

# **My Hobby: Guppy Fish Culture Project: as a means of controlling Dengue Hemorrhagic Fever (2013-Present)**

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## **Introduction**

I have always, from my earliest childhood, been very fond of animals. My interest in them led my sister and me to regularly have pets at home such as dogs, rabbits and squirrels that roam freely in our garden. In addition to this, I also enjoyed fish breeding, especially the guppy because of their brilliant colors, stunning tails, beautiful physical displays and most of all easiness in rearing.

Guppies are fresh water fish that can live in both still and running waters and may be bred in ponds or aquariums. Their hardiness enables them to subsist even in brackish water with low levels of oxygen where other fish species are incapable of surviving. They are under the same classification as the mosquito fish. Breeding guppies at home is not only an enjoyable hobby but an efficient way to help deter the presence of mosquitoes which are known to be carriers of many various deadly diseases transmitted to humans such as Malaria and Dengue Hemorrhagic Fever.



## Taxonomy

Nelson (1984) Professor who classified the Guppy Fish

Class	:	Osteichthyes
Order	:	Cyprinodontiformes (Tooth-carps)
Suborder	:	Cyprinodontoidei
Family	:	Poeciliidae (livebearers)
Subfamily	:	Poeciliinae
Genus	:	Poecilia
Specie	:	reticulate



(<http://home.kku.ac.th/pracha/Guppy.htm>)

## Physical Characteristics of the Guppy Fish

Guppies are small fish that are flamboyant and attractive. When fully mature, males can grow up to 3-5 centimeters in length while females can reach up to 5-7 centimeters. Males have colorful tails which are much longer than that of their female counterpart. There are so many different types of guppies and an incredible variety that is constantly being developed.



## Mating and Reproduction

Guppies are very easy to breed as they are adaptive to almost all kinds of water environment. However, the presence of aquatic plants in their breeding area can be most effective in ensuring an ideal condition for continuous healthy breeding. Female guppies are livebearers; their babies are born live, not from eggs like many other types of fish, enabling them to breed all year round. When male guppies become mature, they develop a special type of anal fin in order to deposit sperm into the body of the female guppy. During mating, the male will approach the female from below and extend his gonopodium to release sperm into the female's genital pore. Eggs are fertilized by the male's sperm internally inside the female. The mother gives birth to live, fully formed young that are quite bigger compared to other fish that are born from eggs and hatched as babies. Guppy babies are ready to fend for themselves directly upon birth, and they begin swimming, feeding and living without the protection of their mother as they need to be quick in escaping from being eaten by other fish in the breeding area.

Development of guppy fish from fry to maturity is about 2 to 3 months. The female guppy can give birth to between 30 and 90 guppy fry per spawn depending on the age and size of the female. In the beginning, newly matured females may give birth to a litter of 30 to 40 guppy fry, as they become older, these numbers may go up from 40 to 60, and when they are fully mature around one year old, a brood of 50 to 90 guppy fry are produced. After giving birth, female guppies can have the next batch of delivery within the next 25 to 35 days. Gestation depends on the size of the female, the condition of the breeding area including water temperature and cleanliness as well as adequacy of food supply. To ensure the success of the pregnancy and development of the fry, it is important that regular water changes are performed to keep the water quality good enough in promoting growth and continuous breeding.

(<http://health.kapook.com/view133876.html>)



## Inspiration

In 2015, Thailand has experienced its largest Dengue Hemorrhagic Fever epidemic in more than two decades, with a record number of 102,760 people infected by the mosquito-borne disease and over 100 fatalities. The highest concentration of Dengue Hemorrhagic Fever cases was in and around the capital Bangkok infecting 12, 708 victims. The Dengue Hemorrhagic Fever, therefore, represent an important public health challenge in Thailand during the past four year.

The age groups that were mostly affected were:

- 20-24 years old 1,333 cases
- 10-14 years old 1,312 cases
- 15-19 years old 1,213 cases

The highest numbers of cases were found in Districts of Wattana, Thonburi, Nong Chok and Phra Nakorn.

Thailand's Public Health Ministry is expecting dengue cases to swell by more than 16 percent the year, 2016 and even more for the following years.

