MALARIA PROJECT

"THE IMPACT OF TEMPERATURE CHANGE ON LARVAL MOSQUITO OUTBREAKS"

Organization   : LYCEE JACQUES RABEMANANJARA TOAMASINA
AUTHOR(S)   : Students
GRAD LEVEL   : SECONDARY
Project Type   : Research Report
GLOBES TEACHERS: Doris RABENANDRASANA- TORA ADONIS RICARDO
E-mail   : dorirabe@gmail.com
CONTRIBUTOR   : ASCAL

TABLE OF CONTENTS

Our school is called Lycée Jacques RABEMANJARA, it is located in the eastern part of Madagascar, in the city of TOAMASINA. Considering the fact that malaria is every year in our region we chose two sites of malaria in order to observe the proliferation of mosquito larvae and the factors that determine our school in order to neutralize them to protect students who work on the edge this area and participate at the same time the national fight against malaria.

We hypothesize:

"During hot-and high temperature there is intense larval outbreak if the place was not predatory or less. By cons when the temperature decreases larval outbreaks also decreases with or without predator. "
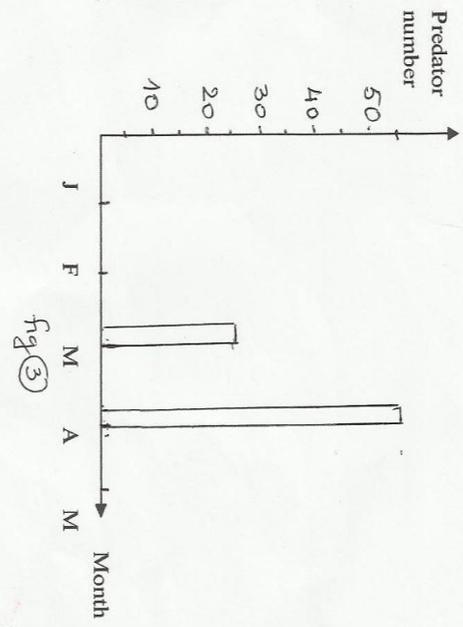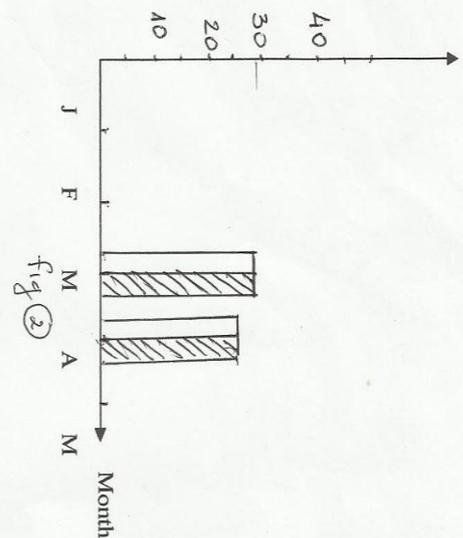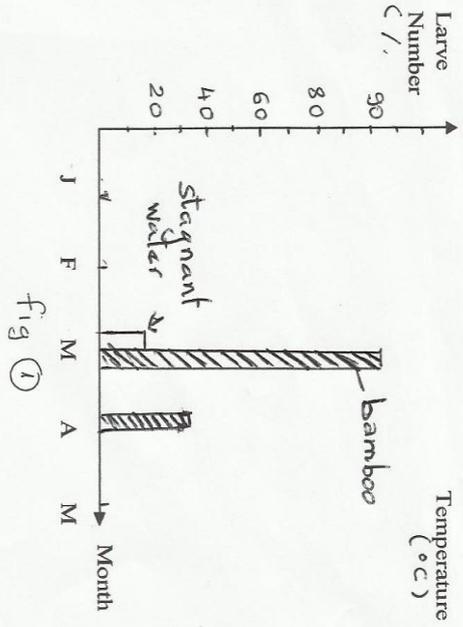
To test our hypothesis we conducted sampling of larvae in two (02) different areas and the results mentioned on the attached graphs (Fig. 1-6) are obtained.

