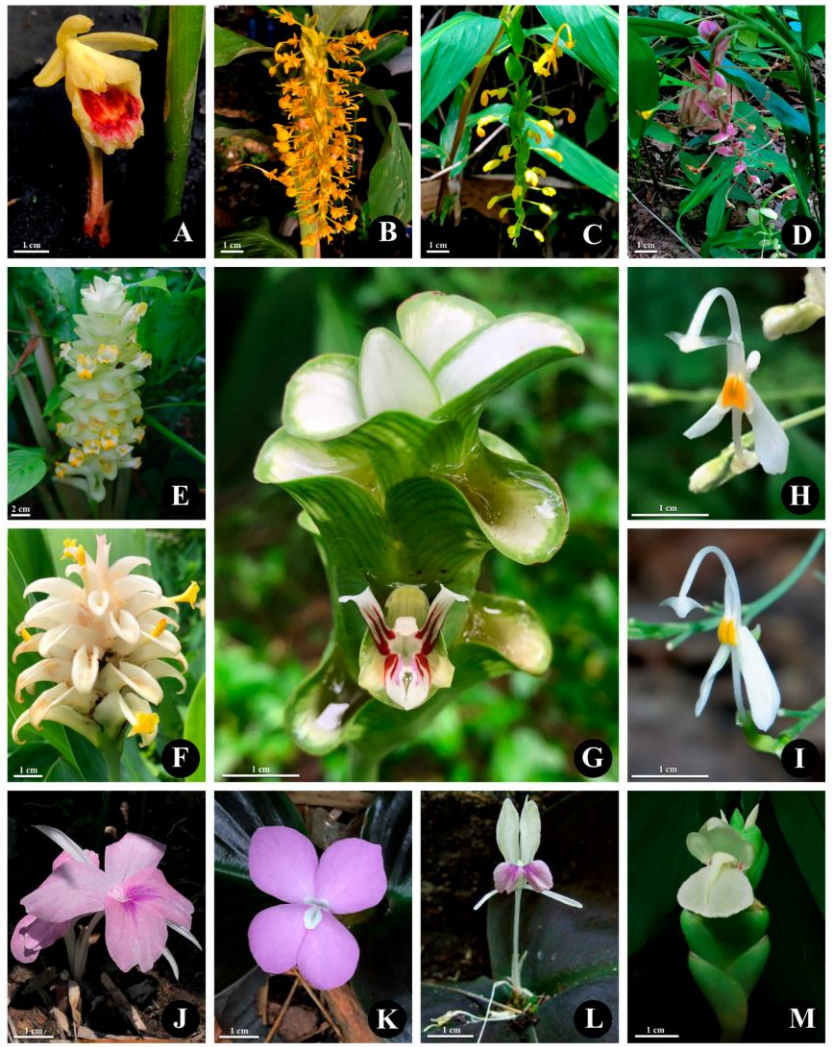
How can the Flora of Thailand contribute to Nature Conservation?

Peter van Welzen

Naturalis
Biodiversity
Center



First: know what to protect

In Thailand an estimated 12,000 species of vascular plants

1963: First discussion about starting the Flora of Thailand Project

Kai Larsen
(Denmark)

2nd meeting in Leiden
(Netherlands)

Tem Smitinand
(Thailand)

1967: Start of international project Flora of Thailand; 2027: End of Flora of Thailand

Henrik Balslev
(Denmark)

Thawatchai Santisuk
(Thailand)

Kongkanda
Chayamarit
(Thailand)

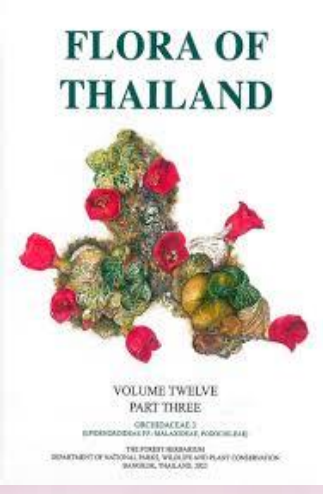

FLORA OF
THAILAND

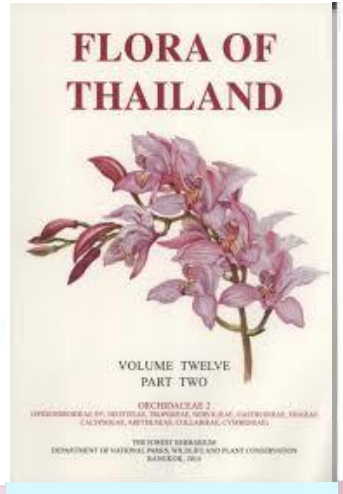

FLORA OF
THAILAND
VOLUME SIX
PART ONE

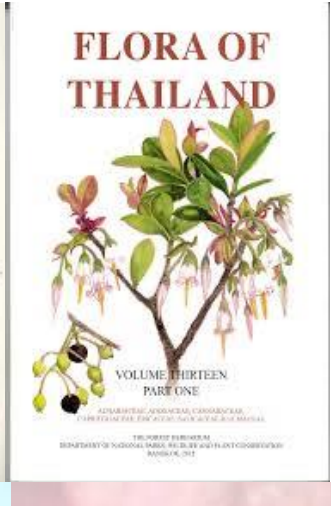

FLORA OF
THAILAND
VOLUME FIFTEEN
PART 1
RUBIACEAE (GENERA 1-45)