In November 2015, the world of Thai entertainment suffered a blow when Thai actor Thrisadee "Por" Sahawong contracted the mosquito-borne virus, Dengue Hemorrhagic Fever and went into a coma. He was in a very serious condition and was admitted to a well-known hospital in Bangkok. Medical specialists from different fields came together in a bid to save his life. There was news everyday regarding his situation as well as an outpouring of moral support for him and his family as he underwent surgery after surgery including a foot amputation, removal of a lung and several resuscitations. Yet sadly, after months-long, heartbreaking battle with dengue, Por eventually died on the 8<sup>th</sup> of January 2016, at the age of 36, leaving his wife and a two-year old daughter named "Nong Malee" who diligently waited on her father at the hospital while his family desperately hoped for his recovery. But sadly, due to the severity of his infection, no amount of treatment was able to cure him as he slowly succumbed to lung infection, liver failure, kidney failure and heart failure - complications which ultimately lead to his death.



From this unfortunate incident and alarming news about this deadly virus, my interest in understanding the Dengue Hemorrhagic Fever grew more. I wanted to help in some way of how to reduce the number of dengue cases if possible, and I knew that simple guppy breeding was one way to achieve this.

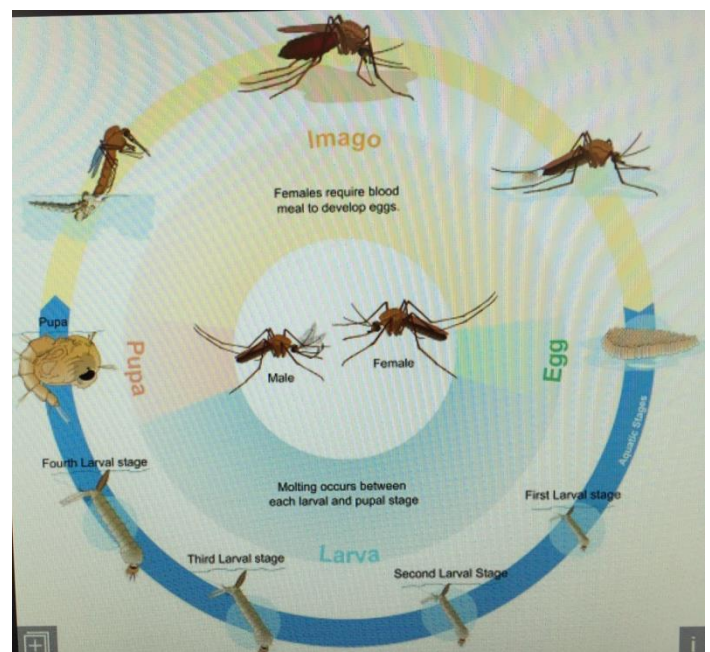


The dengue virus is a single stranded RNA virus in the family of Flaviviridae and there are 4 distinct serotypes of the virus that cause dengue (DEN-1, DEN-2, DEN-3 and DEN-4). (<http://guru.sanook.com/3873>)

### Symptoms of Dengue Hemorrhagic Fever

Dengue Hemorrhagic Fever is a mosquito-borne illness caused by a severe, potentially deadly infection. The process begins when a person who is infected with the dengue virus is bitten by a mosquito; the virus is then passed on when someone else is then bitten by the infected mosquito. Between 5 to 8 days (incubation period) after being bitten, the victim starts to have the initial symptoms which may vary in severity. Onset may be similar to dengue fever but as it progresses, symptoms become extremely severe causing shock and eventually death.

There are four main explicit symptoms of Dengue Hemorrhagic Fever before and after infection.



**Sudden High Fever:** Sudden, high fever between 39 to 40 °C. Victims may have a temperature of over 38.5 °C and shoots up to 40 to 41 °C causing convulsion, particularly in children who may have had some history of seizures or in babies younger than six months. Victims would typically have flushed face, injected pharynx, but may not experience runny nose or cough which helps in the diagnosis of measles in the early stages or other respiratory illnesses. Older children may complain of headaches or pain around the eye sockets.

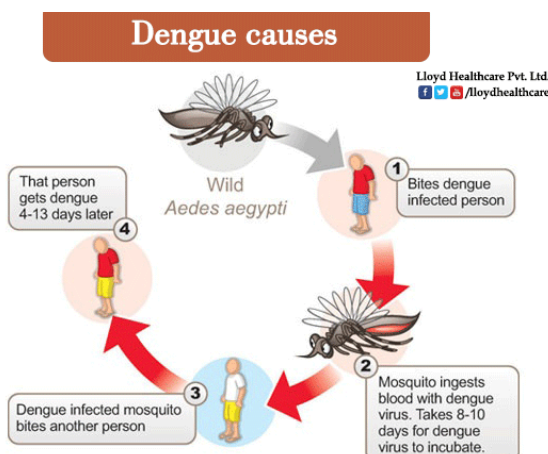
During this stage, symptoms in the gastrointestinal tract may exhibit signs such as loss of appetite, vomiting or abdominal discomfort. Likewise, during this phase, there is general pain or may have pain in the left side of the rib cage which may be due to abnormal enlargement of the liver. Many have persistent high fever for 2 to 7 days; 15% have prolonged fever of more than 7 days while some may have biphasic fever, a condition characterized by the presence of rash or erythema maculopapular which is similar to the rubella rash.

