

Electronic Green Journal

EGJ
Issue 26
Spring 2008
ISSN 1076-7975

Searching for the Astronomical Environmental Nature Writing Classic: Ehrlich, Abbey, and Others

Ryder W. Miller
San Francisco, CA, USA

With so much astronomy in the news, taking attention away from the wars on the planet, what should environmentalists think about the vast cosmos out there? Will the Moon, Mars, Venus, and the rest of the solar system, always remain an untrammelled wilderness? Should environmentalists, nature writers or eco-critics care or be involved? A surprising amount on this subject has already been written by those who for the purpose of this article wrote the Environmental Canon. Space exploration is about the future and we should care about the future. What we are willing to do to the solar system says a lot about humanity and our aspirations as environmentalists.

Those who wrote the Environmental Canon appreciated their experiences under the night sky and are likely to have wanted those "not always so far off places" to be protected also. These alien places, if possible to reach, would have interested the nature-seeking explorer. We now know that it is very difficult to reach the other celestial bodies in the solar system, and will be so for a long while. This was actually one of the big disappointments of the 20th century, but we also know that these celestial bodies are likely protected from some of the destructive forces on earth that environmentalists battle because they are so hard to reach. The frontier story of space exploration, with its rugged individualism, can also be replaced by a vision of space exploration as a united international effort to explore our distant surroundings and search for life. Though it is hard to know with absolute certainty, the explorers and preservationists who wrote the Environmental Canon would probably have appreciated the opportunity of seeing the solar system firsthand before it was altered, just as they were bothered by the loss and alteration of wilderness on Earth. The preservationists of the past would have probably been astropreservationists, arguing against mass alterations before a place could have been visited. They are likely to have found the alien landscapes of the solar system and the search for extraterrestrial life intriguing.

There are many places to look for the thinking of environmentalists on the subject of the astronomical. There are the works of astronomers and astronomy writers with a number of famous books, and many magazines (some of which are produced by nonprofit societies). Some of the astronomers are apprised of the environmental arguments and concerns. There are also the many, many thought pieces taking the form of science fiction stories and novels. There have been collections of science fiction stories with environmental themes like *Eco-Fiction*, *The Wounded Planet* and *The Ruins of Earth*. There are also the works of the space exploration critics which include Karl Grossman (author of *The Wrong Stuff*), Gar Smith (former editor of *The Earth Island Journal*), Eugene Hargrove (editor of *Beyond Spaceship Earth*) Michio Kaku, Barry DiGregorio, Bruce Gagnon, and me. I have written about these protests calling them astroenvironmentalism which some may feel is before its time, but it also has earthly concerns of water and air pollution. We fellows are actively involved protesting the use of plutonium for space missions. We

consider space exploration, which can cause pollution on earth, punch holes into the ozone layer, and encroaches upon the cosmological wilderness, an environmental issue. Also at stake is the future of warfare with nuclear power providing the energy for a potential new form of combat in and from space. America is not the only country to worry about, and if you think there is nothing to worry about you may want to see the movie "Space Cowboys" with its revival of the space exploration spirit of the past. William E. Burrows in *This New Ocean: the Story of the First Space Age* writes that space is likely to become the battleground of the future. With cooperative international action, the "frontier" of space could also be an international rallying cry to protect mankind from some future solar system invading adversary or from some potential approaching planet damaging meteor, or comet. One can still see the scars of asteroids hitting the moon, but the earth has its scars as well.

Space exploration is about humanity's future and there have been many nature writers who are concerned or have been at least curious. There are all sorts of references to the cosmological, and appreciation of the heavens, in the Environmental Canon which partially includes such authors as Emerson, Thoreau, Muir, Leopold, Carson, Abbey, Ehrlich, and McKibben.

