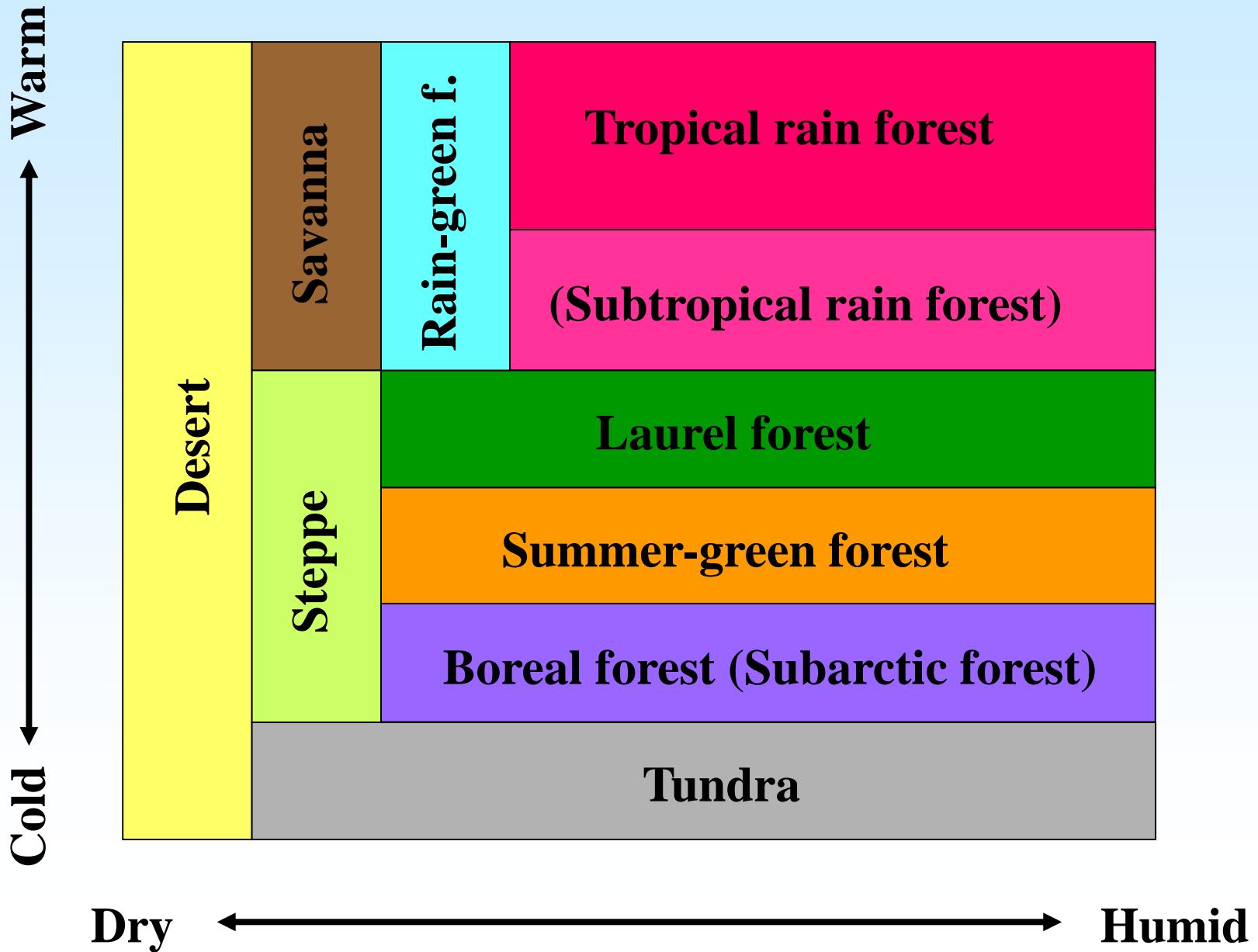


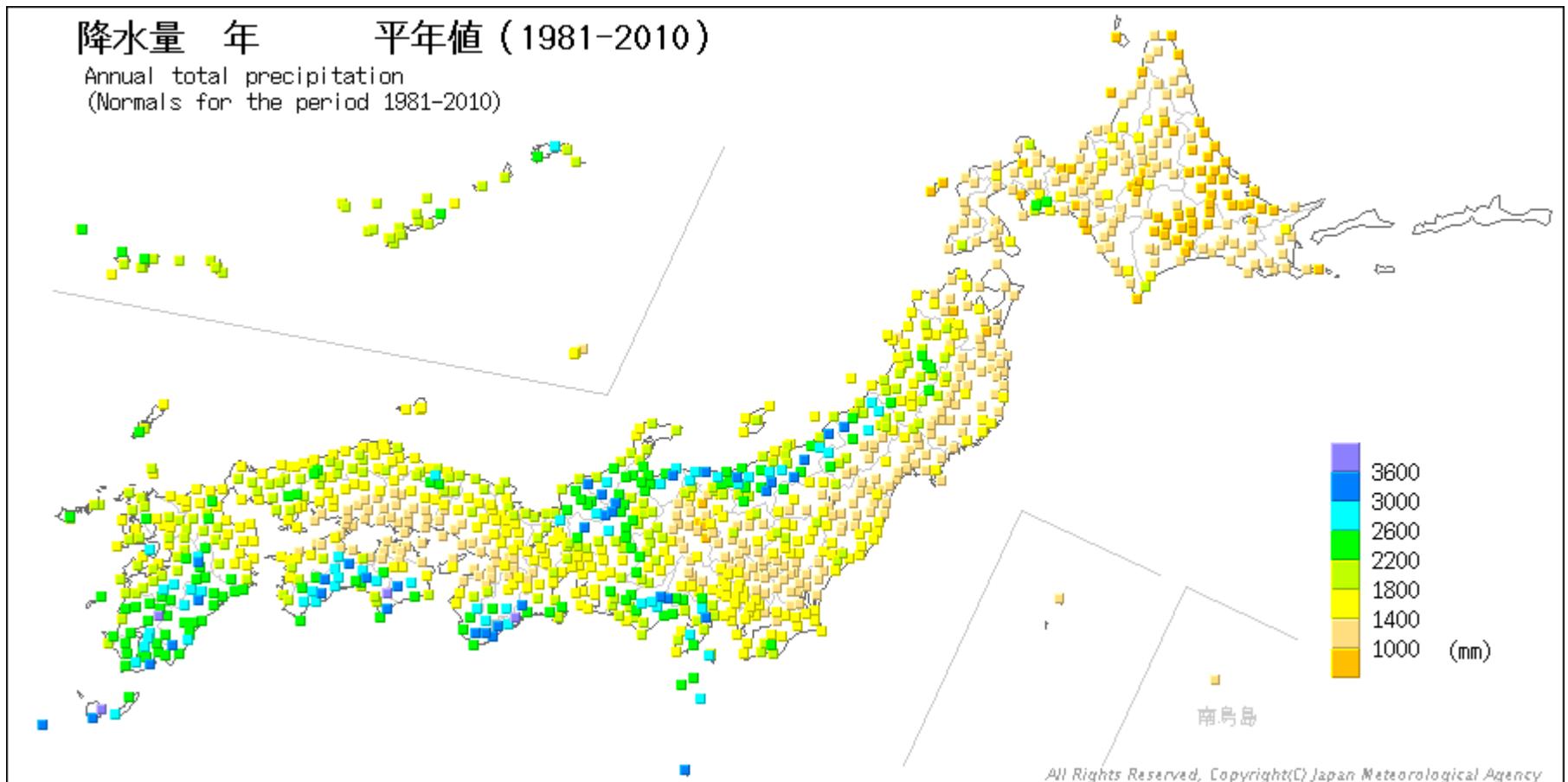
# Biodiversity 1

## Vegetation and forest management



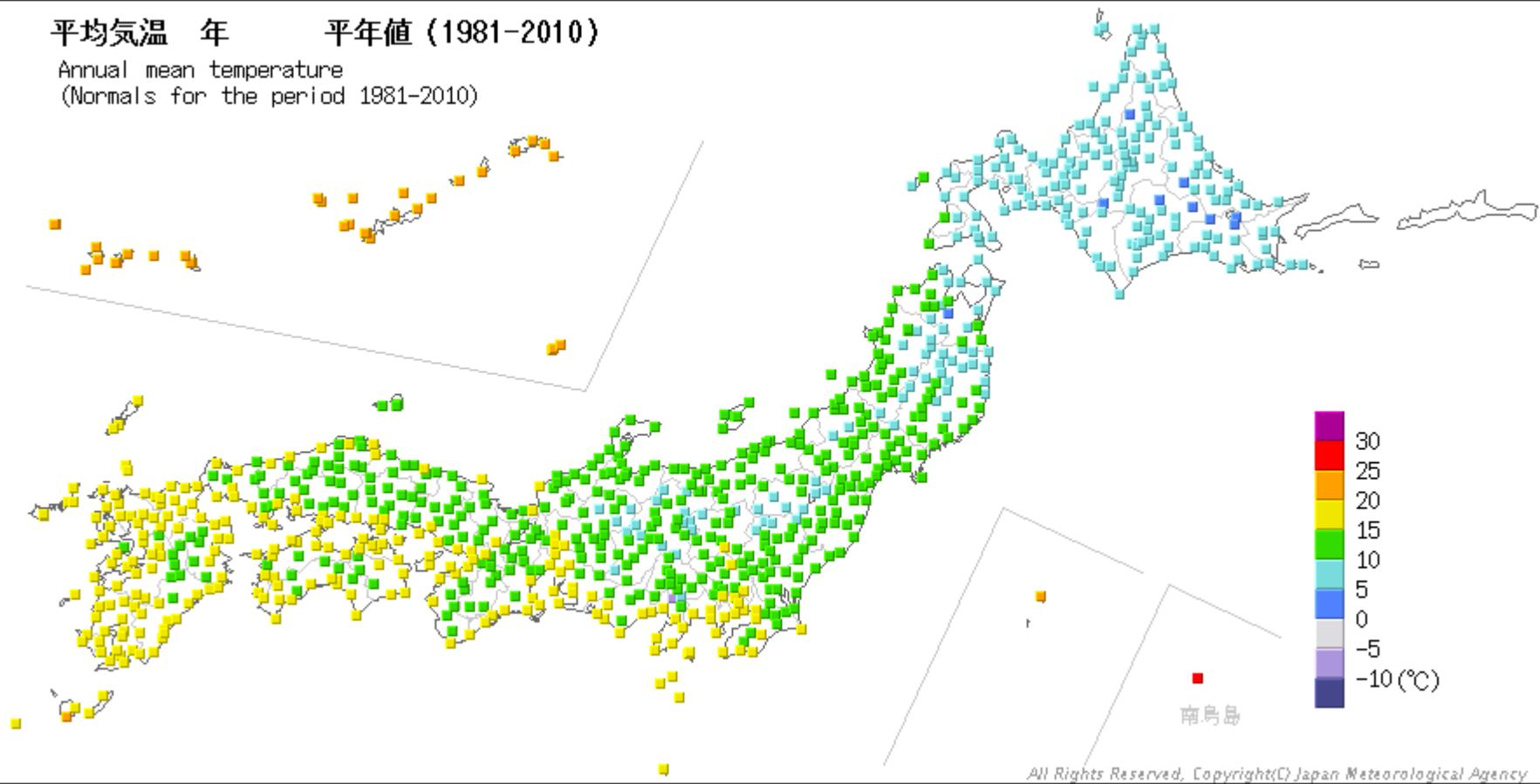