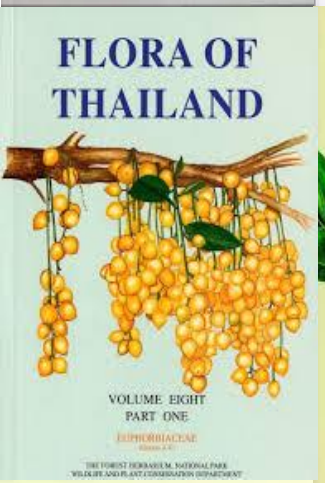

FLORA OF
THAILAND
VOLUME TEN
PART FOUR

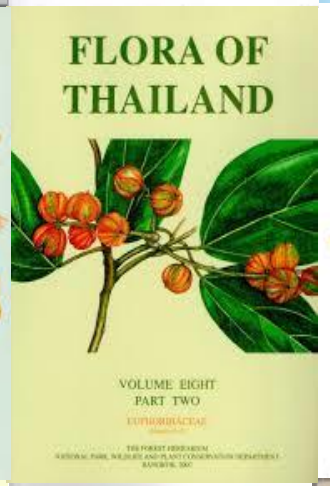

FLORA OF
THAILAND
VOLUME FOURTEEN
PART FOUR

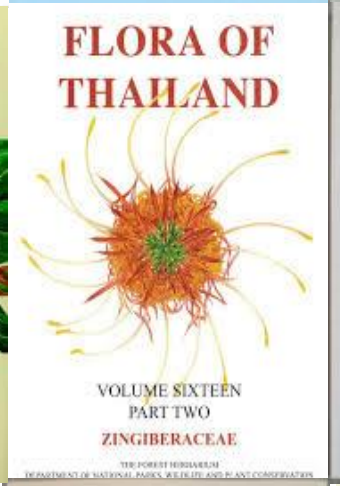

FLORA OF
THAILAND
VOLUME TWELVE
PART THREE

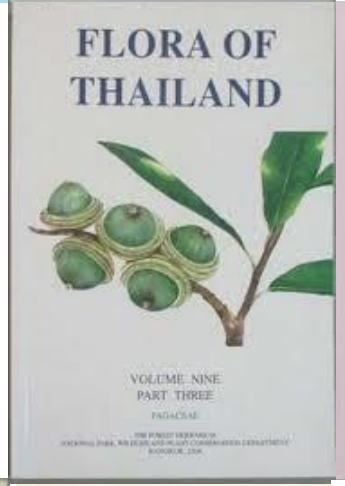

FLORA OF
THAILAND
VOLUME TWELVE
PART TWO

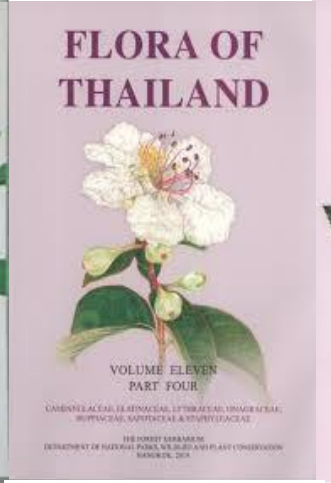

FLORA OF
THAILAND
VOLUME THIRTEEN
PART ONE


FLORA OF
THAILAND
VOLUME EIGHT
PART ONE
EUPHORBIACEAE


FLORA OF
THAILAND
VOLUME EIGHT
PART TWO
EUPHORBIACEAE


FLORA OF
THAILAND
VOLUME SIXTEEN
PART TWO
ZINGIBERACEAE

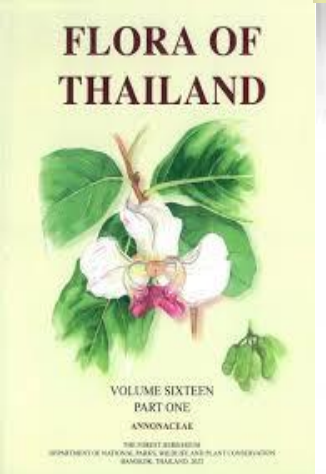

FLORA OF
THAILAND
VOLUME NINE
PART THREE

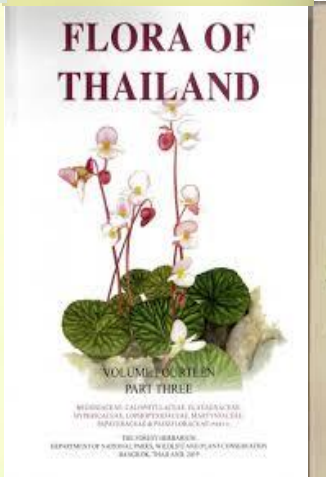

FLORA OF
THAILAND
VOLUME ELEVEN
PART FOUR


FLORA OF
THAILAND
VOLUME FOURTEEN
PART ONE


FLORA OF
THAILAND
VOLUME THIRTEEN
PART TWO
COMPOSITAE (ASTERACEAE)