**Bleeding:** Bleeding is the most common symptom that is manifested when infected. Blood vessels are very fragile so a tourniquet test may be administered 2 to 3 days from the beginning of the infection where there is presence of small bleeding. This bleeding may spread to limbs, torso and armpits. At times, victim may also experience nose bleeding or scurvy.

In severe cases, there could be vomiting or blood in stool that is black in color (malena) due to bleeding in the gastrointestinal tract which is typically associated with shock.

**Hepatomegaly:** Most palpable enlarged liver is found around the 3rd or 4th day after the onset of symptoms, at this time the victim starts to feel sick and may have fever.

**Disorders of the Circulatory System and Shock:** This is often due to the abrupt reduction of fever. When fever becomes low, 24 to 28 hours after, leakage of plasma commences and this is found in almost all victims of Dengue Hemorrhagic Fever.



**The danger signs of dengue infection**

If any of these are observed, please go immediately to the nearest hospital.

- 1. Bleeding**  
for example
  - Red spots or patches on the skin
  - Bleeding from nose or gums
  - Vomiting blood
  - Black-coloured stools
  - Heavy menstruation/vaginal bleeding
- 2. Frequent vomiting**
- 3. Severe abdominal pain**
- 4. Drowsiness or irritability**
- 5. Pale, cold or clammy skin**
- 6. Difficulty in breathing**

## Mosquito Infestation

Featured below are the breeding grounds of the mosquitoes which are the carriers of dengue hemorrhagic fever as well as other diseases. They often dwell and lay eggs in places with still water including ponds, open sewer lines, sewage and even unused vessels carelessly left outdoors. When rain water collects, they become perfect breeding grounds for mosquitoes.







Featured below are images of guppies being introduced into areas which are infested with mosquito larvae in an attempt to eradicate them.



Approximately 1/3<sup>rd</sup> of patients with severe dengue suffer drastic circulatory failure. Due to leakage of blood in lungs or abdomen, hypovolemic shock occurs simultaneously as fever suddenly drops. The time of shock depends on the duration of the fever and usually occurs on the 3<sup>rd</sup> day of illness (if fever has been present for 2 days) or on the 8<sup>th</sup> day (if fever has been present for 7 days). Symptoms worsen as the victim becomes restless with cold, clammy skin and rapid, weak pulse. Blood pressure fluctuates and pulse pressure becomes narrow equal to or less than 20 mm Hg (normal: 30-40 mm Hg); diastolic pressure increases slightly (BP 110/90, 100/80 mm Hg). Patients undergoing shock are normally conscious but may complain of thirst.

Some victims may experience sudden abdominal pain just before shock transpires although this may sometimes be misdiagnosed as a surgical condition (acute abdomen). As shock happens, drastic changes in the body occur right away; and if not treated immediately, symptoms worsen resulting in bluish discoloration of the lips, skin turning purple, feeling cold, weak pulse or low blood pressure and loss of awareness (profound shock). This can be very dangerous and potentially life-threatening after the onset of shock within 12 to 24 hours but if proper and immediate treatment is provided, victim can be saved.

In cases of mild fever with slightly cold hands and feet, irregular pulse and fluctuating blood pressure may occur due to changes in blood circulation, victim must be checked for plasma leakage to prevent shock. In this case, short term treatment may be given for a quick recovery.

### Fundamental Treatment of Dengue Hemorrhagic Fever

Currently, there is still no specific antiviral drug or vaccine to fight this infection. While treatment is only symptomatic, it is imperative that the disease is identified right away. Early accurate diagnosis and effective management of symptoms as they are first noticed can stop or slow the rate of further decline.

### Treatment

For victims experiencing head or body ache, or children with very high fever, antipyretics such as Paracetamol may be given. Avoid giving aspirin as this may affect the patient's platelet function resulting in bleeding. As long as the virus is in the blood, fever will persist and when medication wears off, fever may rise again until the virus in the bloodstream is gone. Thereafter, the body builds up its immune system (Antibody) to attack the virus.

