Introduction to Taiwan and Environmental Education Learning Project in the US

By I-Chun Lu

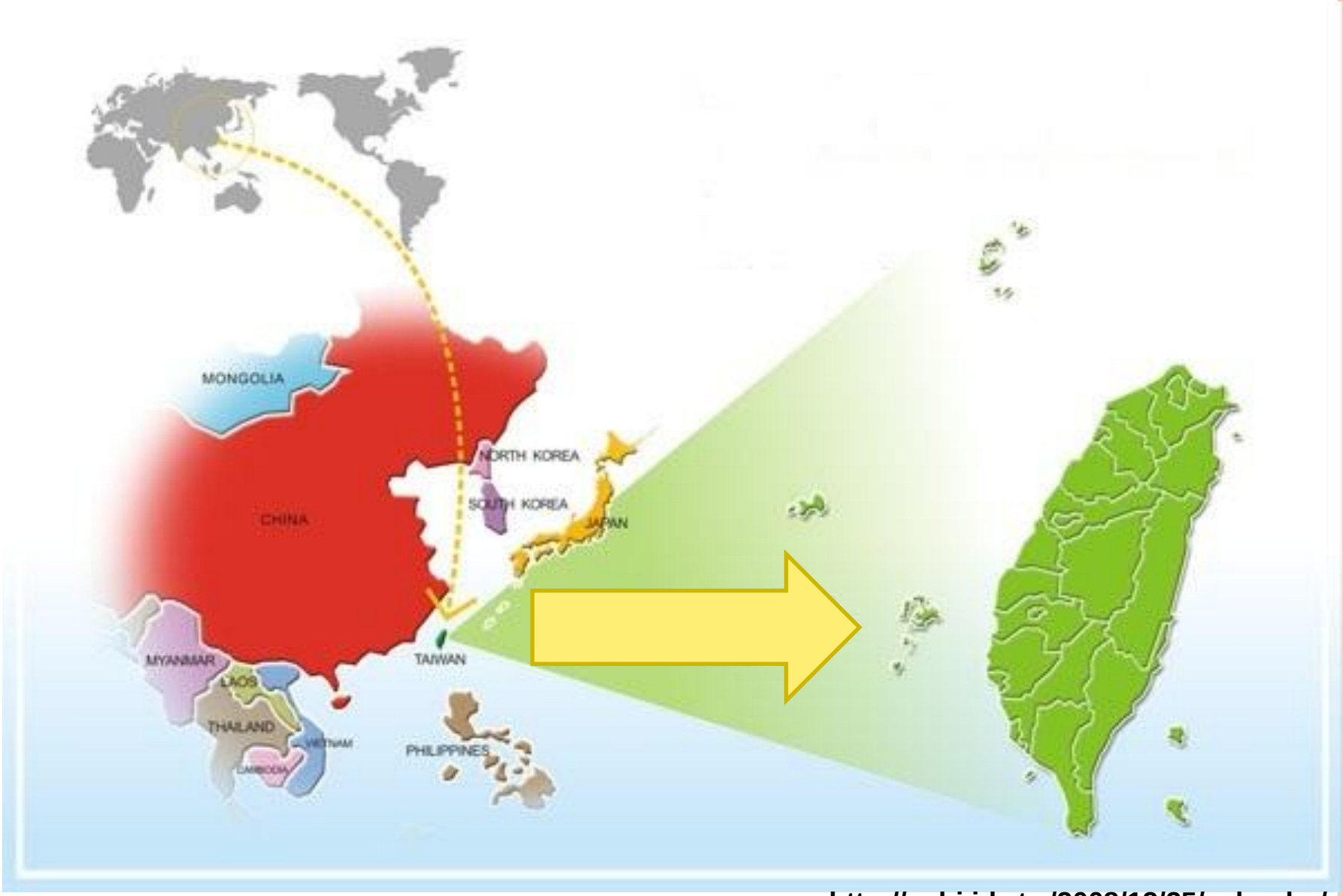
International Fellow, Taiwan, World Forestry Institute

Associate Researcher, Taiwan Forestry Research Institute

Outline

- Taiwan
- Taiwan's forests
- My work in Taiwan
- My project in the WFI

Where Is Taiwan?



http://yuhi.idv.tw/2008/12/25/calendar/

Profile of Taiwan

- **Area :** 36,000 sq km (13,924 sq mi) (1/7 the size of Oregon)
- **Population:** 23 million (6 times the population of Oregon)
  - 80% resides on the west side plain
- **Capital :** Taipei city
- **Language :** Mandarin/Taiwanese/Hakka

