



DEPARTMENT OF

Geographical Sciences

BE GLOBAL

MYANMAR MALARIA EARLY WARNING SYSTEM (MMEWS)

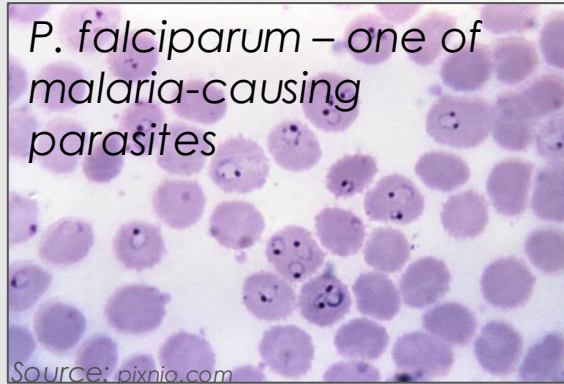
Tatiana Loboda, Dong Chen, Varada Shevade, Amanda Hoffman-Hall, Allison Baer,
Maria Tonellato

Department of Geographical Sciences, University of Maryland

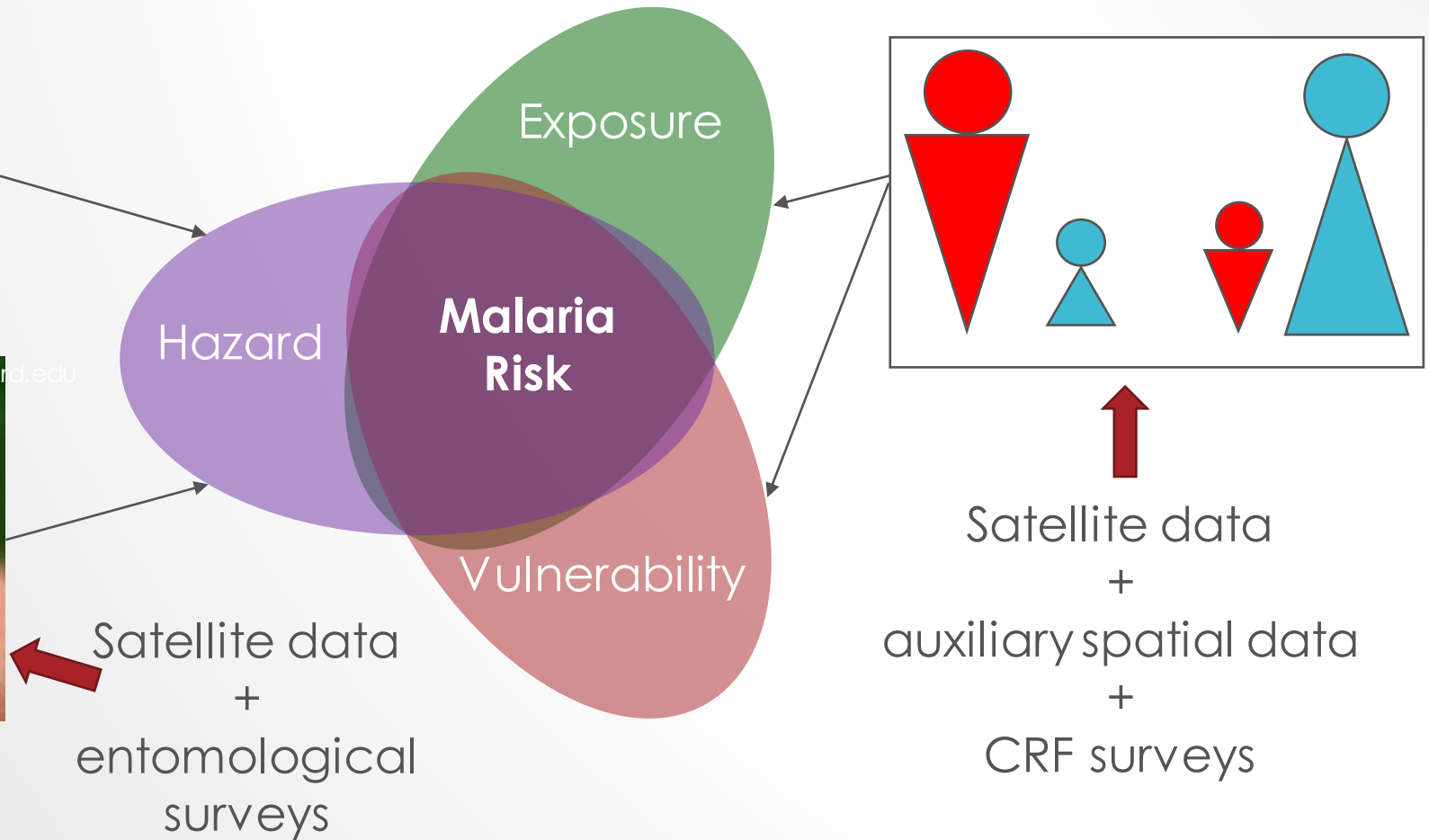
Christopher Plowe, Myaing Myaing Nyunt
Formerly Duke University

Poe Poe Aung
Formerly Duke Global Health Institute, Myanmar

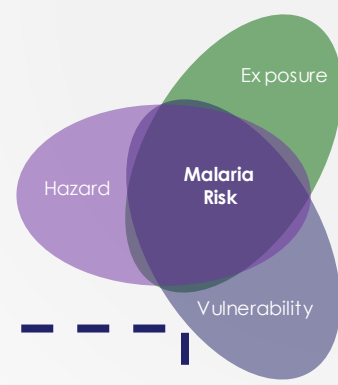
MALARIA RISK



<http://sitn.hms.harvard.edu>



MALARIA BURDEN POTENTIAL (MBP) NEW



Hazard

as available

Parasitemia
(0.5)

Vector Abundance

Surface
Water
(0.167)

Surface T
(0.167)

Veg Stress
(0.166)

8-day

Exposure

annual / as available

Population
Distribution (0.4)

Occupational
Exposure (0.6)

Vulnerability

annual / as available

Access to Care
(0.6)

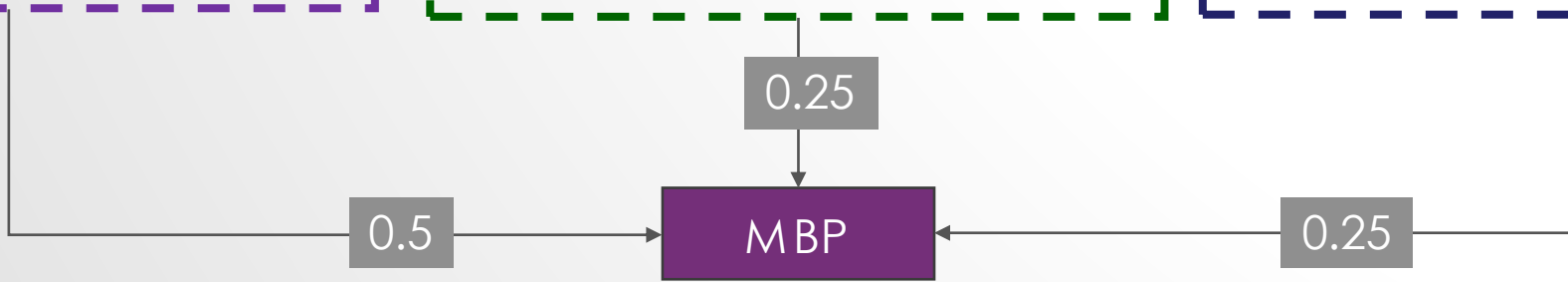
Social
Vulnerability
(0.4)