Astronomy has taught some important environmental and humanitarian lessons. Astronomy and pictures from space remind us of how unique and special the planet Earth is, and how fortunate we are to be here. The rest of the solar system is inhospitable for human beings. There are no civilizations nearby, despite the fantastical writings about Mars and Venus. These planets were metaphors for science fiction fantasy writers who would like to write about war on Mars or love on Venus. Emerson in *Nature* wrote: "...the whole of nature is a metaphor of the human mind." We dreamed that we would find life or civilizations there and fantastical writers were not willing to give up those dreams so easily. We now know that Mars and Venus cannot be home to the advanced multi-cellular life-forms that could create a civilization. They may be home to nonterran microscopic life, which could teach us something new about evolution, but we will have to go there to find the answers to our questions. Maybe multi-cellular life on another planet evolved due to cooperation rather than competition? Biology watcher Lewis Thomas, who comments about astronomy and astronauts, in *The Lives of a Cell* (1974) argues "There is a tendency for living things to join up, establish linkages, live inside each other, return to earlier arrangements, get along, whenever possible. This is the way of the world." (p. 147). Maybe competition or survival of the fittest is not the explanation for the diversity of life we would encounter on another planet? The acknowledgement of such a discovery could alter human society as a whole for the better.

Astronomy also reminds us that we are all from the same place. We are of the same family of life. Astronauts often comment about looking down at the Earth relaying that there are no borders that can be seen from space. Besides maybe the Great Wall of China, none can be seen in the famous photographs from space either. Astronomy reminds us that we are all earthlings, and humans form the only technological civilization in the solar system. The reason why there is so much writing by science writers about astronomy is the acknowledgement that we are all of the same kind, which could result in less warfare and more cooperation. The lessons of astronomy are part of the utopian dreaming of the Space Age. Astronomy also teaches that we should cherish the other life that we find on the globe. It may be the only other life, besides ourselves, that we find in the solar system.

But many consider astronomy too expensive. There are also all sorts who would argue that there are more important things to find out than if we can send people to the Moon or Mars. There are all sorts of life to be discovered here on Earth, all sorts of questions to be answered, and many humanitarian concerns in need of further funding. But astronomers are compelled to find answers about how the Earth fits into the big picture out there. Space probes also help us fathom our nearby neighborhood of the universe.

Space is vast and unknown. We are reminded of the visions of Star Trek and Star Wars with their many aliens and planets, but we are nowhere near achieving the dream of space exploration. Travelling at light speed may never be possible for humans. We are not even capable, though some would argue we are, of going to other planets in the solar system. Engineer and President of the Mars Society, Robert Zubrin in *The Case for Mars: The Plan to Settle the Red Planet and Why We Must* (with Richard Wagner), argues

that we can now go to Mars more easily than we could go to the moon two generations ago, but NASA does not have the funding and they think the endeavor is presently too risky for humans. There are radiation and rocks in space which could damage a space ship and kill its crew. For the time being, and maybe forever, we are confronted with the vastness of space and we are not capable of human exploration.

Science fiction writers have also imagined a terraformed, or planetarily-altered, Mars and Venus where an atmosphere is created to make it suitable for human habitation. Mars without greenhouse gases is presently usually too cold and Venus with a runaway greenhouse effect is too hot for human settlement. We could infest the planets with microscopic life that could withstand the harsh climate, and over time alter them so they are suitable for life from Earth. Microscopic life in Earth's past changed the atmosphere creating the conditions for multi-cellular life. Terraformers would like to bring a more suitable atmosphere to Mars and find something that would eat away the thick clouds of Venus. They have envisioned Mars and Venus as new habitations for human society, but they have changed the planets in their fictional works before we had the chance to visit and fully explore. The Moon is not a concern because it does not have enough gravity to maintain an atmosphere. Due to the visits of space probes some may even argue that the planets are no longer pristine, but there is pristine and there is pristine, and saying that someplace is not pristine or not pristine enough can be part of the machinations of an argument to say that the area in question is now "damaged goods" and we should be able to do anything we want there.

In *Nature Noir*, former California Law Enforcement Park Ranger expresses the need for our continued vigilance eloquently:

While it may be true that human effects are everywhere, it is a matter of degree, and we are now at a critical juncture in history when we must take great pains to ensure the survival of those landscapes and species that have not already been massively manipulated.... For me, the bedrock of reality is my affection for wild nature, and I take exception to the idea that nature is nothing more than a cultural construction. (p.188)

If nature is not a cultural construction, but a universal reality, does the responsibility to care for it extend beyond our earthly home? The size of the universe makes it unfathomable, but astronomy has found explanations for it. Many of the landscapes of our solar system have been revealed and should be appreciated. Star Trek, one of the guiding forces in science fiction, had a prime directive of not interfering with developing cultures, but with its Frontier tropes and trappings, did not espouse an astropreservation ethic.