The average yearly rainfall is about 1,700 mm, roughly twice the worldwide yearly average.



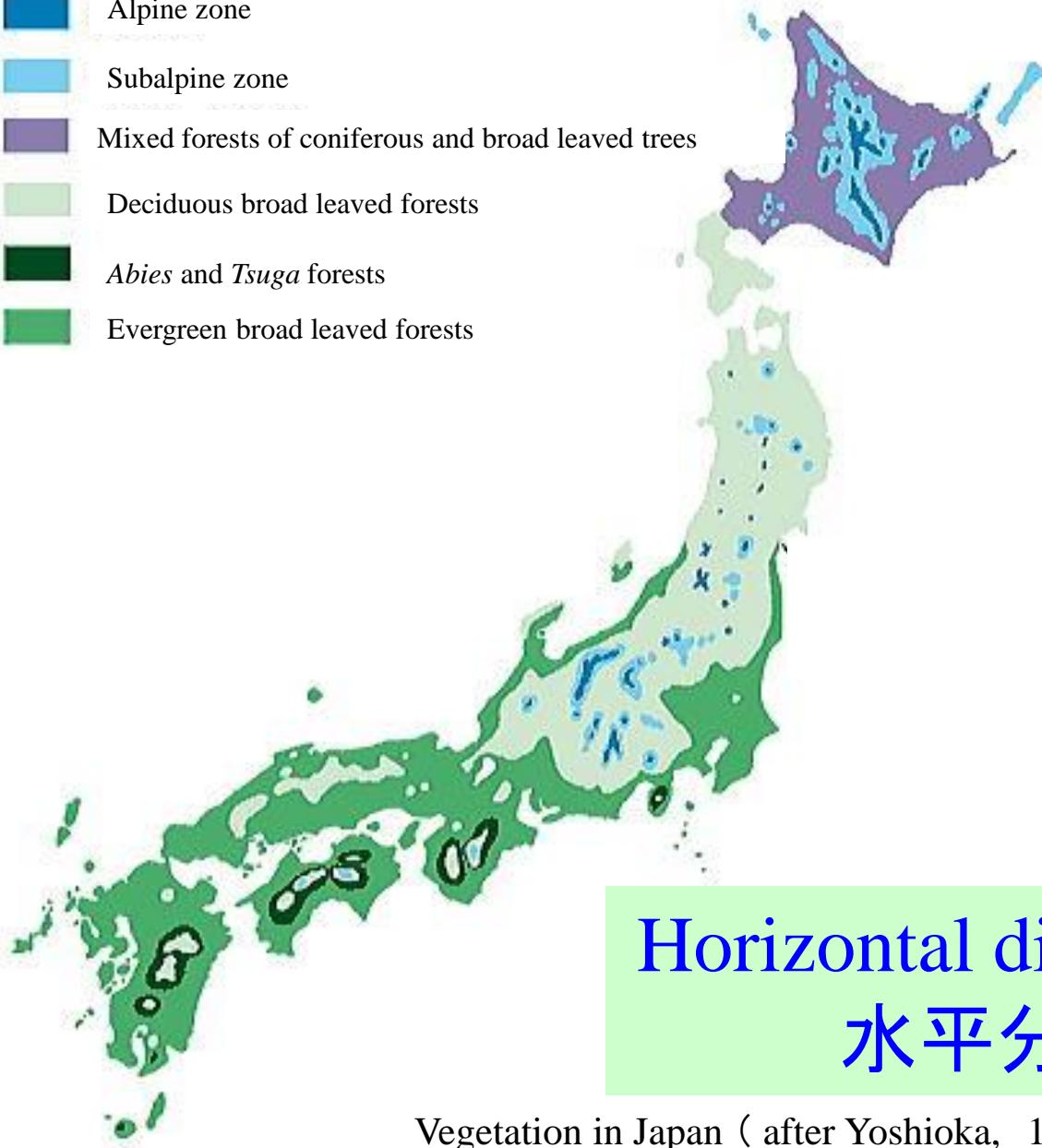
## 平均気温 年 平年値 (1981-2010)

