



**Field Observation of Plant Diversity  
in  
Yunnan, Vietnam and Okayama**

**Tatsuya Yamamoto, Bo Long, Yuki Takahashi and Erika Kubo**

**Grad. Sch. Natural Sci. Tech., Okayama U.  
Plant Cytogenetics and Breeding laboratory**

# **Purpose**

## **Purpose of this project**

**To learn the diversity of life by contacting with foreign nature.**

**To gain the international experiences  
by working with people from other countries.**

## **For carrying out our Purpose**

**We participated in the research with Kunming Institute  
of Botany Chinese Academy of Science (KIB)  
in Yunnan, China and North Area of Vietnam.**

**To obtain melon and cucumber fruits in local markets or  
directly from farmers, and to understand their diversity.**

# Research on *Cucumis* in our laboratory

## about Melon (*Cucumis melo* L.)

— The origin of the varieties of melon

We already have advanced research on Japanese landrace “makuwa” and “shirouri”, which were derived from East India via Southeast Asia and China according to our research. (Tanaka et al. 2007)



var. *makuwa*

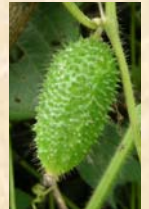


var. *conomon*

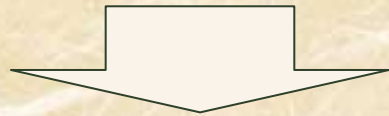
## about Cucumber (*Cucumis sativus* L.)

*C. hystrix* is assumed as wild ancestor of cucumber according to genetic and morphological study.

*C. hystrix* was first found in Yunnan province, so far we also have identified this species in Vietnam and Laos.



*C. hystrix*



So we investigated Yunnan and Vietnam, expecting to find the clue of the origin of *Cucumis*.

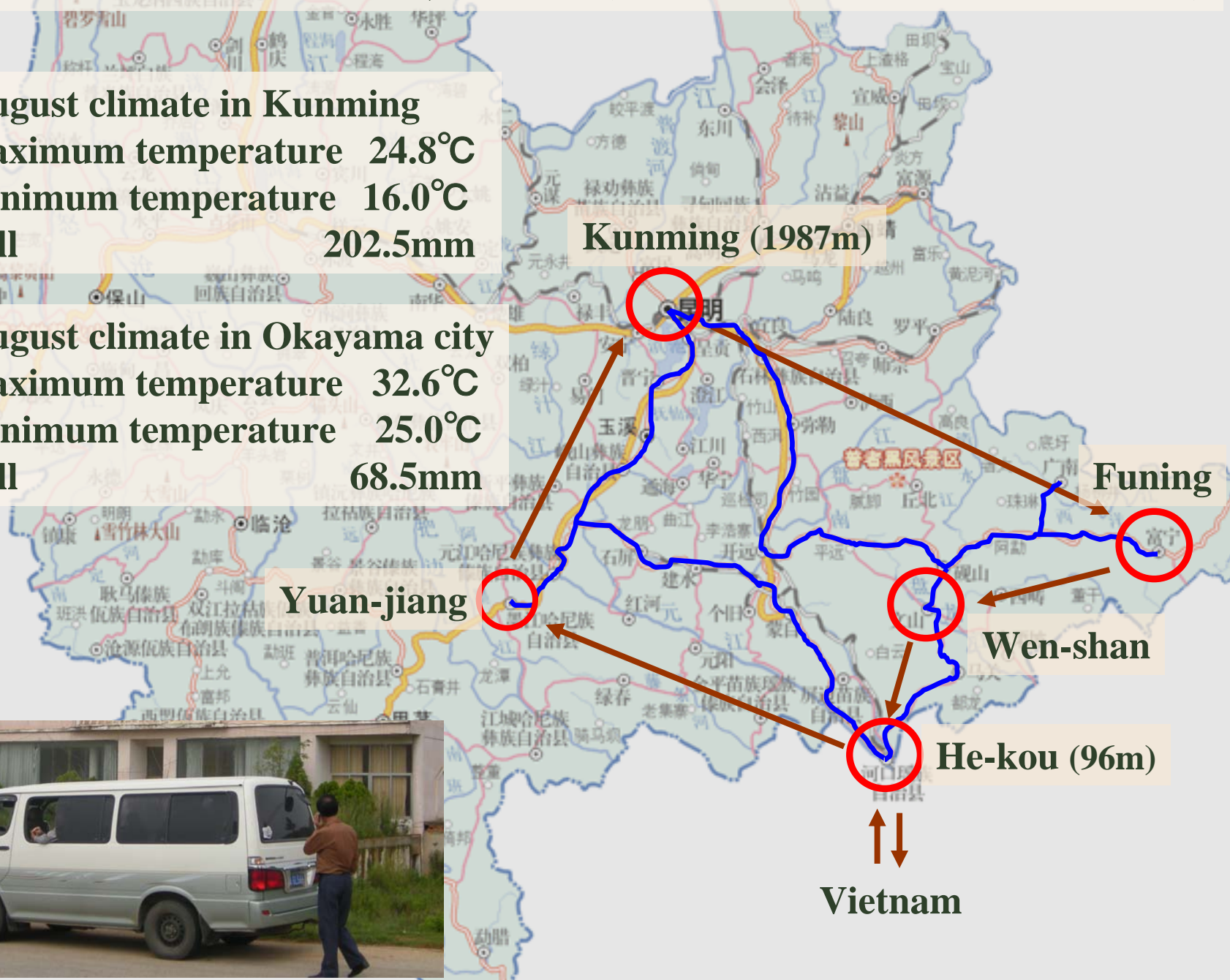
# Position of Yunnan, China and North Area of Vietnam