What of the solar system as a wilderness (rather than a final frontier), to explore and admire before we begin massive alteration plans? Is not the solar system a place to preserve? Protectors of wilderness, preservationists, would probably like to experience such places first hand, before we bring our technology to alter these planets so they will be earthlike. Environmentalists should now hear echoes of David Brower making similar arguments about the river canyons of America's southwest in John McPhee's *Encounters with the Archdruid*. Mars has amazing geological structures. There is Olympus Mons, a mountain on Mars which dwarfs Everest. There is Valles Marineris, a canyon that is the length of The United States. Mars is a red rock wilderness that a landscape painter or nature poet should one day explore and report back their findings.

The solar system, at least in science fiction, has sometimes needed its protectors. There is Ann Clayborne and her followers in Kim Stanley Robinson's award winning 1990's Mars series who use militant means to combat the terraforming of Mars, but she is mostly unsuccessful, and a person such as her could have been portrayed more wholesomely. What is strange about Robinson's Mars series is that the plans to terraform Mars are initiated before there is a comprehensive search for life on the planet. Venus in Pamela Sargent's Venus series also has its terraformers and preservationists.

Science fiction readers are accustomed to adventure and wonder, and many of them may prefer to have a solar system again where you could tell human conflict and adventure stories. Mars and Venus are so inhospitable that they would need to be altered in order to tell a tale about human settlers. There are only so many survival stories one can write about our closest neighbors in space. Science Fiction fandom may grow bored of Nature on the other planets of the solar system, especially considering what they can experience here on Earth. But what of the astrogeologists who could someday explain the geological wonders of Mars and Venus? Shouldn't we let them go first before we alter forever what exists out there?

The universe will remain a place of wonder for sometime, but what have nature writers had to say on the subject? Is there the potential for an astronomical nature writing book to join the "Environmental Canon"? It is likely that it is already somewhere out there in the universe of works to be found on the Internet or at the library, but it is not widely known. But where should one begin to look for direction, advice or leadership for astropreservationism?

In the "Environmental Canon" astronomical quotes abound:

In *Nature* (1836), Emerson, who was inspired by the heavens, wrote: "Nature, in the common sense, refers to essences unchanged by man; space, the air, the river, the leaf." He also wrote: "The stars awaken a certain reverence, because though always present, they are inaccessible; but all natural objects make a kindred impression, when the mind is open to their influence."

In Henry David Thoreau's celebratory *Walden; Or, Life in the Woods* (1854), there are many references to the astronomical, many appreciative, including: "It would be well perhaps if we were to spend more of our days and nights without any obstruction between us and the celestial bodies, if the poet did not speak so much from under a roof, or the saint dwell there so long."

Sierra Club founder and writer, John Muir, is famous for his astronomical connection quote from *My First Summer in the Sierra* (1911): "When we try to pick out anything by itself, we find it hitched to everything else in the Universe."

Aldo Leopold, who appreciated the night sky, had a son and editor named Luna, and he dedicated *A Sand County Almanac* (1949) to his wife Estella. Leopold, who was not a theologian, documents some of the effects that the celestial have on wildlife. He wrote: "Then everybody goes to bed to relearn the lessons of the night." (p. 66). He also wrote: "If, then, we can live without goose music, we may as well do away with stars; or sunsets, or Iliads. But the point is that we would be fools to do away with any of them." (p. 230).

But these classics were written before the Space Age which began with Sputnik in 1957. These works were written before the moon landing, Star Trek, the movie "2001", or the Mariner space probes to Mars. As late as 1950, Ray Bradbury wrote a famous science fiction book: *The Martian Chronicles* which had a civilization on Mars. But these environmental writers were astounded by the astronomical and wanted to make points about the subject. Their appreciation of the night sky was probably a reflection of their nature appreciation and probably would have engendered astropreservationism.