Annual mean temperature  
(Normals for the period 1981-2010)



# Distribution of natural vegetation

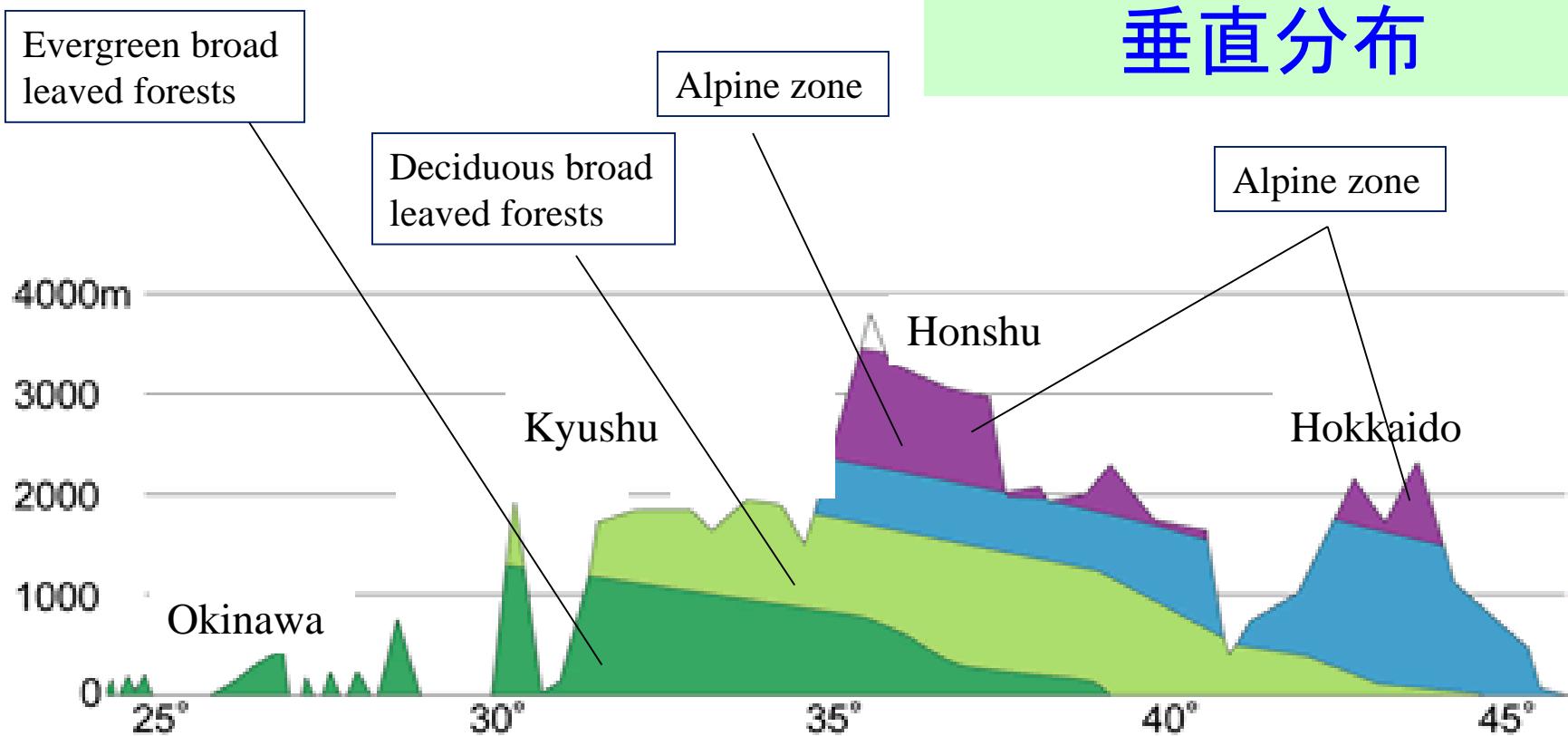
- Alpine zone
- Subalpine zone
- Mixed forests of coniferous and broad leaved trees
- Deciduous broad leaved forests
- Abies* and *Tsuga* forests
- Evergreen broad leaved forests



## Horizontal distribution 水平分布

Vegetation in Japan ( after Yoshioka, 1973)