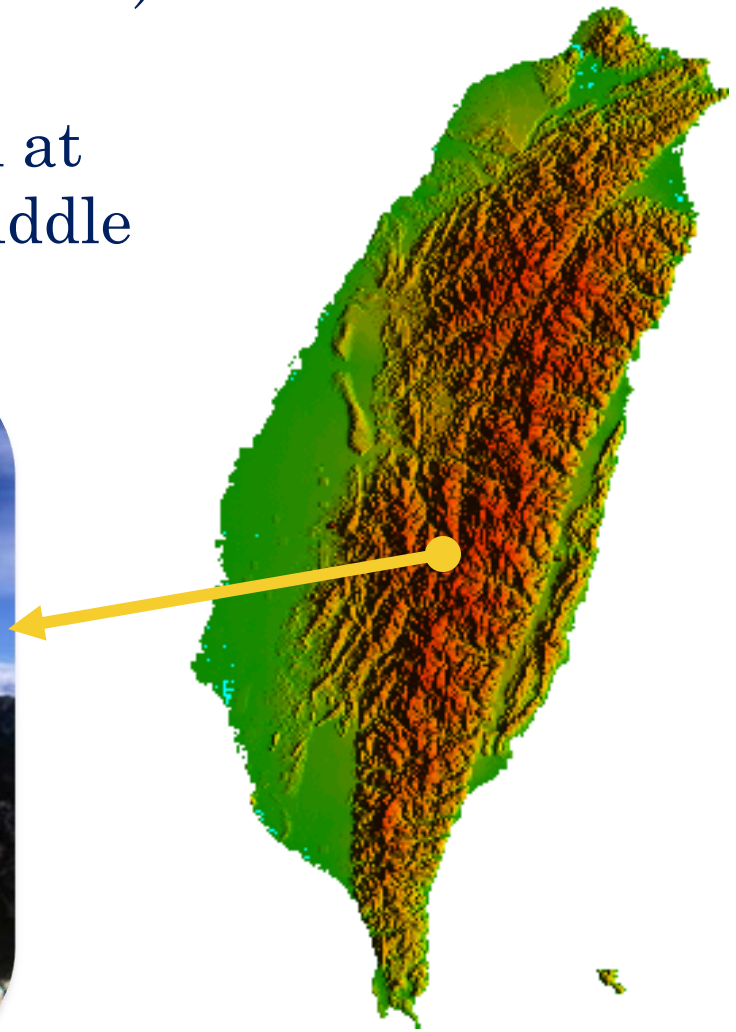
Geographic Characteristics

- Young island
- Located in active and intense plate tectonic movement area
- Frequent and powerful earthquakes
- Seasonal typhoons with torrential rainfall
- Temperature >75°F
- Humidity 80%
- Rainfall 2,500 mm

