FIREFLY SPECIALIST GROUP

Established 2018

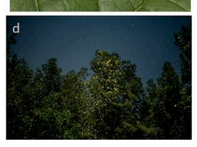
FIREFLY

THE BIOLUMINESCENT BEETLE

"Don't forget us, we are small and bright"

2000+ FIREFLY Species

There are 2,000 + firefly species worldwide with a variety of life history, shape, size, colour, light signals and natural or man-made habitats (more in the tropics)



- The larvae are carnivorous
- All firefly larvae have lights to frighten their predators
- Few predators like spiders
- Generally, all firefly stages have lights
- Adult fireflies love signals are species specific
- Fireflies have toxins

- Some females are flightless
- some are diurnal
- some larva are aquatic
- Some glows, some flashes
- some congregates and synchronise or not synchronise their lights
- generally males have two light organs and females have one

FSG 2017-2020

Key Species Result (KSR) 1 –
IUCN Red List taxonomic and geographic coverage is expanded

- Develop a global distribution database for fireflies
- Update the IUCN Red List for firefly species
- Year 1, Red List assessments for a selection of 1-10 flagship species
- By 2020, conduct global Red List assessments of 100-200 species

KSR 7 –
The IUCN Red List Assessments is used to inform policy and action

- Advocate for the most imperiled species at all levels

KSR 12 –
Population-level monitoring and analysis. Monitoring programmes are established for selected species and groups of species

- Develop standardized methods for monitoring firefly abundances

KSR 15 –
IUCN SSC species conservation planning efforts are significantly expanded, especially for priority species

- Guidelines to promote sustainable firefly ecotourism
- Work with local communities to protect and prevent their extinction

KSR 26 –
Global and regional policy for biodiversity conservation (Publish IUCN position documents and guidelines for species conservation)

- Develop threat list to firefly population persistence in different regions
- Disseminate technical info and advice about firefly conservation issues

KSR 28 –
Communicating species conservation and management

- ignite public interest and garner local and regional support

Additional proposed activities:

- Act as a catalyst for additional research needed for firefly conservation

An annual e-newsletter and periodic updates distributed to track the group's activities and to keep all members updated through the Fireflyers International Network (FIN) website (https://fireflyersinternational.net).

FIREFLYERS INTERNATIONAL NETWORK

Established 2017

arts & culture
taxonomy
behavior
ecology
evolution
conservation

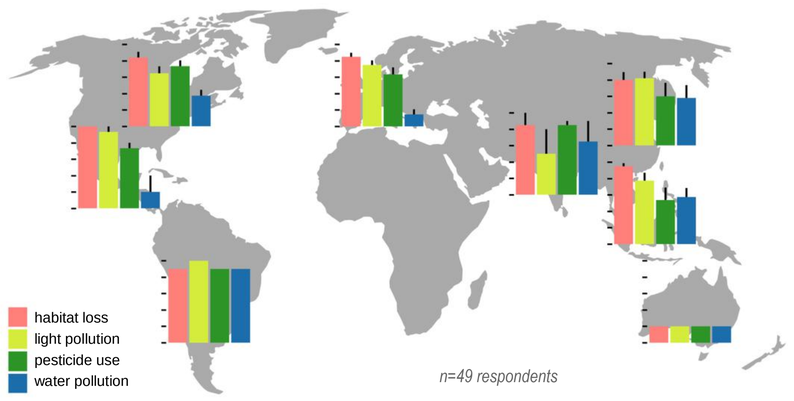
Guiding document: Selangor Declaration on Firefly Conservation 2010 rev. 2014

PROGRESS

Assess
:

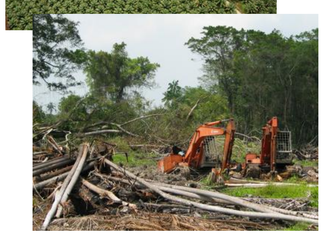
KSR 26: Describe key threats to fireflies in each region
KSR 1 : Identify firefly species & habitats at greatest risk
: North American database of risk factors, EOO
KSR 1 : Preliminary KBA Workshop held at MNS in Kuala Lumpur, August 2019