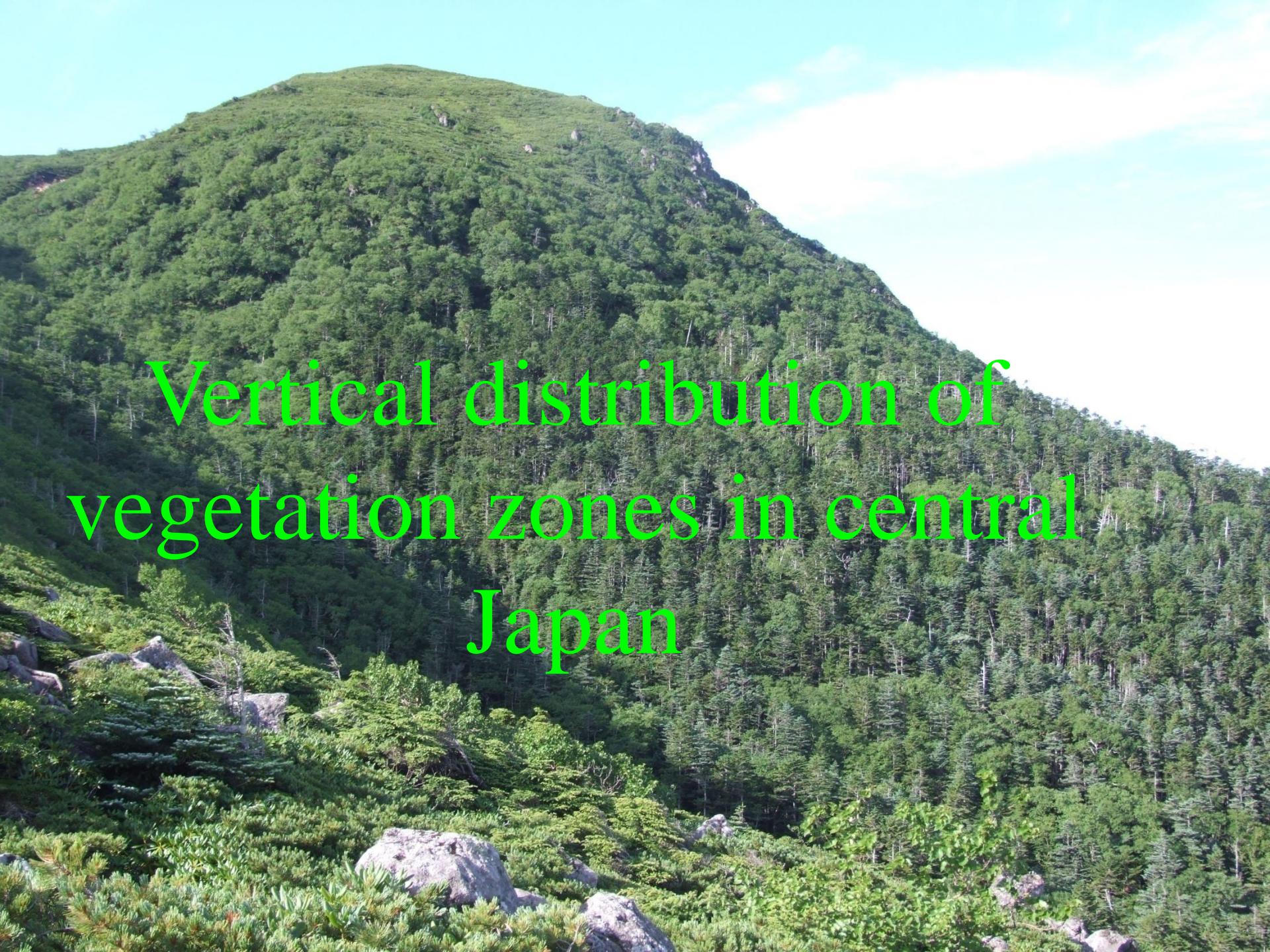
# Vertical distribution 垂直分布



Vertical and horizontal distribution of natural vegetation in Japan

「Natural and semi-natural vegetation in Japan. Blumea, 20」

(Numata, M., Miyawaki, A and Ito, S, 1972)を改変

A photograph of a steep mountain slope. The upper half of the slope is covered in a dense forest of coniferous trees, primarily pines. The lower half shows more open vegetation, including small shrubs and patches of grass. The mountain has a rocky peak at the top. The sky is clear and blue.

# Vertical distribution of vegetation zones in central Japan



The dominant vegetation of the lowland area in *Kanto* district and western Japan is the evergreen broad-leaved forest

1. 丘陵帶(低地帶) Hilly zone

照葉樹林 Laurel forest

(常綠広葉樹林 Evergreen  
broad leaved f.)

## 2. 山地帶 Montane zone

夏綠樹林 Summer-green forest

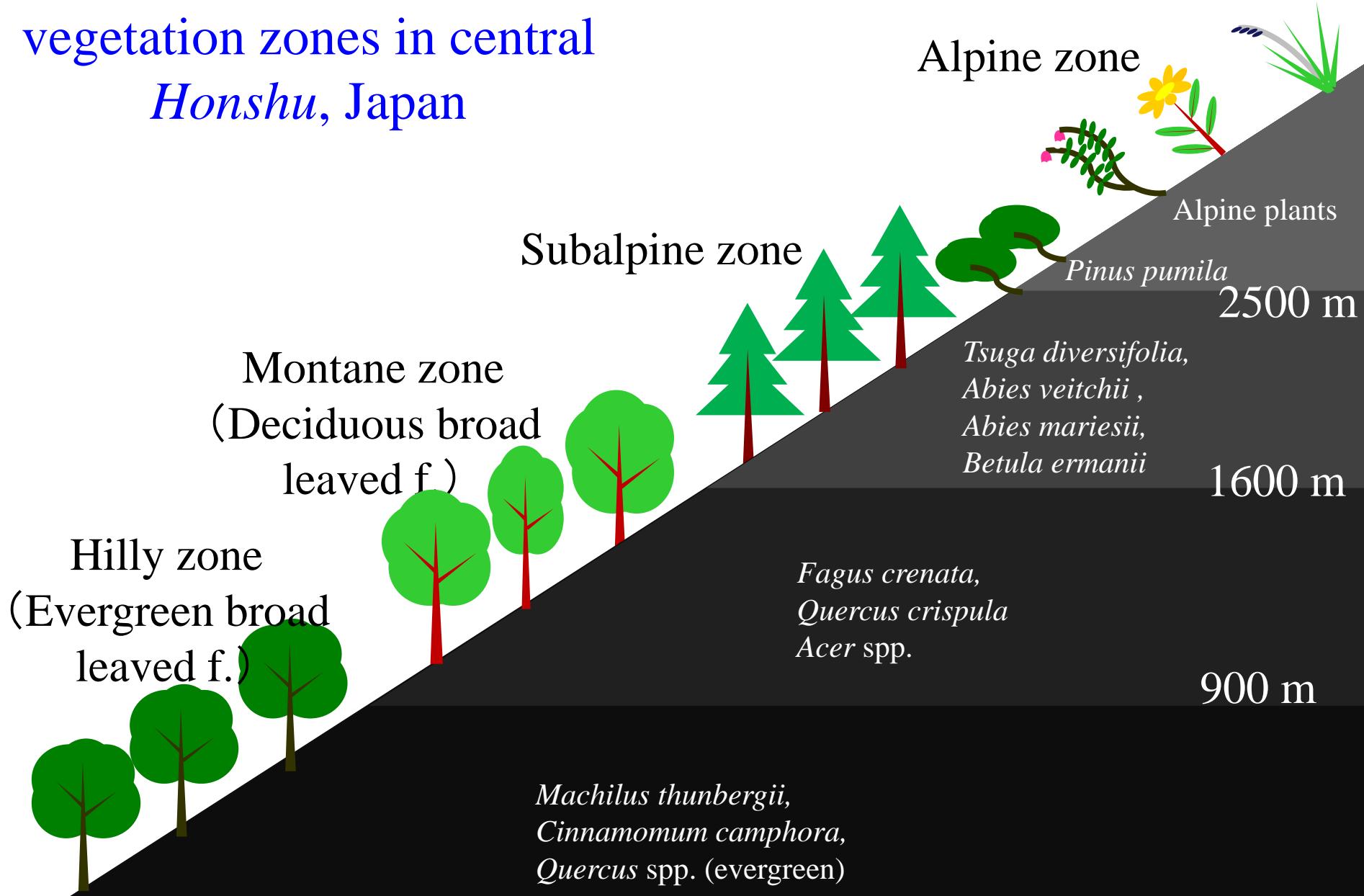
(落葉広葉樹林 Deciduous  
broad leaved f.)