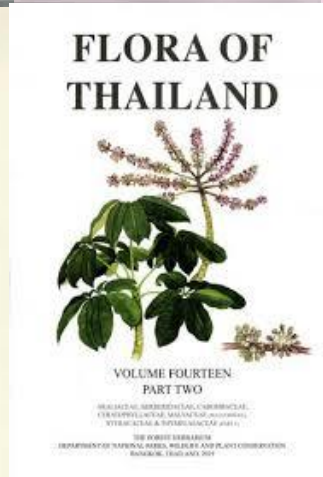

FLORA OF
THAILAND
VOLUME ELEVEN
PART TWO
ACORACEAE & ARACEAE


FLORA OF
THAILAND
VOLUME SIXTEEN
PART ONE
ANNONACEAE

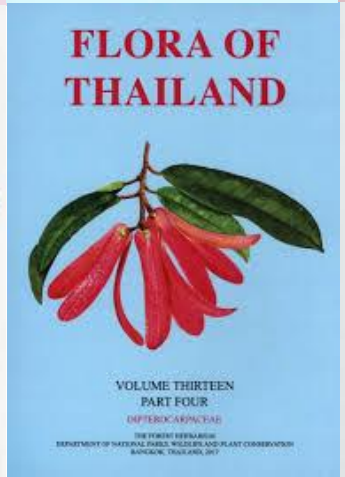

FLORA OF
THAILAND
VOLUME FOURTEEN
PART THREE

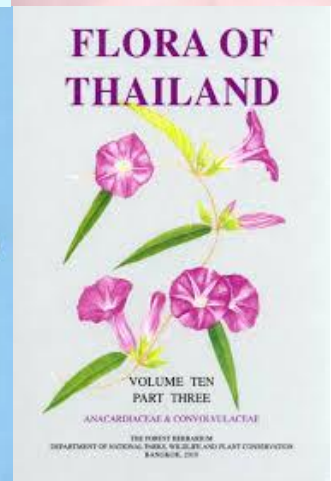

FLORA OF
THAILAND


FLORA OF
THAILAND
VOLUME FOUR
PART 3.2
LEGUMINOSAE - PAPILIONOIDEAE


FLORA OF
THAILAND
VOLUME FOURTEEN
PART TWO


FLORA OF
THAILAND
VOLUME FOUR
PART 3.1
LEGUMINOSAE - PAPILIONOIDEAE


FLORA OF
THAILAND
VOLUME THIRTEEN
PART FOUR
DIPTEROCARPACEAE


FLORA OF
THAILAND
VOLUME TEN
PART THREE
ANACARDIACEAE & CONVOLVULACEAE

12th
Bangkok
2002
Opening BKF

13th
Dublin
2005

14th
Copenhagen
2008

15th
Chiang Mai
2011

16th
Kew
(London)
2014

17th
Krabi
2017

18th
Singapore
2022

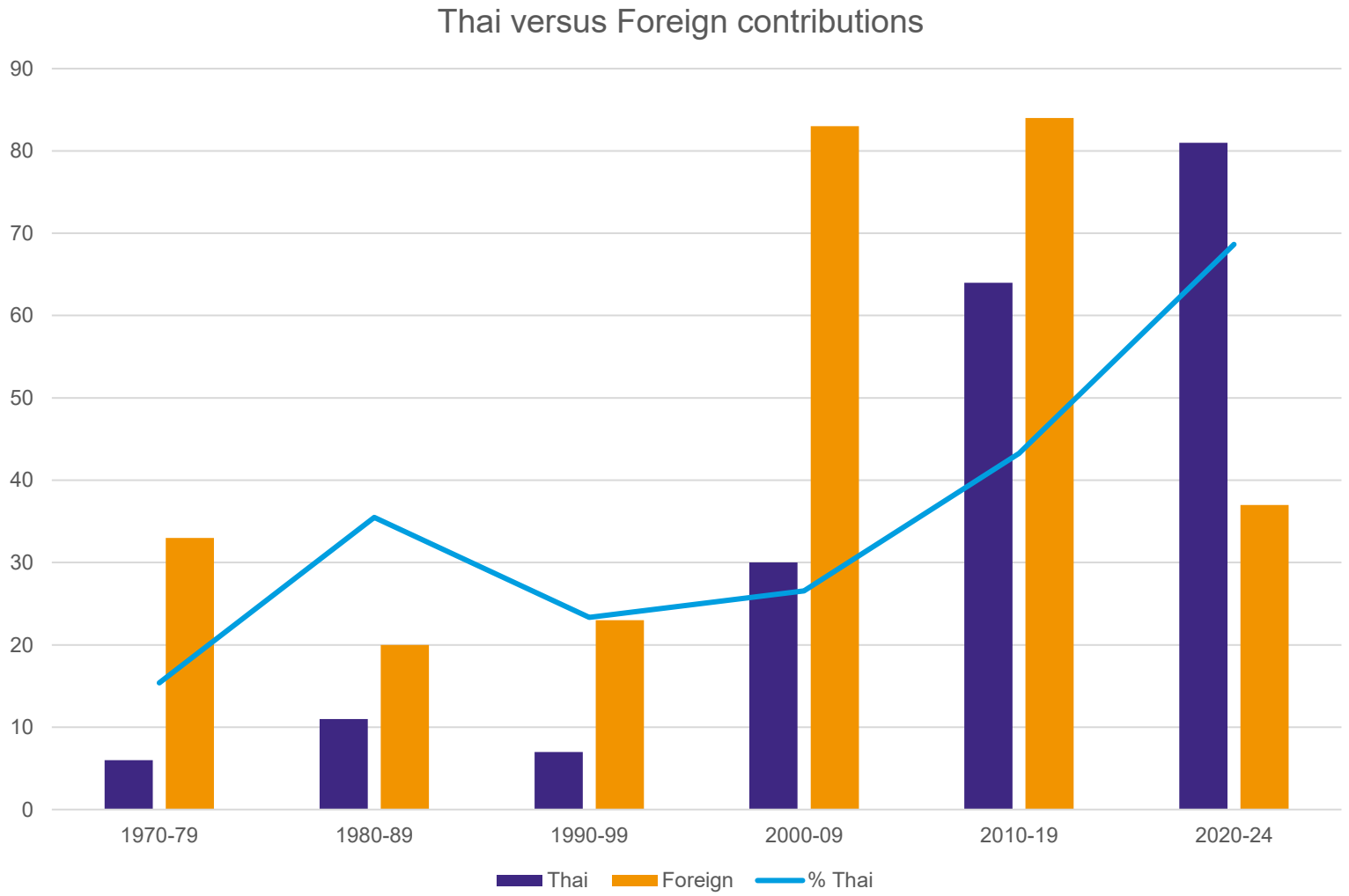
19th
Aarhus
2024

c. Every 3 years an international symposium

alternating between Thailand and abroad

Last 2027: BANGKOK!

In course of time more Thai researchers involved, especially young people!



Pranom Chantharanothai

Mosses of Thailand (Bryoflora)

Ekaphan Kraichak

Phiangphak Sukkharak

What kind of information in Flora

1. Scientific descriptions of Families, Genera, Species
2. Indentification keys (questions with which to identify specimens)
3. Nomenclature (synonyms, literature)
4. Ecology of species
5. Thai names, uses
6. Distribution in Thailand and worldwide
7. Drawings and Pictures

Flora of Thailand now also online: planned to be more interactive

BKF
Forest Herbarium

e-Flora of Thailand

Search by taxon names... Go!

Volume 8 > Part 2 > Year 2007 > Page 466 > Euphorbiaceae > Pantadenia

Pantadenia adenanthera Gagnep. wfo-0000263813

Bull. Soc. Bot. France 71: 873. 1924; in Lecomte, Fl. Indo Chine 5: 470. 1926; Airy Shaw, Kew Bull. 23: 122. 1969; Kew Bull. 26: 312. 1972; P.H.Hô, Cây có Viêtnam 2, 1: 336. 1992. Fig. 51; Plate XXIV: 3.

Accepted Name : This is currently accepted.

Description : Shrub, up to 2 m high, root tuberous; bark thin, light brown. *Stipules* narrowly triangular, 1.5–2 by ca 0.4 mm. *Leaves*: petiole 4–15 mm long; blade ovate, 7.5–17.5 by 3.7–8.5 cm, length/width ratio ca 2, base obtuse to emarginate, apex acuminate to cuspidate, upper surface glabrous, lower surface with red (or white) glandular scales and slightly hairy on midrib and basal nerves, nerves in 6 or 7 pairs. *Staminate inflorescences* up to 5.5 cm long, light green; bracts ovate, with caudate apex, ca 1 by 0.3–0.5 mm, apically usually an inflexed gland. *Staminate flowers* 4.5–5 mm in diam.; pedicel up to 2 mm long; sepals ovate, 2.5–2.8 by 1.5–2.2 mm, pale light green to cream; petals elliptic, 1.2–1.5 by 0.4–0.7 mm, cream; disc yellow; filaments 1.7–2.2 mm long, very pale light green; anthers ca 0.7 by 0.4 mm. *Pistillate inflorescences* up to 3 cm long; bracts narrowly ovate, ca 1.8 by 0.8 mm, margin inrolled. *Pistillate flowers* ca 7.5 mm in diam.; pedicel above abscission zone 2–2.2 mm long; sepals ovate, 3.5–4 by 2–2.2 mm; petals 1.2–1.5 by 0.4–0.7 mm; ovary ca 1.2 by 2 mm, pale light green, densely hairy with bulbous based hairs; stigmas ca 3 mm long, upper 1.5–2 mm bifid, white. *Fruit* 5–6 by 6–8 mm; calyx persistent. *Seed* ca 4 mm in diam.

Thailand : CENTRAL: Phra Nakhon Si Ayutthaya (Pa Sak River), Saraburi (Pa Sak River, Khao Yai NP); SOUTH-EASTERN: Chachoengsao.

Distribution : Laos, Cambodia (type), Vietnam.

Ecology : Scattered to common in mixed deciduous forests, in open fire-damaged, degraded areas, soil sandy, bedrock: rhyolite, sandstone or granite, 20–125 m alt. Flowering: March–May, October; fruiting: June.

Uses: Roots used medicinally in Cambodia.

Main

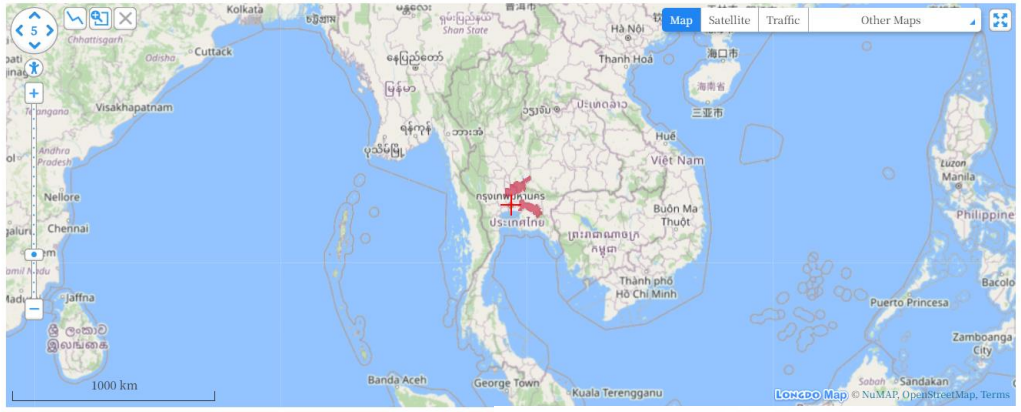
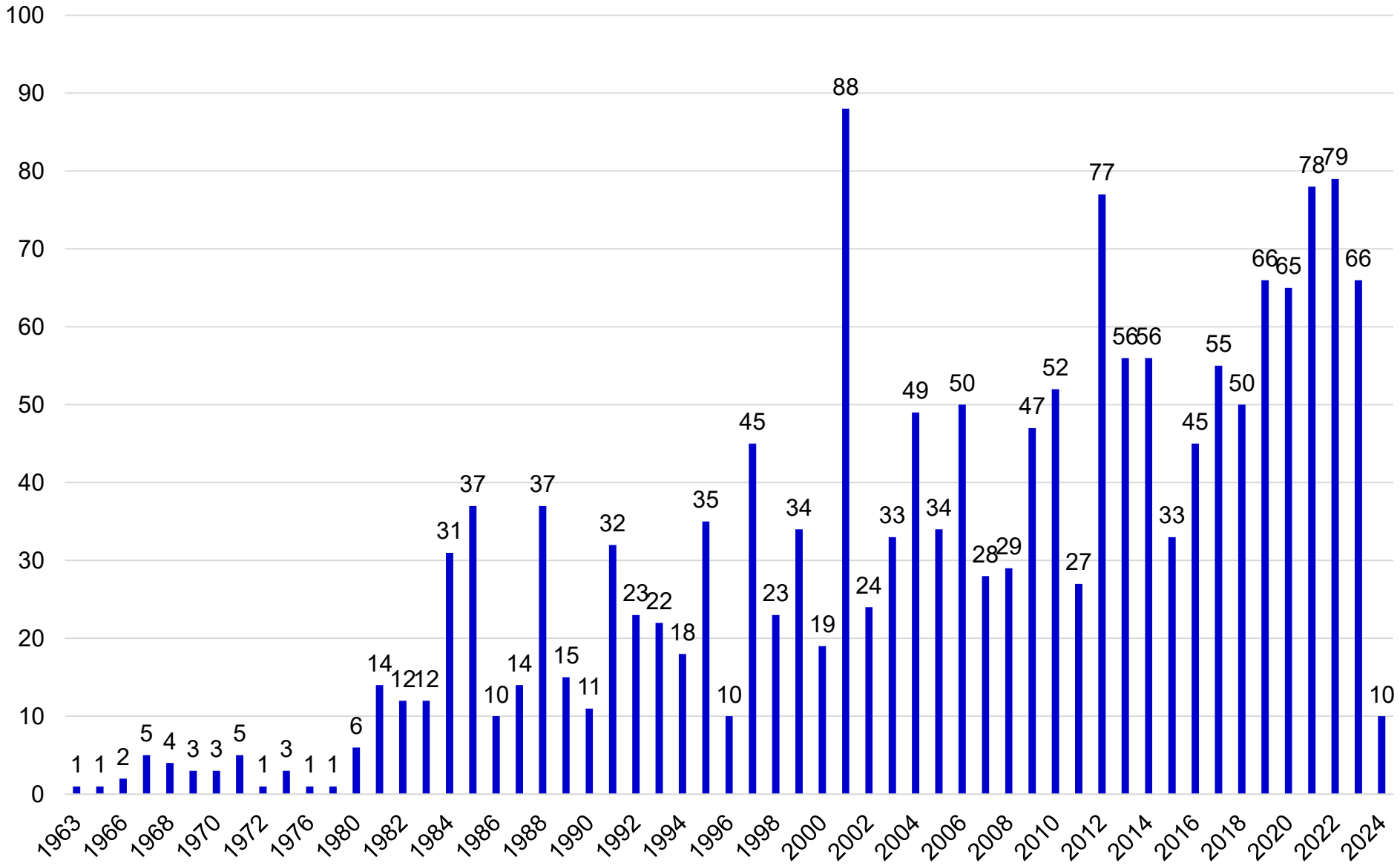


