



Progress of C&I

An Overview of National Forest Inventory of Japan

Forestry Agency, Japan



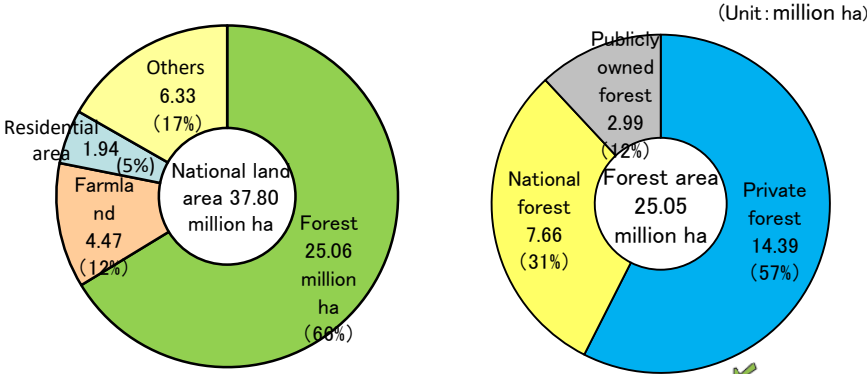
25th February 2019



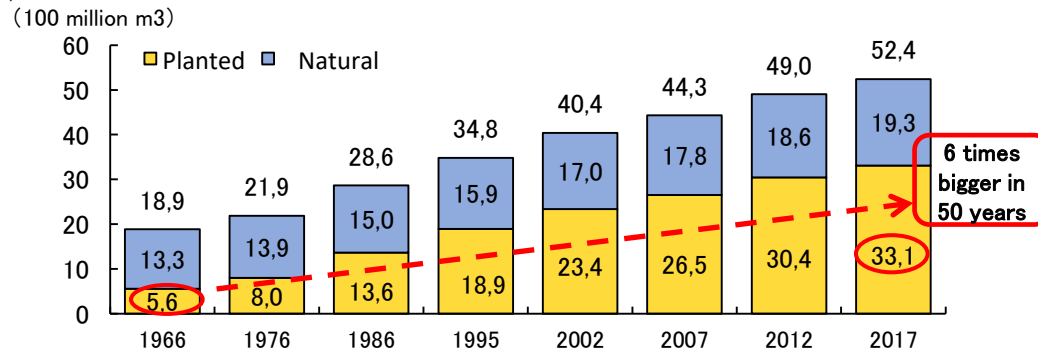
Forest in Japan

- The total area of Japan's forests is approximately 25 million ha, of which 10 million ha is planted forest, covering about two-thirds of the total land area. The total forest area stays almost constant more than half a century.
- Growing stock is increasing, mainly in planted forest, by 70 million m³ every year, accounting for 5.2 billion m³ currently, while its area has been constant.
- About a half of planted forest has attained to typical harvesting age of 50 years or older.

