

preserving nature in post-pandemic PNG: a field report

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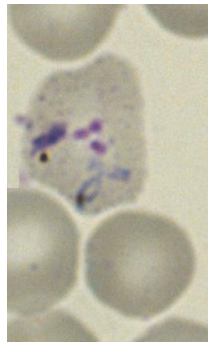
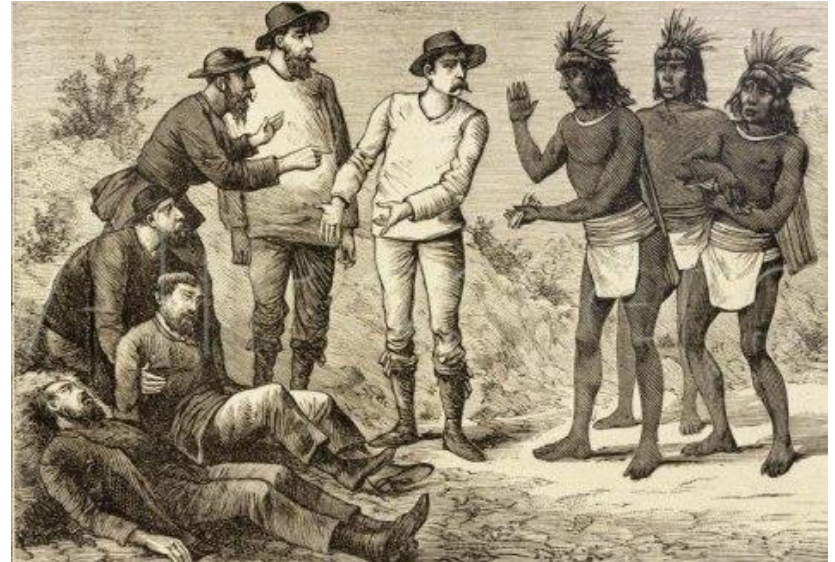


A generation goes,
a generation comes
but the earth
remains forever

Ecclesiastes 1: 4

bio-cultural solutions to societal challenges: quinine & malaria

Quechua people gifted Jesuit missionaries in the 16th century with cinchona bark from which quinine is extracted and used to treat malaria



preserving nature in PNG

- indigenous science
New Guinea
- bio-cultural preservation
Ohu
- global research networks
Wanang
- canopy crane
Baitabag



Binatang Research Center

Nagada Plantation, Madang

- biodiversity research, conservation & education since 1997
- international scientists & village-based projects training all levels
- US\$ 1 million annual budget & 40 full-time staff
- associate director Francesca Dem & other PhD graduates