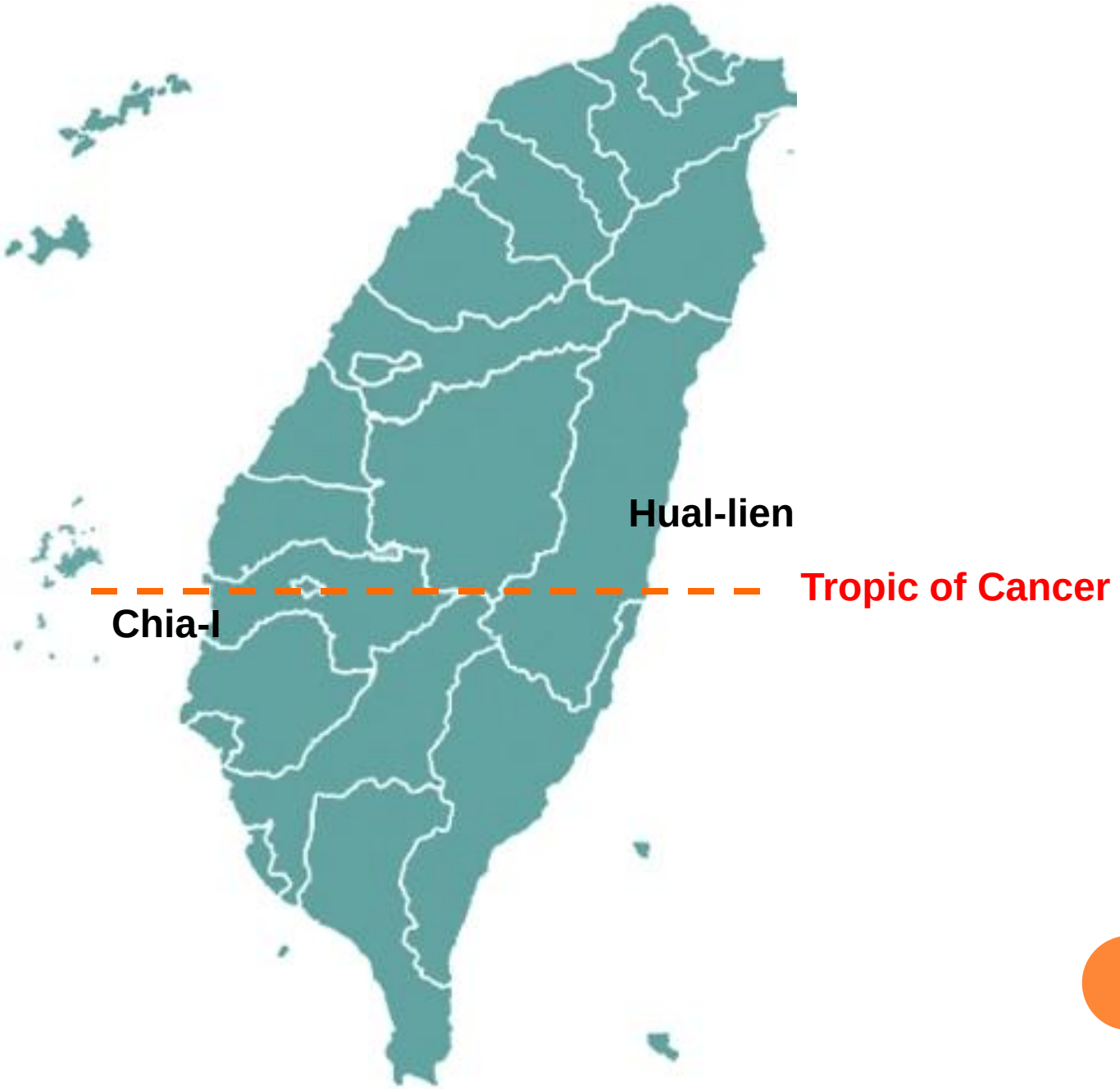
(Portland: 950 mm)

Topographic Characteristics

- Mountains over 3,000 m (9,842 ft) have 293 peaks