Rachel Carson had little to add about astronomy in *Silent Spring* (1962), being more down to earth, more focused on pollution and ecology.

What constitutes the recent Environmental Canon since Carson is debatable, and many will argue that the list is partial. Certainly the list should include Edward Abbey, John McPhee, Gretel Ehrlich, Bill McKibben, but what of Terry Tempest Williams, Barry Lopez, Farley Mowat, Susan Tweit, Brenda Peterson, Chet Raymo, and others? Please accept my apology if you or some of the writers that you are a fan of are not on the list, it only being a partial list here. What about biological writers like Charles Darwin and E.O. Wilson? E.O. Wilson also makes references to astronomy and wrote that he was an "Eco-Astronomer", but he surprisingly wrote in *Biophilia* that if it is not cost prohibitive we should terraform

Venus. What about all that science fiction? Should the subject matter be left only to the speculative writers of science fiction? Modern Nature Writers have also gone out of their way to put down their cosmological musings.

One does not easily forget the message that there is a need for preservationists in McPhee's *Encounters With The Archdruid* (1971), but it is a dam builder, Floyd Dominy, not David Brower, who makes the point that we spent too much money sending people to the moon. McPhee's work does not directly make the point that we should take preservation concerns out into the solar system.

Bill McKibben in *The End of Nature* (1990) does acknowledge that Nature also has a meaning synonymous with the Universe, he even ends his book longingly observing the night sky, but he postulates that we are no longer at the mercy of Nature as we have been in the past, rather we now can harm Nature and must take steps not to. In tandem with his argument is that we may someday soon be able technologically to stop an approaching planet damaging asteroid.

Farley Mowat in *The Snow Walker* (1975) begins on a cosmic note and writes of a people living in a harsh cold environment. "Antarctica will not permit the existence of any human life unless equipped with a panoply of protective devices not far short of what a spaceman needs." (p. 6). If we ever go to Mars maybe we should recruit the Eskimos who live under such harsh and cold conditions? They have already learned to live with a harsh nature, and may be able to do so again.

Of the modern established, famous, nature writers, Gretel Ehrlich and Edward Abbey have probably written the most about the celestial.

Gretel Ehrlich who has lived in and traveled to such cold places also has had some luring titles which suggest that the cosmological is part of what she ruminates upon as a nature writer. There are hints of such in her book titles, including: *Islands, the Universe, Home* (1991) and *The Future of Ice* (2004). There are not too many references to Venus or Mars in these works, but there is mention of some astronomical discoveries. There is no central argument here that Mars or the Moon is a wilderness. In *Islands, the Universe, Home* globetrotter Ehrlich seems to be saying that the Earth is a lot more interesting than these other planetary bodies. She explores the Earth which is available and finds it more fascinating. But she does not shy away from harsh environments. In *The Future of Ice* Ehrlich makes the point that cold teaches people to work together: "Winter teaches us cooperative living, not war." (p. 95). The same is probably true of the cold conditions of space. Ehrlich, despite her references to the astronomical, is Earth bound. But there are also the appreciative night scenes in her nature writing.

In *The Solace of Open Spaces* (1985), from Wyoming, with its cold winters, Ehrlich echoes the utopian space age dream: "My grandchildren will probably use space shuttles for a honeymoon trip or to recover from heart attacks, but closer to home we might also learn how to carry space inside ourselves in the effortless way we carry our skins. Space represents sanity, not a life purified, dull, or "space out" but one that might accommodate intelligently an idea or situation." (p. 15).

Surprisingly missing from her *The Future of Ice* is discussion of missions to Mars. There are plenty of references to astronomy, but no exploration of how we could explore Mars with its harsh and cold conditions. There has been much reporting about water found on Mars and in the solar system, but the cold and the distance humans would need to travel is an unsolved challenge.

Ehrlich like the astronomers reminds that there are asteroids out there, and like them and others also appreciates the wonders of the night skies. But she is also angered making her point, by pointing out near the end of *Islands, the Universe, Home* that famous astronomer Carl Sagan called Earth **merely** a "blue dot" in space. Her book is a celebration of the planet Earth.

