

Rainforest Deforestation

NAME _____

Many people are concerned about deforestation of the Amazon rainforest. Deforestation can have severe environmental implications.

Scientists use data to analyze the rate of deforestation. In 1982 Philip M. Fearnside published an article titled “Deforestation in the Brazilian Amazon: How Fast is It Occurring?” Fearnside used available data to conclude that in some Brazilian states rainforest deforestation was occurring at an exponential rate.

Article: www.ciesin.columbia.edu/docs/002-110/002-110.html.

1. Fearnside used the data provided below to conclude that deforestation is occurring exponentially. Read through the article, analyze the data, and critique Fearnside’s conclusion. Include the following in your critique:

- An analysis of the usefulness of the data.

Answers may vary. Sample: The data may underestimate the deforestation due to problems with the LANDSAT imagery and the information is insufficient to form conclusions.

- Any improvements you might suggest.

Answers may vary. Sample: Better LANDSAT images; more data points

- An estimate rate of deforestation based on the given data, shown in the table below. An estimate can be made using equation 4 from the article:

$$r = \frac{\ln\left(\frac{N_t}{N_0}\right)}{t}$$

The paper estimates the rate of deforestation, r , is 0.33093.

YEAR	SQUARE KM OF AMAZON CLEARED
1975	28595.25
1978	77171.75

2. Conduct your own research about the rate at which the Amazon Rainforest is being cleared. Do you think this is occurring exponentially, linearly, or quadratically? Give clear evidence to support your findings.

Answers may vary. Data should support the conclusion that the rate of rainforest deforestation is occurring at an exponential rate.

3. What factors might contribute to an exponential deforestation rate?

Answers may vary. Sample: Economics create demand – each acre that is cleared creates more product, more money, and more demand for the use of the land for food/cattle.