Port Moresby 2023

freeways & high-rise
apartments as pricey as
New York City

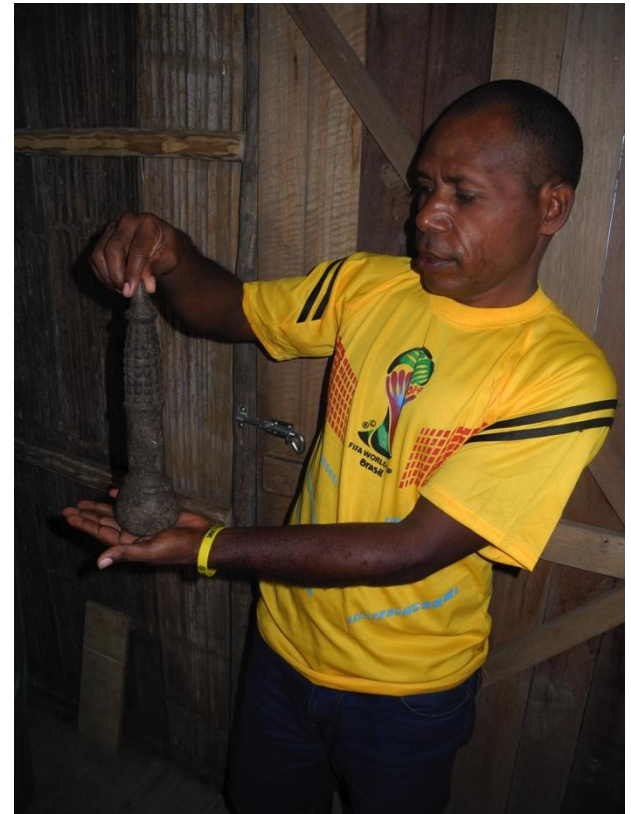


PNG is globalizing rapidly

technology & revolutionary change



rural mobile phones,
solar-powered refrigerators
& stone tools



globalization on the rain forest frontier



resource owners



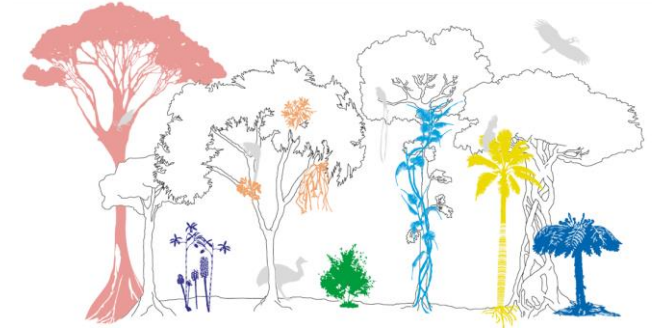
raw log export
Madang 2009

natural
resources



Article

New Guinea has the world's richest island flora

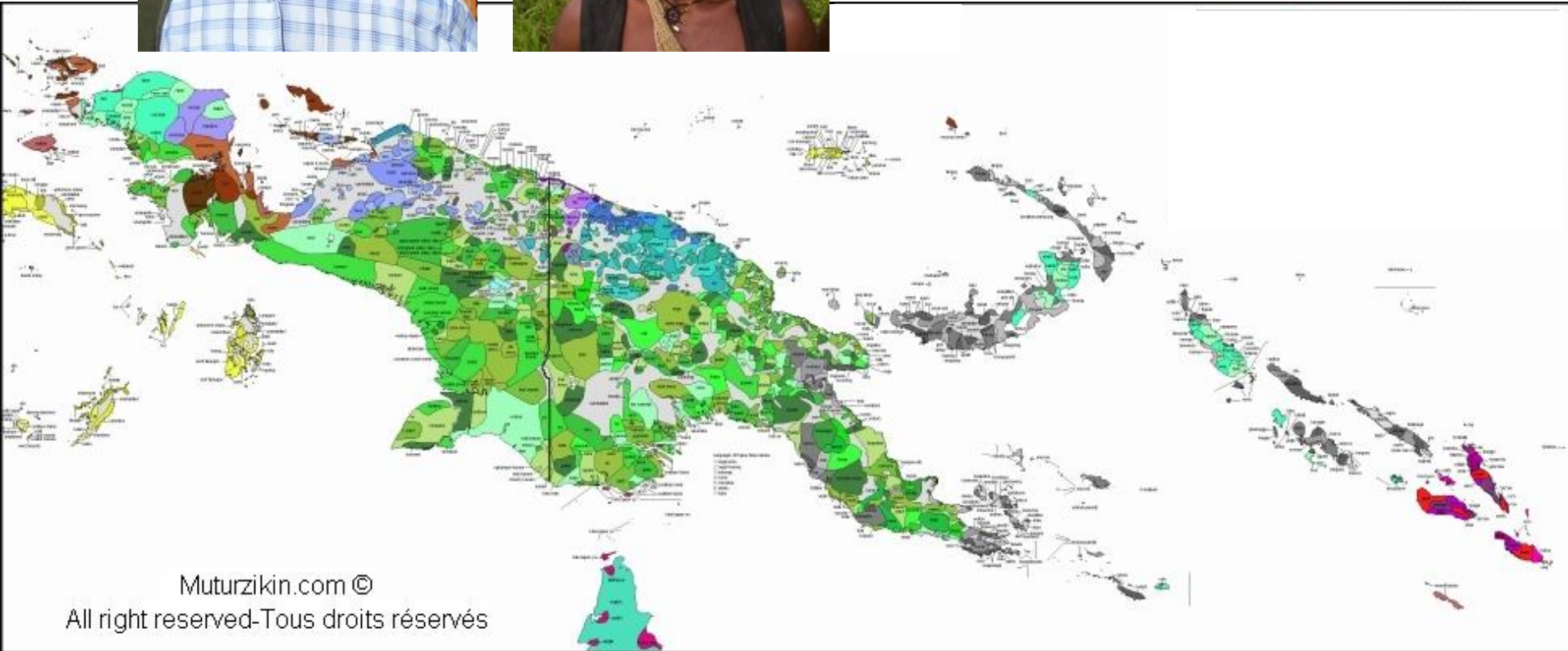


(Camara-Leret, Ezedin, Z. Weiblen G. D. & 96 other taxonomists 2020)

cultural diversity mirrors biological diversity



1,100 languages
1/6 of the global total



cultural collisions & exchanges



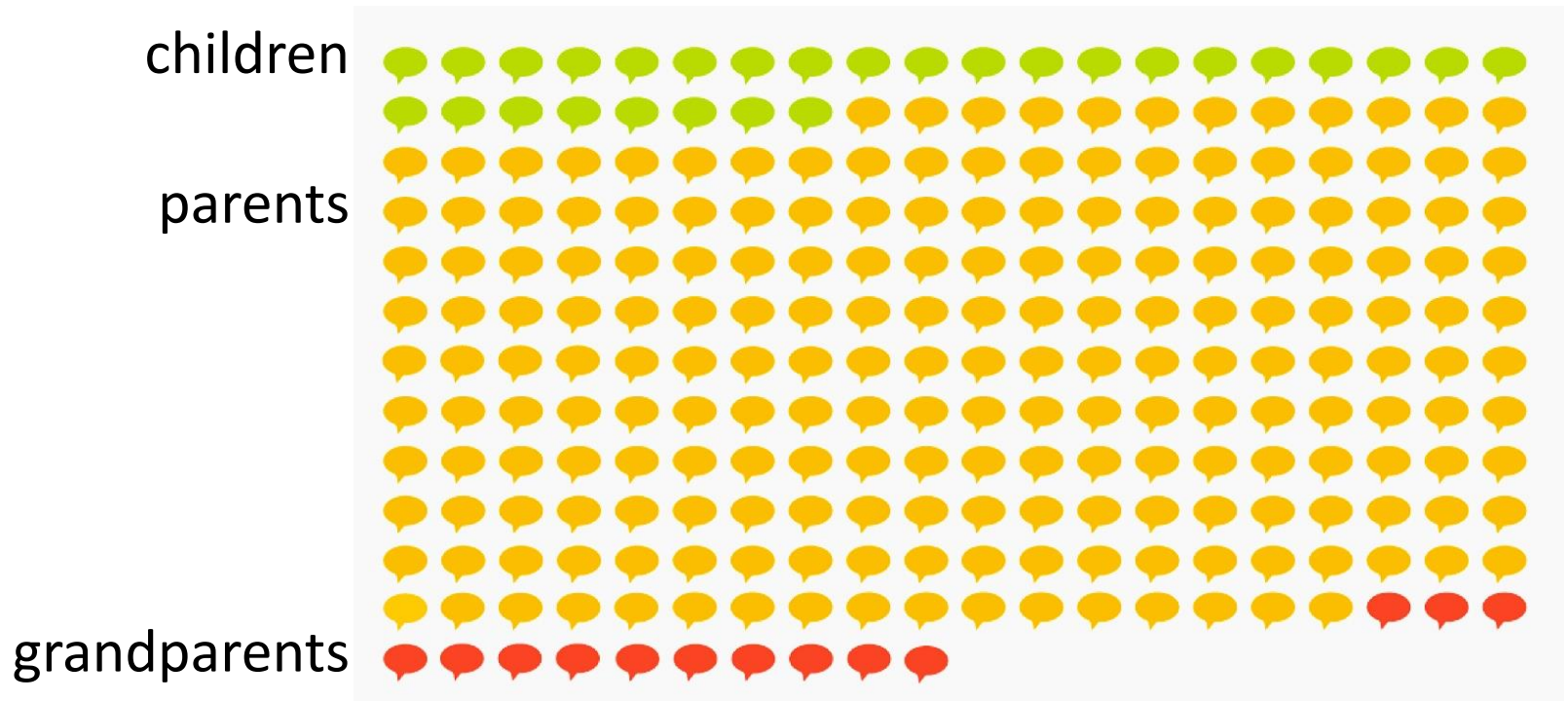
23

¹ Bikpela em i wasman
bilong mi.