Edward Abbey also showed interest in the cosmological and has many night scenes in *Desert Solitaire* (1968) and the humorous *The Monkey Wrench Gang* (1975). The Monkey Wrench Gang actually gets

their start organizing under the night skies along a river trip in America's South West: "By campfire under midnight stars three thousand feet below the rim of the Shivwits Plateau the Monkey Wrench Gang was born..." (p. 206). Conspirator George W. Hayduke reasons "For the night and the wilderness belong to us" (p. 82). "Four by the stars...." (p. 171). Fellow conspirator Seldom Seen Smith "... looked up; the kindly stars looked down." (p. 138). The Gang also performs most of their direct environmental protection actions, often including sabotage, under the night skies. Abbey is like other nature writers: the moonlight this, the moonlight that, the stars, the music of the spheres this and the Milky Way that. The Gang sometimes directionally guide themselves by the stars.

One finds many references to the cosmological in these works by Abbey, but like Ehrlich they are not about Mars or Venus per se. Abbey does describe the stars and the planets, even comments on potential extraterrestrial civilizations that could be out there, but these are usually only passing references. Abbey writes how we need wilderness, that our minds need to know that such places exist, but he does not include the cosmological in his conclusions in *Desert Solitaire*. It is curious to think what he would have thought about the idea to terraform Mars. In its ways, with its red rocks, Mars probably would remind Abbey of the American Southwest which he wrote famously about. Would he be an astropreservationist arguing we should save the areas from mankind, or would he want to alter the planet so that it was more suitable for human inhabitants? The planets would need to be altered for him to take his space suit off. Would he have been interested? In *Desert Solitaire* Abbey writes: "I'd sooner exchange ideas with the birds on earth than learn to carry on intergalactic communications with some obscure race of humanoids on a satellite planet from the world of Betelgeuse." (p. 8). And: "So much for the stars. Why, a man could lose his mind in those incomprehensible distances. Is there intelligent life on other worlds? Ask rather, is there intelligent life on earth? There are mysteries enough right here in America, in Utah, in the canyons." (p. 312).

But contradictory Abbey appreciated viewing the night sky, especially having seen them in all their glory in the desert, a distance away from all the light pollution. In *Desert Solitaire* he wrote:

I wait. Now the night flows back, the mighty stillness embraces and includes me; I can see the stars again and the world of starlight. I am twenty miles or more from the nearest fellow human, but instead of loneliness I feel loveliness. Loveliness and a quiet exultation. (p. 16).

Abbey, who was preoccupied with writing about the night, probably would have been interested in the fate of the Moon and Mars if something was happening there. Abbey wanted to tear down the Glen Canyon Dam, a symbol of human intrusion, and therefore probably would have appreciated the idea to leave Mars and the Moon alone, untrammled, for at least the meantime. He may have even found the pictures of their landscape beautiful.

There have been marvelous pictures of the moon and one may consider photographer Ansel Adam's famous picture of the moon over Half Dome in Yosemite as having a preservationist message and also rightfully belonging to the Environmental Canon. The pictures of planet Earth from the space may also belong in the Environmental Canon as well.

One writer appears to be directly tackling the subject or has the intention of writing the "Astronomical Environmental Classic" that the environmentalists and astronomers would want to read. One should notice Chet Raymo who may have found the "Environmental Theory for Everything" with *The Path: a One-Mile Walk through the Universe* (2003). Raymo asserts in *The Path*: "...nature also includes bacteria, galaxies, quarks, and, yes, human culture." (p. 172). Raymo asserts that most people would opt for a Garden Planet. An Arcadian Planet between the poles of the wild and the artificial, hearkening back to our desire for a healthy Pastoral home. Abbey, and probably David Brower, would argue that "wilderness is a necessary part of civilization."

But also a question, related to the question of what is nature and what would the Astronomical Environmental classic be, is the search for an "Environmental Theory for Everything", one that includes

the ocean, space, and cities which are often a distance away from the pristine natural landscapes we protect for wildlife and Abbey's and other's peace of mind.