- Highest mountain is Yushan at 3,952 m (12,966 ft) on the middle west side of island



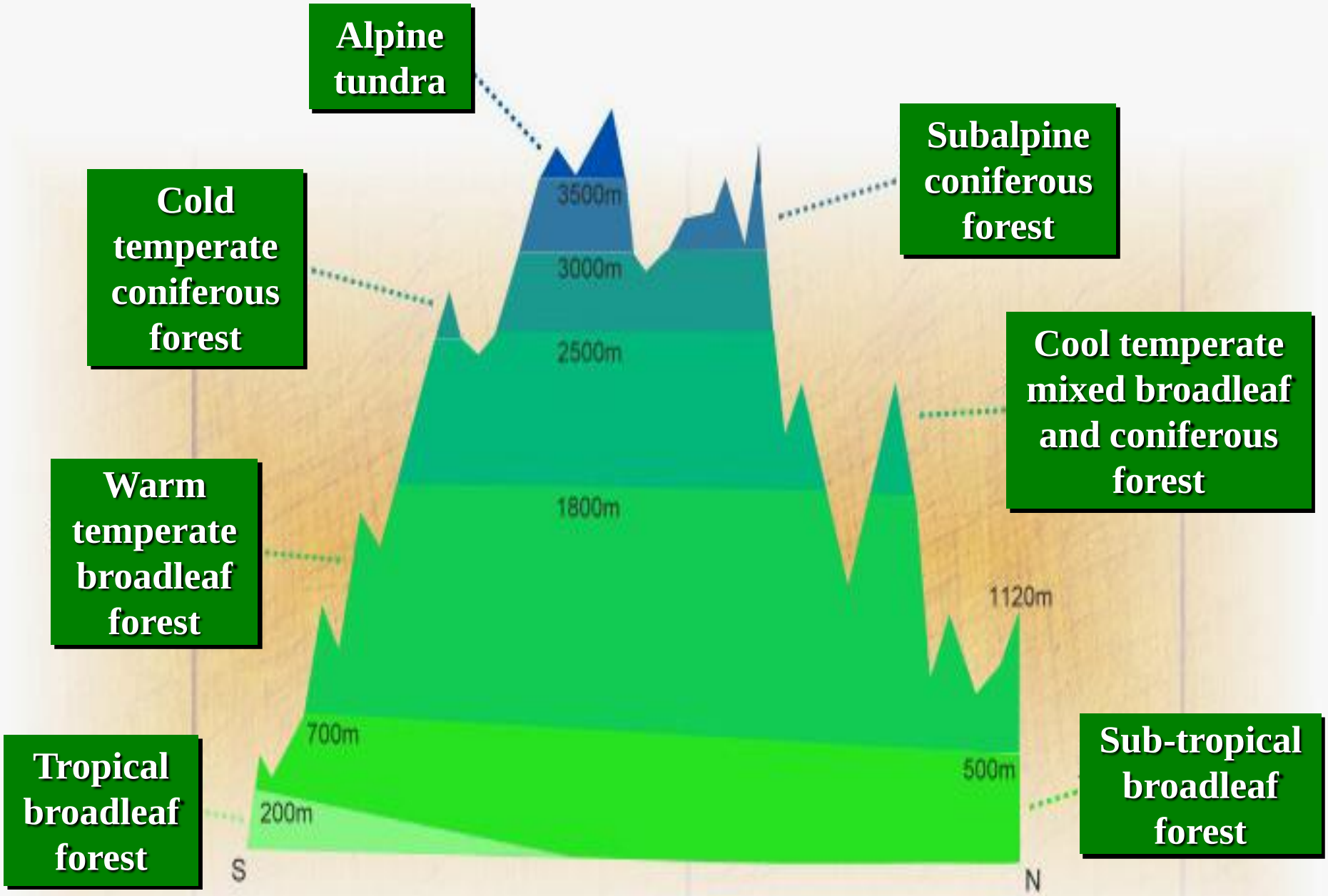
http://www.ysnp.gov.tw/album/photo_list.asp