Olsem na mi no inap sot
long wanpela samting.

comparing species & language extinction

rate of language loss is ten times higher than rate of species loss
(Gorenflo et al. 2012, PNAS)



90% of 250 European languages are not spoken by children

PNG national high school linguistic survey



Alfred Kik, M.Sc.

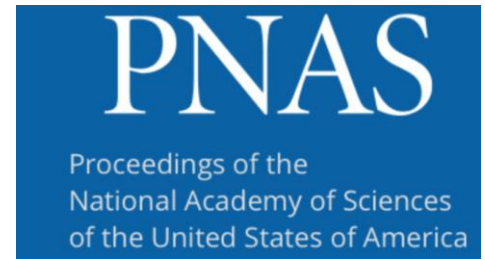


6,000 surveys

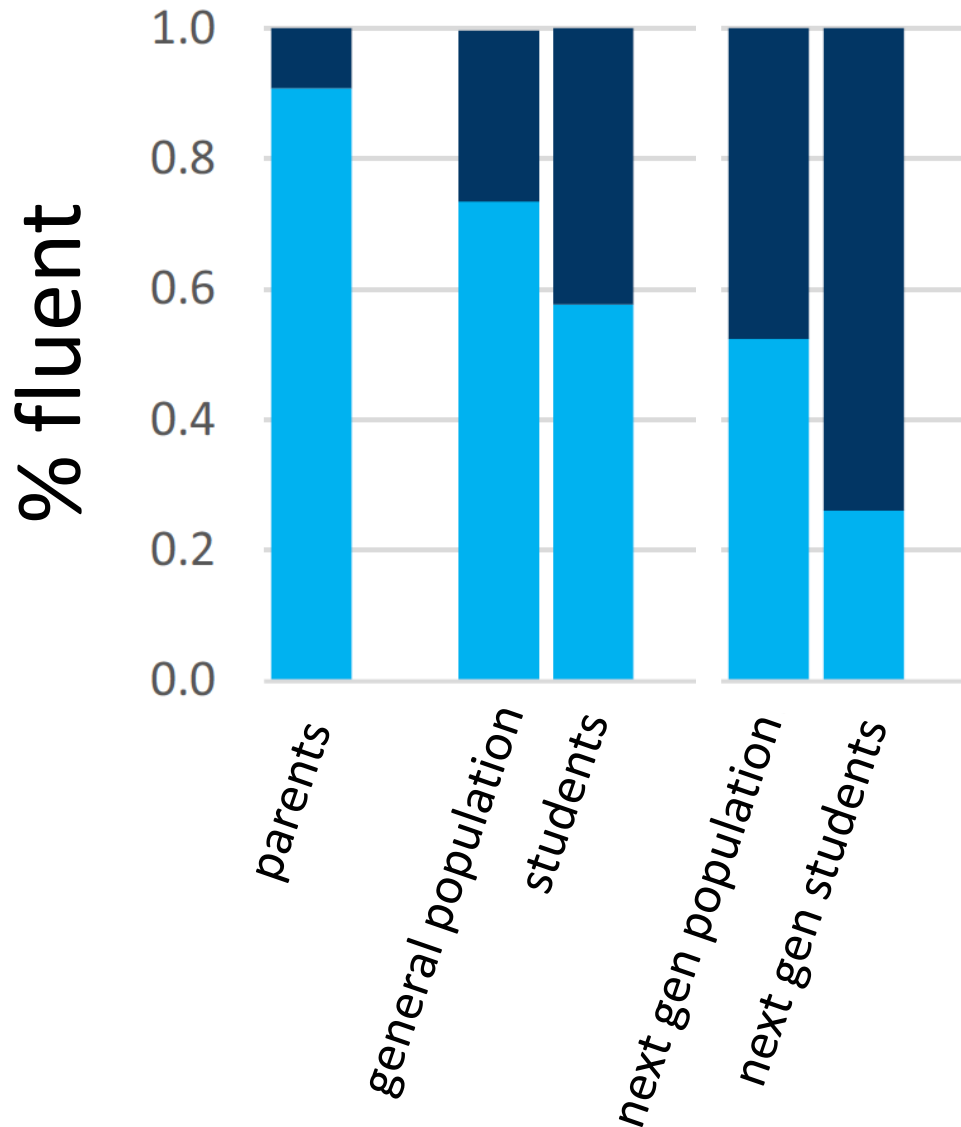


- 6,000 11th & 12th graders, siblings & parents
- surveyed over holiday breaks in 2015-2018
- 30 of 123 secondary schools
- 392 spoken languages (5% of global total)
- languages spoken at home
- traditional ecological knowledge, agricultural practice, carpentry & medicine
- ability to name native plants & birds

Language and ethnobiological skills decline precipitously in Papua New Guinea, the world's most linguistically diverse nation