0.25

0.5

MBP

0.25



MAJOR ACHIEVEMENTS TO DATE

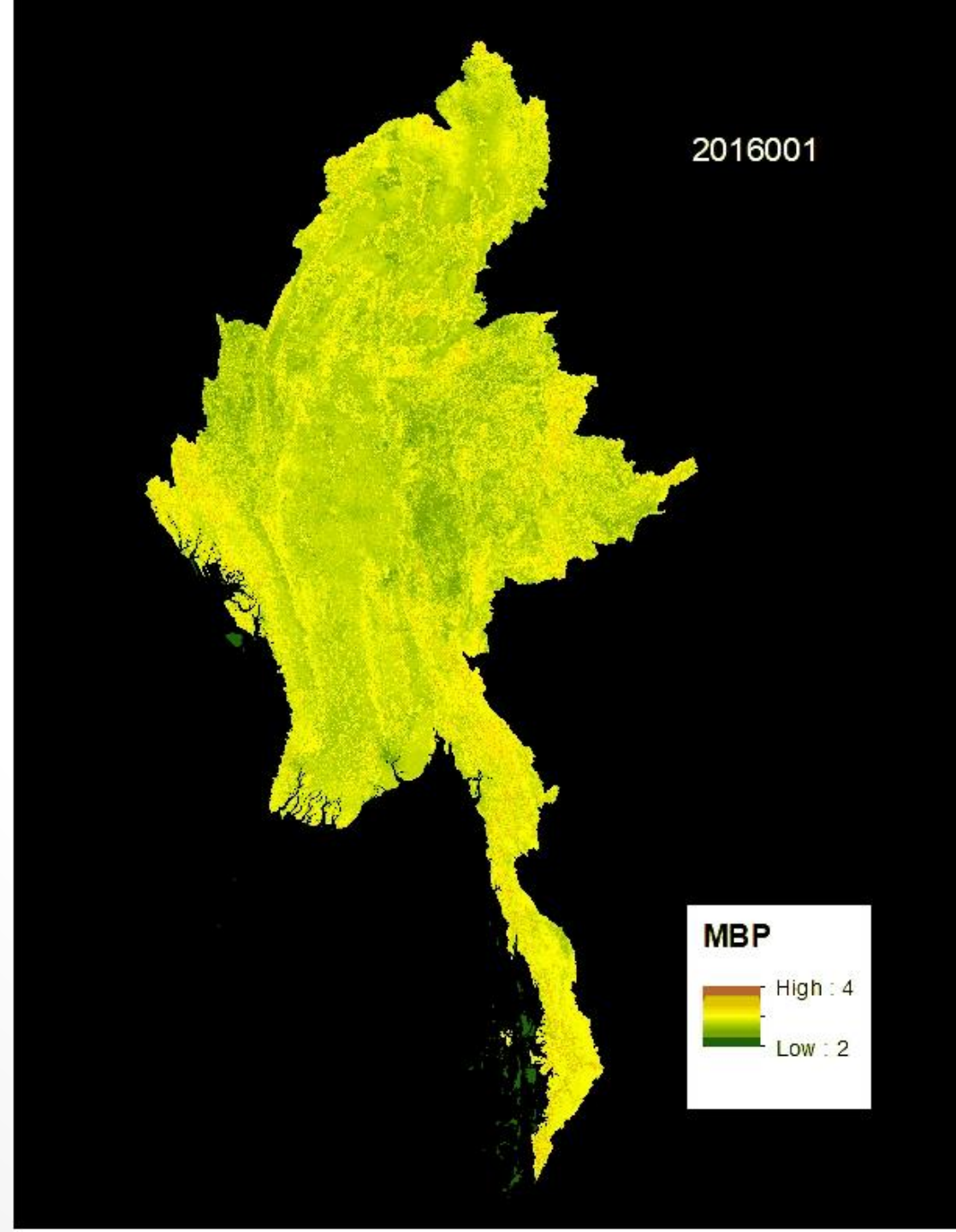
GENERAL APPROACH/SCHEDULE*

	Date	
Redesign the reporting system for web-based delivery only	Sep, 2021	✓
Complete historical model runs 2016-2020	June, 2021	✓
Redesign and optimize processing environment to enable in-country operations	Oct, 2021	✓
Testing, verification, and deployment	Dec, 2021	→
Preparation of supporting documentation	Dec, 2021	→
Stakeholder meetings	as feasible	😞

* As reported in Quarterly Report 6/18/2021

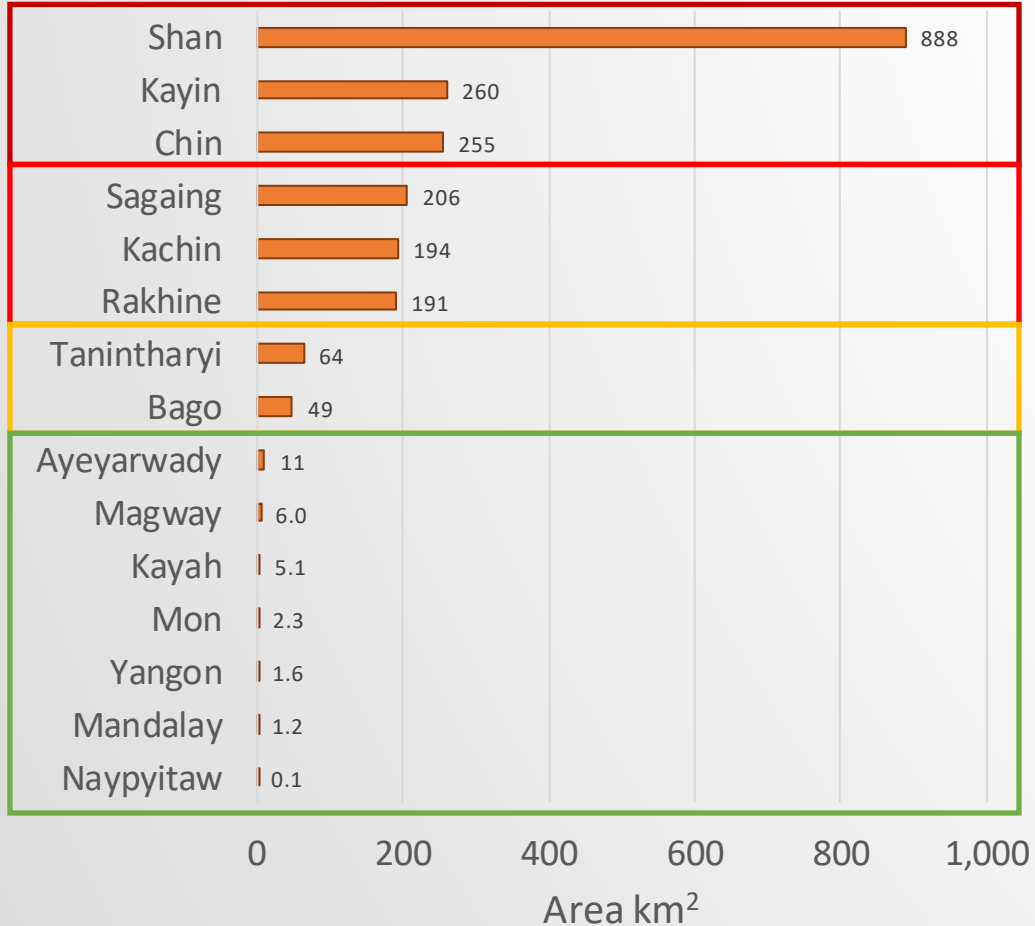
OPTIMIZED MYANMAR-WIDE MBP MODEL

- Wall-to-wall model of Malaria Burden Potential
 - 240 m resolution
 - 8-day update
 - 1 – 2 months forecast
- Executed: 2016 -2020
- In progress: 2021