Breakdown of national land area and forest in Japan

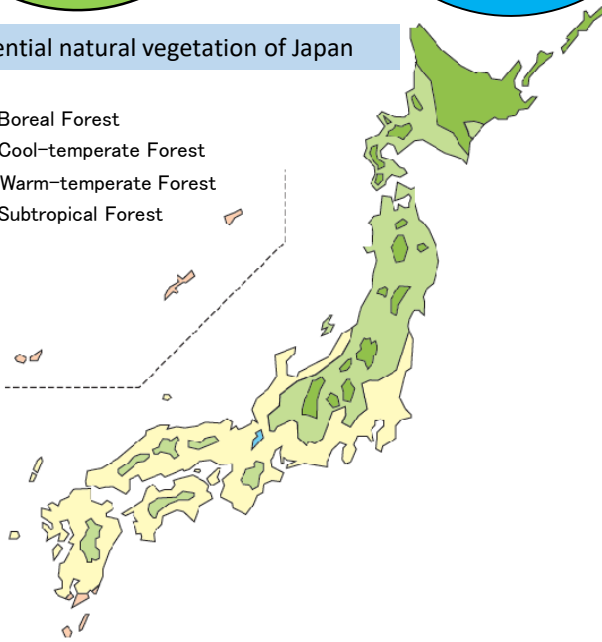


Change of Growing Stock

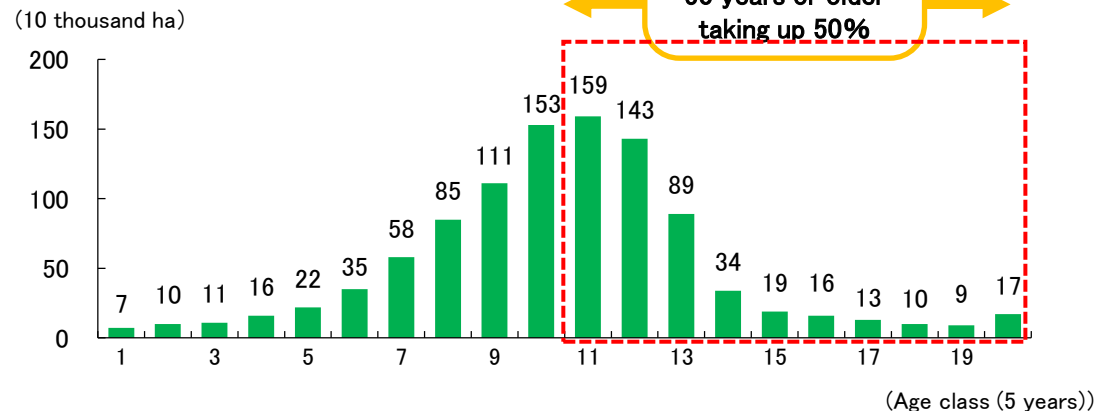


Potential natural vegetation of Japan

- Boreal Forest
- Cool-temperate Forest
- Warm-temperate Forest
- Subtropical Forest



Area of planted forest by age class (Planted forest)



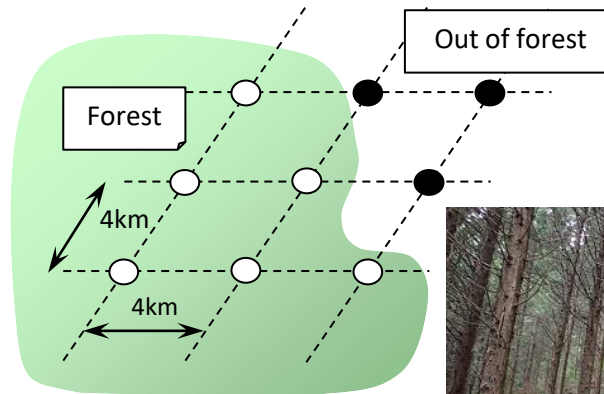
(Age class (5 years))

Implementation of NFI of Japan

- National Forest Inventory in Japan started in 1999, with a period of 5 years for one term, to monitor present state of forest such as vegetation, soil erosion, damages, etc at approximately 13,000 sites currently across the country.
- The 4th Stage of NFI finished in 2018 fiscal year and the 5th stage starts in 2019.

Data collection (On-site survey)

- Survey sites are allocated at each grid point of 4 km interval in forests.
- On-site survey is carried out to collect data every 5 years at fixed round shaped survey site of 0.1 ha.



© Allocation of survey site



© On-site survey

Accuracy verification

- Accuracy of data collection is independently checked through control survey.
- The results of verification are fed back to field examiners and utilized for training of them, as well as improvement of survey manuals.

Data analysis

- Collected data are integrated and analyzed to be used for forest management, policy-making, research, etc.