Kik et al. 2021



observed fluent

parents 91%

general pop 75%

students 58%

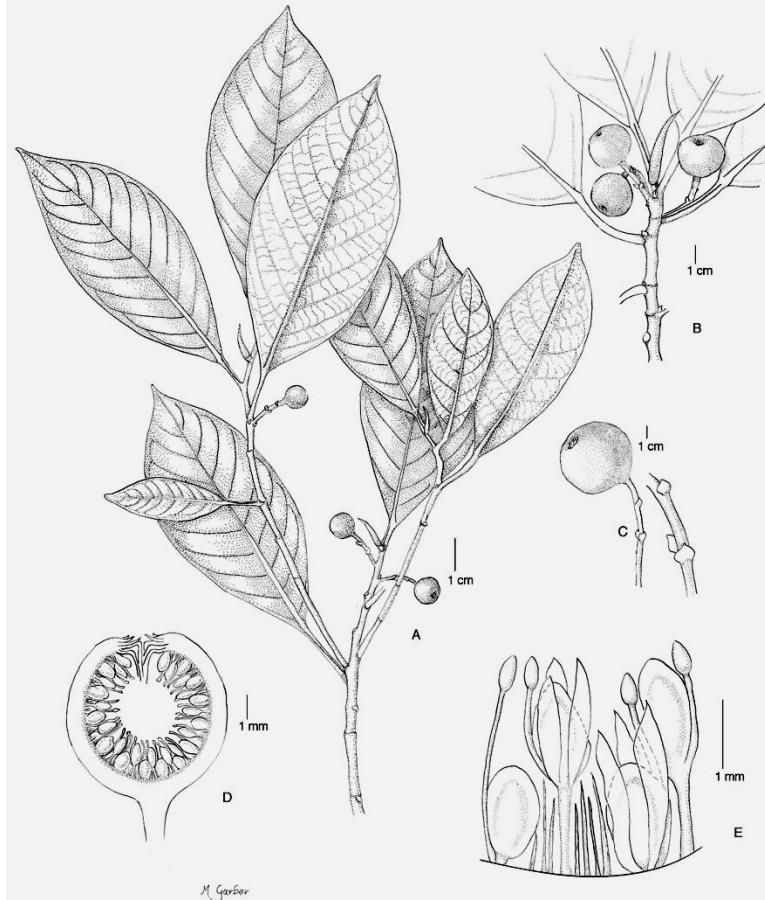
predicted fluent

next gen pop 50%

next students 28%

decolonizing species “discovery”

Ficus rubrivestimenta Weiblen & Whitfeld



2010 *Harvard Papers in Botany*

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Ohu Conservation

“Preservation of Bio-Cultural Resources in a New Guinea Rain Forest: Education, Eco-tourism & Science”

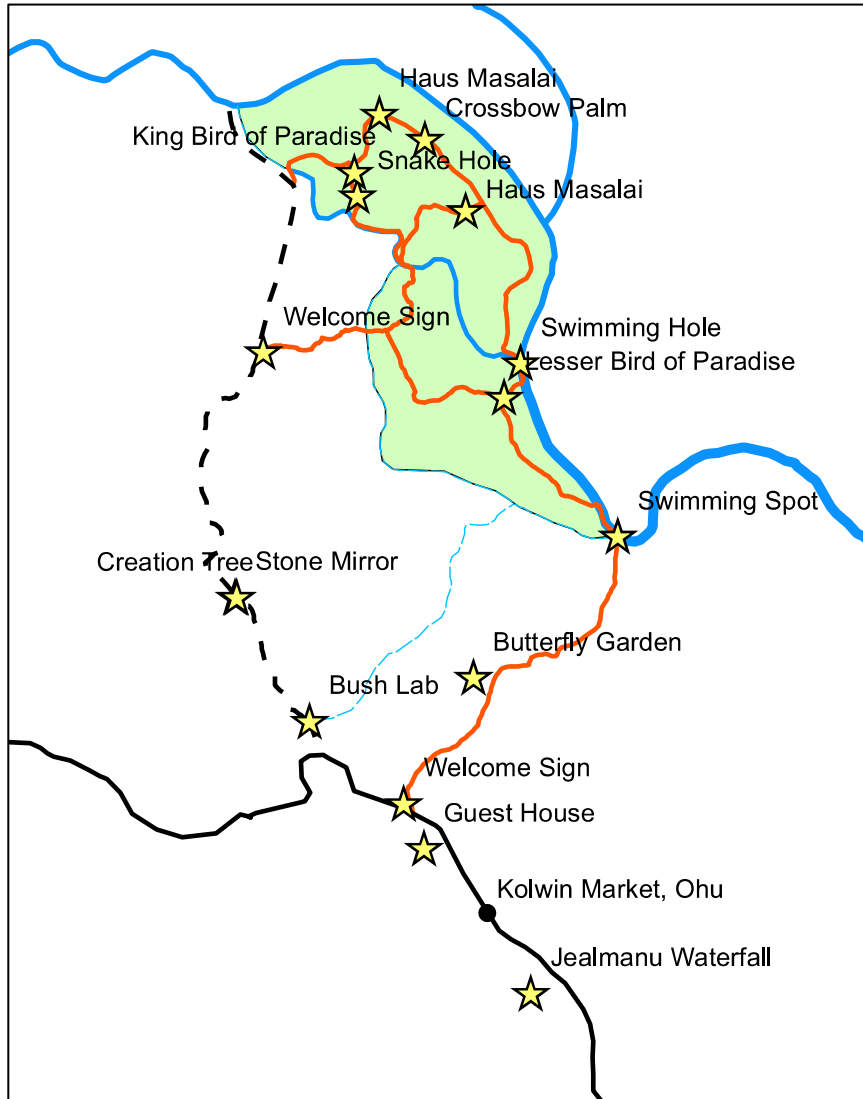
A partnership between The Christensen Fund, the University of Minnesota, and Ohu community, Papua New Guinea