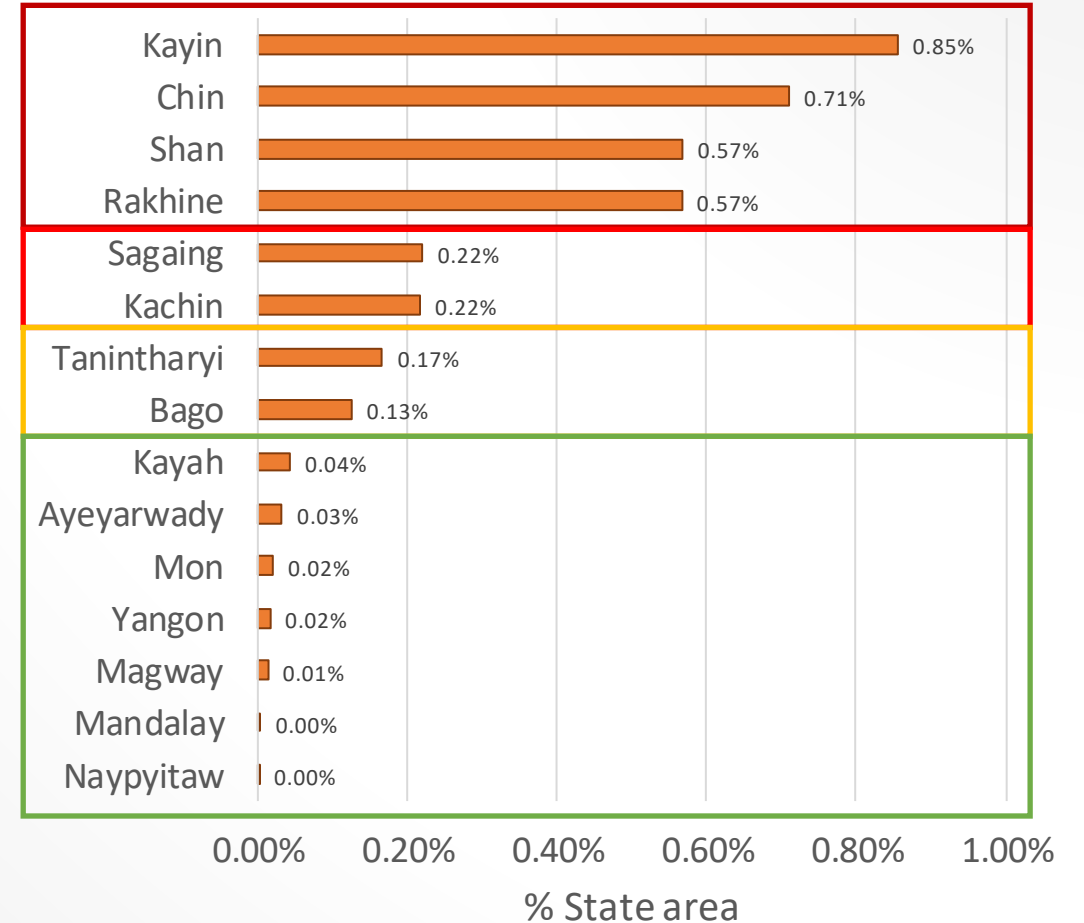


THREAT REPORTING/HISTORICAL RUNS

Mean daily area under "High" risk



Percent area under "High" risk



* Numbers based on a 5-year mean assessment

By area km²

By % state

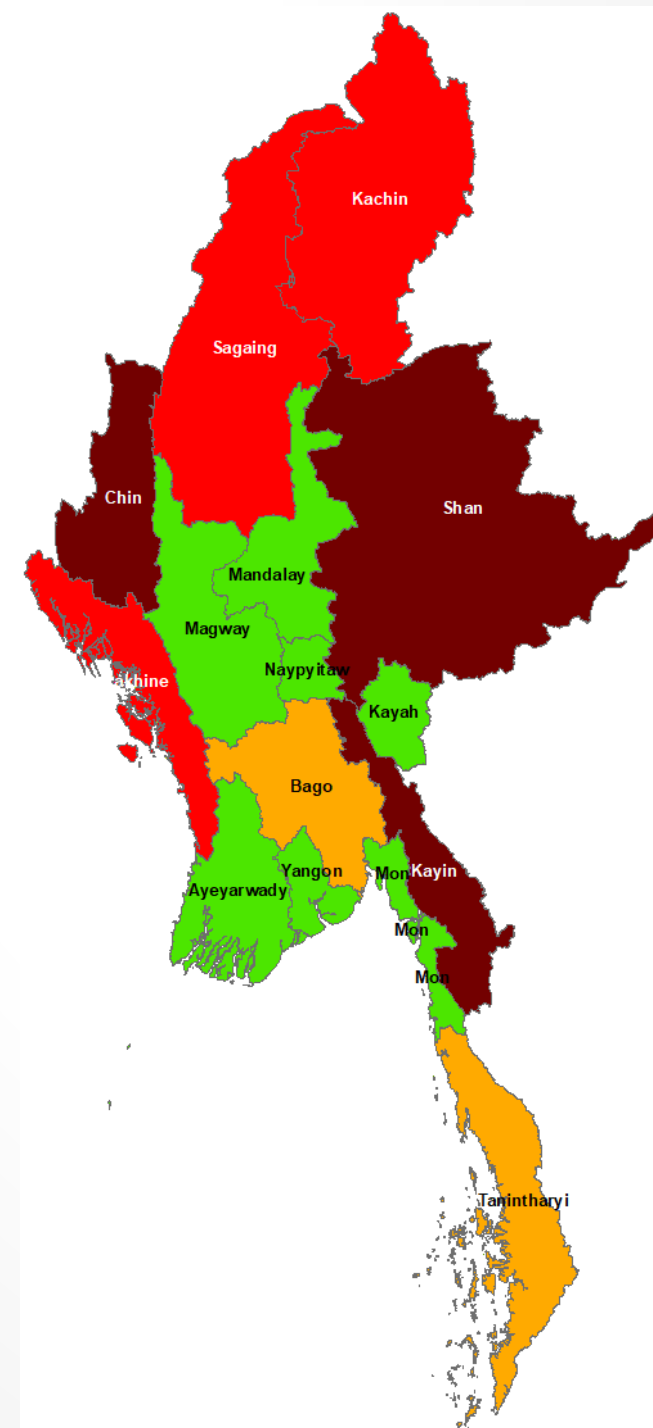
1. Shan	1. Kayin
2. Kayin	2. Chin
3. Chin	3. Shan
4. Sagain	4. Rakhine
5. Kachin	5. Sagain
6. Rakhine	6. Kachin
7. Tanintharyi	7. Tanintharyi
8. Bago	8. Bago
9. Ayeyarwady	9. Kayah
10. Magway	10. Ayeyarwady
11. Kayah	11. Mon
12. Mon	12. Yangon
13. Yangon	13. Magway
14. Mandalay	14. Mandalay
15. Naypyitaw	15. Naypyitaw