http://hot-spring.chna.edu.tw/hot_view.aspx

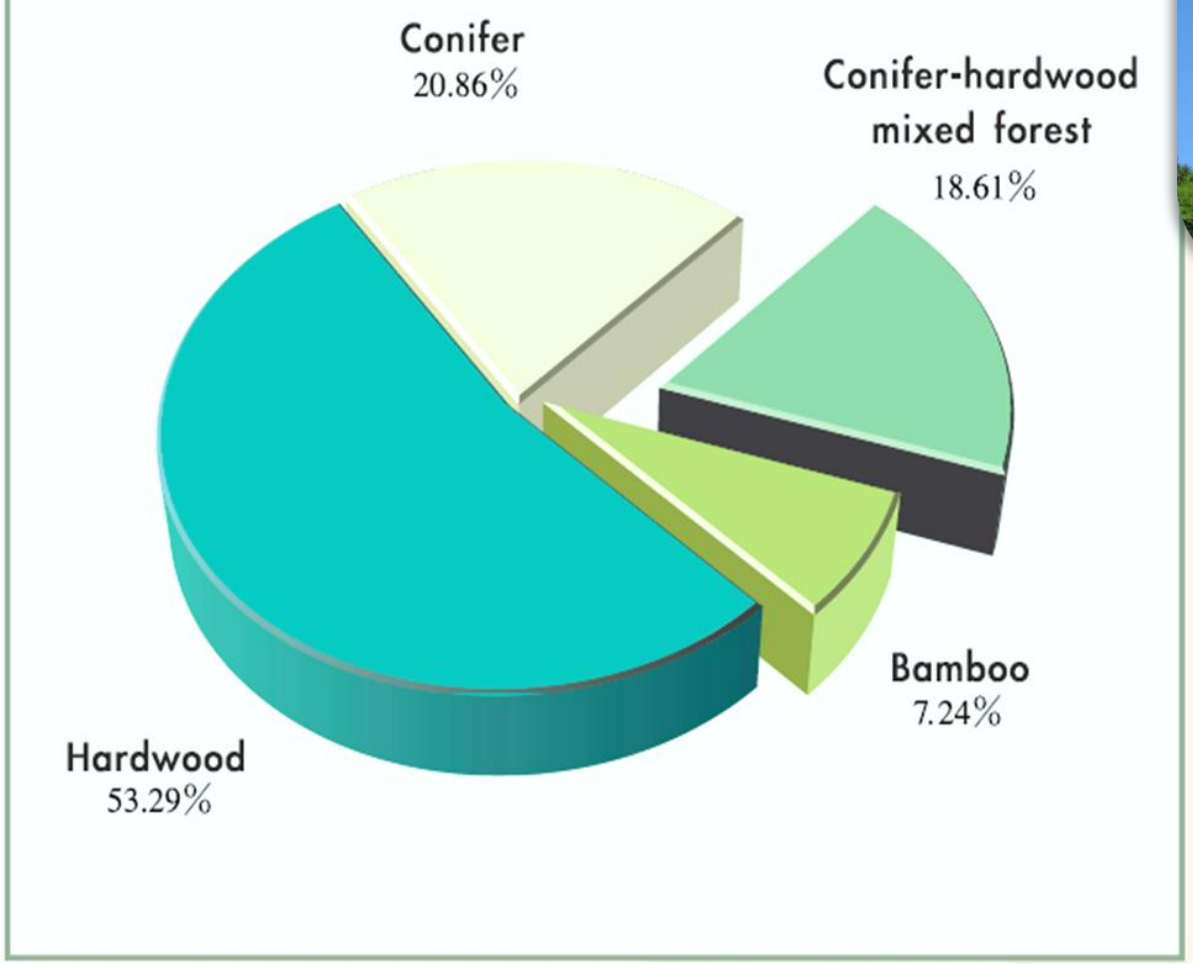
Biological Features

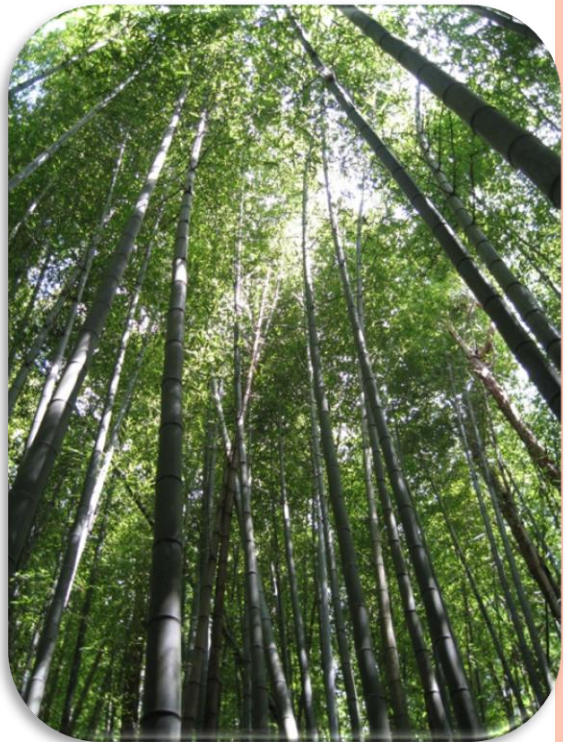
- Highly complex diversity
- Mammals 100 species
- Birds 456 species
- Reptiles 98 species
- Fish 2,869 species
- Plants 5,738 species