### 3. 亞高山帶 Subalpine zone

(針葉樹林 Evergreen  
coniferous forest)

# 4. 高山帶 Alpine zone

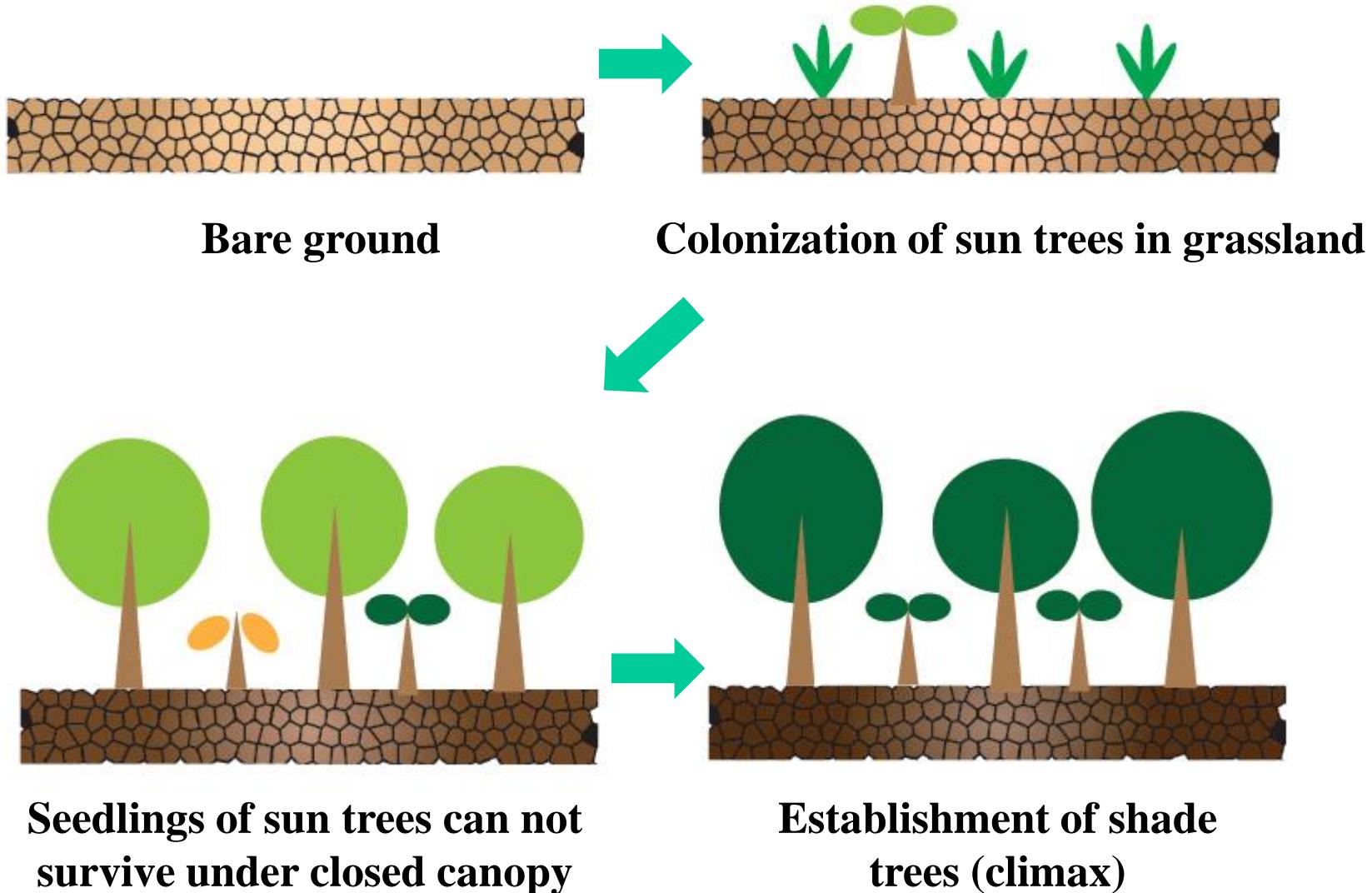
# Vertical distribution of vegetation zones in central Honshu, Japan



# Succession 遷移

is the observed process of change in the species structure of an ecological community over time.