# Research route in Yunnan, China (2008.8.3~8.9 and 8.14~8.21)

The August climate in Kunming  
the maximum temperature 24.8°C  
the minimum temperature 16.0°C  
rainfall 202.5mm

The August climate in Okayama city  
the maximum temperature 32.6°C  
the minimum temperature 25.0°C  
rainfall 68.5mm



# Research team in Yunnan, China (2008.8.3~8.9)

**Mr. Du**

**Ms. Bobo**

**Dr. Enomoto**

**Dr. Kuroda**

**Mr. Yamamoto (Me)**

**Mr. Takahashi**

**Dr. Yoshino**

**Ms. Kubo**



# Visit **K**unming **I**nstitute of **B**otany Chinese Academy of Science (**KIB**)



Dr. Long



KIB students

# Dr. Kuroda's lecture in KIB on fourth August (about agriculture in Mekong Basin)



Mekong-Sight from Agriculture and Food

Toshiro KURODA

Lab. Cropping Systems, Faculty of Agriculture,  
Osaka University

04. Aug. 2020

at  
Nanning Institute of Botany  
Guangxi Academy of Sciences

I. Agriculture and Food in Mekong River Basin

II. Mekong River characteristics

The Mekong River is the biggest river in the Southeast Asia.

How people live in that basin.

Many KIB students participated



# Dr. Enomoto's lecture in KIB on nineteenth August (about research of wild plants)



# Looking at Botanical Garden in KIB



# Inside of Botanical Garden



# Typical research schedule of one day

6:30 Getting up

7:20 Breakfast

Heading to next town



10:00 Researching markets on the way

12:20 Lunch



13:50 Arrival at destination

Researching markets or farmland  
around there



17:40 End of field research

Arrival at hotel

20:30 Supper around our hotel



22:00 Researching cucumber fruits obtained that day

24:00 Going to bed



## Along the way



**Limestone (Shilin, Yunnan)**

## Cultivated field of “san qi”, a kind of traditional Chinese medicine



## Maize field and red clay



# Market in Funing



## Meat



## Rice and colored rice



# Melon in Yunnan (all improved variety)



**Hami**



**Displayed with other fruits**



**Sugar content 12.6**



# Cucumber in Yunnan

Landrace species



Improved varieties

Sticks







↑

↙

**Market in Ping-bian**

**Various vegetable seeds  
(improved variety's seed  
sold by seed company)**

→



# Market in Wen-shan



**Interviewing the farmer in market**



**The cucumbers  
lay in a heap on sheet.**

# Farm visiting

**The boy of Yi tribe and cucumber**  
**Sowing in April**  
**Harvesting in July**  
**Only cucumber is cultivated.**  
**The seeds are kept by themselves.**



# Largest market in Kunming (AM 6:00)



The back of the truck



Cucumber (improved varieties)