In nature writing one will find allusions to the debate about whether mankind belongs in nature or is outside of nature. Surely we are the products of the same forces which have resulted in everything else on the planet, and for this discussion, everything else in the solar system, but we have technology which sets us apart. The breakthrough in the "of or not of" nature debate is that there is the contrast between technological culture and wilderness. There are also the uncontrollable forces of nature. So there is a strict and broad meaning of nature. The strict meaning sets technological culture apart from nature or wilderness, there is also the general meaning of nature synonymous with everything or the Universe. The astronomers prefer the broad definition of nature inclusive of the universe and approaching solar flares and asteroids, but we need the strict distinction to protect wild places. These definitions are inherently problematic, as one could also argue that if we are part of nature we are no longer a combatant of nature, but that is not necessarily so as far as the wilderness is concerned either. Applying this preservationistic pursuit to the Moon and Mars seems like a stretch, but it seems pretty clear that for the meantime now we are not ready to create a Utopia on another celestial body.

Nature writers are definitely cognizant of the cosmic messages, findings, and aspirations. One can find all manner of appreciative quotes and references in the Environmental Canon. I have included only a few from the works of Emerson, Thoreau, Muir, and Leopold. Rachel Carson was focused on earthly pollution and other subjects in *Silent Spring*. Nature writers such as McKibben, Ehrlich, Abbey, and Raymo, have addressed the subject recently. But their writing is not fantasy in the sense that science fiction writers have invented other civilizations and hypothetical encounters with extraterrestrials. Science fiction, not merely interested in entertainment, seeks to convince the public that there may be something dangerous out there that we need to protect ourselves from (see *The War of the Worlds* by H.G. Wells and the works of H.P. Lovecraft), meanwhile we cannot even send humans to the other planets in the solar system. Science Fiction also seeks to remind us that there may be something out there that can help us like the Vulcans of Star Trek. Meanwhile we are busy squabbling and innocent lives are being lost in military struggles we could solve if we were more enlightened, if we recognized that we were all from the same special place. The so named nature writers have had their comments, references and pronouncements on the subject, but they wrote about what we know rather than what could be imagined. The same can be said of the American Literary Cannon: Hemingway, Steinbeck, Fitzgerald and Faulkner. They too noticed the stars, moon and constellations at night, they were sometimes symbols in their writing, but there was no writing about extraterrestrials because they had yet to become real. They, like the nature writers, wrote realistically for an audience which was not seeking fantasy. The extraterrestrials were not interesting because they had yet to have visited or been confirmed. If we had a verified contact with a real UFO from beyond or an encounter with an extraterrestrial then it could have been documented. Nature writing anthologist John Murray has written that the concern of Nature Writings should be about life. Ehrlich, Abbey, and others, remind us that we have only so far found it on Earth. But an extraterrestrial encounter with another civilization could change everything. The cosmological may cease to be wondrous and mysterious. It would instead be better understood. We would instead have answers to some of the nagging questions of astronomy and science fiction.

The science fiction community has had their concerns ghettoized without the mainstream's acknowledgement that space poses a potential problem that cannot be ignored. Science fiction writers have extrapolated and imagined futures based on scientific facts and history, but science fiction has not been immediate enough to resonate with the public which has wanted to read just to catch up with the real world. Science fiction has taught us to appreciate wonder, sometimes the wonder of the natural and astronomical world like the nature writers.

Nature writing, by staying mostly earthbound, even if there are hundreds of references to what can be seen in the night sky, has been immediate and real enough to interest what is acknowledged as a mature audience. It also shows us how to appreciate nature. But there has definitely been interest in the "Whole Shebang" out there and when we have an historical encounter with something from the beyond out there, it will make it into the works of nature writing and environmental writing whose practitioners seem to be

waiting with the astronomers, literary writers, and science fiction fans as well. For the meantime we cherish what we have access to, but in the future that may also be the Moon again or Mars. There are those who would visit such dangerous wild places finding them wondrous as they are. But it may be a very long time for us to wait for NASA to report back with celestial nature writing. Space Explorers need to convince the public of the necessity of their explorations. They also need to envision ways to go to other planets that the general public will accept. They may need to wait for a time where the utopian dreams of the space age can be realized.