Most patients will have high fever accompanied by loss of appetite and vomiting which could result in dehydration and low sodium. Drinking juice or taking solutions such as Oral Rehydration Salts (ORS) in patients who are experiencing vomiting is recommended. It is

advisable not to take large amount of liquids in single doses but rather small sips but frequently.

Infected patients need to be monitored closely in order to prevent shock which often occurs with low fever, or within 24 to 28 hours after the fever has decreased, normally on the third day. Parents must be aware of the symptoms of shock such as restlessness, aches and pains or loss of appetite for several days. In addition to this, symptoms may include abdominal pain under the right rib or reduced urination. If victim feels drowsy and has cold hands and feet, immediately seek medical attention.

When the patient is taken to the hospital, the attending physician performs a Hematocrit (Hct) test and platelet count in order to assess the extent of significant blood loss to predict any signs of circulatory shock. This blood test is part of a complete blood count, measuring the proportion of red blood cells in the blood. Results are viewed and examined periodically. If platelet count begins to fall, this may indicate that there is leaking in the blood vessel which may result in shock, when this happens, considerable intake of liquids is necessary. .

In general, the need for hospital admission in patients infected by the virus is not actually necessary especially in the early stages of a fever which may be treated as outpatients. However, medication must be taken as prescribed and parents are encouraged to observe the symptoms as they are exhibited. If the patient displays symptoms of shock such as vomiting or bloody stool, immediate attention is required.

Close observation for early signs of shock is necessary and parents should be advised about the warning signs. If the above-mentioned symptoms occur, the patient should be hospitalized right away.

[www.thainews.com](http://www.thainews.com)

## Conclusion and Discussion

From all the information I have gathered, I became more knowledgeable of the widespread Dengue Hemorrhagic Fever in Thailand. The urgency to manage this important health issue is of national level and needs to be addressed seriously.

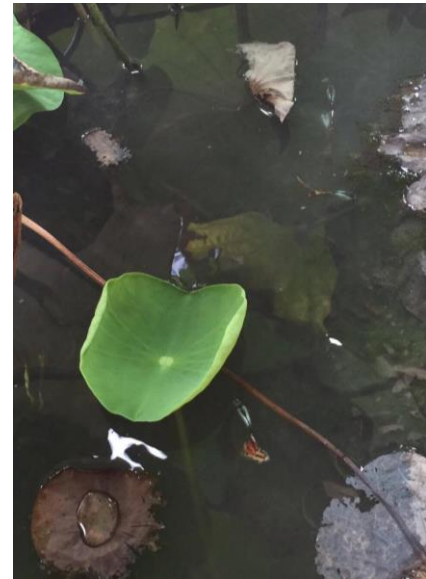
Mosquitoes which are the carrier of the virus that causes the Dengue Hemorrhagic Fever are mostly (95%) found in and around the home and 5% may be found around public places such as parks and gardens. The deterrence or reduction of transmission of the virus is completely dependent on the control of mosquito vectors through limiting person-mosquito contact. Mosquito surveillance is the key component of a successful solution to manage the proliferation of these vectors especially during the larvae stage(8-14 days). By controlling the population of the mosquitoes, there is a very good chance of reducing the number of infection cases.

One effective way to reduce and control mosquitoes is to eliminate the places where the mosquitoes lay their eggs. Periodic draining or removal of containers holding water is the most effective way of reducing the breeding ground for mosquitoes. Changing water in containers such as flower vases, plant pots, urns, ponds and water drainage must also be done regularly while they are larvae—that is between eight and fourteen days.

Ways on how to control mosquitoes:

- Chemicals (although may be toxic and dangerous to humans)
- Bio control (using natural enemies to manage mosquito population)

Guppy breeding is an effective way to control the mosquitoes as it is both safe to humans and does not harm the environment. Guppies may be bred in urns, cement ponds, lotus ponds, swamps, water storage tanks and other water receptacles. They are easy to breed and require very little attention. They are resilient and can subsist even in brackish water with low levels of oxygen where other fish species are incapable of surviving.



(<http://www.bangkokhealth.com/health/article/%E0%B8%B4%98%E0%B8%..>)

Guppy breeding is not only an enjoyable hobby for me but an ecofriendly method to control mosquito proliferation. As a strong supporter of projects that help protect communities from the disease, I am very pleased that my guppy breeding initiative in various rural schools and congested slums in Bangkok where I have been performing voluntary work has benefitted many children and their families.

I strongly believe that through simple guppy breeding, the problem of dengue and other mosquito-borne diseases in the country can be reduced significantly as well as the number of infection cases especially in children.