**KIB students in Japan  
(Shodoshima island  
in Kagawa Prefecture)  
2008.10.7~10.16**



# Planned research route in Vietnam (8.9~8.17)



# Flood by heavy rain in Vietnam (after arrival at the hotel)



Boat

Street outside hotel we stayed



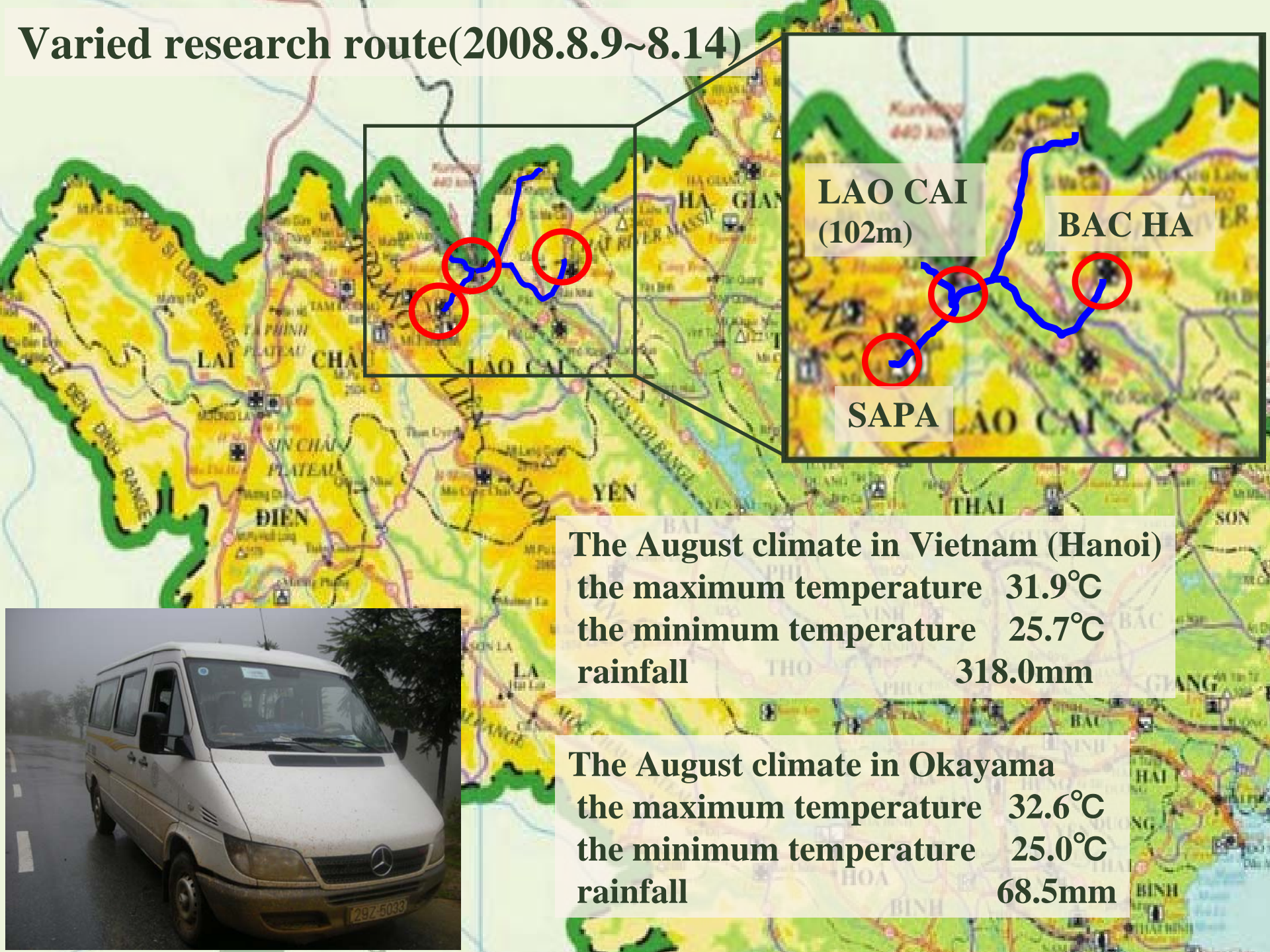
In the first floor of our hotel

# Flood by heavy rain in Vietnam (the next day)





# Varied research route(2008.8.9~8.14)



**LAO CAI**  
(102m)

**BAC HA**

**SAPA**

**The August climate in Vietnam (Hanoi)**  
the maximum temperature 31.9°C  
the minimum temperature 25.7°C  
rainfall 318.0mm

**The August climate in Okayama**  
the maximum temperature 32.6°C  
the minimum temperature 25.0°C  
rainfall 68.5mm



# Research team in Vietnam(2008.8.9~8.14)

Employee in  
this restaurant

Dr. Viet  
Hanoi National Univ.  
of Education



# Way to SAPA



# Farmland on the way to SAPA



H'mong tribe



**In SAPA**



**SAPA church**



# Various cucumber in Vietnam



# Market in Bac Ha



# Conclusion

## about Melon (*Cucumis melo* L.)

**In Yunnan, the melon grows from April to July, and fruits were sold in market immediately.**

**In Vietnam, the harvest period is from June to July.**

—→ **It was too late for us to investigate for melon.**

**In China, the improved varieties have been spread, few landraces were sold.**

—→ **The landraces' ratio is declining.**

## about Cucumber (*Cucumis sativus* L.)

**The cucumber is cultivated together with maize or soybean both on Yunnan and Vietnam farmland.**

**The cucumber in Vietnam is diverse in morphology.**

**Although Yunnan is rich in plant variety, the melon's traditional landraces are facing the crisis of extinction because of the improved varieties spreading.**



## **Member**

**Okayama University**

**Dr. Takashi ENOMOTO**

**Dr. Toshiro KURODA**

**Erika KUBO**

**Yuki TAKAHASHI**

**Tatsuya YAMAMOTO**

**KIB**

**Dr. Hiromichi YOSHINO**

**Bo Long**

**Vietnam**

**Dr. Nguyen Xuan Viet**

## **Special Thanks**

**KIB**

**Dr. Chun-Lin Long**

**Dr. Hiang-Yun Yang**

**KIB students**

**Okayama University**

**Dr. Kenji KATO**

**Dr. Hidetaka NISHIDA**

**Phan Thi Phuong Nhi**

**Shiguang Guo**

**Drivers in China and Vietnam**

**Farmer we had visited in China and Vietnam**