THE VERTICAL ZONATION OF FOREST TYPES IN TAIWAN

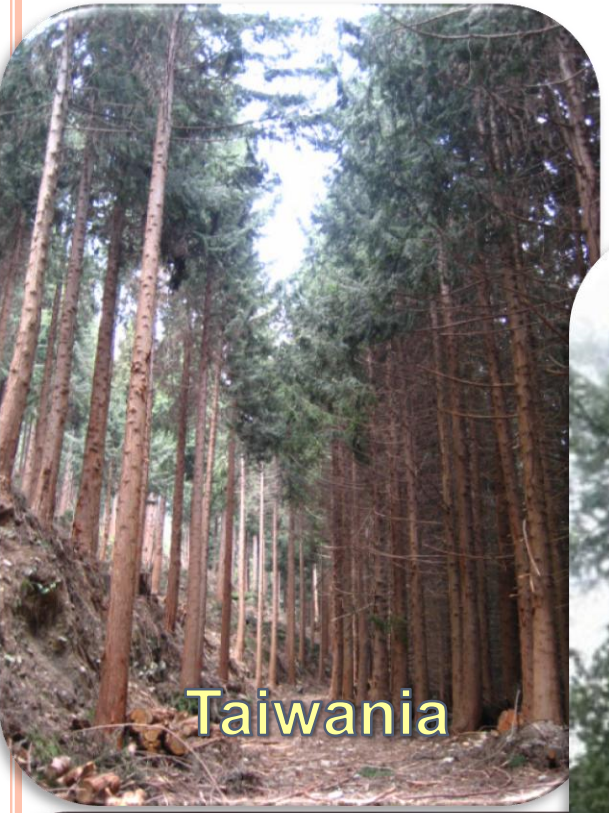
Forest Types in Taiwan





Top 5 Broadleaf Trees

Top 5 Coniferous Trees

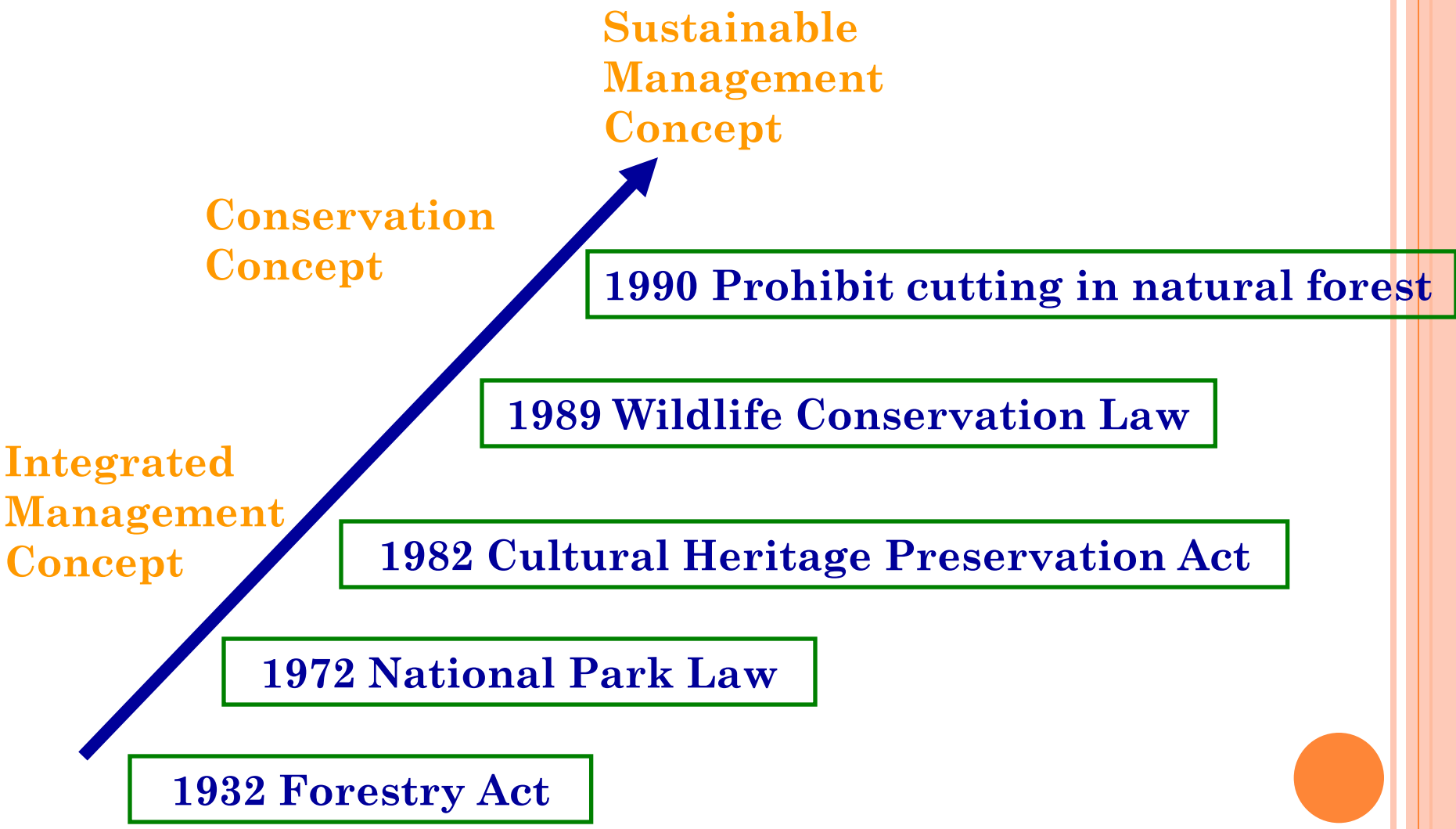


Forestland Ownerships

- National forests are governed by Taiwan Forest Bureau (TFB) 74%
- Aboriginal reserves forests 9%
- Private forestland 9%
- Other governmental agencies are Taiwan Forest Research Institute, Universities, and Veterans Affairs Commission 7%
- Local governmental forests 1%

No Logging in Taiwan

Forest Protection Laws



Natural Forests Management

- 72% of Taiwan forests-1,512,000 ha (3,734,640 acres)
- Biodiversity conservation, and ecological integrity maintenance

http://econgis.forest.gov.tw/PDF/agriculture

Plantation Management

- 20% of Taiwan forests- 422,600 ha (1,043,822 acres)
- Wood productivity enhancement & sustainability maintenance for lumber resources, carbon offsets, water and soil conservation, etc.