Finally, I believe that education is gained both inside and outside the classroom. Being able to apply in real life situations is without doubt a more effective way of putting the knowledge into practice. The future of the country depends on the present generation – its actions, ideas and decisions. By moving forward, embracing change and accepting social responsibility, Thailand may see a better and brighter future.

Acknowledgements

I would like to extend my thanks and appreciation to Association Professor Pichit Suvarnprakorn, M.D.(Hon)... Vice President of Friends in Need ( of Princess Pa) Volunteers Foundation; The Thai Red Cross Society, for his support, suggestion, guidance and mentor.

## **Testimonial: Khun Thai Wanchayakun on Dengue and Guppy Breeding**

### Personal Information

Age: 56 years old

Residence: 2/150 Moo Baan Salanphorn, Thanon Liap Klong Phrasi Charoen, Fang Nuea 32, Tambon Nongkhaem, Amphur Nongkhaem, Bangkok

Occupation: Government Official (Health Department Services 40 Bangkok)

According to Pete, guppy breeding is an effective tool in fighting the spread of the Dengue virus. His introduction to our community of this natural solution has proven to be a safe and economical way to control this mosquito-borne disease and I have personally witnessed this.

My family and I live in a townhouse in a small village in the city. In the past, Dengue incidence was very common in our area and even my child was once infected. Time and again, especially during the rainy season, drains become clogged causing standing water accumulation which is the perfect breeding ground for mosquitoes. Likewise, rain barrels that hold water also favours the development of these insects. Although the presence of mosquitoes in our neighborhood is something we are used to, the rise in dengue cases was quite alarming.

At present, through Pete's generosity and genuine intention to help our community address this issue in an environment-friendly way, his guppy breeding project has resulted in a significant decrease not only in the number of dengue cases but a major reduction in the presence of mosquitoes in the entire area. There was a sharp decline in mosquito larvae after the tiny fish were introduced because guppies eat the larvae that grow into mosquitoes, which in turn bite humans and transmit dengue. This simple, cost-effective and practical way of preventing mosquito proliferation has become an enjoyable hobby for our children as well because these fish are beautiful and easy to breed.



# Media and Newspaper Interviews

Board > ข่าวสาร > สถานภาพปัจจุบัน

**"เด็กไทยจิตอาสา" ร่วมส่งเสริมชุมชนเลี้ยงปลาหางนกยูงกำจัดลูกน้ำยุงลาย ลดปัญหาไข้เลือดออก**

Maliungko2530

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**เด็กไทยจิตอาสา ร่วมส่งเสริมชุมชนเลี้ยงปลาหางนกยูงกำจัดลูกน้ำยุงลาย ลดปัญหาไข้เลือดออก**

ในฤดูฝน อากาศเริ่มเย็นลงและมีความชื้นสูงขึ้น การเปลี่ยนแปลงของสภาพอากาศนี้ เป็นสาเหตุทำให้โรคหลายชนิดสามารถแพร่ระบาดได้ง่ายและรวดเร็ว ซึ่งโรคยอดฮิตที่ต้องระวังเป็นพิเศษคงหนีไม่พ้น "โรคไข้เลือดออก" โรคภัยที่มีผู้ร่ำรวยเป็นพား อันตรายถึงชีวิต นอกจากนี้ "ไข้เลือดออก" เป็นปัญหาด้านสาธารณสุขระดับโลก โดยเฉพาะประเทศไทยเขตร้อนชื้นอย่าง เอเชียตะวันออกเฉียงใต้ ซึ่งทุกประเทศทั่วโลกให้ความสำคัญกับโรคนี้มาก เพราะโรคไข้เลือดออก ยังไม่มีวิธีการรักษาอย่างแน่ชัด เป็นเพียงการประคับประคองอย่างใกล้ชิด โดยการเฝ้าระวังภาวะช็อกและเลือดออก ดังนั้นในช่วงเดือน พฤษภาคม-ตุลาคม ซึ่งเป็นช่วงฤดูฝน จะมีผู้คนป่วยเป็นไข้เลือดออกจำนวนมาก เฉลี่ยปีละ 100,000 คน ดังนั้นทุกประเทศจึงให้ความสำคัญกับการรณรงค์ป้องกันการเกิด ไข้เลือดออกอย่างมาก


ล่าสุด เด็กไทยหัวใจจิตอาสา "น้องทีห-อรณ บณดรรักษ์" นักเรียนชั้นมัธยมศึกษาปีที่ 5 โรงเรียนนานาชาติ สาโรร์ ประชาชนกลุ่มจิตอาสา The Lion Heart Society หุดใจเดือนเค็นส์ลิ่งคม รณรงค์รณรงค์ป้องกันไข้เลือดออก โดยการส่งเสริมให้ชุมชนเลี้ยงปลาหางนกยูง เพื่อกำจัดแหล่งเพาะพันธุ์ยุงลาย