# Successional change (xeric succession)



# Successional change

# Climax 極相: the last stage of succession for that region

Actual vegetation 現存植生

Climatic factor

+ Succession

## Secondary forests

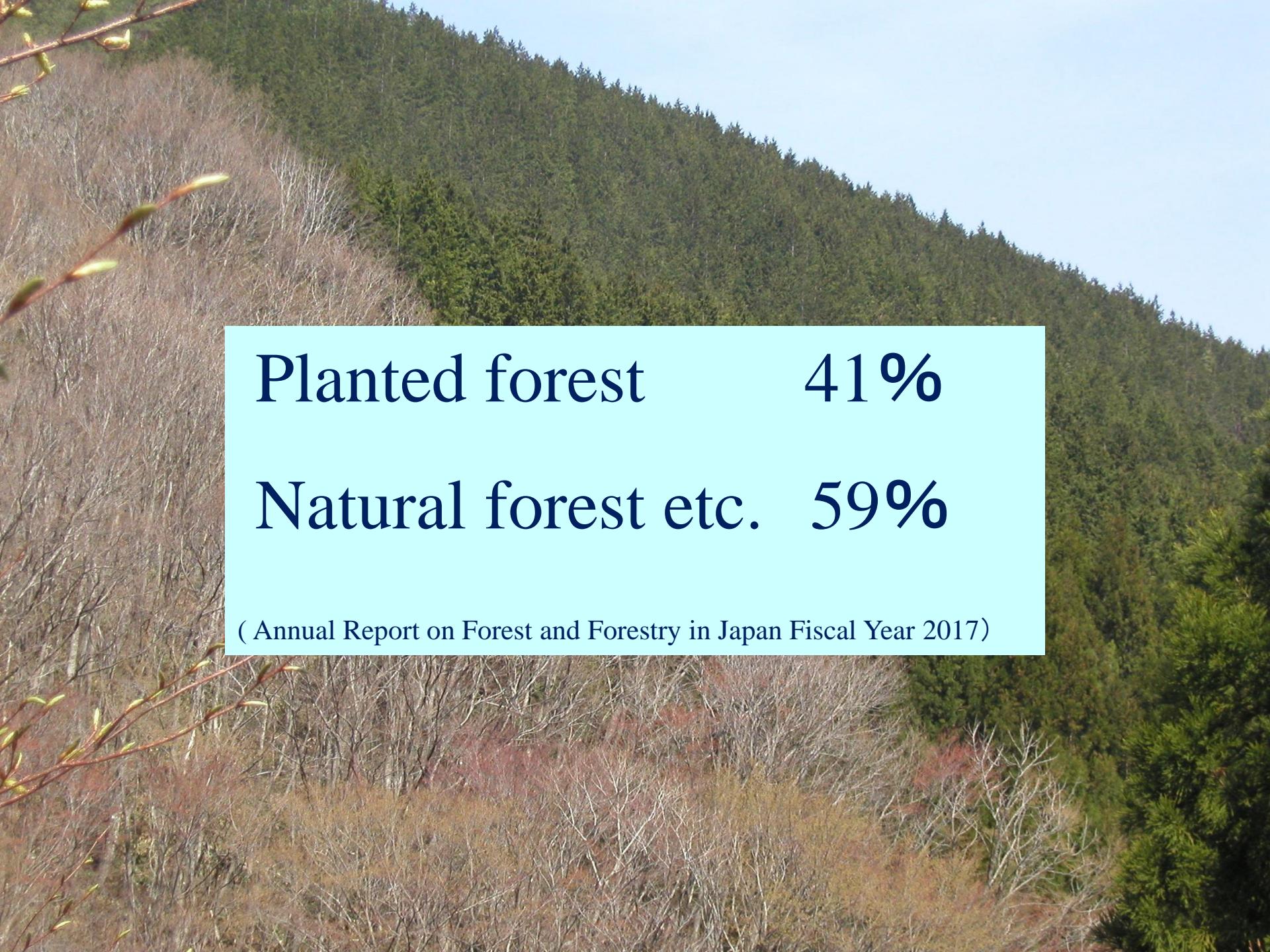
are forests which have regrown  
after the destruction of the  
original forests by human or  
natural disturbances.

cf. *Satoyama*

A number of endangered species  
live in secondary forest and  
grassland

Without human impacts,  
secondary forests and grassland  
will change to the climax forest  
through succession.

This is one of the reasons of recent  
decline in biodiversity in Japan.



**Planted forest 41%**

**Natural forest etc. 59%**

( Annual Report on Forest and Forestry in Japan Fiscal Year 2017)



*Sugi* (Japanese cedar ) *Cryptomeria japonica*

*Hinoki* (hinoki cypress) *Chamaecyparis obtusa*

# Forest management



Planting



Weeding

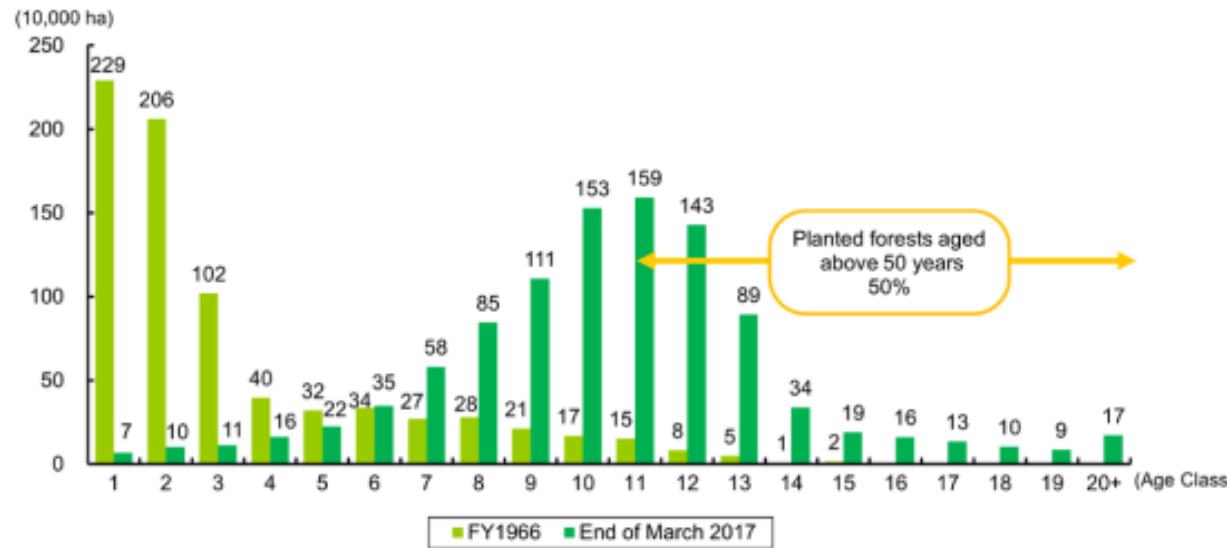


Improvement cutting  
Thinning



*Kanbatsu* (thinning of forest ) is important for sustaining healthy, productive forests.

Japan's forests cover about 25 million hectares, which accounts for two-thirds of the national land area. About 40% of them are planted forests. Half of the planted forests are aged above 50 years and entering their period of use (Fig. I-1).



