

# Flying Fox Conservation Status and Major Threats in SE Asia – SEABCRU FF Objectives

Tammy Mildenstein



# Flying foxes

Bats

Pteropodidae  
(Old World fruit bats)

Forearm >110 mm



Photo: Sam C. Stier

# Flying foxes

Why do we study them?



Photo: Sam C. Stier

# Flying foxes

Why do we study them?

Endangered



Photo: Sam C. Stier

# Flying foxes

SE Asia

31 species

16 threatened



Photo: Sam C. Stier

# Flying foxes are endangered

Wide ranging



Photo: Sam C. Stier

# Flying foxes are endangered

Wide ranging

Dependent on forest

# Flying foxes are endangered

Wide ranging

Dependent on forest

Roost conspicuously



Photo: Sam C. Stier



# Flying foxes are endangered

Wide ranging

Dependent on forest

Roost conspicuously

Heavily hunted



Photo: Hannah Fairbank

# Disturbances

Habitat loss

Roost site disturbance



# Disturbances

Habitat loss

Roost site disturbance



Photo: Tammy Mildenstein

# Flying foxes

Why do we study them?

Endangered

Important



Photo: Sam C. Stier

# Flying foxes are important

ECOLOGICAL

ECONOMIC

CULTURAL

# Flying foxes are important

## ECOLOGICAL

Key pollinators seed/dispersers



# Flying foxes are important

## ECOLOGICAL

Key pollinators seed/dispersers

Forest regeneration



# Flying foxes are important

ECOLOGICAL

ECONOMIC

Ecosystem services:

water, clean air, forest products





# Flying foxes are important

ECOLOGICAL

ECONOMIC

Ecosystem services:

water, clean air, forest products

crop pollination

> 186 palaeotropical plants of economic importance rely on bats

> 500 products



# Flying foxes are important

ECOLOGICAL

ECONOMIC

Ecosystem services

Eco-tourism



Photo: Sam C. Stier

Tammy Mildenstein, 2013 SEABCRU Flying fox workshop, Phnom Penh, Cambodia

# Flying foxes are important

ECOLOGICAL

ECONOMIC

CULTURAL

Flagship species



Photo: Sam C. Stier

# Flying foxes are important

ECOLOGICAL

ECONOMIC

CULTURAL

Flagship species

Food/medicine

Sport



Photo: Hannah Fairbanks

# Flying foxes

Why do we study them?

Endangered

Important

Unknown



Photo: Sam C. Stier

# Flying foxes

Why do we study them?

Endangered

Important

Unknown



Photo: Sam C. Stier



# SEABCRU

Centered on four priorities:

- **flying fox** distributions and population ecology
- **taxonomy** and systematics
- response of **forest-dependent bats** to landscape change
- **cave bat** diversity and conservation

# Across Priority Groups

## **Global Actions:**

- (1) Work across borders
- (2) Identify effective management
- (3) Compile existing information
- (4) Expand the capacity of researchers, managers
- (5) Identify priorities
- (6) Standardize methods



Cave Bats



Taxonomy & Sys



Forest Bats



Flying Foxes

Tammy Mildenstein, 2013 SEABCRU Flying fox workshop, Phnom Penh, Cambodia



# Flying Fox Group

## **Goals:**

Identify priorities

Collate data

Standardize monitoring methods

# Flying Fox Group

## **Goals:**

Identify priorities

Collate data

Standardize monitoring methods

# Identify Priorities – SMALL GROUP DISCUSSIONS



India & Sri Lanka



Philippines



NGO's & IUCN



Indonesia, PNG & Melanesia



Taiwan



VietNam



Singapore & Hong Kong



Malaysia & Myanmar



Thailand & Laos

# Identify Priorities - SURVEY QUESTIONNAIRES

## SE Asia Fruit Bat Conservation Workshop 2007 PHUKET, THAILAND

### Participant Questionnaire

Threats to fruit bats in your country of research/expertise (check all that apply).

And, please rank the top 5 (5 is most important to conservation).

\_\_\_\_\_ ( ) Deforestation/habitat loss or fragmentation due to humans

\_\_\_\_\_ ( ) Limited suitable roost sites

\_\_\_\_\_ ( ) Hunting (illegal)

\_\_\_\_\_ ( ) Hunting (legal)

\_\_\_\_\_ ( ) Introduced species (competition/predation/etc.)

\_\_\_\_\_ ( ) Natural predators (identify: \_\_\_\_\_)

\_\_\_\_\_ ( ) Natural disasters (landslides, typhoons, etc.)

\_\_\_\_\_ ( ) Persecution as pests (in fruit orchards)

\_\_\_\_\_ ( ) Anthropogenic disturbance at the roost site (e.g. noise,  
tourism, nearby construction)

\_\_\_\_\_ ( ) Others: \_\_\_\_\_

\_\_\_\_\_



# Identify Priorities - SURVEY QUESTIONNAIRES

**SE Asia Fruit Bat Conservation Workshop 2007 PHUKET, THAILAND**  
Participant Questionnaire

**SE Asia Fruit Bat Conservation Workshop Questionnaire**  
**BOGOR, INDONESIA 2011**

2<sup>nd</sup> International Southeast Asia Bat Conservation Research Symposium  
Flying fox conservation workshop

1. What aspects of fruit bats do you study?

Taxonomy/Systematics

Population Biology/Ecology

Conservation/Management

EIDs in bats

Bat ecology

Fruit bat/human interactions

Effects of human disturbance on bats

Others:

