

Take the Frogs Seriously – They are the Earth’s Living Barometers

A Book for One and All

Debjani Roy



Tracking the Vanishing Frogs
Kathryn Phillips
Penguin Books, 1994
pp.ix+244, \$11.95

As an amphibian biologist, reading the book *Tracking the Vanishing Frogs* churned up mixed feelings in me. On the one hand, I was relieved to learn that people have started thinking seriously about the issue of declining amphibian populations. On the other hand, I was disheartened to note that even today, amphibian biologists are a minority community worldwide.

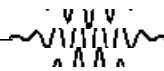
This is a superb book that will appeal to the young and old alike. Written in the context of the present global environmental crisis, it explains how frogs and toads serve as living thermometers. Their declining populations draw attention to the pressing need to draw up action plans for their protection. Kathryn Phillips uses the example of the red-legged frogs to make her point. Under normal circumstances these frogs lay about 680 eggs that have a 91% chance of hatching. But the tadpoles have only about a 5% chance of actually making it to metamorphosis and only about half of these frogs survive a full year. All these

numbers taken together mean that only about 2.5% or 17 of the 680 eggs laid, actually survive to the one year old frog stage. Considering that it takes 3 years of dodging predators and bad luck before they reach adulthood, the odds are even smaller that one of these eggs will eventually become a breeding frog. If this is the case under normal circumstances imagine the deleterious effects of the changing environment on the size of frog populations.

Phillips, herself a journalist, has written the book in true journalistic spirit. She has taken pains to collect relevant information, travelled widely, accompanied biologists on their field trips, watched them catch frogs in marshes and ponds at night, interviewed scientists and attended conferences. Armed with this experience, the author has written in minute detail about the alarming situation of disappearing frogs. Environmental changes such as decreased ground-level and underground moisture and temperature changes, make the soil acidic leaving amphibians susceptible to bacterial, parasitic and viral infections and other air and water pollutants.

She writes the story of scientists and captures the anxieties and problems in their search for answers. She also deals with subjects, which

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however trivial like the status consciousness of biologists, working conditions in the field, the formation and running of scientific academies, and the price of publicity, have a definite role in the growth of science and the academic world. She gives a graphic description of scientific conferences: "In science, conferences are a weird combination of final exam, political convention and networking party. The heart of any conference is the researchers' presentation of the paper about their work. The conference becomes their first public unveiling, a chance to weigh their peer response and answer unanticipated criticism. But the real action, just as in any political convention, often occurs away from the podium. In the conference center hallways, lobbies, bars and restaurants, ideas are floated, lobbying is conducted, gossip is shared and jobs are offered." Again she has not failed to notice that at times "Sharing information is a touchy subject with many scientists, in and out of herpetology. They live in constant fear that they will be "scooped" or won't get proper credit for their work. Credit for work can mean the difference between employment and unemployment, between promotion and stagnation, between getting funding and not getting funding. In herpetology, the pressure has helped create a field divided into a variety of competing camps. There are academic researchers who won't share data with biologists working for the various federal and state agencies. There are state and federal agency biologists who won't again share with each other."

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The book makes pleasant reading as it describes the people whose work is referred to in the articles. Reading about their experiences is very interesting — such as when we read about Mark Jennings: "If Jennings had not become a scientist, he would have become a historian. An inveterate collector of biographical information about early biologists, particularly those who made their mark studying amphibians or fish, he can recite long anecdotes about the ways in which some of the famous biologists carried out their work, what kind of field notes they kept, who trained them and who they trained in turn. He uses the early researchers as mentors and often adapts their habits."

I am sure that had a biologist written this book she or he could not have given us the graphic descriptions that Phillips has put together as a result of her experience. Phillips has combined serious science dealing with amphibian evolution, systematics, behaviour, altruism, kin recognition, various methods of reproduction, taxonomy and the effects of uv- β radiation with art, literature and folk culture. In her writing, frogs appear as demons, connivers, saviours, good-luck charms and simple goofy characters with kind, outsized hearts. In more than one culture these animals are believed to induce fertility in humans.



She also writes about the effects of sociocultural events such as the 'California gold rush' on frog populations. She does not stop there, but goes on to give us the recipe for a preparation of frog legs: "the legs are often prepared with chicken soaked in milk, dusted with flour, then fried." In the concluding pages the author makes a beautiful comparison between canaries and frogs. The caged canaries were used as indicators for dangerous leaks in the mines and similarly frogs can be used as

bioindicators for the earth's environmental changes.

Readers will enjoy every page. It will not take the reader much time to read the book – all the varied information is put together in a lucid paperback of only 244 pages with lovely colour photographs and detailed references.

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In *Scientific American*, 1877

The editors of *Scientific American* who have just witnessed a remarkable demonstration of new technology in their offices, recall the event for readers: "Mr Thomas A Edison recently came into this office, placed a little machine on our desk, turned a crank, and the machine enquired as to our health, asked how we liked the phonograph, informed us that it was very well, and bid us a cordial good night."

In *Scientific American*, 1947

Edwin H Land is reported to have invented a camera that develops its own film, in about 60 seconds, without the need for a darkroom. The Polaroid instant camera is marketed a year later (the color version appears in 1963).

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