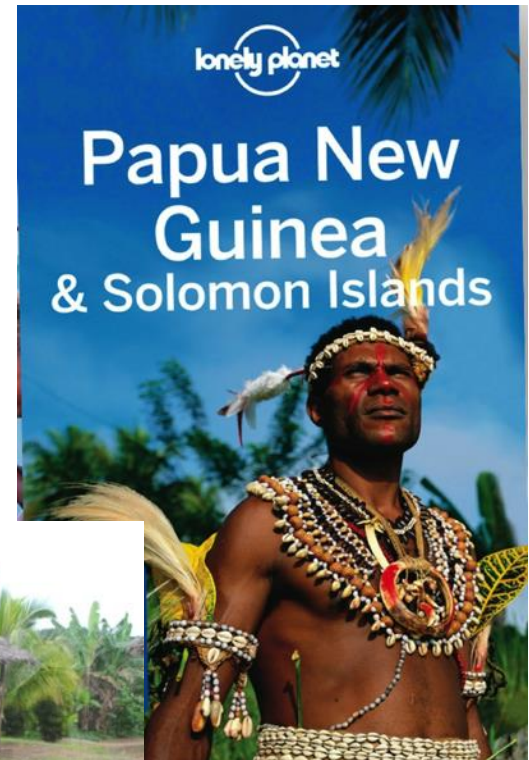
Annika Moe & Meli Brus



Ohu Conservation Handbook



local youth



eco-tourists

WIAD CONSERVATION

A Handbook of Traditional Knowledge and Biodiversity



The Place of Thunder

as told & translated from Amele by Meli Brus

Dispela Tanda Stone Em I Stap

Bipo tru, ol tumbuna na papa bi
olsem. Bilong wanem igat stori

Qeli Pelena

Werle osikel armemikel ar pilain sa
materken alen fekina. Apen qe op

Conservation Handbook launched 2016



The National – Thursday, October 6, 2016 13

MAMOSE Villagers receive handbook

By DOROTHY MARK
HUNDREDS of villagers outside Madang have been presented nature conservation handbooks printed in the Ohu Conservation and Butterfly Farm. The handbooks contain traditional knowledge and biodiversity which can help visitors understand was initiated by the community and funded by donors in the United Kingdom. Conservation project manager Bruce Isua said stories and States where it was compiled into a handbook.
Dr George Weiblem, a lecturer at the university who headed the com-
"We were presented 200 copies of the handbooks – 50 copies were given to the Ohu Primary School and the rest to clan leaders and dignitaries," Isua said. He said Ohu village



Ohu Village 2023



Brus Isua & *Ficus brusii*

Ficus dammaropsis Diels



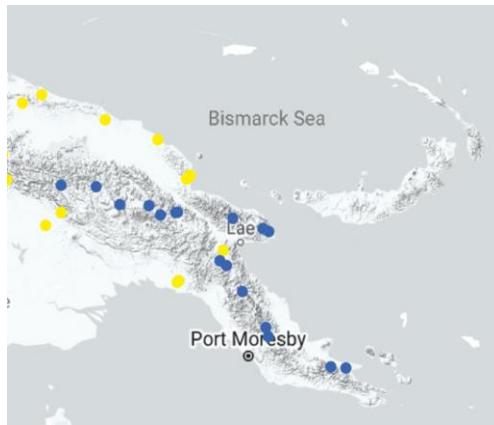
Gardens' Bulletin Singapore 71(Suppl. 2):197-216. 2019
doi: 10.26492/gbs71(suppl. 2).2019-15

197

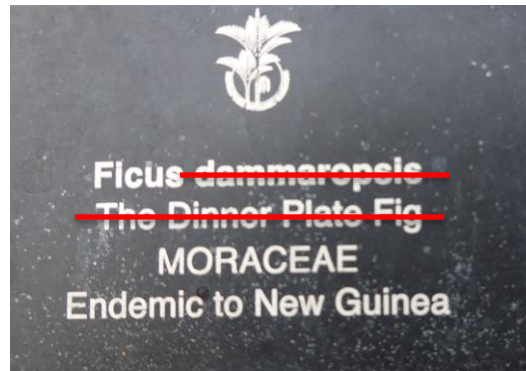
Additions and changes to *Ficus* (Moraceae) in New Guinea with comments on the world's largest fig

Z. Ezedin¹ and G.D. Weiblen²

Ficus brusii Weiblen



Singapore Botanic Garden 2023



Ficus brusii Weiblen

Brus' Dinner Plate Fig

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welcome to Wanang



incubating a long-term partnership

- indigenous resource owners
- international scientists
- citizen scientists
- students
- granting agencies
- government officials
- industry sponsors





SWIRE

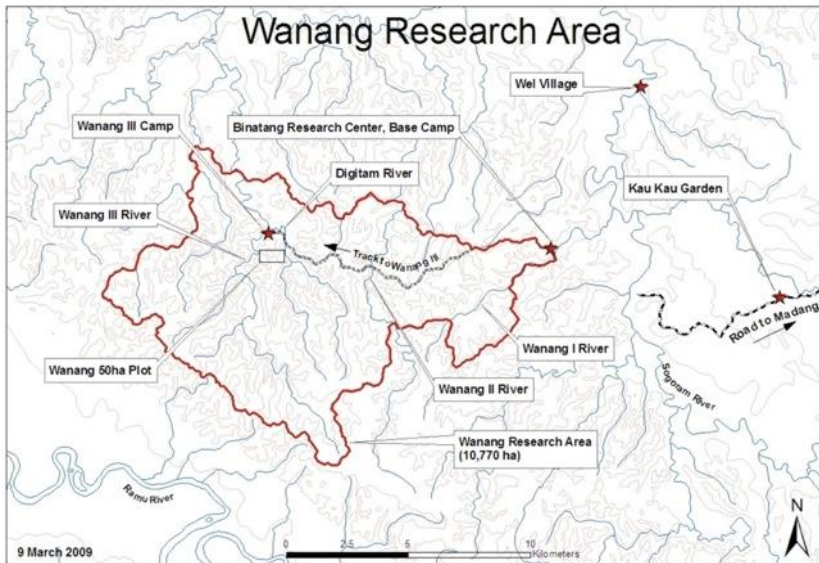


Sustainable investments

- conservation: forest preservation linked to research and development
- research: long-term study provides employment & professional training
- education: investment in Wanang school on the condition of responsible land stewardship