2. What are the most needed research techniques that would support conservation in your area of expertise?

# Identify Priorities – WORKSHOP DISCUSSION



- SE Asia Fruit Bat Conservation Workshop
- 1) Conservation network
  - 2) Collate existing information
  - 3) Identify priorities
  - 4) Standardize research/monitoring
  - 5) Update action plan

# Flying Fox Group

## **Goals:**

Identify priorities

# Flying Fox Priority

## **Goals:**

Identify priorities

## **Results:**

Threats, Needs

# Flying Fox Priority

## **Goals:**

Identify priorities

Collate data

## **Results:**

Threats, needs

# Flying Fox Priority

## **Goals:**

Identify priorities

Collate data

## **Results:**

Threats, needs

Maps of roosts

# Flying Fox Priority

## **Goals:**

Identify priorities

Collate data

Standardize methods

## **Results:**

Threats, needs

Maps of roosts

Tammy Mildenstein, 2013 SEABCRU Flying fox workshop, Phnom Penh, Cambodia

# FLYING FOX MONITORING WORKSHOP

## 2012 Hat Yai, Thailand



Gojrey Jakosalem©



# Flying Fox Priority

## **Goals:**

Identify priorities

Collate data

Standardize methods

## **Results:**

Threats, needs

Maps of roosts

Survey protocol

# SEABCRU

## WORKSHOP OBJECTIVES

Encourage flying fox conservation in Indochina

By training biologists:

1. Survey colonies
2. Study diet
3. Disease ecology
4. Farmer/flying fox conflict



Photo: Sam C. Stier

Why?



Photo: Sam C. Stier

# SEABCRU

By the end of the workshop, participants will:

Count flying fox colonies

Study FF diet from feces

Know basics about disease ecology study (and safety)

Be aware of stakeholders' perspectives



Photo: Sam C. Stier

# SEABCRU

By the end of the workshop,  
participants will:

Be a part of the SEABCRU  
network!

technical guidance  
resources (information,  
educational material)  
collaborators  
data sharing



Photo: Sam C. Stier

# SEABCRU

Southeast Asian Bat Conservation Research Unit

Visit us on:



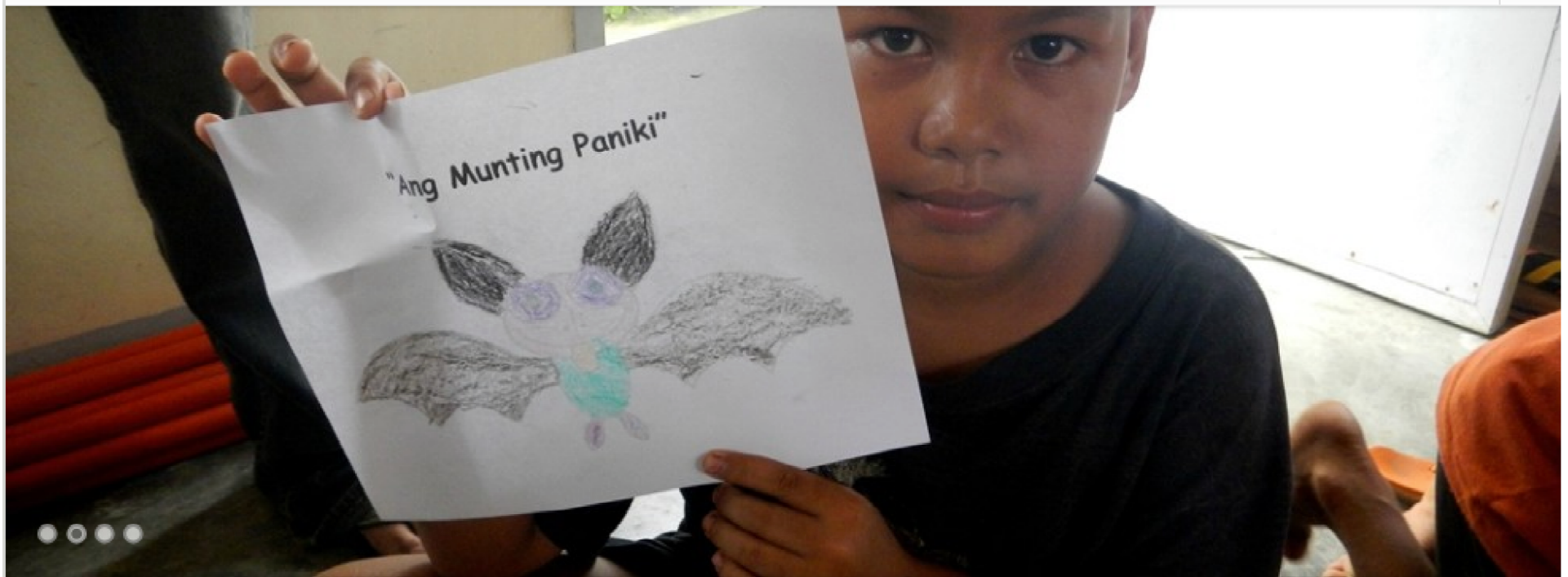
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## Featured website – ecologyasia.com

August 04, 2013 *Comments are off*

From Tigga: I am happy for the SEABCRU website to feature others that include our attention, send me a write-up about the origins of the site or organization.

as below in which Nick Baker explains the motivation behind Ecology Asia. In 2001, at the age of 44, and after spending 30 years working as a

[www.seabcru.org](http://www.seabcru.org)

Tammy Mildenstein, 2013 SEABCRU Flying fox workshop, Phnom Penh, Cambodia



QUESTIONS?

Photo: Sam C. Stier