Soon after we have gone to Mars (if we go), or back to the Moon (if we go), maybe even at the same time as we go, there are likely to be many books about the new developments in space exploration written in a number of fields, for us to choose from. Astroenvironmental and astropreservation concerns are likely to be addressed in a number of fields. Nature and environmental writers can contribute to this effort to react to newly available landscapes by pointing out that though alien, these new landscapes are special and should be explored and appreciated rather than just altered.

Bibliography

Abbey, Edward. (1968). *Desert Solitaire: A Season in the Wilderness*. New York: Ballantine.

Abbey, Edward. (1975). *The Monkey Wrench Gang*. New York: Avon.

Bradbury, Ray. ((1970)1950). *The Martian Chronicles*. New York: Bantam.

Burrows, William E. (1998). *This New Ocean: The Story of the First Space Age*. New York: Random House.

Carson, Rachel. (1962). *Silent Spring*. New York: Crest Book.

Disch, Thomas M. (1975). *The Ruins of Earth*. London: Arrow.

Ehrlich, Gretel. (1984). *The Solace of Open Spaces*. New York: Penguin.

Ehrlich, Gretel. (1991). *Islands, the Universe, Home*. New York: Viking.

Ehrlich, Gretel. (2004). *The Future of Ice*. New York: Vintage.

Elwood, Roger and Virginia Kidd. (1974). *The Wounded Planet*. New York: Bantam.

Emerson, Ralph Waldo. ((1836) 1995). "Nature". New York: Penguin 60s.

Fisher Smith, Jordan. (2005). *Nature Noir: A Park Ranger's Patrol in the Sierra*. New York: Mariner Books.

Gore, Al. (1993). *Earth in the Balance, Ecology and the Human Spirit*. New York: Plume.

Grossman, Karl. (1997). *The Wrong Stuff, The Space Program's Nuclear Threat To Our Planet*. Maine: Common Courage Press.

Hargrove, Eugene C. (1986). *Beyond Space Ship Earth*. San Francisco: Sierra Club Books.

Hill, Julia Butterfly. (2000). *The Legacy of Luna*. San Francisco: Harper.

Leopold, Aldo. ((1949) 1966). *A Sand County Almanac*. New York: Ballantine.

Lopez, Barry. (1981). *Winter Count*. New York: Avon.

Lopez, Barry. (1986). *Arctic Dreams*. New York: Bantam.

McCloskey, Michael. (2005). *In the Thick of It: My Life in the Sierra Club*. Washington, DC: Island Press.

McKibben, Bill. (1989). *The End of Nature*. New York: Anchor.

McKibben, Bill. (1992). *The Age of Missing Information*. New York: Plume.

McPhee, John. (1971). *Encounters with the Archdruid*. New York: Farrar, Straus and Giroux.

Mowat, Farley. (1975). *The Snow Walker*. Toronto: Seal.

Muir, John. *Essential Muir*. (2006). Edited by Fred D. White. Berkeley: Heyday Books.

Raymo, Chet. (2003). *The Path: A One-Mile Walk Through the Universe*. New York: Walker & Company.

Stadler, John. Editor. (1971). *Eco-Fiction*. New York: Pocket Books.

Thomas, Lewis. (1974). *The Lives of a Cell*. New York: Bantam.

Thoreau, Henry David. ((1854) 1995). *Walden; or, Life in the Woods*. New York: Dover.

Wilson, E.O.. (1984). *Biophilia*. Cambridge: Harvard University Press.

Wilson, E.O. (2002). *The Future of Life*. New York: Vintage.

Zubrin, Robert, and Richard Wagner. (1996). *The Case for Mars: The Plan to Settle the Red Planet and Why We Must*. New York: The Free Press.

.....

Ryder W. Miller <dolphin1965@hotmail.com> is a freelance environmental and science reporter who has been published in *Sierra Magazine*, *California Coast & Ocean*, *California Wild*, and *Hydrosphere*.