) we will continue to inflict on this world the self-destructive planet-wide misery and cruelty and suffering that is, sad to witness, at the root of the human hegemony, our expansive destructiveness. As John Muir said, "Any fool can destroy a tree. They cannot defend themselves or run away."

Hispaniolan Lizard Cuckoo, (*Coccyzus longirostris*), Southwestern Haiti © M. C. Tobias

HC: From your personal experiences, how have you been most impacted by your research regarding hotspots?

MT: It is a great privilege, but also a curse, to experience the company of Others: new species to science that may be down in number to no more than a few hundred individuals (you will see several such personages – parrots, other primates, invertebrates, etc. in *Hotspots*). I say "privilege" because those species' and individuals' brilliance, wedded to the marvels of evolution, adaptation and resiliency that has endowed each of them with genius and *a raison d'etre*, should be our mentors in every respect. We ignore that wisdom at our peril. But I say *curse* because I feel so sorry for them… each and every one of those whose lives are shadowed by ungainly human machinations; who are in pain. I am only too aware of that peril; of the suffering of others, of the fragility of Mother Earth. We know how to save (for the most part) endangered species. We understand what has to occur for policies to change; for the critical mass of societal opinions, biases, predispositions, consumer decisions and legislative action to be sanely re-aligned by way of fundamental orientations to biophilia, that instinctive bond between ourselves and all other species. The ancient Greek philosophers called it physiolatry, the love (and worship of) nature.

Takin (*Budorcas taxicolor whitei*), Bhutan © J. G. Morrison

I believe that the key to our survival as a species hinges upon our ability to love and celebrate nature. Evolution does not condemn nor liberate us. Only our choices and our feelings can do that. But I know only too well how dire the ecological tipping points are; and what we must do collectively to mend the world. These injunctions are challenges for every student of nature; incitements to a riot of kindness, non-violence, eco-restoration. Everyone has a critical role to play, and this has probably been the most telling lesson from my many years exploring and working to restore hotspots (and cold-spots, and many other so called *under the radar* regions and species at risk) throughout this miraculous planet we all are fortunate to co-habit. Reconciling conservation biology and animal liberation is crucial to this enterprise. Everyone has a role to play. I cannot emphasize that enough.

Poached skull of a Coimbra's titi monkey (*Callithrix coimbrai*), Sergipe State, Brazil © M. C. Tobias

HC: What initial inspirations led to this feature film, "Hotspots," the third such feature in your recent PBS trilogy?

MT: I am profoundly saddened by the rapidity with which our species is continuing to escalate the destruction of the biosphere. We are up against the wall. This generation has existentially condemned itself to what eco-psychologists term, the *double-bind* crisis: we seem to mete out violence at every turn and can't seem to find our way home again, caught out in the tumultuous distractions of greed, politics, human ego, competition and a narcissism of profoundly pernicious dimensions that will, if unabated, spell doom for the vast majority of our fellow creatures. We've all but undermined our moral compass.

It was the brilliant work of Dr. Russell Mittermeier whose book, **Hotspots Revisited** (2005), with the aid of his many colleagues at Conservation International, really catalyzed the making of this movie. The film in many ways also *summarizes* much of my own life's journey in terms of a humble love letter to the earth in her moments of dire need. At the same time, I must pay tribute to other influences that have quietly moved the narrative of so much of my work (ecological field work, research, philanthropy, writing, filmmaking and teaching). Such diverse creations as *The Story of…* and *The Voyages of Dr. Dolittle*; *Bambi*; *Alice in Wonderland*; the writings of Aristotle and Erasmus and Charles Darwin; Alfred Wallace; Paul and Ann Ehrlich; E. O. Wilson; *Don Quixote*; Samuel Beckett's *Waiting For Godot*; Joyce's *Ulysses*; Sannazaro's *Arcadia*; Percy Shelley's *Alastor, or, The Spirit of Solitude*; Vermeer's *View of Delft*; Rembrandt's numerous self-portraits; the journals of Thoreau; the early engravings of Albrecht Dürer; Picasso's *Guernica*; Beethoven's *Ninth*; *The Odyssey – A Modern Sequel*, by Nikos Kazantzakis. And most importantly, my wife, my life-long friend and closest companion, Jane Gray Morrison, an astonishing intellect, ecologist, writer and animal liberationist and philosopher (and formerly, an opera singer).

These most personal relationships have been critical to the wake-up calls that guide my instincts, convictions and behavior. And my sincere hopes for a future.

Chomolhari, 24,035', Northwestern Bhutan © M. C. Tobias

Learn more about the film "Hotspots" and find out how to obtain it at pbs.org. Find out more about the Dancing Star Foundation through the group's MAHB Node.