Figure 51

Plate XXIV: 3

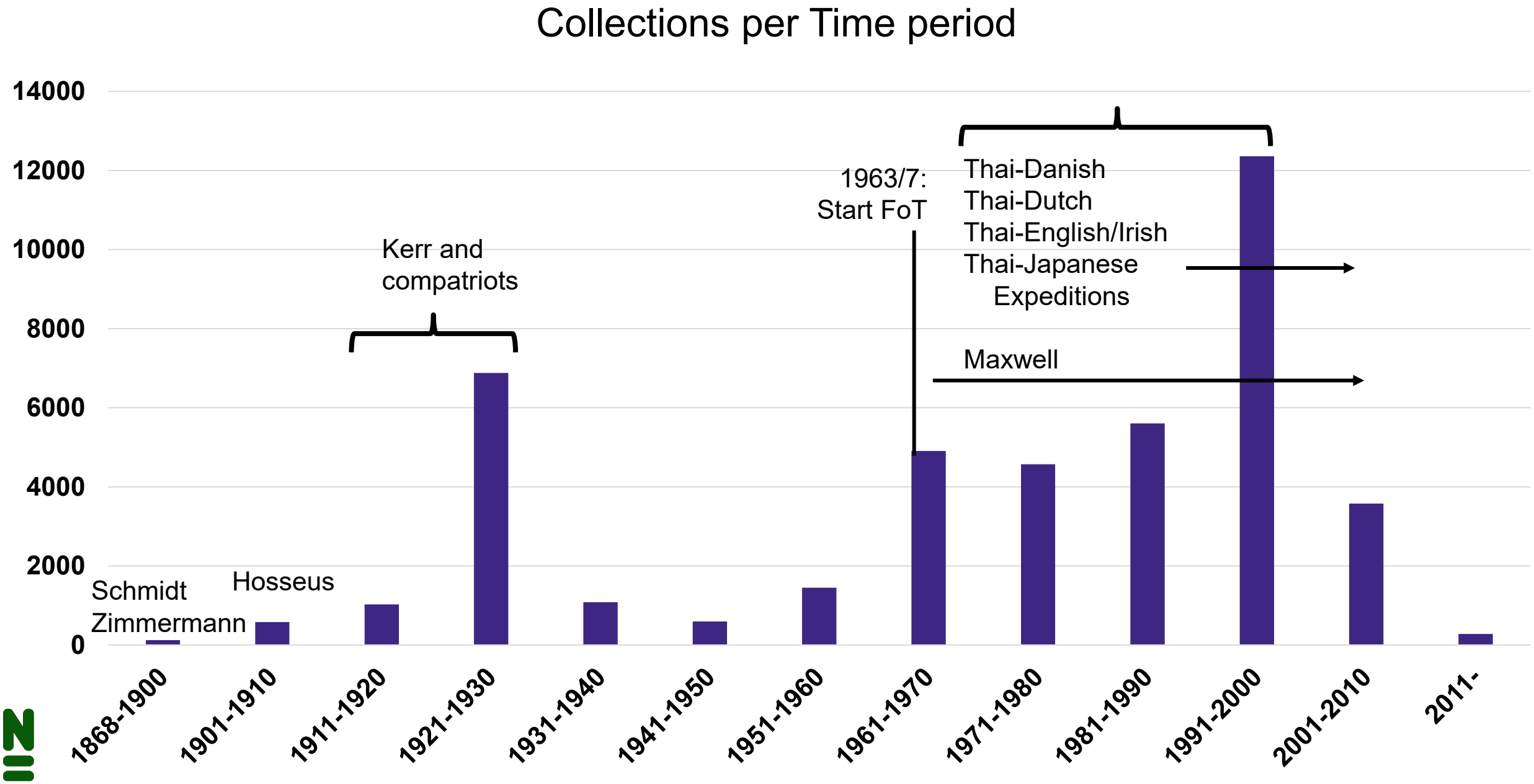
Pantadenia adenanthera Gagnep.

Newly published species for Thailand per year (source IPNI.ORG: 1687 spp.)

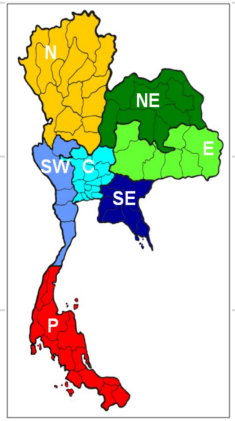


(289 in Thai Forest Bulletin, Botany)

Species are based on collections (dried plants) housed in herbariums



Numbers of collected specimens per Changwat



Northern 19,505

NE 3,571

Eastern 2,785

SW 4,833

Central 2,362

SE 3,885

Peninsular 13,658

Total: 50,599

Bangkok

Sing Buri: No data

14000
12000
10000
8000
6000
4000
2000
0

Mae Hong Son, Chiang Mai, Chiang Rai, Phayao, Nan, Lamphun, Lampang, Phrae, Uttaradit, Tak, Sukhothai, Phitsanulok, Kamphaeng Phet, Phichit, Nakhon Sawan, Phetchabun, Loei, Nong Bua Lum Phu, Udon Thani, Nong Khai, Buengkan, Sakon Nakhon, Nakhon Phanom, Mukdahan, Kalasin, Maha Sarakham, Khon Kaen, Chaiyaphum, Nakhon Ratchasima, Buri Ram, Surin, Roi Et, Yasothon, Amnat Charoen, Si Sa Ket, Ubon Ratchathani, Uthai Thani, Kanchanaburi, Ratchaburi, Phetchaburi, Prachuap Khiri Khan, Chai Nat, Sing Buri, Lop Buri, Suphan Buri, Ang Thong, Phra Nakhon Si Ayutthaya, Saraburi, Nakhon Pathom, Pathum Thani, Nakhon Nayok, Nonthaburi, Krung Thep Maha Nakhon, Samut Prakan, Samut Songkhram, Samut Sakhon, Sa Kaeo, Prachin Buri, Chachoengsao, Chon Buri, Rayong, Chanthaburi, Trat, Chumphon, Ranong, Surat Thani, Phangnaga, Phuket, Krabi, Nakhon Si Thammarat, Phatthalung, Trang, Satun, Songkhla, Pattani, Yala, Narathiwat