น้องทีห-อรณ บณดรรักษ์" เล่าว่า ผมเป็นคนชอบเลี้ยงสัตว์ โดยเฉพาะปลาหางนกยูง เพราะเป็นปลาขนาดเล็กที่มีสวยโดยเฉพาะตัวผู้ที่มีหางยาว มีลวดลาย และสีที่สวยงาม นอกจากนี้ยังเป็นปลาที่เลี้ยงง่าย ทนเลี้ยงที่ไหนก็ได้ ไม่ต้องดูแลมากมาย จนเมื่อช่วงปลายปี 2558 ถึง ต้นปี 2559 มีข่าว พี่อู พญหนัก จากโรคไข้เลือดออกจนเสียชีวิต ตอนที่ทำให้ผมเริ่มสนใจมากกว่าไข้เลือดออกคืออะไร เกิดได้ยังไง ซึ่งทำให้ได้เรียนรู้ว่าไข้เลือดออกมีลูกยุงลายเป็นพาหะนำโรค และในช่วง 2-3 ปีที่ผ่านมา คนไทยติดเชื้อมีไข้เลือดออกปีละ 100,000 คน

สำหรับการป้องกันไข้เลือดออก โดยส่วนใหญ่เจ้าหน้าที่กระทรวงสาธารณสุข จะไปสารเคมีไปพ่นตามบ้านเรือน และตามแหล่งเพาะพันธุ์ยุงลาย ซึ่งสารเคมีเหล่านี้ก็กัดค้าง และเป็นอันตรายต่อประชาชน ดังนั้น ผมก็เกิดไอเดียว่า ถ้าเราไปปลาวางนกยูงเป็นตัวกำจัดลูกน้ำยุงลาย ก็จะเป็นตัวเลือกหนึ่งที่มีประโยชน์ ราคาถูก และปลอดภัยกว่า เพราะปลาวางนกยูงเลี้ยงง่าย ทน แพร่พันธุ์ได้อย่างรวดเร็ว สามารถอาศัยอยู่ตามแหล่งน้ำที่ไม่สะอาดที่มีออกซิเจนต่ำซึ่งปลาอื่นอยู่ไม่ได้ การปลาวางนกยูงไปปล่อยตามบริเวณแหล่งน้ำที่เป็นแหล่งเพาะพันธุ์ยุงลาย จึงเป็นวิธีง่าย ๆ ที่สามารถกำจัดลูกน้ำยุงลายได้เป็นอย่างดี ผมจึงได้รณรงค์เรื่องดังกล่าวและปลาวางนกยูงที่ผมเพาะเลี้ยงไว้ไปแจกชาวบ้าน ทั้งในบริเวณชุมชนแออัด ที่ใช้เลือดออกธรรมา และตามโรงเรียนในต่างจังหวัดที่ผมไปช่วยเหลือ โดยให้ความรู้เรื่องนี้แก่เด็ก ๆ ด้วย

ด้าน นางไทย วิลชญากุล อายุ 56 ปี ข้าราชการศูนย์บริการสาธารณสุข 40 บางแค กล่าวไว้ว่า เมื่อก่อนแถวบ้านฉันมีไข้เลือดออกระบาด ซึ่งลูกของดิฉันก็เคยป่วยเป็นไข้เลือดออกด้วย เนื่องจากบริเวณรอบบ้านฉันเป็นชุมชนแออัด เวลาฝนตกจะมีน้ำท่วมขัง ทำให้เกิดแหล่งเพาะพันธุ์ยุงลายพาหะนำไข้เลือดออก โดยในฤดูฝนไข้เลือดออกจะระบาดหนักมาก การที่น้องทีหมาช่วยแนะนำวิธีการกำจัดลูกน้ำยุงลายไปปล่อยพันธุ์ปลาหางนกยูงตามแหล่งน้ำเหล่านี้เพื่อกินลูกน้ำ จึงทำให้เราสบายขึ้นมาก ยุงก็ไม่ค่อยมี ทั้งยังเป็นวิธีการที่เป็นมิตรกับสิ่งแวดล้อม ไม่ต้องใช้สารเคมีกำจัดยุงอย่างเมื่อก่อน เพราะปลาวางนกยูงก็เลี้ยงง่าย แพร่พันธุ์เร็ว ไม่ต้องดูแลอะไร พอปลาออกลูกเยอะๆ ก็แบ่งไปแจกให้เพื่อนบ้าน ได้รับประโยชน์กันทั่วถึง เด็ก ๆ ก็ชอบเพราะปลาวางนกยูงสวย สามารถเลี้ยงปลาวางนกยูงเป็นงานอดิเรกอีกด้วย.."