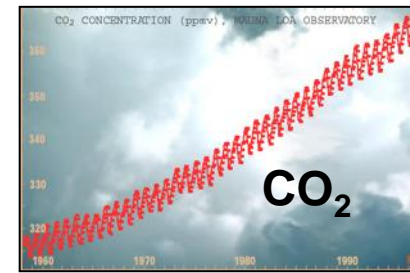
conserving Wanang Forest





Global Forest Observatories:

an international network
monitoring the health of forests



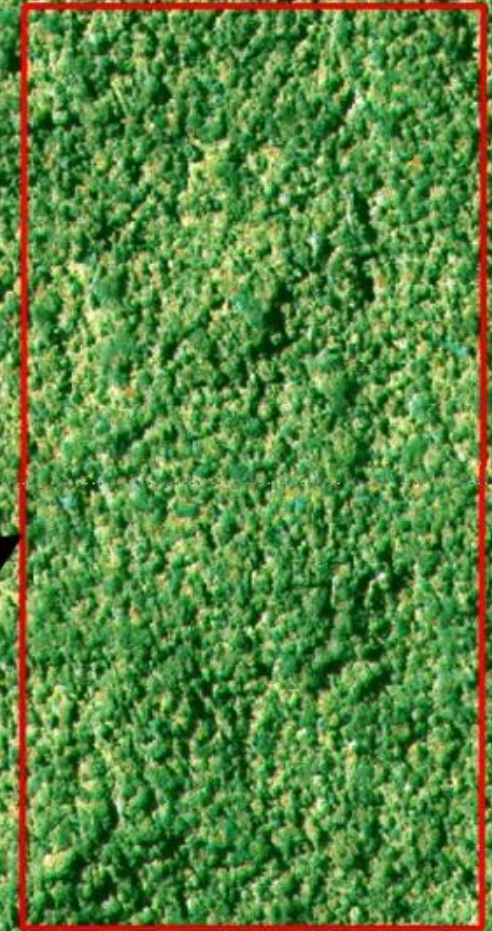
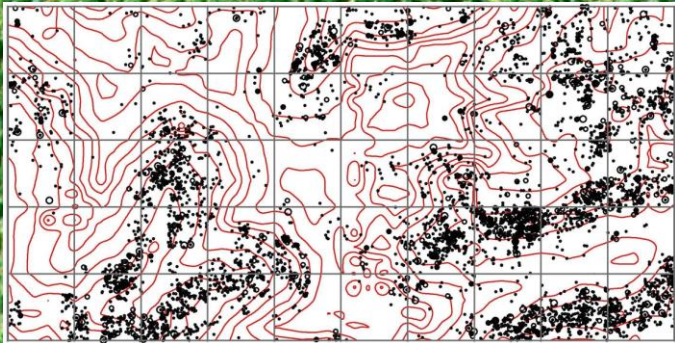
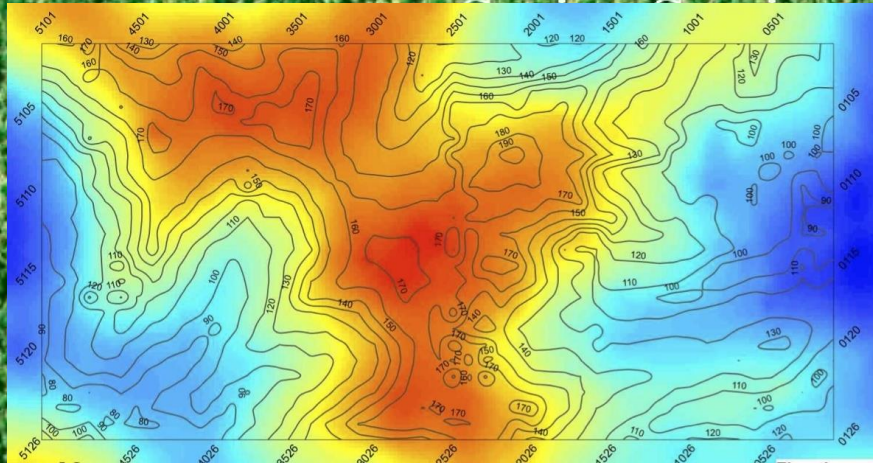
23 forest plots
16 countries
> 75 institutions
8,500 tree species
3 million trees



UNIVERSITY OF MINNESOTA
Driven to DiscoverSM



Wanang forest from space



>300,000 trees
>500 species



Wanang recognized by United Nations in 2015



Wanang Conservation School in 2023



WANANG PRIMARY SCHOOL
GRADE 4 TIME TABLE- 2022

TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	TIME ANALYSIS	
						SUBJECT	NO OF LESSON
8:00-8:30	A	S	S	E	M	B	L
8:30-9:00							
9:00-9:30	LANGUAGE	LANGUAGE	LANGUAGE	LANGUAGE	LANGUAGE	MATHS	450 MINS
9:30-10:00			CRE			ENV/STUDIES	210 MINS
10:00-10:30						COM/LIVING	180 MINS
10:30-11:00						HEALTH	90 MINS
11:00-11:30						EX-ARTS	90 MINS
11:30-12:00	COM/LIV	HEALTH	MATHS	HEALTH	COM/LIV	PHY/EDUCATION	90 MINS
12:00-1:00						CRE	60 MINS
1:00-1:30	END/STD	COM/LIV	HEALTH	COM/LIV	ENV/STD	COM/SERVICE	60 MINS
1:30-2:00						SPORTS	90 MINS
2:00-2:30	EX-ARTS	EX-ARTS	PHY EDU	COM/SERV	SPORTS	ASSEMBLY	150 MINS
2:30-3:00	PHY EDU					TOTAL	1650 MINS