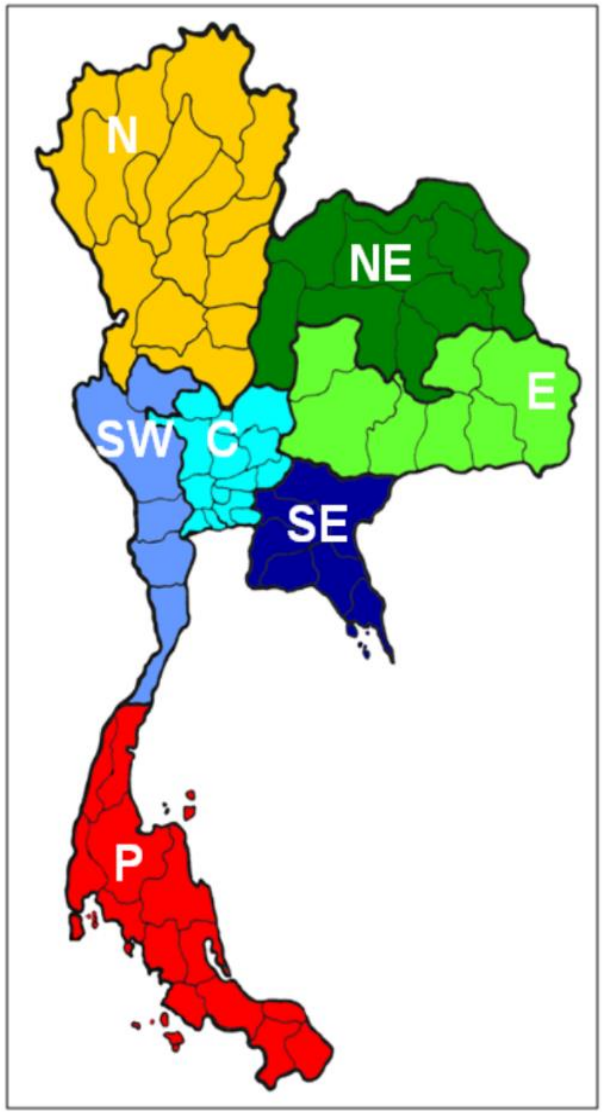
Specimen information

Database of specimens: John Parnell & Dave Simpson et al.
data provided by herbaria and collectors (john.parnell@tcd.ie)

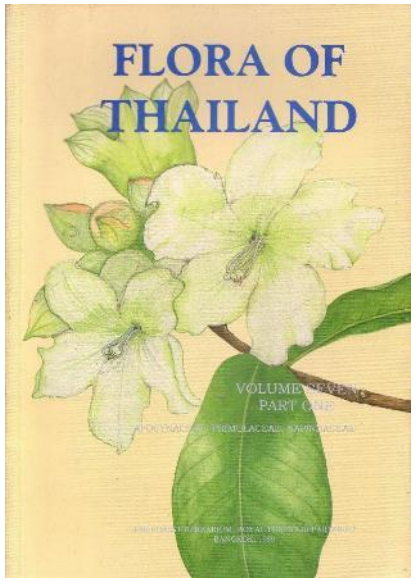
Database with distributions of all species published in FoT per
Floristic region (7) and per Changwat (77) (pcvanwelzen@gmail.com)

Global Biodiversity Information Facility (GBIF: https://www.gbif.org/)

Online databases of Herbariums (e.g. https://bioportal.naturalis.nl/en)



Future of FLORAS?



Book:

Start to know flora

Too scientific

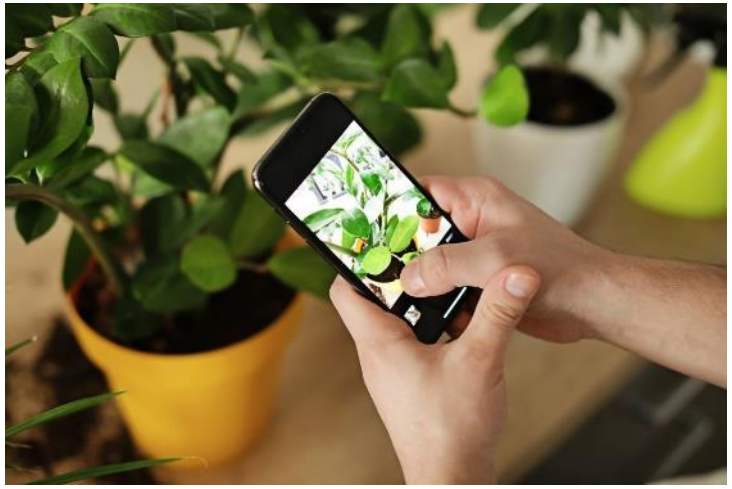
Too static

Internet:

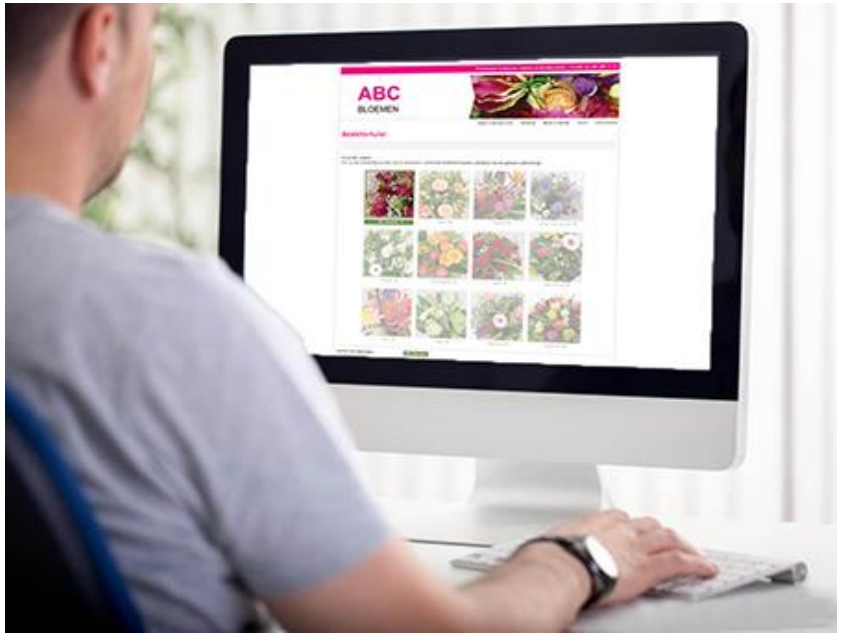
Less static

Still too scientific

Less scientific



Identification apps



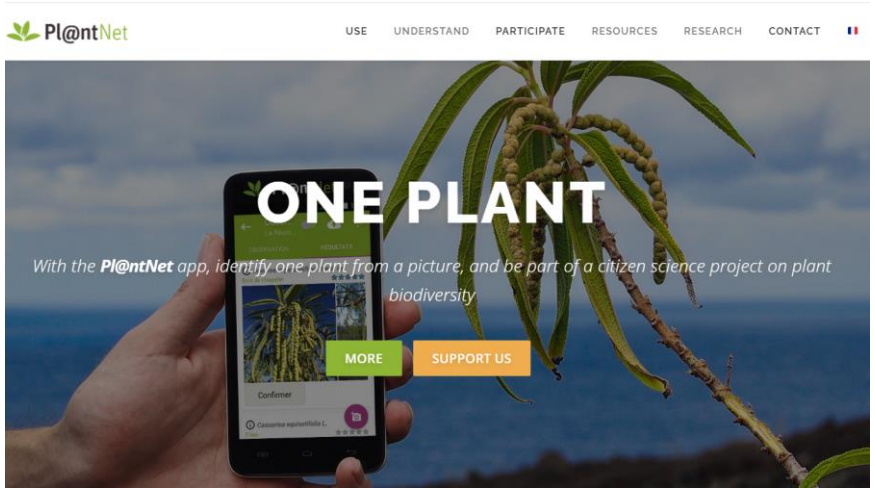
link to specimens

Easy updating

BKF
Forest Herbarium

e-Flora of Thailand

online identification



Less scientific jargon

power thesaurus

Synonyms for Scientific jargon

mathematical jargon | technical jargon | medical jargon | technical lingo | technological jargon