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"โรคไข้เลือดออก" โรคภัยที่มีผู้ร่ำรวยเป็นพား อันตรายถึงชีวิต

คุณทวดก็มีลูกเด็กผู้ปวยที่กำลังกังวลใจ

หลังจากเกิดโรค ไข้เลือดออก

คุณทวดเองก็ทำงานใจได้


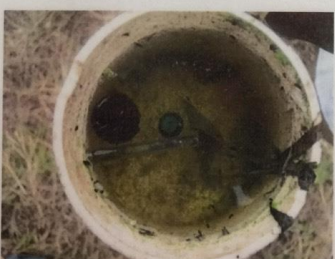
ตัวเด็กในชุมชน โรงเรียน ศูนย์เด็ก

วงจรเกิด "โรคไข้เลือดออก"




น้องทีห-อรณ บณดรรักษ์" เด็กไทยจิตอาสา

ปลาวางนกยูงเป็นตัวกำจัดลูกน้ำยุงลาย ที่มีราคาถูก และ ปลอดภัยกว่า

เวลาฝนตกจะมีน้ำท่วมขัง ทำให้เกิดแหล่งเพาะพันธุ์ยุงลายพาหะนำไข้เลือดออก

I was recently interviewed by an online newspaper about my use of Guppy fish breeding as a means of eliminating mosquito larvae, which are carriers of Dengue Hemorrhagic Fever. Ever since I was a child, I have been an avid breeder of Guppies as I found them beautiful, yet small. In addition to this, I believe that the caring of Guppies is a stress-relieving activity.

Unfortunately, during the closing months of 2015 and the beginning of 2016, the Thai people were informed of celebrity, Por Thrisadee's illness and ultimately, death, as a result of Dengue Hemorrhagic Fever. This prompted me to learn more about this disease. I learned that mosquitoes were the carriers of Dengue Hemorrhagic Fever and in the 2-3 years, approximately 100,000 Thai people were afflicted with this disease, and the Thai ministry of public health estimated that this statistic would continue to increase over the years. Due to this, Dengue fever is a great threat to the public health of Thailand. As such, it is essential that mosquitoes are avoided or eliminated. Furthermore, I have learned that the Thai Ministry of Public Health has been spraying a chemical in areas which have been affected by Dengue fever in order to eradicate mosquitoes, and although this chemical may be effective, I believe that the side effects it poses to Humans and the surroundings may be somewhat dangerous. As such, I believe that a more eco-friendly and Human/animal-friendly approach to the issue is required. Due to this, I am advocating the use of Guppies as a means of eradicating the disease-ridden mosquitoes as they are cheap to purchase, eco-friendly, easy to take care of, resilient, and breed rapidly even in poor water conditions, unlike other fish.

As a result of this, I am recommending the breeding of Guppies in the breeding-grounds of mosquitoes or areas which are infested with mosquitoes. I have given many of the Guppies which I have bred to the slum communities – which I have often assisted through teaching English – as well as areas which are experiencing a breakout of Dengue Fever, and to rural schools which I have previously assisted.

I believe that as long as we think tenaciously, even our hobbies which we undertake for fun, may be of use to the greater community as a whole.

- 12 August 2017 Matichon Newspaper



I was recently interviewed by 'Matichon' newspaper about my use of Guppy fish breeding as a means of eliminating mosquito larvae, which are carriers of Dengue Hemorrhagic Fever for the August 12th 2017 edition of the newspaper. Ever since I was a child, I have been an avid breeder of Guppies as I found them beautiful, yet small. In addition to this, I believe that the caring of Guppies is a stress-relieving activity.