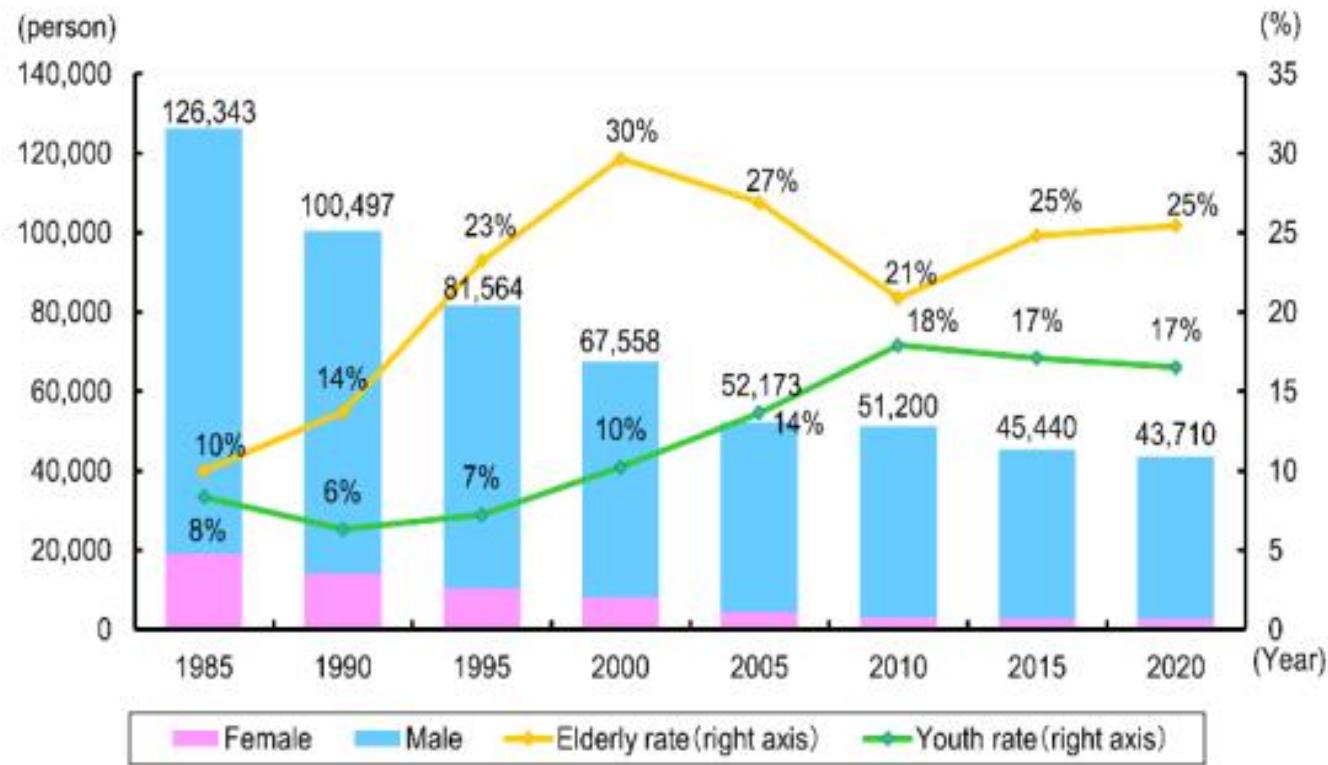
Sources: Forestry Agency "State of Forest Resources" (March 31, 2017) and  
"Forest Resources of Japan" (April 1968)

Note: Age-classes are divided by 5 year-period steps. "Age-class 1" includes the 1st to 5th year after planting with the year of planting counted as the 1st year.

**Fig. I-1 Changing forest age class configuration of planted forests**

cf. Afforestation policy 拡大造林政策

The number of forestry workers in 2020 was 43,710, which leveled off after a long-term declining trend.

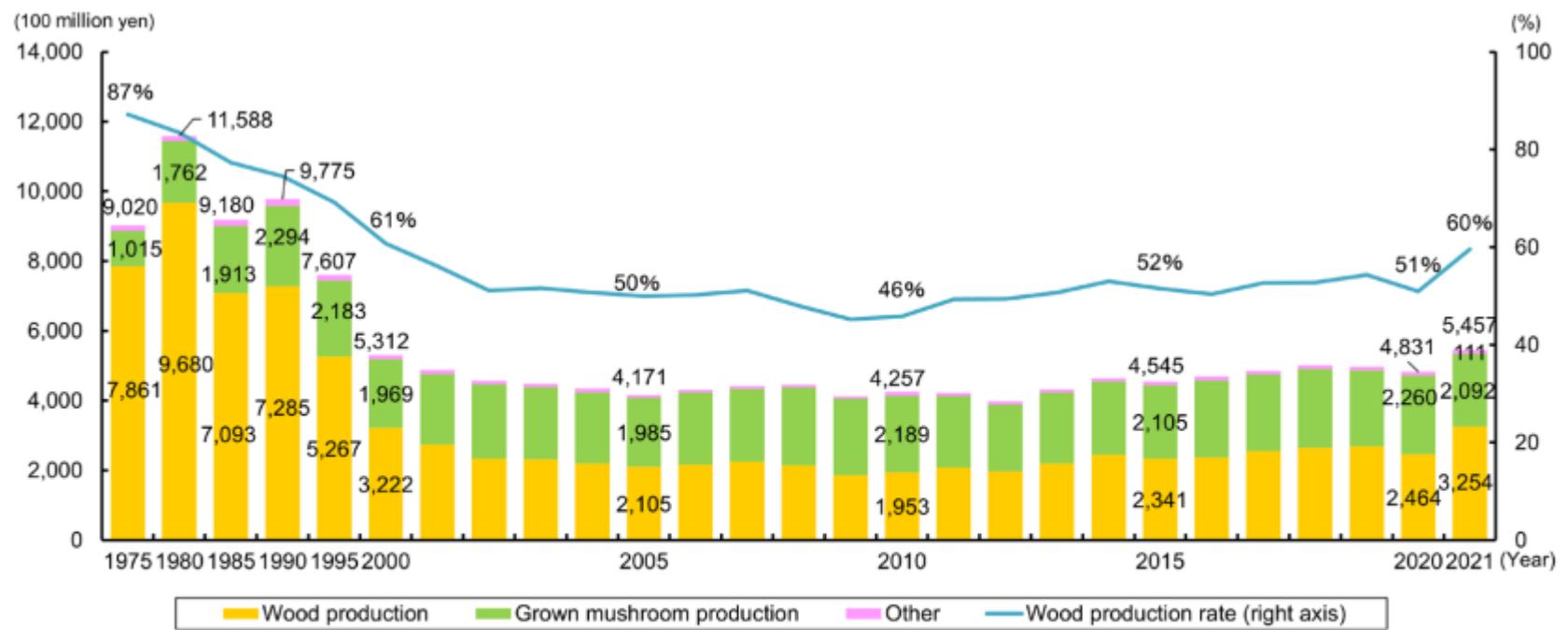


Source: Ministry of Internal Affairs and Communications "National Census"

- Notes: 1. "Elderly rate" reflects the rate of people aged 65 or over.  
2. "Youth rate" reflects the rate of people aged under 35.