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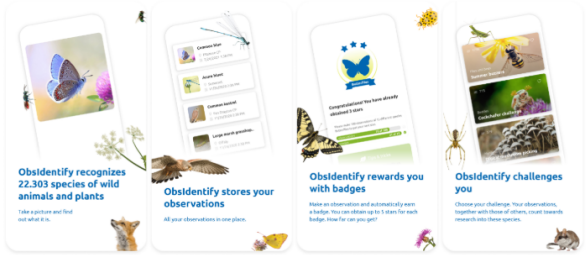

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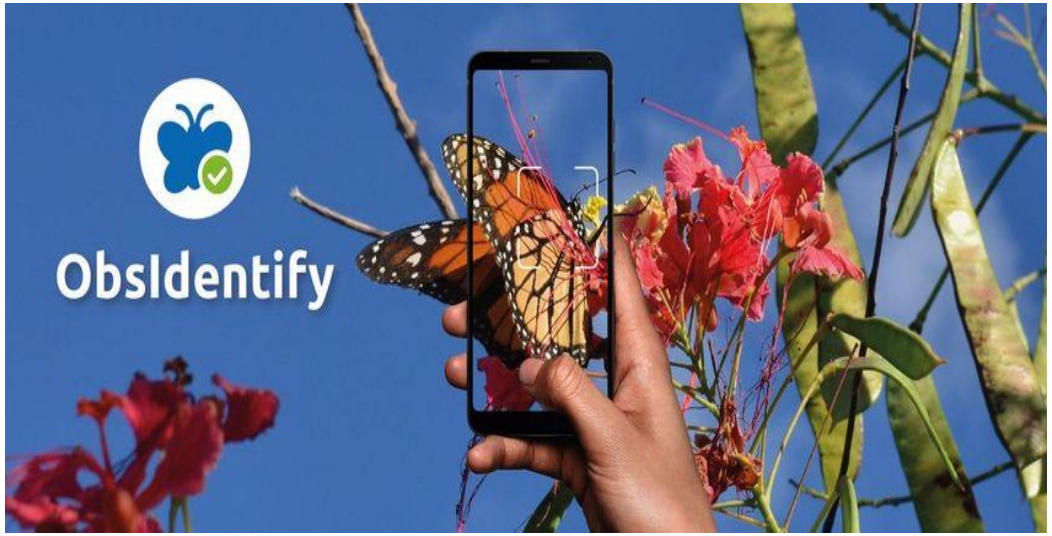
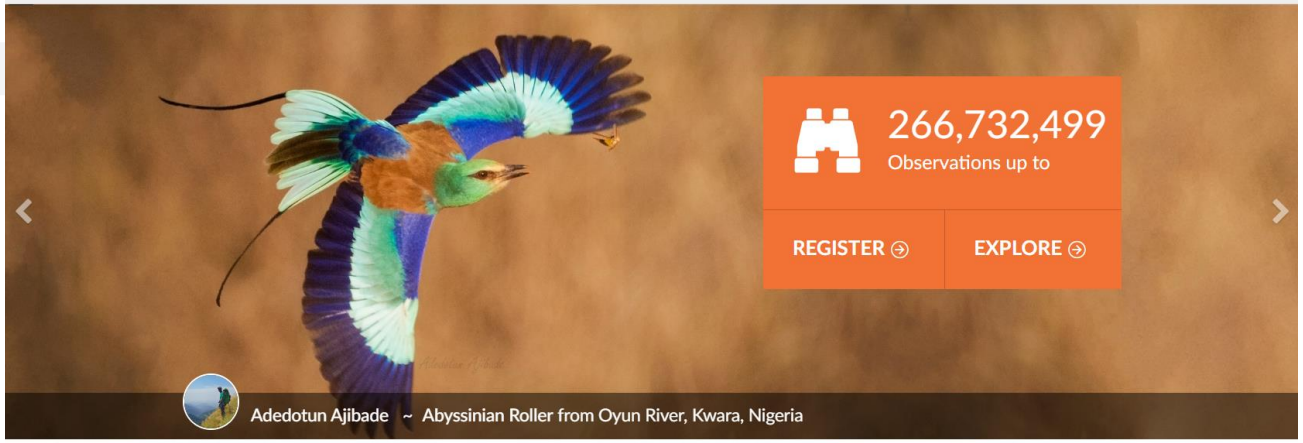
GET IT ON Google Play



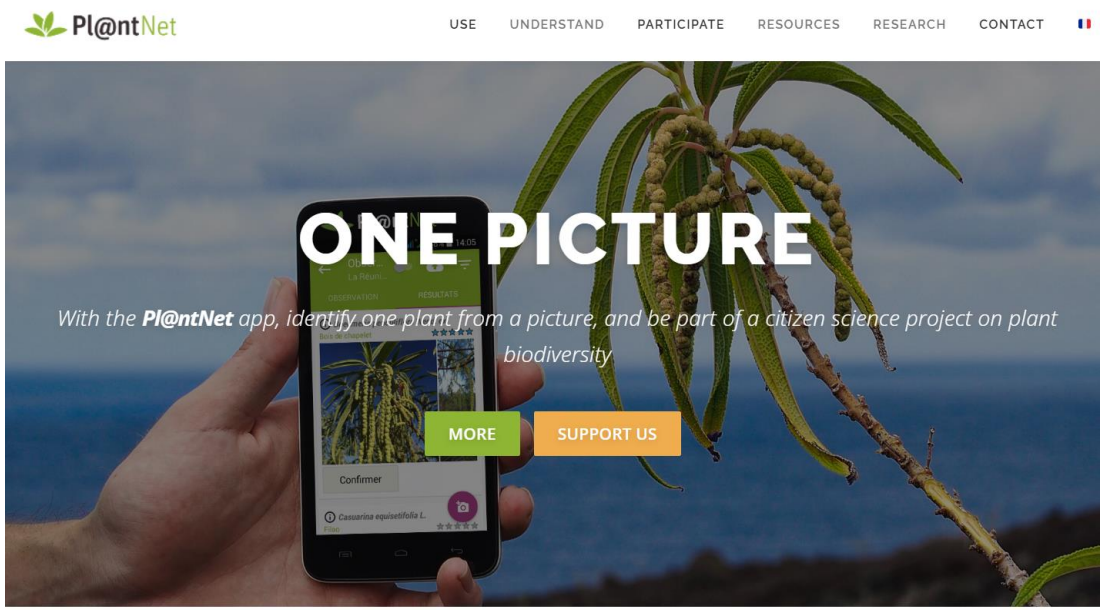
ObsIdentify (https://waarneming.nl/apps/obsidentify/)
mainly Dutch

iNaturalist Explore Community More To register or Register



How it works

iNaturalist (https://www.inaturalist.org/)
international, but SE Asia not well represented



- Photograph
- Identify (name & reliability)
- Verify
- Add to database
- Learn
- Geographical data

Download on the App Store

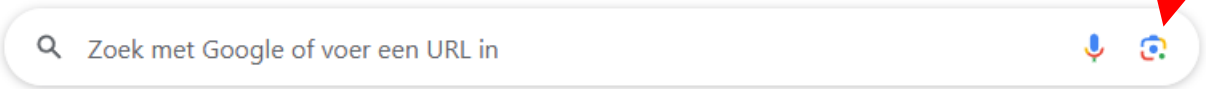
GET IT ON Google Play

Pl@ntNet Online Version

https://plantnet.org/en/

Google

Identifying also possible with Google



SE Asia badly represented!

