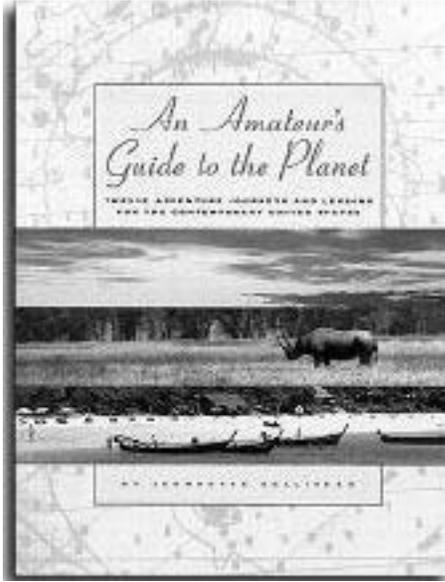


Environmental studies

Professors' study guide

Based on *An Amateur's Guide to the Planet*

By Jeannette Belliveau



6 environmental studies units Each with 3 to 7 discussion questions

The central concern of this study guide is the interconnectedness of geography and the environment.

Travel experiences are fun, informative and motivational. They also provide a basis for environmental understanding.

From these brief, intense forays across the globe we will begin to sense the connections between habitat, diversity, encroachment and climate.

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(1) Biodiversity

A visit to the lemurs of Madagascar offers a perfect case study on the importance of biodiversity.

Based on the first chapter of *An Amateur's Guide to the Planet*, "Eden Under Siege: Madagascar and Lessons on the Earth's fragility," pp. 5-28.

Students will be able:

- To recognize how biodiversity not only plays a role in economic growth but is also crucial to human survival.

Directions:

Visit Perinet park to watch the extraordinary indri lemur, which sings like a whale (p. 21, col. 1, through p. 24, col. 2).

Learn why lemurs are significant to human development ("Combining cuteness and clues to our past," box, p. 14).

Finally, read "Madagascar and the big lesson: the Earth's fragility," pp. 25-28.

Discussion points:

- Why does life on planet Earth need a vast gene pool to survive? (To provide oxygen, medicine, food and good soil and water.)
- What are some practical advances in science and medicine attributable to biodiversity? (Strep throat diagnosis, cleansing of bodies of water such as the Chesapeake Bay, blood pressure medicines.)
- Do you think humans can manage land and animals for human benefit alone?
- Do you see examples of loss of biodiversity in your own area or state? Can you name any?

Additional information on the Internet:

Read the full text of Smithsonian official Thomas J. Lovejoy's fantastic speech at

<http://www.erin.gov.au/portfolio/esd/biodiv/articles/lovejoy.html>, "Biodiversity: The Most Fundamental Issue," originally delivered to the Australian Academy of Science on March 1, 1994.

Are there any endangered species in your area or state? Check resources such as the Environmental Organization WebDirectory

(http://www.webdirectory.com/Wildlife/General_Endangered_Species) to find out. Maybe black bears, panthers, wolves and condors once roamed in your area.

(2) Habitat loss

Elephants in East Africa, hornbills in Borneo, other birds in Hawaii and lemurs in Madagascar struggle with a tough problem: a human population that robs them of a place to live.

Based on the fourth chapter of *An Amateur's Guide to the Planet*, "Giraffes by the Roadside: Kenya and Tanzania and our love-hate relationship to Africa," pp. 73-98, and additional passages in the chapters on Borneo, Polynesia and Madagascar.

Students will be able:

- To understand how habitat loss is a problem for plants and wildlife around the world, perhaps even in their own backyard.

Directions:

Visit Amboseli National Park in Kenya to visit its unique herd of elephants (p. 75, column 2, and "Profile: The elephants of Kenya," box, p. 78).

Fly to upcountry Borneo to see the hornbill, whose habitat in trees is threatened by logging ("Seeing the sights of the Apau Kayan," box, p. 58).

Learn about the waves of bird extinctions wherever Polynesians settled ("What drove islanders to explore—and stop?", box, p. 134, particularly the last two paragraphs.)

Finally, read about the habitat problems of the extremely rare indri lemur, "Trying to help Madagascar: The Duke University Primate Center," box p. 24, and "Madagascar and the big lesson: the Earth's fragility," pp. 25-28.

Discussion points:

- Would you say the problem of habitat loss is an isolated one, or widely found? (Widely found, on all the world's continents.)
- How does Madagascar serve as an example of habitat loss? (Indri lemurs need forest to live, and it is being chopped down by farmers.) How is the habitat loss in Borneo, which affects the hornbill, different? (Habitat is being destroyed by logging.)
- What do the loss of birds on Hawaii and other islands teach us about habitat loss? (Quote from Peter Ward, p. 26: "People arrived, and species died. It shows that many species on the Earth cannot tolerate the least human disturbance, so delicately are they balanced on the precarious tightrope of nature.")

- Do you see examples of habitat loss in your own area or state? Are more houses being built in woodland or on marshes? Do you think this will impact plants and animals?

(3) Genetic islands

Cheetahs and lions in East Africa find themselves in small “gene ponds” created by shrinking habitat.

Based on the fourth chapter of *An Amateur’s Guide to the Planet*, “Giraffes by the Roadside: Kenya and Tanzania and our love-hate relationship to Africa,” pp. 73-98.

Students will be able:

- To understand how inbreeding threatens the future of many of Africa’s wild animals.

Directions:

Visit the Ngorongoro Crater in Tanzania and its fierce hunting lionesses (pp. 92-95, including “Gene pools become gene ponds,” box, p. 92).

Read the first page of “Madagascar and the big lesson: the Earth’s fragility” (p. 25).

Read as well the April 1992 National Geographic article (pp. 122-36): “Captives in the Wild: They seem the picture of health, these lionesses hunting in an extinct volcano. But cut off within its walls, they are threatened by an unseen foe—inbreeding.”