From these graphs the month of March two (02) years when temperatures are high (29 in 2012 and 31 in 2013), there is an intense outbreak larval (92 in 2012 bamboo) the fact that there no presence of predators. Similarly the increase of larval proliferation is observed in standing water (March 2013). But it is less intense than in the bamboo because of the presence of predators (36/liter). For against this larval outbreak bamboo decreases (32 / L in April 2012) or almost non-existent (0 / L in April 2013) when, where temperature decreases (26 ° in 2012 and 27 ° C in 2013). It was also noted the number of predator inversely proportional to the temperature
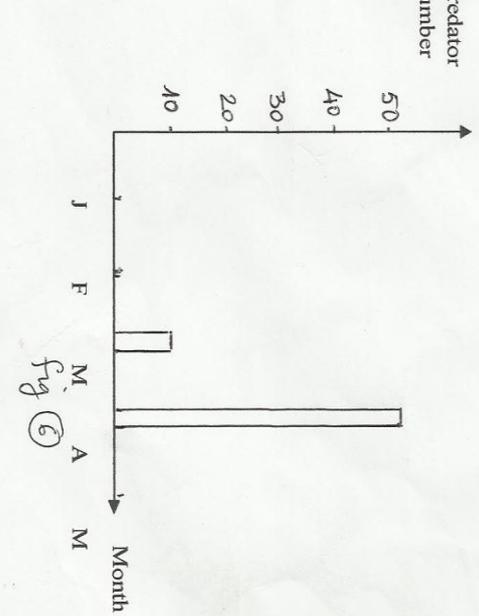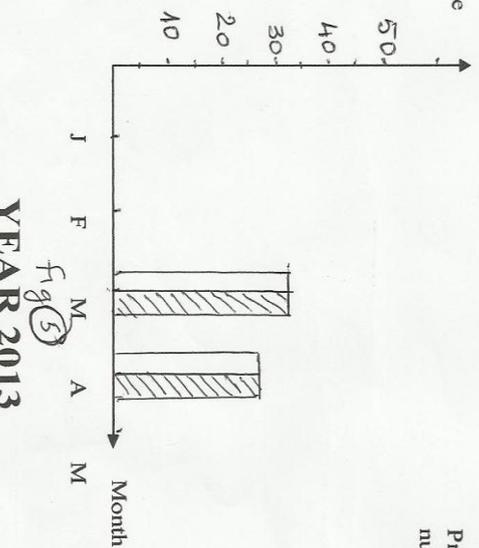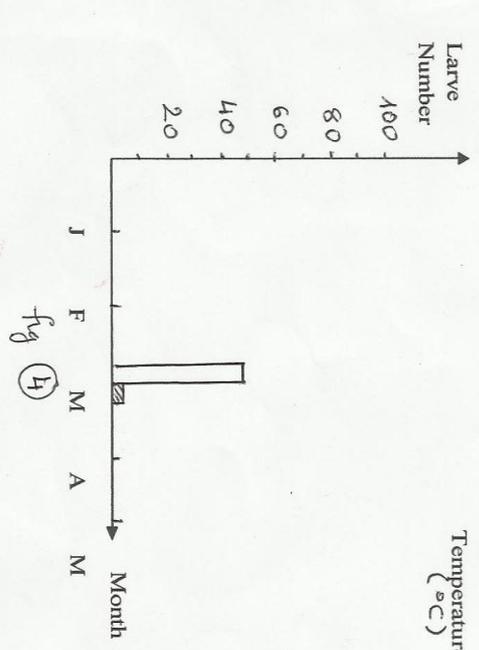
(March 2012: 26 April 2012 →)

(March 2013: 10 April 2013 →)

We can conclude that: The outbreak of mosquito larvae increases when the water temperature is higher. And decreases or almost non-existent when the temperature decreased. But this outbreak is more intense when there is less or no predators. So we took the following measures to neutralize the larval outbreaks are added fry in stagnant water and asks individuals that cut the bamboo cut to the brim to avoid stagnation of water in order to protect students in the class room adjacent sites. We also educate the students not to throw object capable of accumulating rainwater (pot of yoghurt, remaining coconut bag, ...)

YEAR 2012

Larve Number (/. C)

Larve Number

Temperature (°C)

Predator number

Month

Stagnant water

bamboo

fig ①

fig ②

fig ③

YEAR 2013

Larve Number

Temperature (°C)

Predator number

Month

fig ④

fig ⑤

fig ⑥

MATERIALS AND METHODS USED

State school uses a globe materials mentioned in protocols globe and the method concerned
MATERIALS
- Tube of transparency, pH paper, sampling pipette, forceps, sampling larvae and predatory
bottle beaker 5litre container, rope, tape, compass, net Sampling, GPS, camera, card statement
given globe, pencil, plate 250mi volume

METHOD
1 - Sampling of larvae in bamboo
For sampling larvae in leftover cut bamboo we use the method of dumping
a-We drain all the water quantity in the bamboo using the pipette
b-We measure the diameter and height of said bamboo to determine its volume.
c-We separate and count the number of larvae and predators
d-We keep in bottles labels samples collected.
We e-sheet included in the reading given all this information and a description of the site, the
date of the statement, its geographic coordinates, the pH of the medium and the temperature
of the water.
2 - Sampling of larvae in stagnant water basin
After having identified all the information on our website, we use either the transect method is
the method of the star
a-We collect mosquito larvae in the four corners of the pond using a hollow about 250 ml
volume plate.
b-We will separate and count the larvae and predators in bottles labels for this purpose.
c-We note that information in the form of data record.
d-We calculate the larval density of each site using the following formula

$$D\,\% = \dfrac{V \times \text{Number of Larvae}}{1\ \text{L or } 1\text{cm}^3}$$

D = Larval density   V = volume of water collected
e-We draw a picture or diagram of larval proliferation depending on the temperature, pH and
month.

6

RARAFARASOA L, RANDRIANARISOA E, RANDIMBIVOLOLONA N

RARAFALIMANANA A, RALISOA B O 2007 « GLOBBE Malaria Project Madagascar »

C communication scientifique et Restitution de 2 années de travaux à Riversdale,Western

Cape Province South Africa au GLOBE Consonrtium 2007

RAFARASOA L, RANDRIANARISOA E, RANDIMBIVOLOLONA N

RAFALIMANANA A, RALISOA B O ,2007 « GLOBE Malaria Project Madagascar » 2007

Communication scientifique et conférence débat à L' « Environnemental Heath Congress

2007 » à George Town South Africa

Site Web Globe Programme : « Conférence virtuel 2012 »

« Malaria Project »

Site Web Google : « Wilkipedia »