Very
High

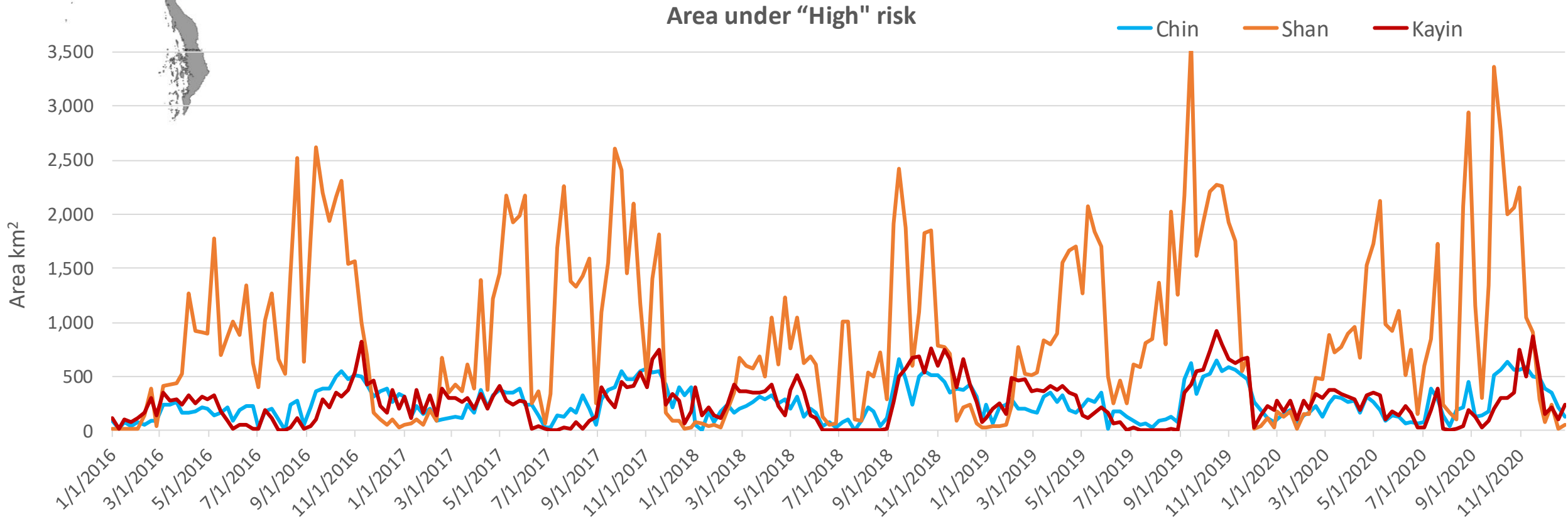
High

Moderate

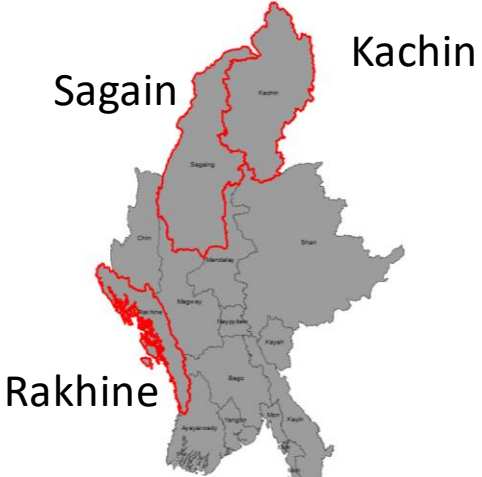
Low



Very High Risk States

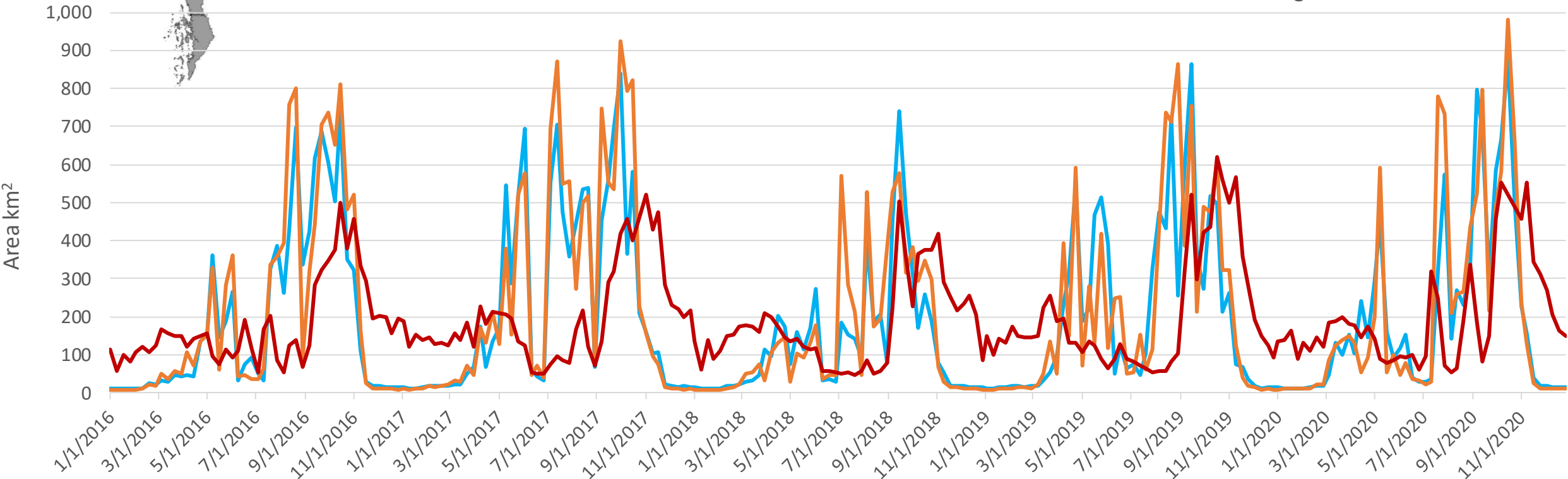


High Risk States



Area under "High" risk

Kachin Sagain Rakhine