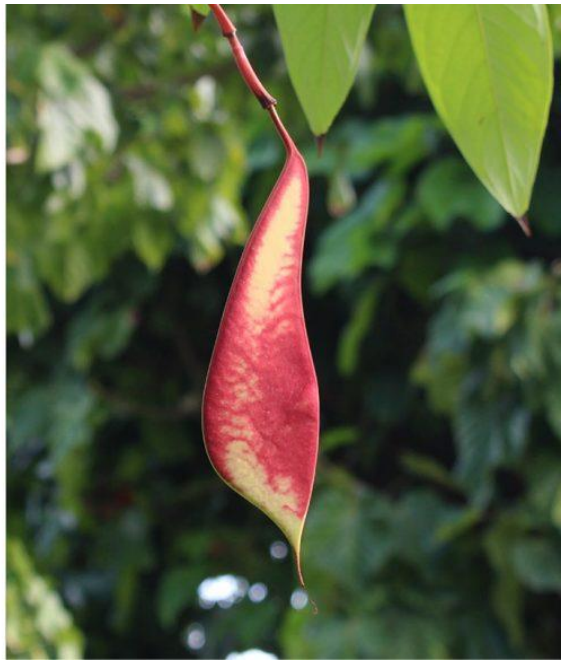
In future identify vegetation?

Refers back to data of pre-1994 and the period 1994–2001

- Of the 12,000 species (then an estimated 10,000 spp)

- 880 species rare of which 363 vulnerable
142 endangered
1 extinct

Amherstia nobilis (Fabaceae) extinct in wild in Thailand



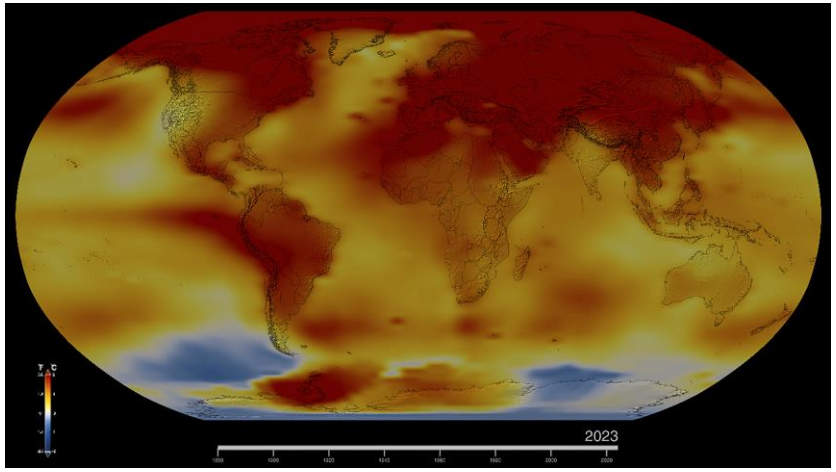
Threats to plants









Two major threats for plants:

Land use & Climate change

Reduction in size of distributions, reduction in population sizes

Present distribution data: Inflated picture due to use older data

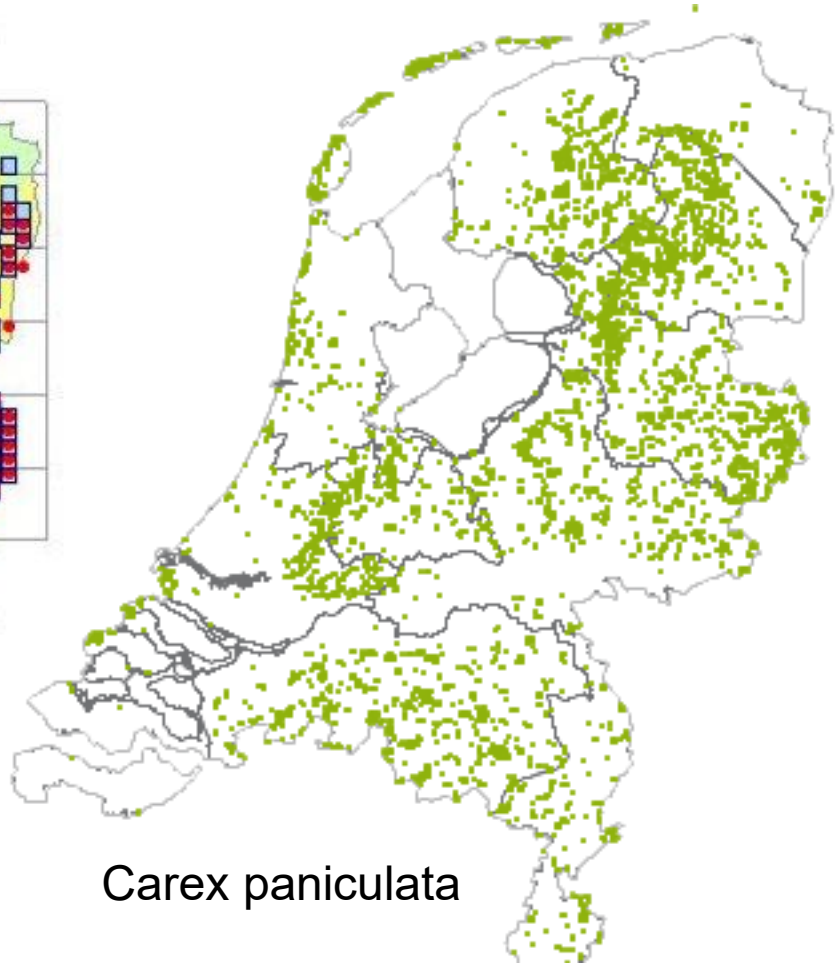
FLORON

Floristic Research of the Netherlands

Citizen science monitoring Flora of The Netherlands:

- Training
- Once per year visit all areas for 5 x 5 km data
- Track special species for 1 x 1 km data

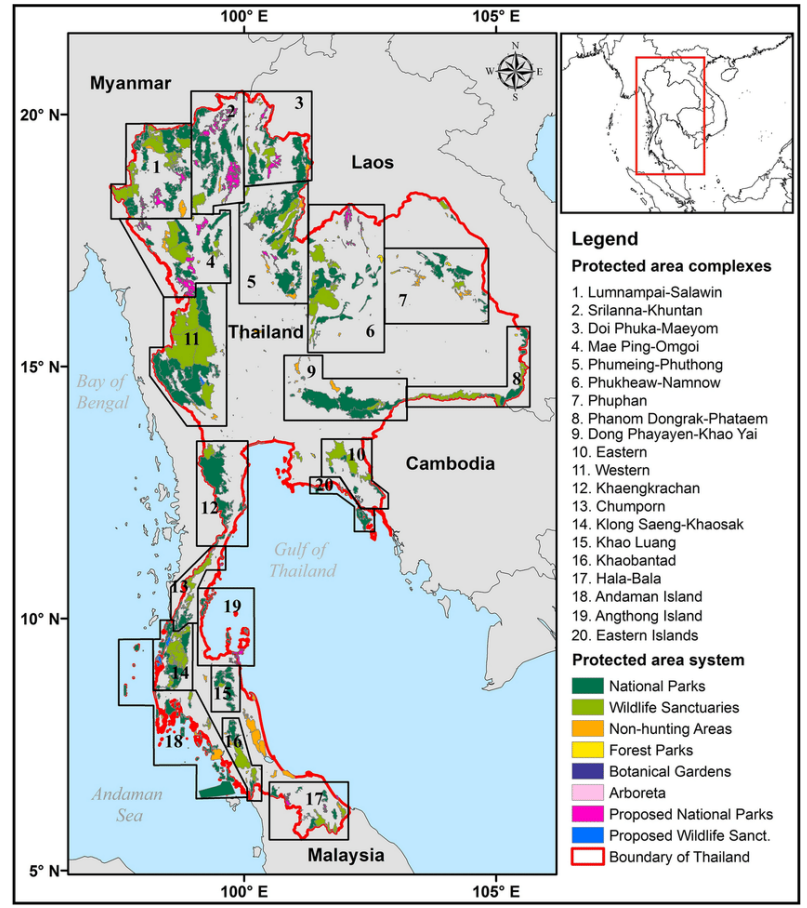
Vaccinium myrtillus



Carex paniculata

Situation in Thailand: monitoring system

- Flora of Thailand nearly finished, should be popularized
- Physically impossible in Thailand for detailed monitoring
- Use Typical species to monitor
- Monitor plots
- Do not only monitor protected areas
- Train citizens
- Develop identification apps
- Ultimately: Motivate people to change lifestyle



Changes can be rapid!

