



BioTrek

Post-Curriculum Grades 6-12

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PROBLEMS IN THE RAINFOREST

- In the last 60 years we have reduced the amount of rain forest from about 12% of the earth's land surface to about 6 %.
- The half remaining could be lost in the next 60 years.
- Along with this is the loss of a great deal of the Bio-diversity of the earth. We may lose one third to one half of all living species.
- Plants have adapted to a particular environment over millions of years. Abrupt changes means many of them will die. But having a great deal of Bio-diversity means that some organisms will be more adapted towards a certain change.
- When we limit the Bio-diversity on the earth it means that we are limiting the ability of plants and animals to survive periods of change or to resist disease.
- This could be critical when it comes to our food supply

THE PROBLEMS

- When people make huge demands on the resources of our planet there are consequences for all living things.
- The fabric of life is composed of an interdependence of plants and animals that is only partially understood.
- Climate change, lack of rainfall and climate stabilization in the Northern hemisphere threatens sensitive species.
- Lack of migration areas in the rainforest for northern hemisphere songbirds like the wood thrush.
- Trees cut and burned for:

- Wood: only 9% used with 91% burned as waste releasing stored carbon into the atmosphere
- Mining and smelting copper tin and gold by burning wood
- Farms and plantations for soybeans, mangos, sugarcane, pineapples, cacao, palm oil, coffee
- Pasture land for raising beef
- Carbon cycle has been disrupted from the release of carbon as a result of the industrial revolution and the increased burning of fossil fuels since the 1800's combined with cutting of the world's forests and rain forests
- Erosion and loss of top-soil on cleared land

SOME SOLUTIONS:

- Reserves, parks, and wildlife corridors between these reserves can reduce the environmental impact of development
- Extractive preserves of sustainable cacao, brazil nuts, etc.
- Eco-tourism brings money that motivates local people in the preservation of the rainforest
- Better certification programs for documenting sustainable harvesting to the consumer
- Sustainable farming like the indigenous people who used small areas and moved seasonally with little impact on the rainforest
- Agro-forestry- blends of crops and trees, instead of single cropping where disease can run rampant as in monocultures of Rubber trees (*Havea*) and Cacao crops. Programs to raise iguanas in Central America have provided more meat per acre than with cattle ranches without cutting the rain forest.
- Intercropping between rain forest trees in small patches is a low impact use of the rainforest that still allows the forest to recover quickly
- Farm raising woods and crops in non-rainforest, less sensitive areas, or areas already cut can have less impact on the environment
- We must find a balance between utilization and preservation of the rain forest. Alternative sources of income need to be developed for those living in rainforest areas.
- Education at all levels from the source to the consumer can encourage rainforest preservation.



A NEW ATTITUDE!

What I learned about the environment on my summer vacation.

By Michael A. Brown

2000

What a visit to Europe taught me! Europe was a very different place than the United States when it comes to the environment. Boy, did I have trouble!

The first thing I noticed in Frankfurt, Germany was that there were many small farms encroaching on the city. As I took the train to Munich, yes I didn't need a car, I couldn't believe the amount of countryside that was undeveloped and the number of small farms. Marty Stenflo, who grew up in Europe, told me that small farms are encouraged and supported by the policies in Europe.

I had trouble over and over because I didn't know about the environmental policies in much of Europe:

I had trouble driving through part of Germany because I saw a sign that said Berg Eltz and an arrow, just where I wanted to go. I turned down the road and continued my merry way until I passed a farmer and his wife out for an evening walk. He just made a cycling motion with his legs, oops how embarrassing, I was driving a motorhome down a bike path. The path was the size of a small road, taking a country side route, all by itself, not like a bike path in the U.S. where you are just two feet off at the edge of a highway where cars go by you at 50 miles an hour. My brother was recently hit by a truck mirror and broke his collar bone, cracked his sternum, and damaged his rotator cuff in the shoulder on a U.S. bike path. I couldn't believe such a nice road could be just for bicycles. But throughout Europe you find bike paths that often are not part of automobile traffic.

In Munich, Germany I couldn't find a trash can at McDonalds, Yes, I have to admit I had to experience a McDonalds in Germany; I was shocked there were no trash cans! Trained employees took the trays to recycle the waste that in the U.S. would be going to landfills.

I had trouble again at a Swiss campground. I had a bag of trash I had accumulated. I walked all around the campground and couldn't find the big dumpsters or even a little trash can. Confused I asked for help and I was told there were no trash cans but was directed to where the recycling station was. I had to go through my trash and put each appropriate type of glass, plastic, and paper in the recycling bins. I was left with a few coffee grounds and apple cores that I used to fertilize a tree near the campground.

Trouble again at the market this time! I walked in, picked out my groceries, checked out.....and what! No plastic bags, no paper bags! What, I have to bring my own bag! Luckily a lady that had lived in the U.S. took me in hand and explained how you shop in Germany.

It seemed every freeway off ramp and all the villages had recycling centers. For three weeks in Europe, with cooking for six people, I generated no unrecyclable "Trash"- absolutely none. There was no place to put "Trash" so I learned how to recycle everything!

I also noticed that most of the houses were built with soil, mineral, and recycled products like concrete or innovative recycled material block instead of wood. The houses tended to be smaller and the construction more durable. Do we in the US think about the size of our houses, size of our cars, and the resultant fossil fuel usage? Why do auto manufacturers have less incentive to produce high mileage cars than thirty years ago? Why do we have fewer incentives today to use alternative energies, use smaller and less windows for less energy loss, and use smaller toilet tanks than in the nineteen-seventies and eighties?

I've noticed in my own family, around my neighbors, even as biologists we do not take recycling serious enough. I constantly take bottles and cans out of trash cans and put them in recycling. There is a real lack of concern about the environment. Yet the amount of energy saved by recycling one aluminum is equivalent to a half cup of gas.

I was speaking with a professor from Harvard that studies global warming who said when he spoke at European parliaments he had their rapt attention and was kept answering questions as they yearned for education about how they could make decisions that would help the environment. When he spoke to the US congress they were reading newspapers and showed much less concern.

There are many things largely out of our control in our everyday lives. But there are many simple steps we can take to help if we educate ourselves about the environment. We also need to encourage government policies that support environmental protection.