Moderate Risk States



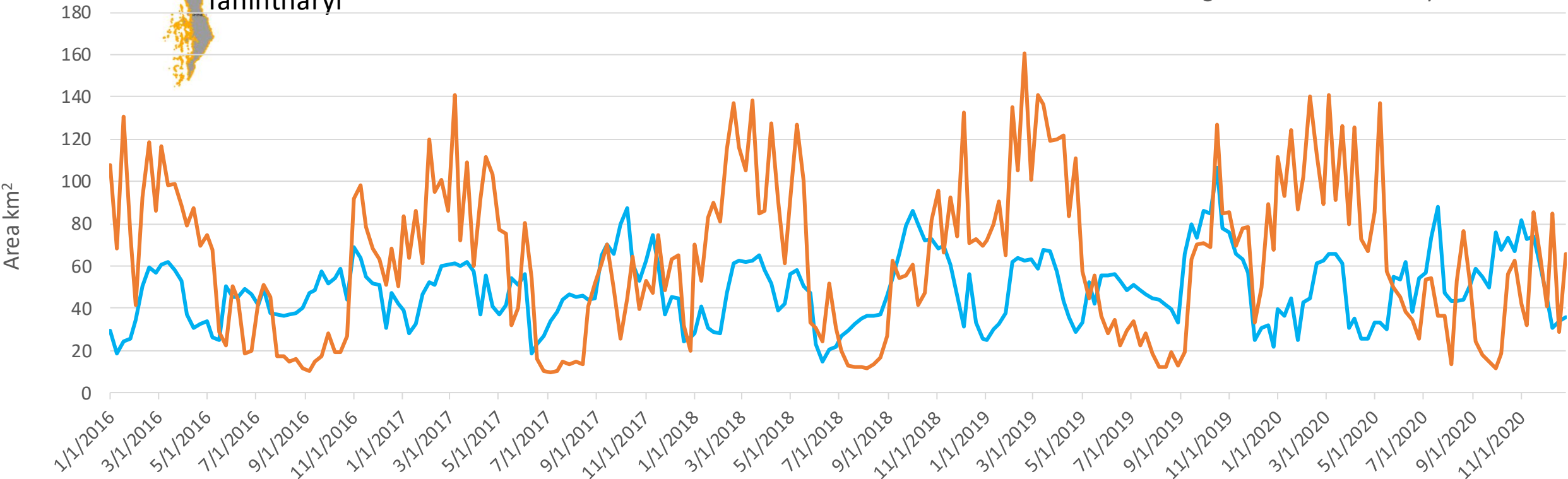
Bago

Tanintharyi

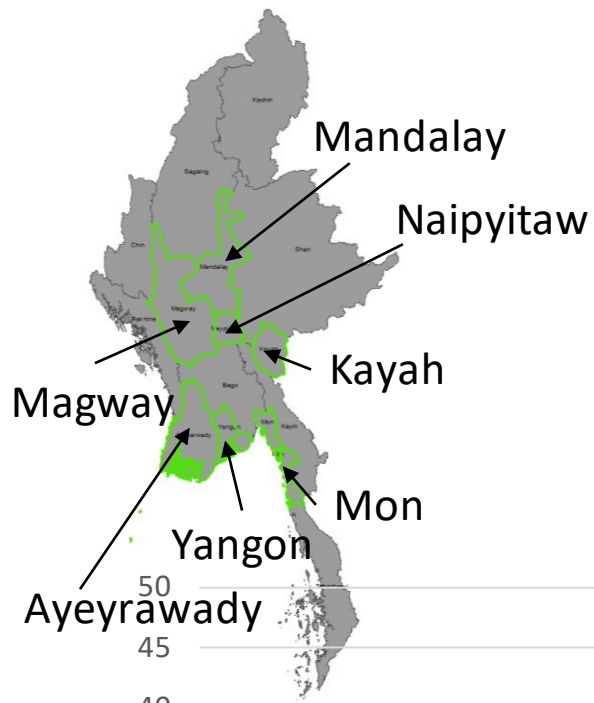
Area under "High" risk

Bago

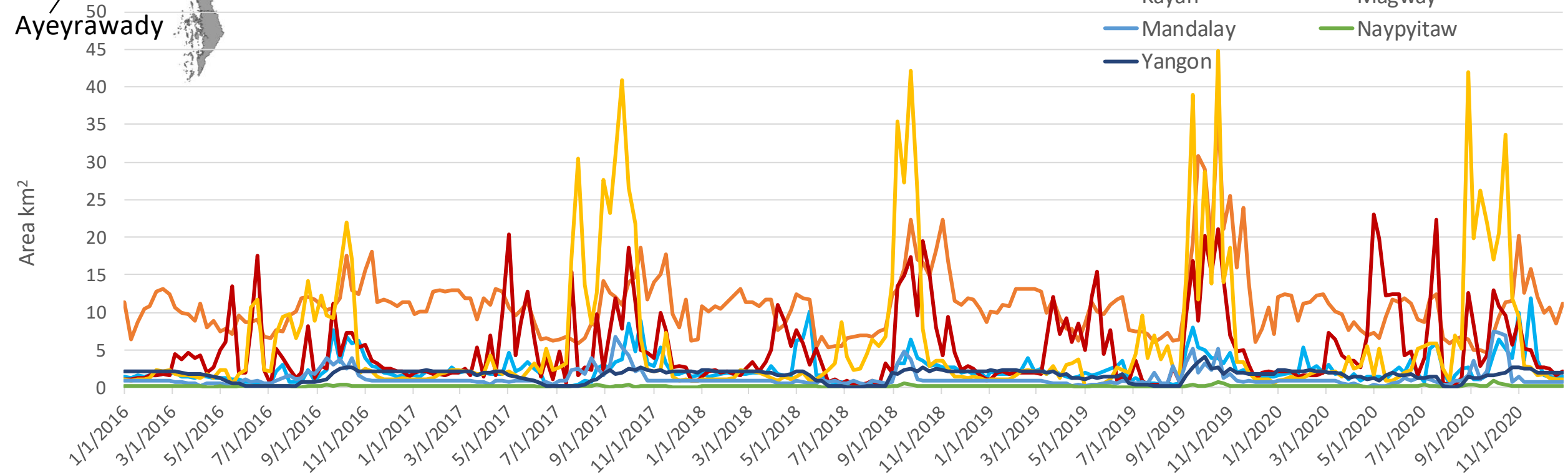
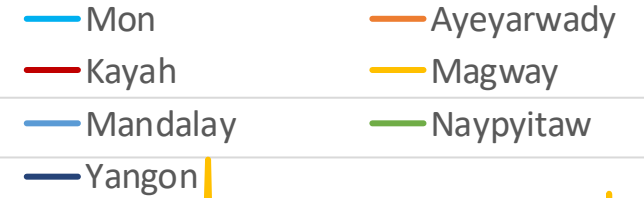
Tanintharyi