Discussion points:

- What is the problem with game parks? (They isolate animals, who may inbreed.)
- How can we set up parks to avoid this problem? (Connect them via land bridges.)
- What animals especially seem to need more roaming space? (Large mammals.)

(4) Poaching: A look at how elephants, which have rebounded since the 1989 ban on ivory, and hyacinth macaws in Brazil.

Based on the fourth chapter of *An Amateur’s Guide to the Planet*, “Giraffes by the Roadside: Kenya and Tanzania and our love-hate relationship to Africa,” pp. 73-98, and additional passages in the chapter on Brazil.

Students will be able:

- To understand how poaching decimated the elephant population of Africa and similarly threatens other species.

Directions:

Visit Amboseli National Park in Kenya to visit its unique herd of elephants (p. 75, column 2, and “Profile: The elephants of Kenya,” box, p. 78).

Trace the onslaught of heavy poaching in “Kenya’s summer of growing discontent” (box, p. 77).

Stroll in Brazil’s Pantanal region to trees bearing hyacinth macaws (“In the realm of the world’s largest parrots,” pp. 222-23).

Discussion points:

- How did Somalia play a role in elephant poaching? (Its president authorized dealings in tusks in 1987.)
- What did Kenya do to combat poaching? (Rangers were allowed to shoot poachers on sight.) What did the world do to combat poaching? (Banned the ivory trade in 1989.)
- How did the ivory trade ban affect the numbers of elephants? (They rebounded from 550,000 to about 600,000 in Africa.)

Additional information on video: National Geographic’s Wildlife Warriors: Defending Africa’s Animals (reviewed at our Web site, www.beaumonde.net).

(5) Human encroachment

Case study: Why shark attacks on humans have skyrocketed in recent years.

Based on the sixth chapter of *An Amateur’s Guide to the Planet*, “Waterworlds of the Great Navigators: Polynesia and why culture survives,” pp. 117-34.

Students will be able:

- To understand where sharks live.
- To know why shark attacks have escalated in recent years.
- To recognize the signs of an impending shark attack.

Directions:

“Go fishing” on the idyllic Tahitian outisland of Bora Bora, where an unexpected visitor shows up (p. 121, column 2 through p. 122, col. 1).

Explore one of the world’s best islands for swimming with sharks, Rangiroa (pp. 125-27).

Read “Playing it safe with sharks” (box, p. 126).

Discussion points:

- Where do sharks live? (In salt water everywhere from the Arctic to the tropics.) Is there really such a thing as “shark-infested waters.” (Sharks inhabit waters, they do not infest, and are drawn naturally to boat sinkings and similar disasters.)
- How many shark attacks have been recorded in the 1990s? (287.) How many people are killed by sharks annually? (Usually around 10.) What areas of the United States have seen increased numbers of shark attacks? (Florida, California, Hawaii.)
- Why are shark attacks increasing? (Population growth and increased recreation use of waters.) What are the signs of impending shark attack? (It swims over to investigate, bumps you, and then swims in a violently humpbacked manner.) How can someone interested in sharks swim with them safely? (Stay in protected lagoon waters, swim gently, get out of the water if you are bleeding or have harpooned fish.)
- What other creatures are languishing due to human encroachment on their territories? (Many, many creatures, to name just a few: the Florida panther, the mountain lion in California and Chile, the mountain gorilla in Rwanda, the golden tamarin in Brazil, the panda in China.)

Additional information on video: National Geographic’s Shark Encounters and The Sharks. For looks at other examples of human encroachment, try Puma: Lion of the Andes and Secrets of the Wild Panda (all these videos are reviewed at our Web site at www.beaumonde.net).

(6) Climate change

Wildfires in Borneo—a problem for nearly two decades—finally win worldwide attention.

Based on the third chapter of *An Amateur’s Guide to the Planet*, “Hiking with children in the rainforest: Borneo and lessons on modern missionaries,” pp. 55-72.

Students will be able:

- To understand how forest fires are changing the climate of Indonesia and Malaysia.
- To know how this affects living things in Borneo, including people, rare birds and even leeches.

Directions:

Board a missionary’s Cessna airplane to go to the interior of Borneo (p. 58).

Trek through the rain forest with a young guide, Ampung (pp. 66-69), and find out what it’s like to be bitten by a leech.

Read “Health problems in the rain forest” (box, p. 63).

Discussion points:

- What event in 1983 began to change Borneo's climate? (The largest forest fire in the 20th century consumed 13,500 square miles of forest, greater than the size of the state of Maryland.)
- Early explorers in Borneo often found their legs covered with leeches. What does it tell us that Jeannette Belliveau found only one leech on her leg after her hike? (The island has become much drier over time due to a vicious cycle of deforestation, dryness, forest fires and additional treelessness.)
- What other animals in Borneo are affected by diminishing forest habitat? (Orangutans, hornbills.)
- What 1983 crisis repeated itself in September 1997 in Borneo? (Giant fires broke out again on Borneo and Sumatra, to the west.) What you read about this disaster in your newspaper? (That people in Malaysia, Indonesia and the Philippines had to wear masks outdoors because of haze from forest fires burning in deforested Borneo and Sumatra.) How have the health problems in the rain forest mentioned in the box on page 63 become worse? (The respiratory problems cited by Professor Rousseau affecting the Dayak people have been exacerbated.)

Additional information on the Internet: Read a collection of articles about Southeast Asia's smog on the Yahoo web site.

Additional information on video: National Geographic's Borneo: Creatures of the Mangrove (reviewed at our Web site, www.beaumonde.net).deals with the probosis monkeys, crabs, birds and other creatures of Borneo's coast, but not the forest fires per se.

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