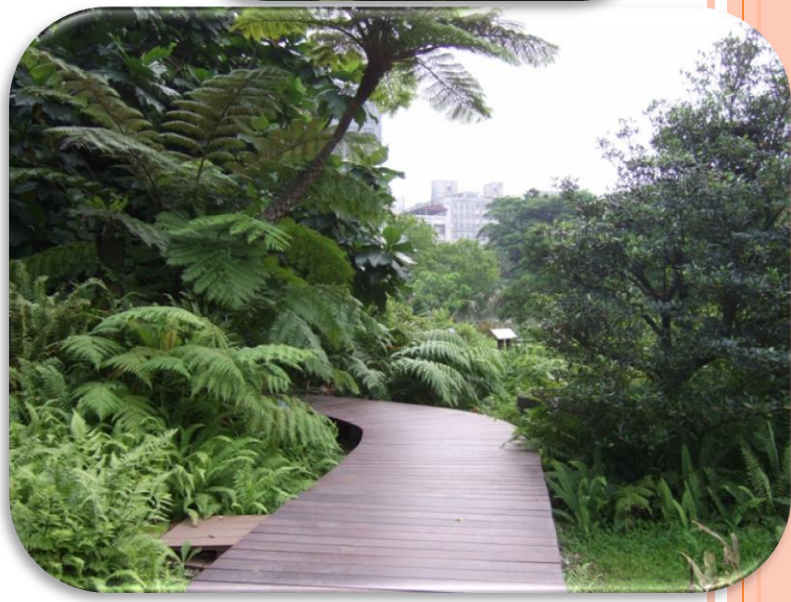
http://econgis.forest.gov.tw/PDF/agriculture

My Profession and Education

- Botanical Garden Division of Taiwan Forestry Research Institute, Council of Agriculture
- Nature Education laboratory
- Undergraduate Degree in Forestry
- Masters Degree in Environmental Education

Taipei Botanical Garden

- Located in the South West of Taipei city
- Area: 8 ha (19.76 acres)
- Japanese began the garden/ nursery in 1896
- Contains over 2,000 plants species
- Mission: Research/ Conservation/ Education/ Recreation
- Visitors: over 1 million per year
- Interpretative or E.E. programs attendance: 30,000 per year



http://mypaper.pchome.com.tw/

My Work in Taiwan

- Nature education workshops
  - Basic program - Having fun learning
  - Advanced program - Investigative skills
  - Over 2,000 people (2007-2009)
- Program design and research
- Interpretative programs
  - Weekend activities
  - Signage design
  - Publishing

Weekend Activities

- Different subject every year, different theme every month.
  - 2009- Biodiversity Conservation
  - 2010- The Wonderland of Colorful Plants
- Theme study sheet
- Volunteers
- Interpretation, hands-on activities, science exploration and games

Signage Design and Publishing

Signage in Taipei Botanical Garden

My Project in WFI

- Environmental Education Methods and Programs in the US
  - Environmental Education Programs
  - Interpretation Programs
  - Interpretive signage design

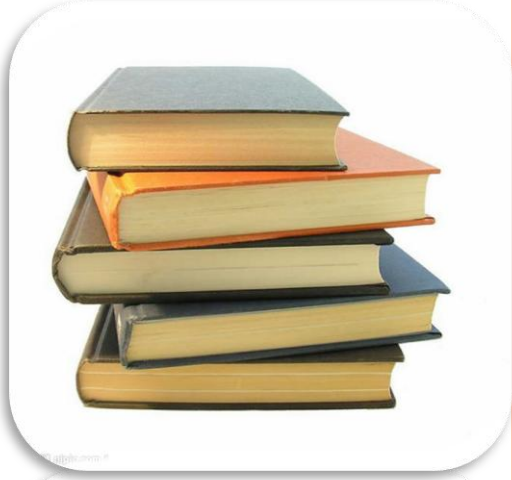
What Different Between US and Taiwan?

- 1970- U.S. Environmental Education Act
- 2010- Taiwan Environmental Education Act
  - Environmental Education became an important issue for Grade 1-9 Curriculum in 2008.
  - The first Environmental Education graduate school was set up in 1993.

40 year Gap

What I Have Learned?