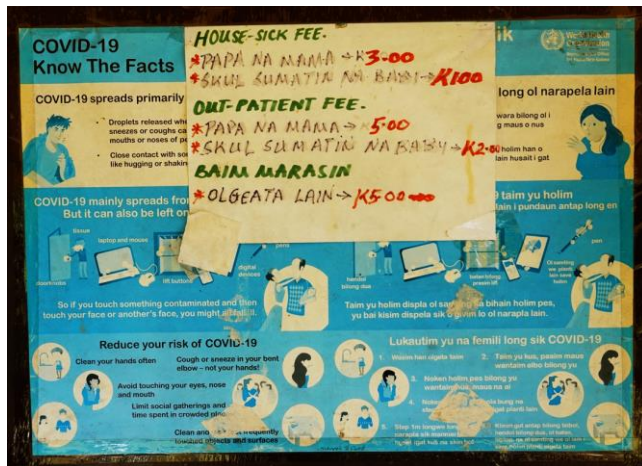
Note: This timetable is flexible, changes can be made when there is a need.

Prepared by Mrs. H Moka
Class Teacher

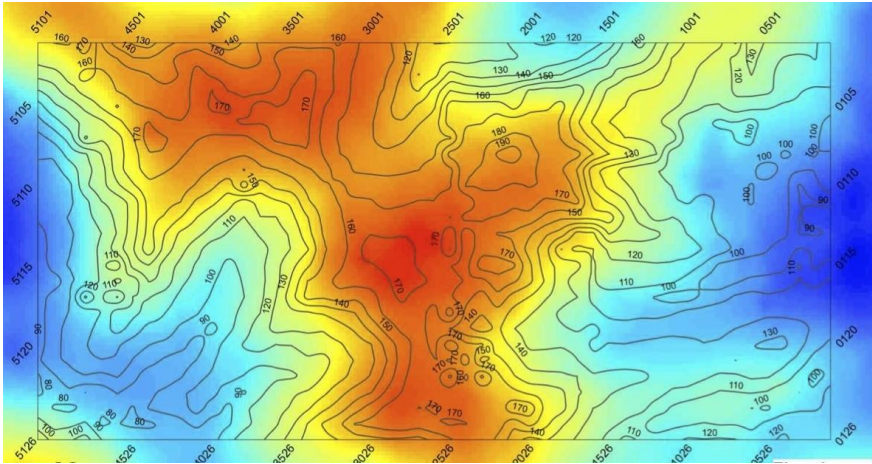
Supervisor's Comment:
Well instructed
Time table. All the time
being allocated to each
subject!!
Approved!!
H.T. 25/03/22

government-supported
five teachers
eight grades
200+ students
six qualified for high
school but only one
family could afford
school fees

Wanang Aid Post



Wanang Forest Plot recensensus 2023



Wanang Forest Plot recensus

Archidendron lucyi F.Muell.

Species Code: ARCHLU

Family: Fabaceae

Wanang names: kialte suku

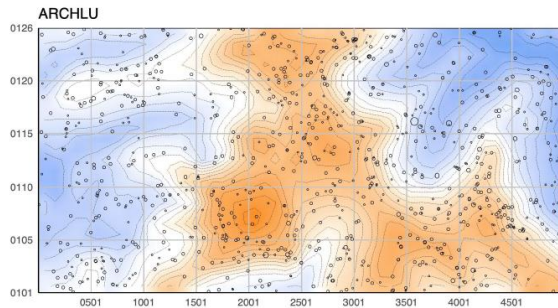
Uses: timber used in construction of small huts

Notes: stipule on petiole base

Diameter (cm): Individuals

Vouchers: 90

1-2:	693
2-5:	1130
5-10:	55
10-20:	2
20-30:	3
30-60:	1
>60:	
Total:	1908





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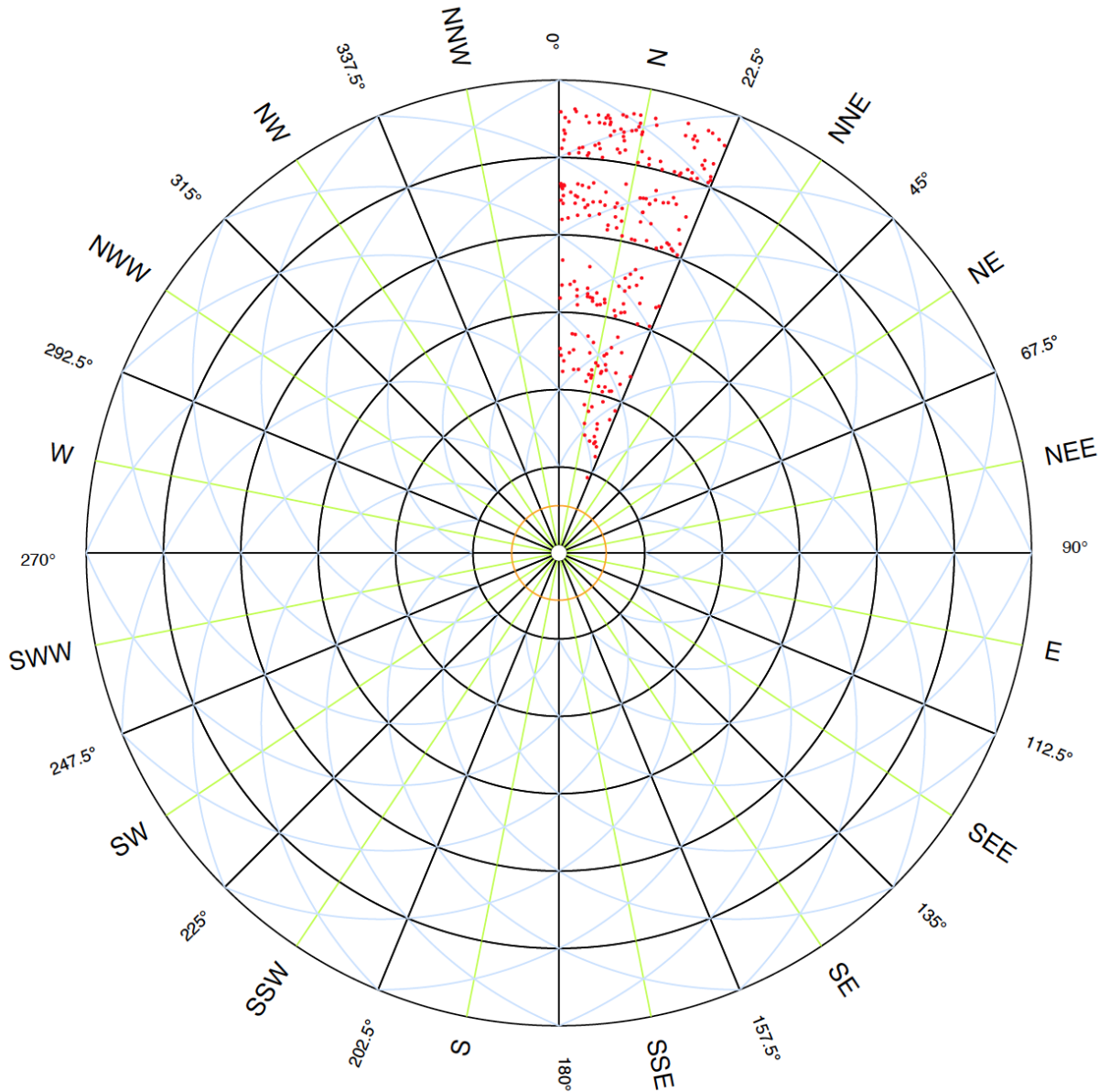