Unfortunately, during the closing months of 2015 and the beginning of 2016, the Thai people were informed of celebrity, Por Thrisadee's illness and ultimately, death, as a result of Dengue Hemorrhagic Fever. This prompted me to learn more about this disease. I learned that mosquitoes were the carriers of Dengue Hemorrhagic Fever and in the 2-3 years, approximately 100,000 Thai people were afflicted with this disease, and the Thai ministry of public health estimated that this statistic would continue to increase over the years. Due to this, Dengue fever is a great threat to the public health of Thailand. As such, it is essential that mosquitoes are avoided or eliminated. Furthermore, I have learned that the Thai Ministry of Public Health has been spraying a chemical in areas which have been affected by Dengue fever in order to eradicate mosquitoes, and although this chemical may be effective, I believe that the side effects it poses to Humans and the surroundings may be somewhat dangerous. As such, I believe that a more eco-friendly and Human/animal-friendly approach to the issue is required. Due to this, I am advocating the use of Guppies as a means of eradicating the disease-ridden mosquitoes as they are cheap to purchase, eco-friendly, easy to take care of, resilient, and breed rapidly even in poor water conditions, unlike other fish.

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I believe that as long as we think tenaciously, even our hobbies which we undertake for fun, may be of use to the greater community as a whole.



- 27 August 2017 Thai Post Newspaper



I was recently interviewed by 'Thai Post' newspaper about my use of Guppy fish breeding as a means of eliminating mosquito larvae, which are carriers of Dengue Hemorrhagic Fever for the August 27th 2017 edition of the newspaper. Ever since I was a child, I have been an avid breeder of Guppies as I found them beautiful, yet small. In addition to this, I believe that the caring of Guppies is a stress-relieving activity.

Unfortunately, during the closing months of 2015 and the beginning of 2016, the Thai people were informed of celebrity, Por Thrisadee's illness and ultimately, death, as a result of Dengue Hemorrhagic Fever. This prompted me to learn more about this disease. I learned that mosquitoes were the carriers of Dengue Hemorrhagic Fever and in the 2-3 years, approximately 100,000 Thai people were afflicted with this disease, and the Thai ministry of public health estimated that this statistic would continue to increase over the years. Due to this, Dengue fever is a great threat to the public health of Thailand. As such, it is essential that mosquitoes are avoided or eliminated. Furthermore, I have learned that the Thai Ministry of Public Health has been spraying a chemical in areas which have been affected by Dengue fever in order to eradicate mosquitoes, and although this chemical may be effective, I believe that the side effects it poses to humans and the surroundings may be somewhat dangerous. As such, I believe that a more eco-friendly and Human/animal-friendly approach to the issue is required. Due to this, I am advocating the use of Guppies as a means of eradicating the disease-ridden mosquitoes as they are cheap to purchase, eco-friendly, easy to take care of, resilient, and breed rapidly even in poor water conditions, unlike other fish.

As a result of this, I am recommending the breeding of Guppies in the breeding-grounds of mosquitoes or areas which are infested with mosquitoes. I have given many of the Guppies which I have bred to the slum communities – which I have often assisted through teaching English – as well as areas which are experiencing a breakout of Dengue Fever, and to rural schools which I have previously assisted.

I believe that as long as we think tenaciously, even our hobbies which we undertake for fun, may be of use to the greater community as a whole.

- 31 August 2017 Daily World Today/Lok Wan Nee Newspaper



I was recently interviewed by 'Daily World Today/Lok Wan Nee' newspaper about my use of Guppy fish breeding as a means of eliminating mosquito larvae, which are carriers of Dengue Hemorrhagic Fever for the August 31st 2017 edition of the newspaper. Ever since I was a child, I have been an avid breeder of Guppies as I found them beautiful, yet small. In addition to this, I believe that the caring of Guppies is a stress-relieving activity.

Unfortunately, during the closing months of 2015 and the beginning of 2016, the Thai people were informed of celebrity, Por Thrisadee's illness and ultimately, death, as a result of Dengue Hemorrhagic Fever. This prompted me to learn more about this disease. I learned that mosquitoes were the carriers of Dengue Hemorrhagic Fever and in the 2-3 years, approximately 100,000 Thai people were afflicted with this disease, and the Thai ministry of public health estimated that this statistic would continue to increase over the years. Due to this, Dengue fever is a great threat to the public health of Thailand. As such, it is essential that mosquitoes are avoided or eliminated. Furthermore, I have learned that the Thai Ministry of Public Health has been spraying a chemical in areas which have been affected by Dengue fever in order to eradicate mosquitoes, and although this chemical may be effective, I believe that the side effects it poses to Humans and the surroundings may be somewhat dangerous. As such, I believe that a more eco-friendly and Human/animal-friendly approach to the issue is required. Due to this, I am advocating the use of Guppies as a means of eradicating the disease-ridden mosquitoes as they are cheap to purchase, eco-friendly, easy to take care of, resilient, and breed rapidly even in poor water conditions, unlike other fish.

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I believe that as long as we think tenaciously, even our hobbies which we undertake for fun, may be of use to the greater community as a whole.