- E.E. and Interpretation Publications
- Cooperation
- Technique
- Fee and Increased Professionalization
- Consumer Driven
- Interpretative Signage



E.E and Interpretation Publications

- Environment-based Education
- Interpretation of Cultural and Natural History
- Outdoor Education
- Science and Nature Kits
- Science and Nature Games
- Science and Nature Displays
- Early Childhood Learning
- …

http://www.acornnaturalists.com/store/index.aspx
http://www.naaee.org/

Cooperation is Important

- Project Learning Tree
- Rediscovery Forest Education Programs
- Cascade StreamWatch
- Summer Camps

PROJECT LEARNING TREE

http://www.plt.org/

Technique is Different

Freedom
Originality

Fee and Increased Professionalization

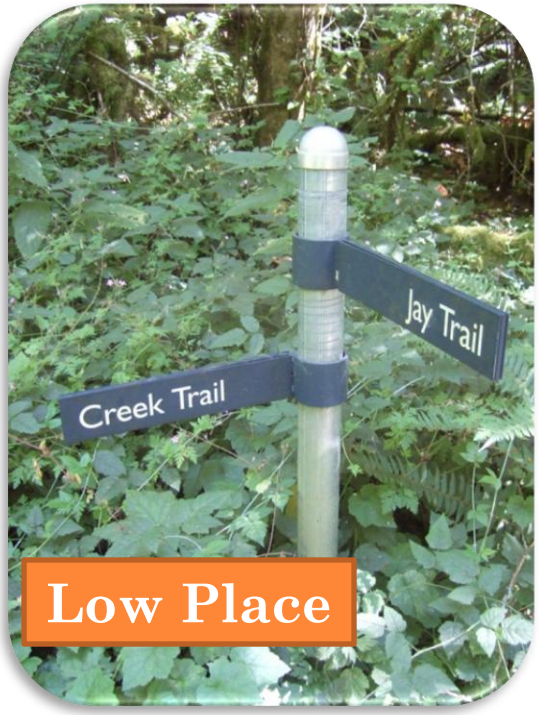
- Pay fee
- Value
- Quality

Consumer Driven

- Beforehand investigate
- Monthly questionnaire
- Visitor experience coordinator

Interpretative Signage Design- Outdoor

Trapezoid



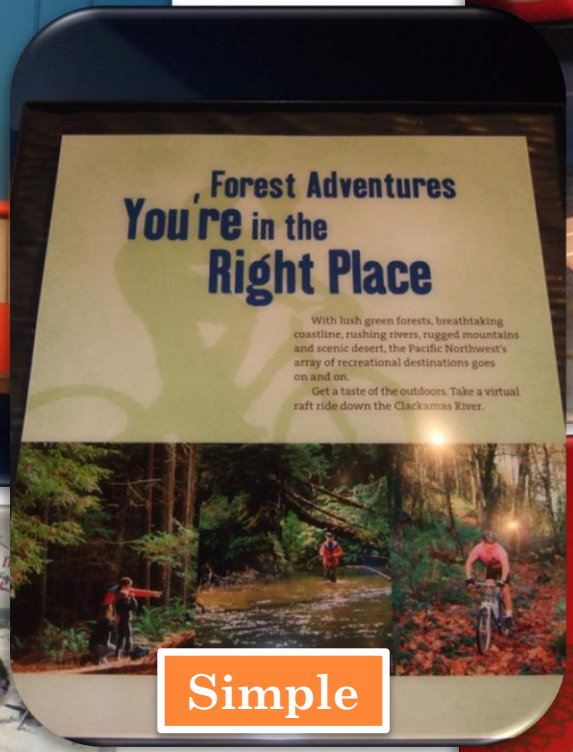
Low Place

Big

Symbol

Interpretative Signage Design- Indoor

Interaction



Simple

Rest area

Real things

Strong material

Conclusion and Recommendations

- Develop the partnership- ex. Chinese Society of Environmental Education, Forestry Bureau, schools
- Develop more publishing- try to cooperate with Chinese Society of Environmental Education
- Respect the visitor experience- survey before designing programs and Interpretative signage
- Add more hands-on activities- give more freedom and originality to the participators.

We Are Waiting For You to Visit Us

行政院農業委員會林業試驗所
TAIWAN FORESTRY RESEARCH INSTITUTE
1896

Nature Education Workshops

- Basic program - Having fun learning
  - Pond dipping
  - Grasslands exploration
  - Trap set up
  - Tranquil observation
  - Risk assessment
  - Ecosystem games
- Advanced program - Investigative skills
  - Forest investigation
  - Pond dipping - water quality instruments
  - Mouse cage trap set up
  - Tranquil observation
  - Accident Response (First Aid)
  - Ecosystem games