rainforest canopy research crane
overlooking Good Shepard Lutheran High School,
Madang Lagoon & Amron Station





mapping topography and trees under the crane





Baitabag 2023



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Museum Science Directors then & now

Drs. Bulisa Iova & George Weiblen



bell museum

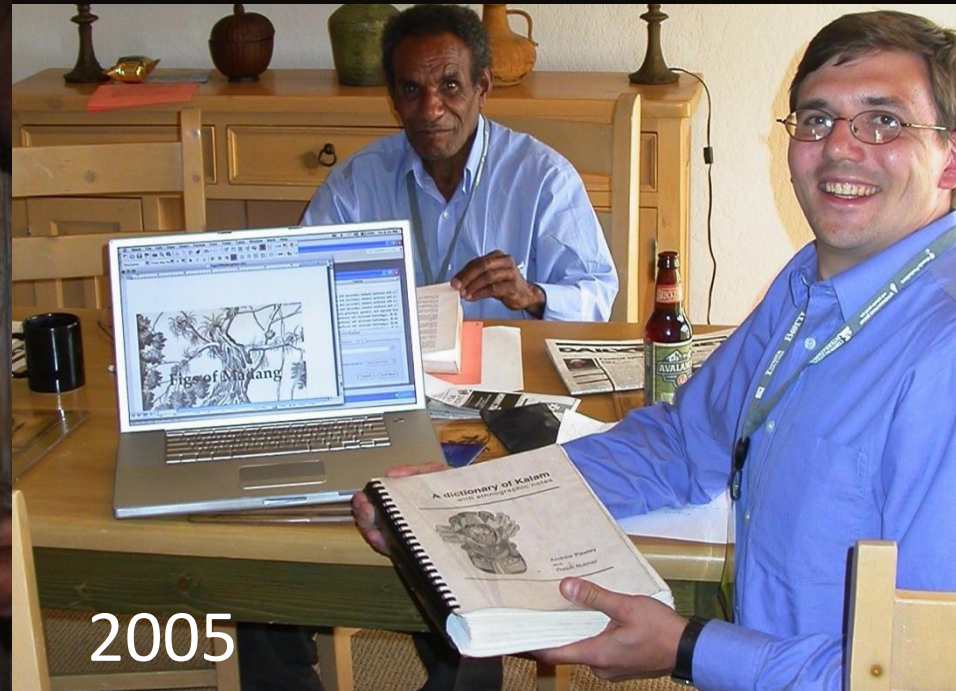
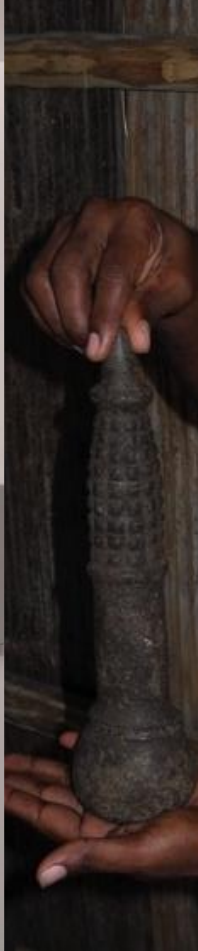




Ian Saem Majnep Gallery

Late Dr Ian Saem Majnep was one of the first Papua Guinean scientists in the fields of ethnography (a br

1995



2005

Upper Kivi Valley, Eastern Highlands Province

Stone Mortar
8000 - 4000 BP
Stone

E2720
Dr P. White

This stone mortar was found
in a garden on the back slope
of Yogga Mugl in the Eastern
Highlands Province.

Kairitba District, Gulf Province

Stone Pestle
8000 - 4000 BP
Stone

1969
E3098
Fr Besson

A pestle like this would have been
used to crush seeds and nuts.



A generation goes,
a generation comes
but the earth
remains forever

Ecclesiastes 1: 4

acknowledgements



bell museum



THE
CHRISTENSEN
FUND



PNG LNG



ExxonMobil



STEAMSHIPS



UNIVERSITY OF MINNESOTA
Driven to DiscoverSM