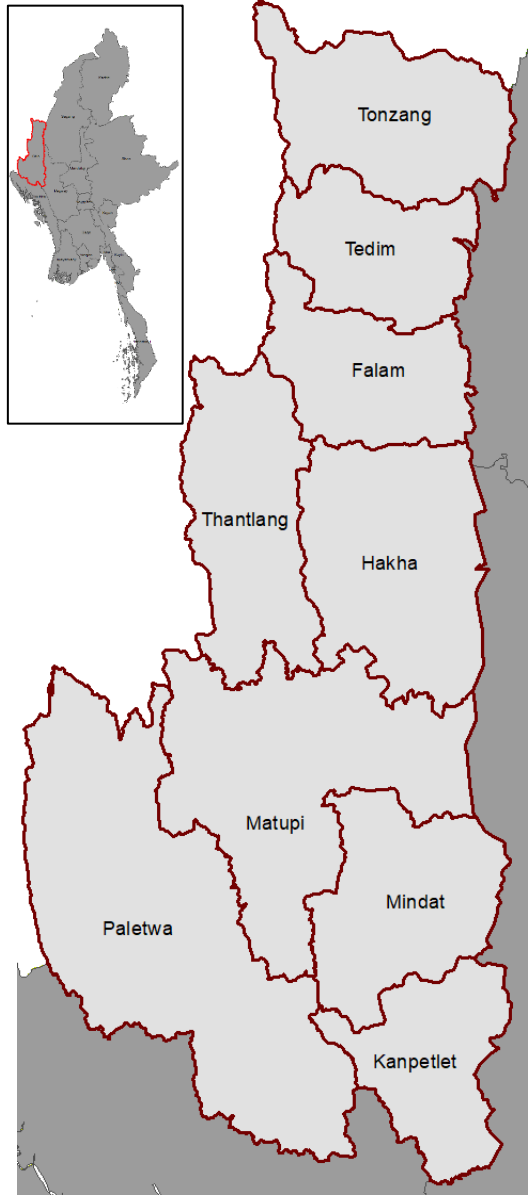


Low Risk States



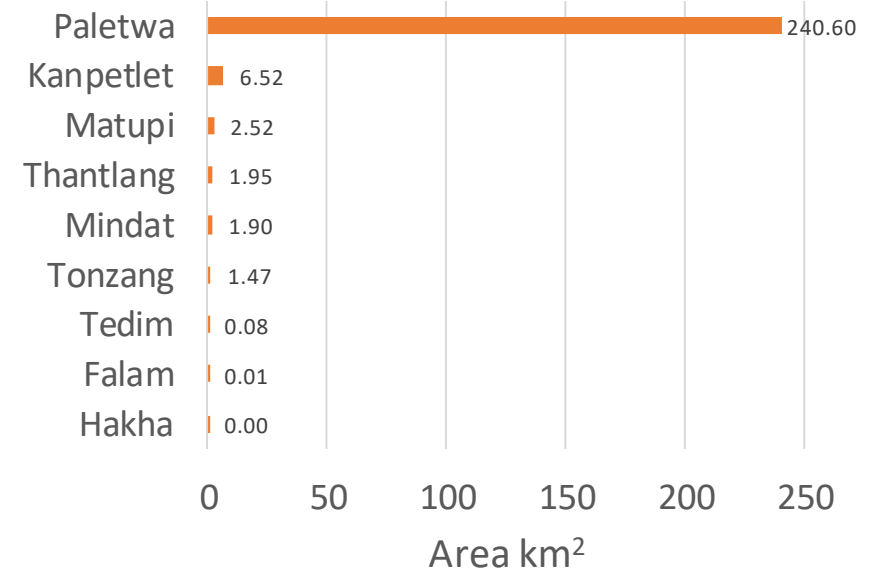
Area under "High" risk



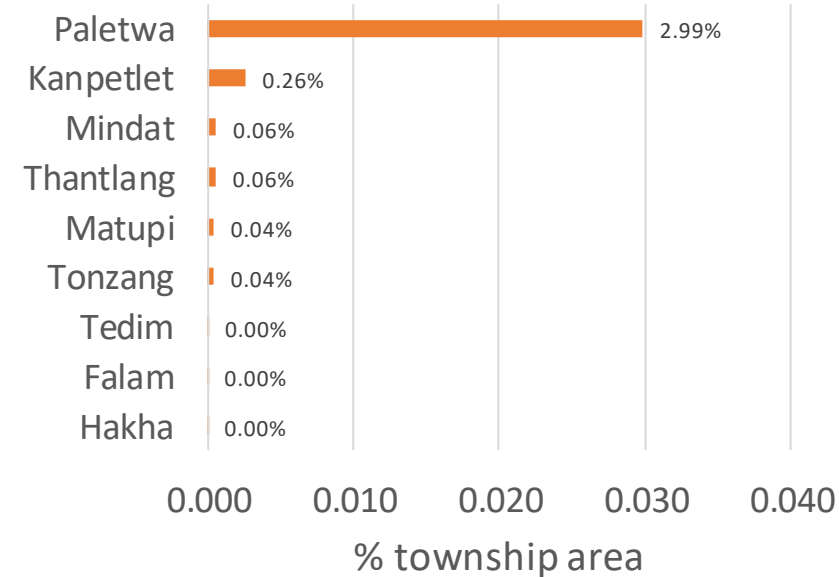


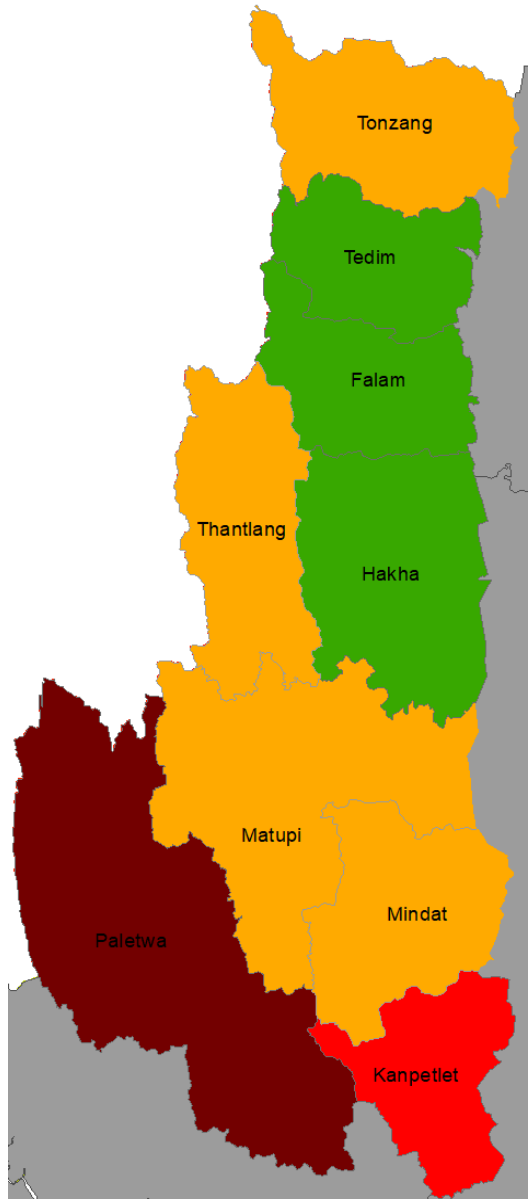
By area km2	By % township
1. Paletwa	1. Paletwa
2. Kanpetlet	2. Kanpetlet
3. Matupi	3. Mindat
4. Thantlang	4. Thantlang
5. Mindat	5. Matupi
6. Tonzang	6. Tonzang
7. Tedim	7. Tedim
8. Falam	8. Falam
9. Hakha	9. Hakha