Global Threat Survey 2018

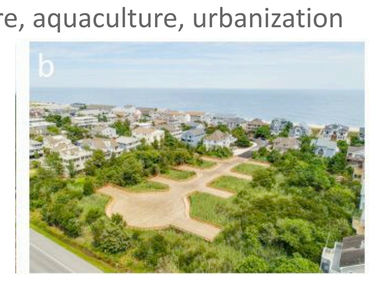


We conducted a global threat survey of fireflyers (49 respondents) and found three major threats to fireflies amongst other threats. *Nearly everywhere Habitat Loss was #1, (except Australia, more on drought). In some places #2 light pollution, but others (NA & India) #2=pesticides. Water pollution was important concern throughout Asia, though not in North America or Europe (terrestrial).* Other threats include water pollution, tourism, overharvest, invasive species and climate change

#1. Habitat loss

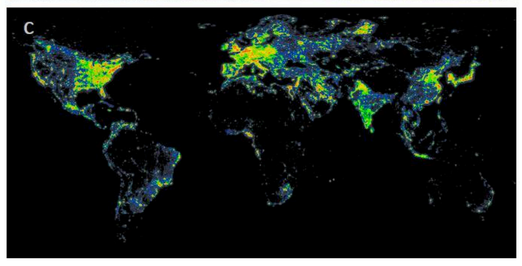


Loss of mangroves due to conversion to agriculture, aquaculture, urbanization



Photuris bethaniensis losing to property development

#2. Artificial light at night (ALAN)



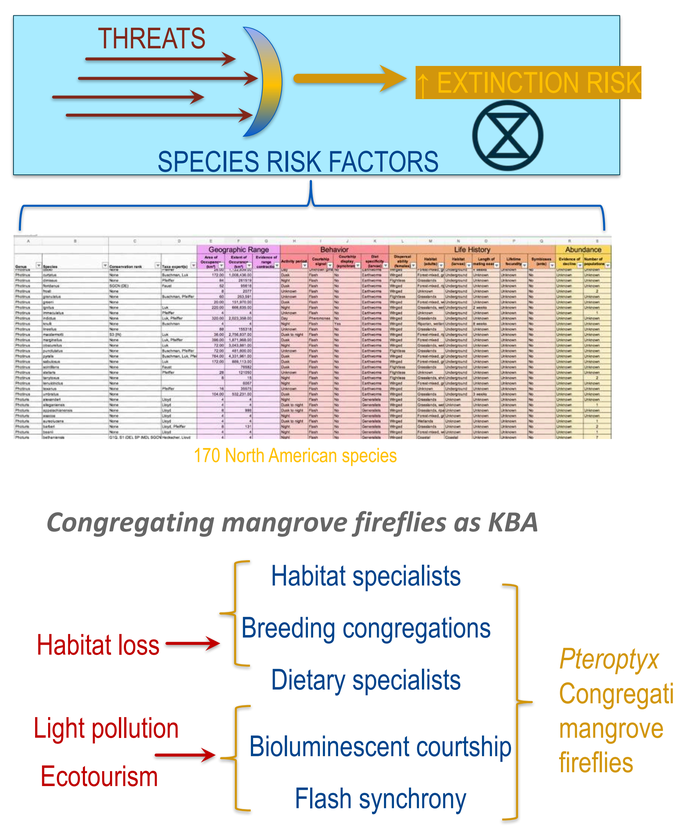
Affects sexual communication between the fireflies, use more energy to communicate, leave habitat. Affects other wildlife plants and our well-being

#3. Pesticides

Kills off the fireflies and their prey..

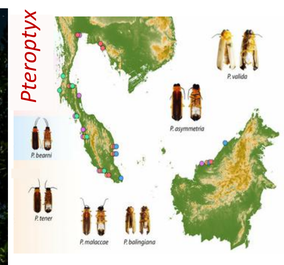
Assess: Identify species at greatest risk

So we know the threats, but these threats alone don't mean extinction – instead they interact with Species Rich Factor to increase. extinction risk.



170 North American species

Congregating mangrove fireflies as KBA



From Jusoh, Ballantyne & Onn 2019

Suggest one flagship group for SEA might be congregating mangrove fireflies. Found in East India, ASEAN, Hong Kong (Pteroptyx) and North Australia & PNG (*Medeopteryx & Trisinuata*)). Form stationary breeding aggregations in visually prominent display trees where courtship & mating occurs

Communicate

- Develop & distribute firefly conservation guidelines
  - Xerces Society publication for US & Canada
  - Global version in preparation
- Articulate and share guidelines for sustainable firefly tourism – in progress
- Malaysian Firefly Komuniti
- World Firefly Day every first weekend of July

FSG MEMBERS

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INSTITUTIONAL SUPPORTERS

Fireflyers International Network
The Xerces Society
Malaysian Nature Society