Developing teams

2013

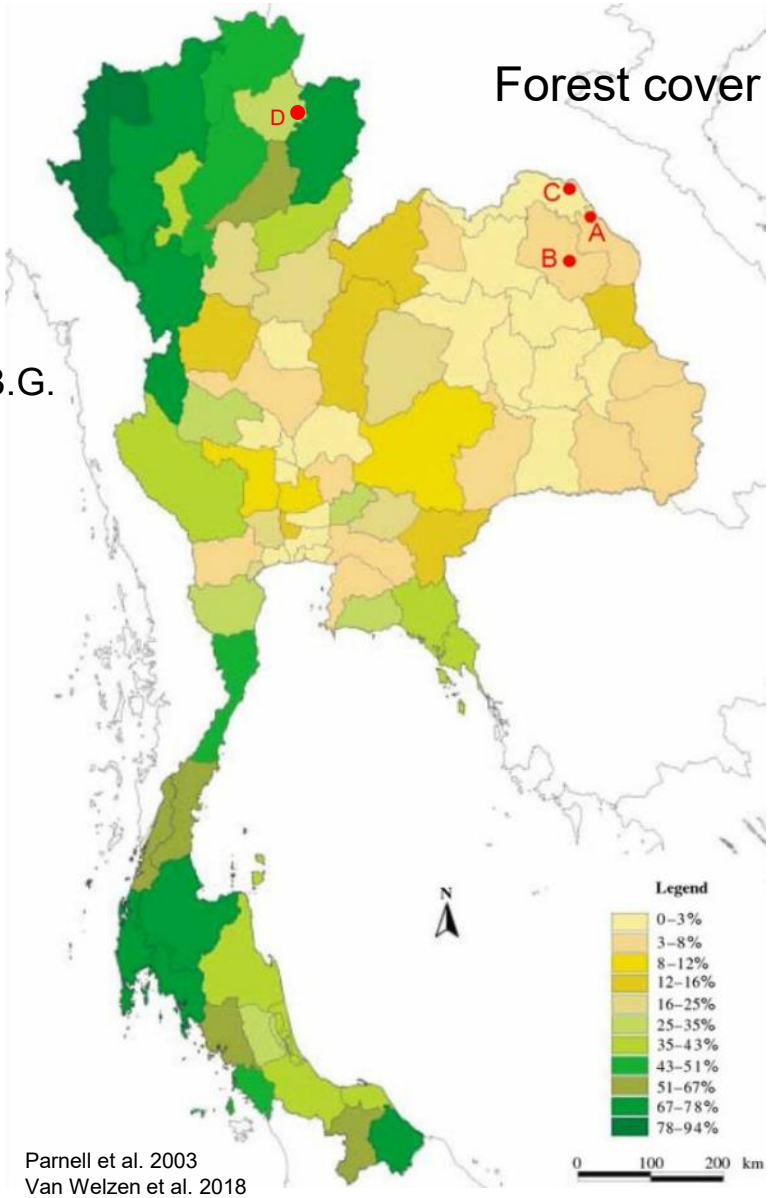
QSBG

2024

BKF in NE

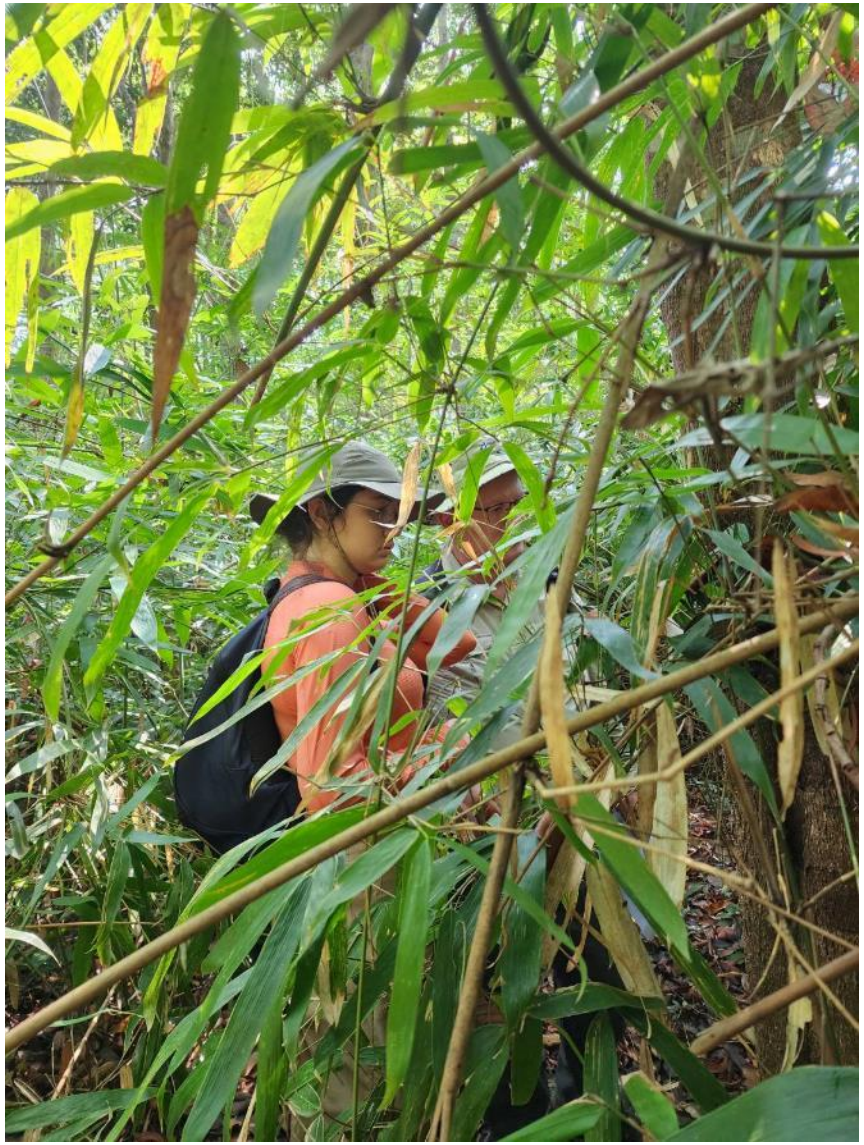
Last surveillance teams

A = Phu Langka
B = Phu Phan
C = Phu Wua
D = Queen Sirikit B.G.



Parnell et al. 2003
Van Welzen et al. 2018

Idea: See influence of climate change by diameter (lack of) increase



But, since Covid:

Half of plots taken over by bamboo

Many trees death, outcompeted

Others hardly increase in diameter

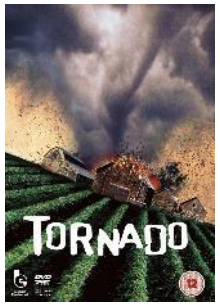
Monitoring

Publishing (easily accessible & understandable to people)

Publicity (internet, social media)

Policy changes

Pressure (interest groups, court)



Become biodiverse!

Thank you!