Mean daily area under "High" risk

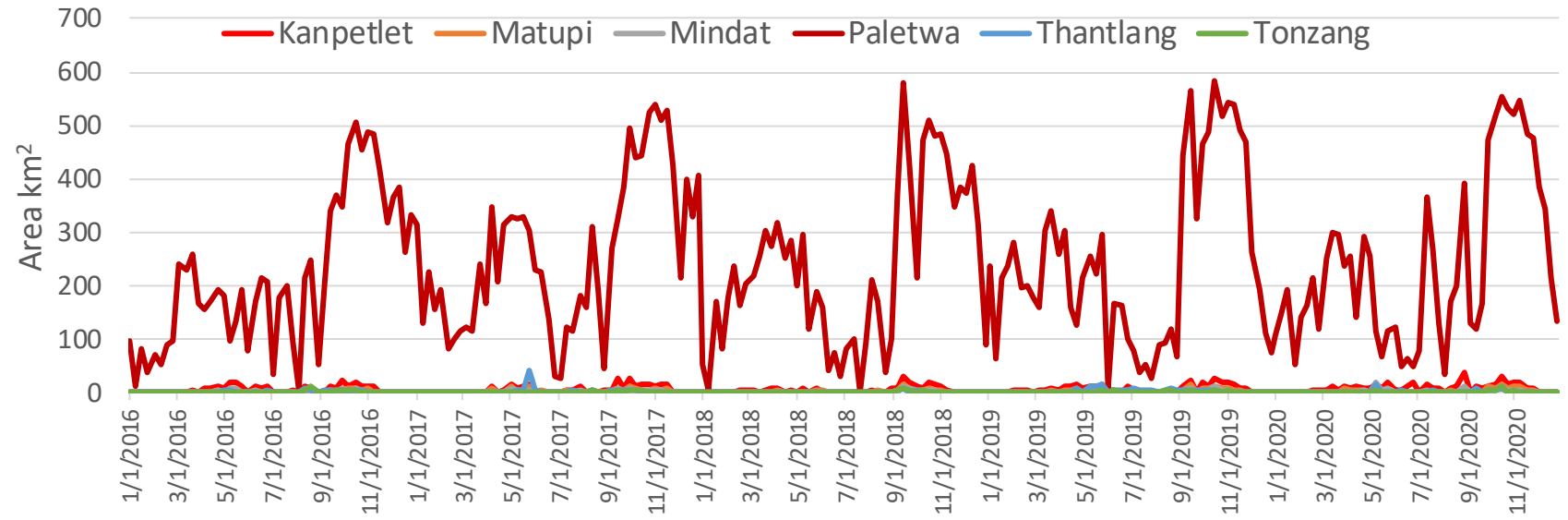


Percent area under "High" risk

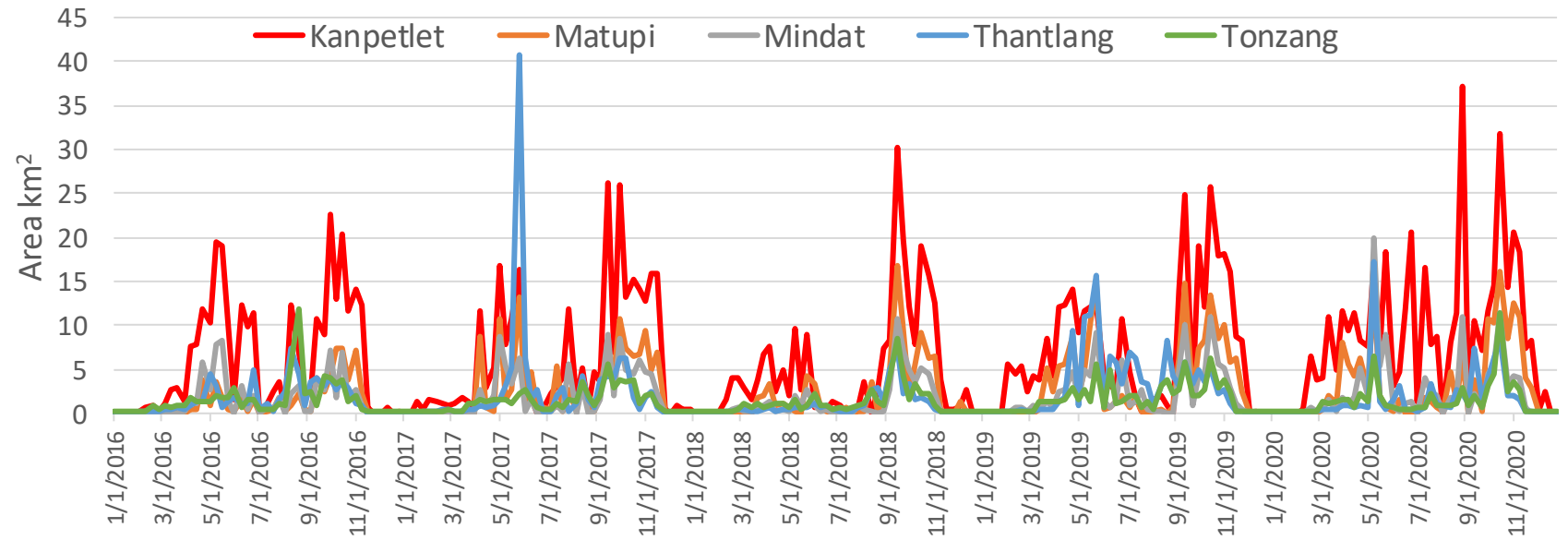


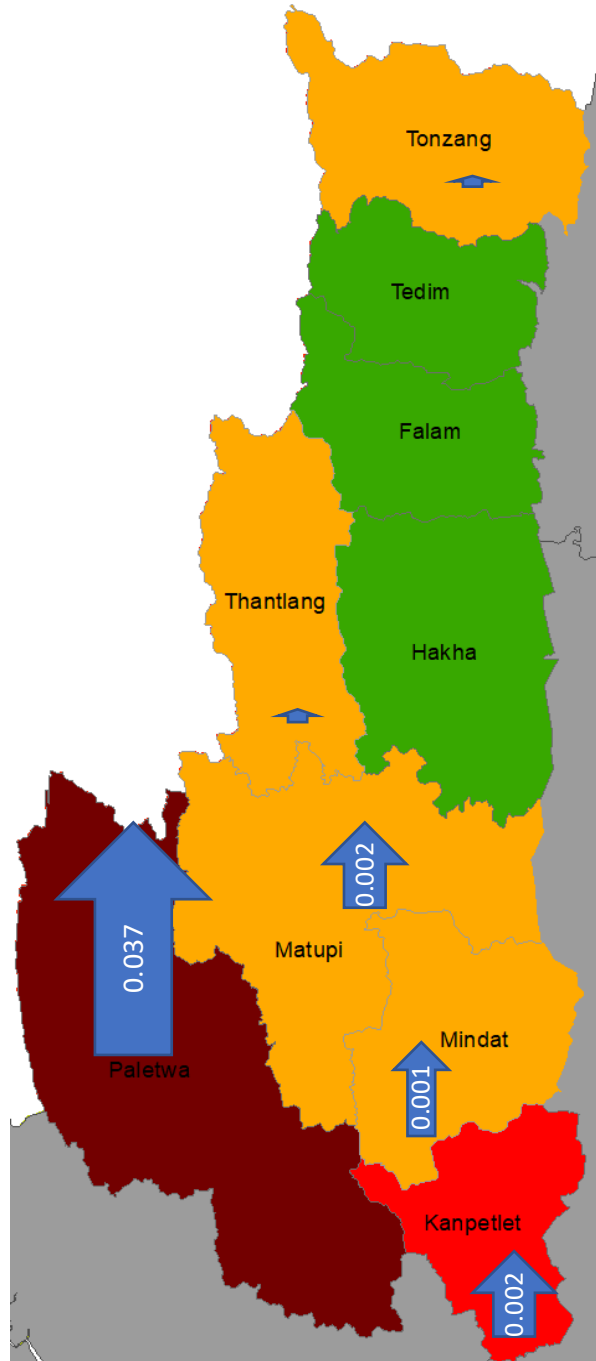


Area under "High" risk (top 6 townships)