**Fig. II-4 Number of forestry workers**

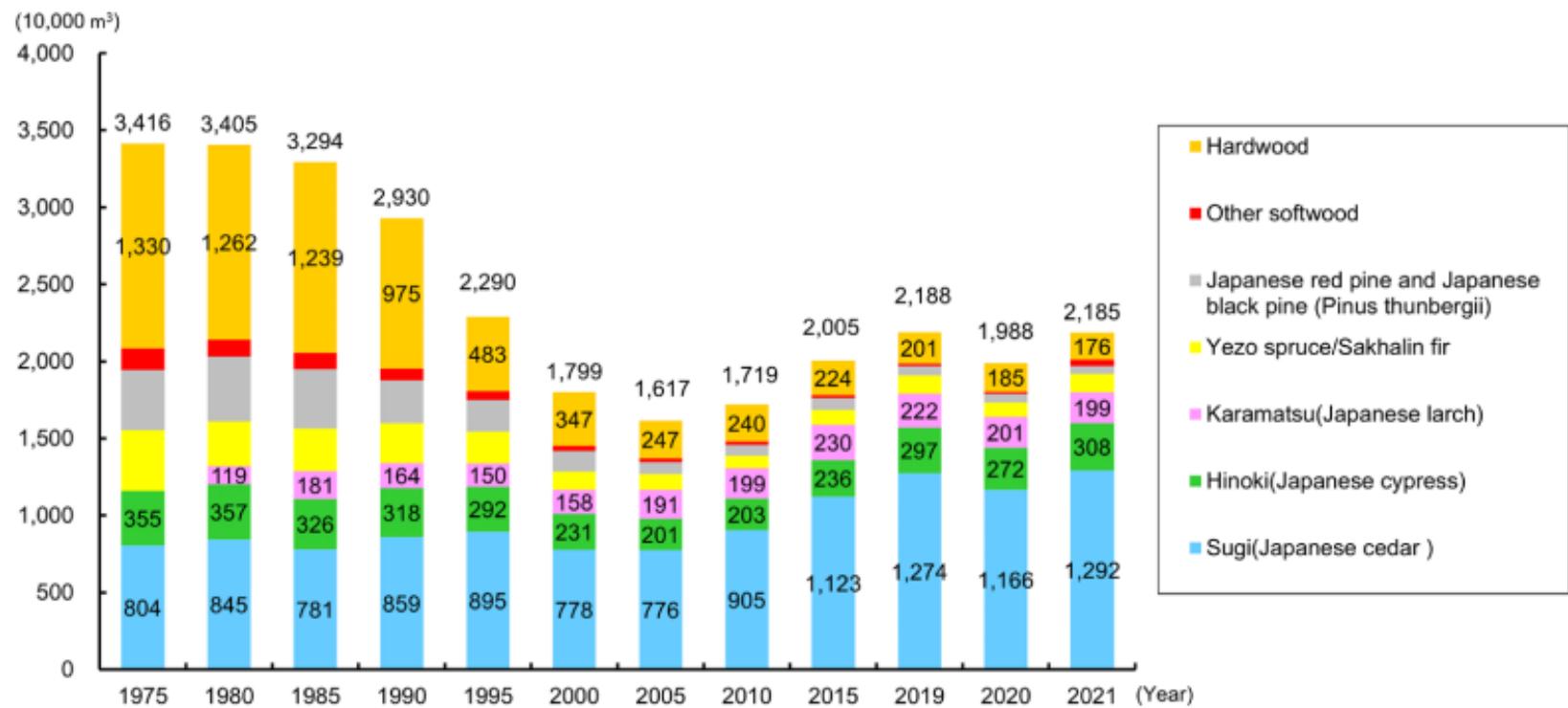
Total forestry output in 2021 was 545.7 billion yen, an increase of 13.0% from the previous year. Wood production accounted for about 60% of forestry output and reached 325.4 billion yen in 2021, which was an increase of 32. 0% from the previous year (Fig. II-1).



Source: MAFF "Forestry output"

**Fig. II-1 Gross forestry output**

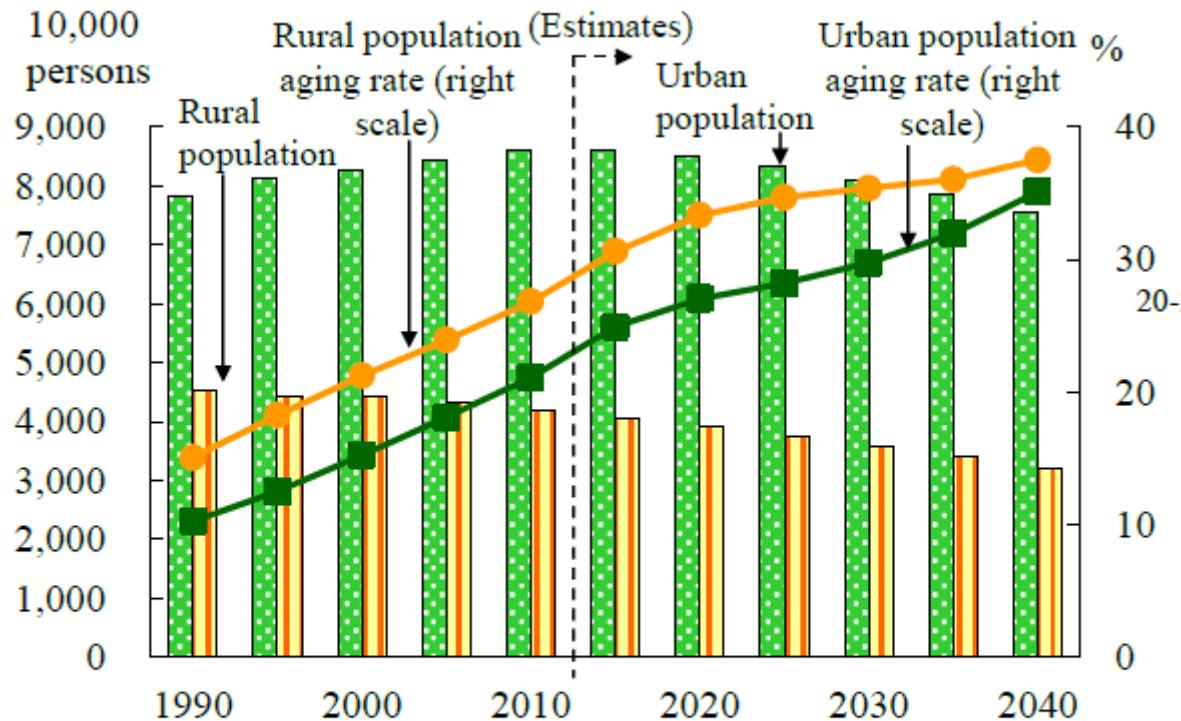
By tree species, the volume of Sugi (Japanese cedar) production was 59.1%, Hinoki (Japanese cypress) 14.1%, Japanese larch 9.1%, and hardwood 8.1%, respectively (Fig. II-2).



Source: MAFF "Report on supply and demand of lumber"

**Fig. II-2 Domestic roundwood production**

## Population and aging trend and outlook in rural and urban areas



Sources: Estimated by MAFF based on MIC, "Population Census;" National Institute of Population and Social Security Research, "Estimates of Japan's Future Population by Region (estimated in March 2013)"

Note: Urban areas are densely inhabited districts as specified in the "Population Census" and rural areas are other districts.



Unmanaged forests are susceptible to natural disasters.