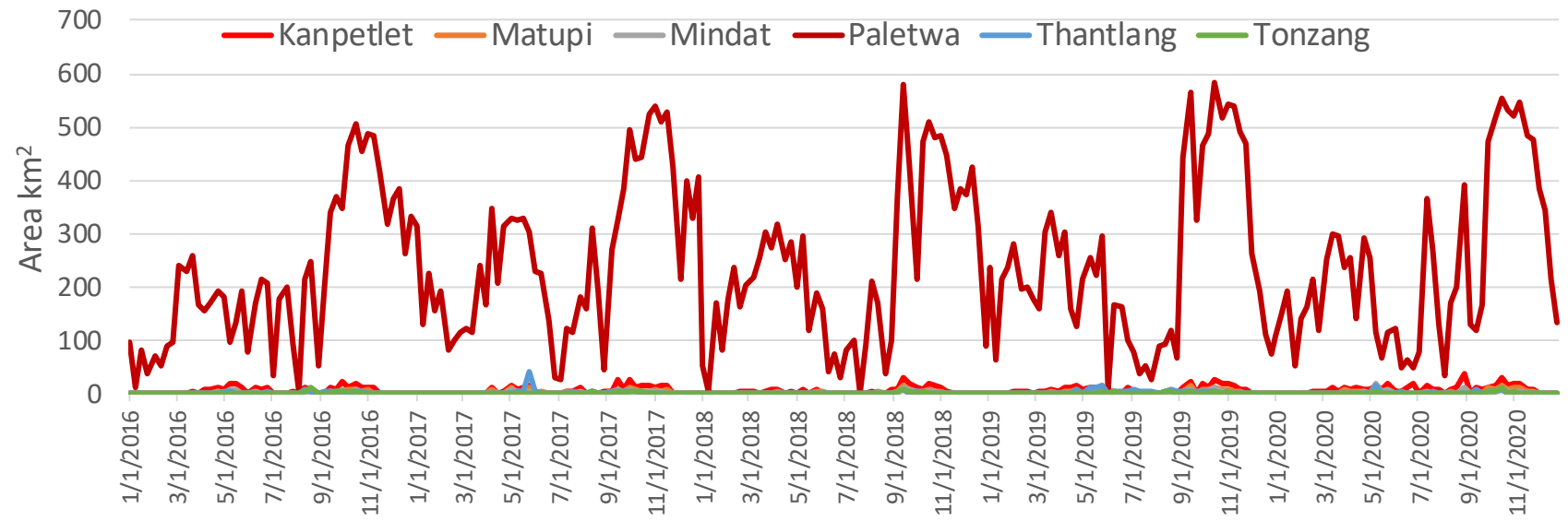


Area under "High" risk

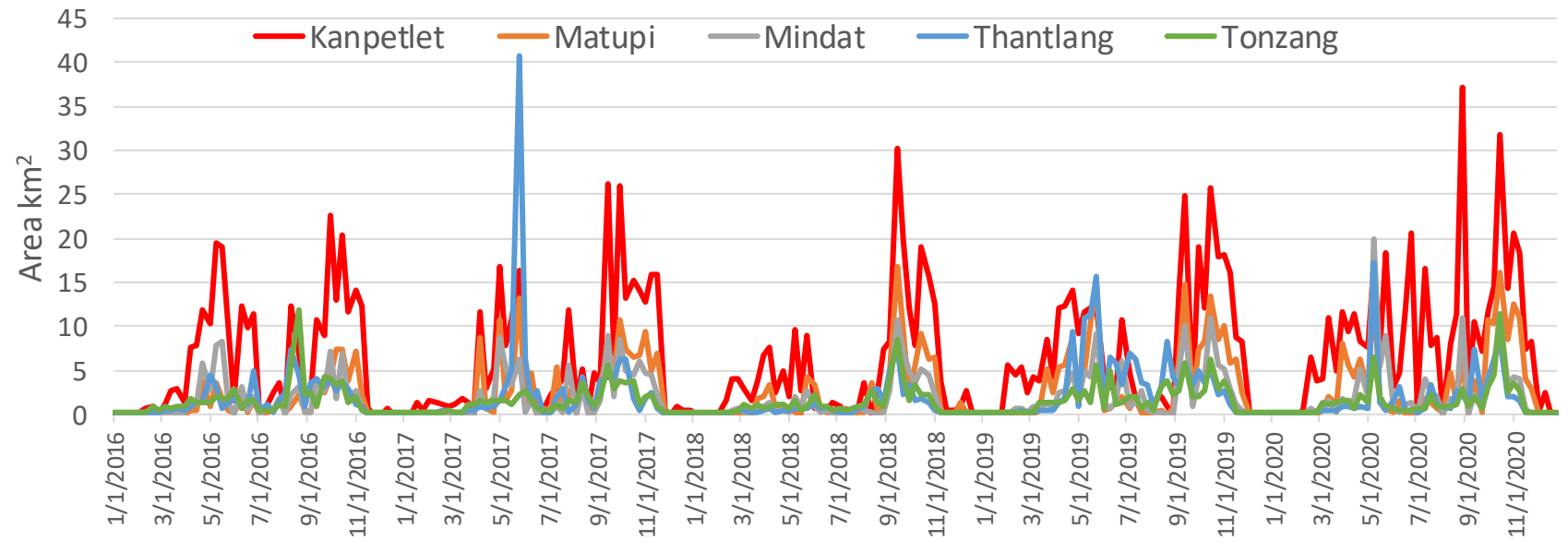




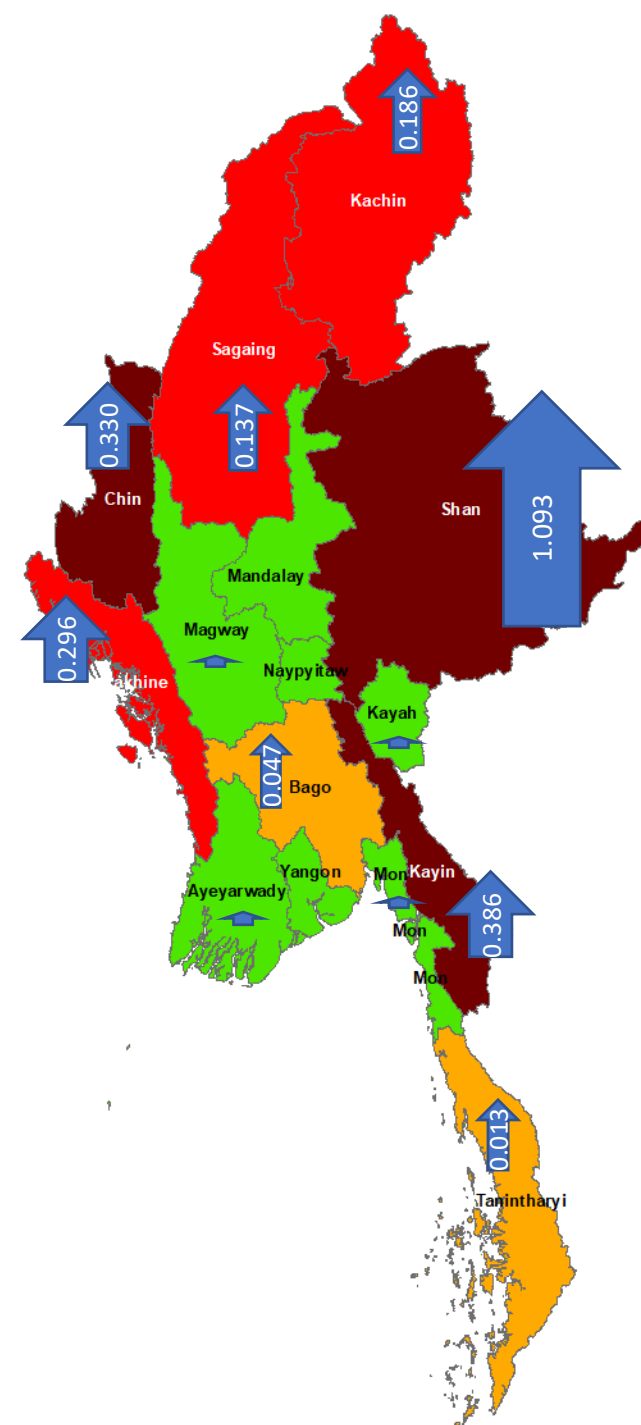
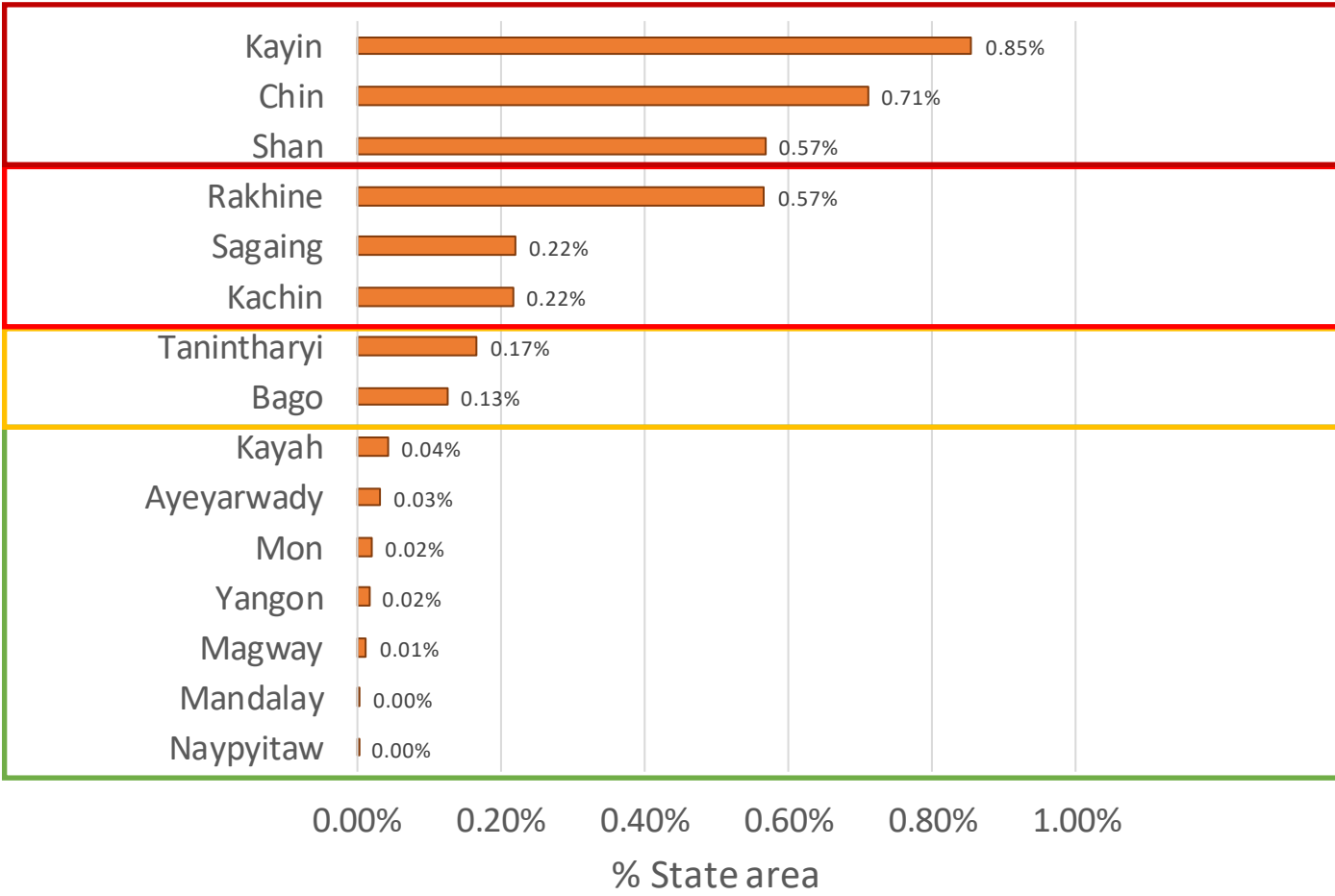
Area under "High" risk (top 6 townships)



Area under "High" risk



Percent area under "High" risk



WEB-BASED REPORTING

<https://www.arcgis.com/apps/dashboards/89da33a1ae2046b81ee6b52d23c79bb>

CHALLENGES

COVID19 + POLITICAL CONTEXT + PARTNERS

- Unable to travel to meet and work with stakeholders
- Stakeholders are fully engaged in COVID response



Unable to complete text-reporting system development

Unable to complete testing, verification, and operational deployment

CURRENT STATUS

- Starting ARL 1
- Final ARL 7: Functionality Demonstrated

QUESTIONS?