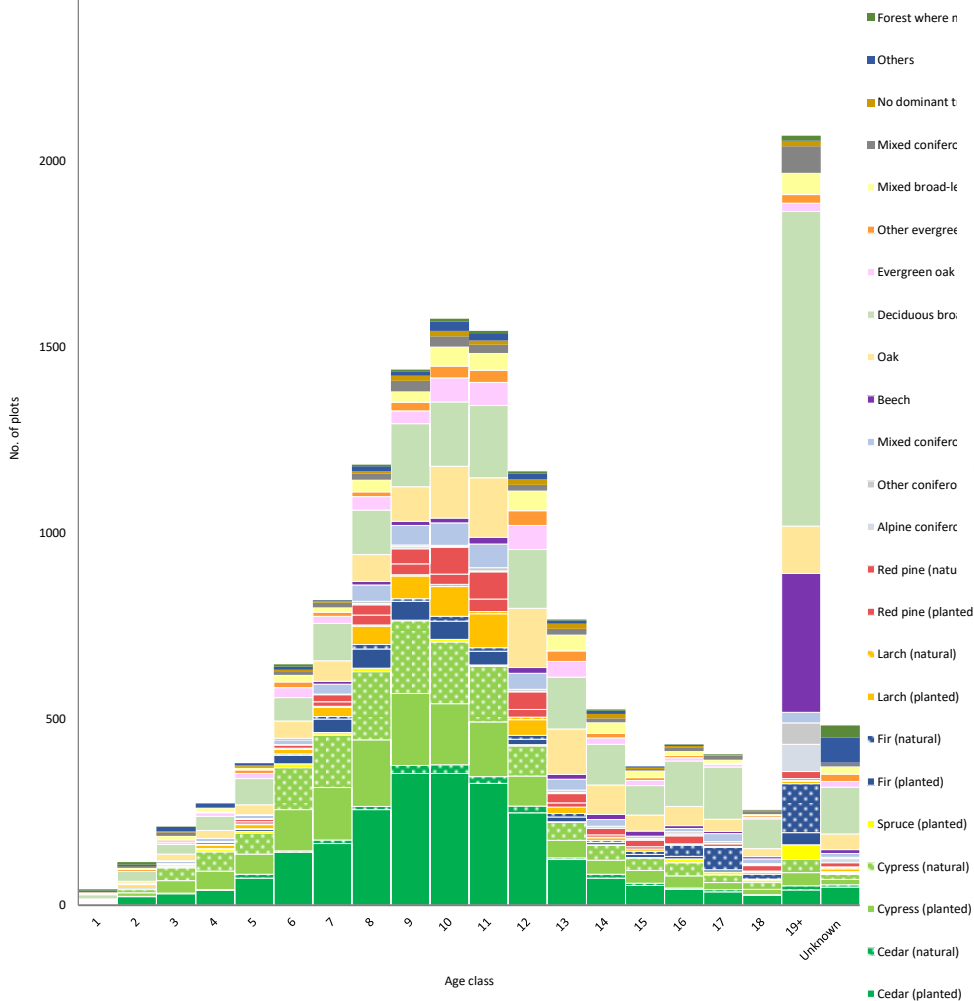


Comparison of MP Indicators and corresponding items in NFI of Japan

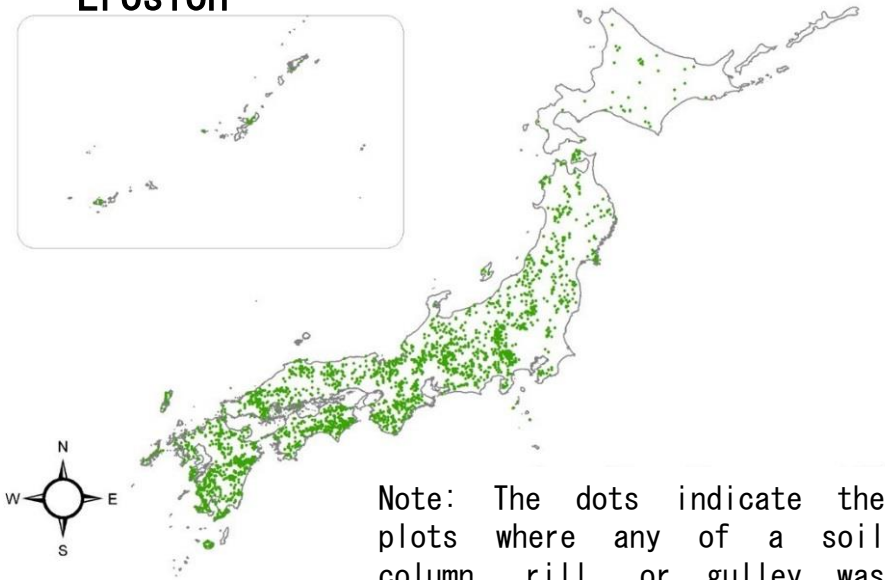
Indicator of MP		Associated Items in NFI
1.1.a	Area and percent of forest by forest ecosystem type, successional stage, age class, and forest ownership or tenure	Age, Height, BHD, Species, Dominancy, Regeneration(planted/natural), Land ownership, Data in Forest Record, etc
1.1.b	Area and percent of forest in protected areas by forest ecosystem type, and by age class or successional stage	Legislative designation
1.2.a	Number of native forest-associated species	Understory vegetation (species, covering ratio, etc)
1.2.b	Number and status of native forest-associated species at risk, as determined by legislation or scientific assessment	Inhabitation data of wild animals
1.3.a	Number and geographic distribution of forest-associated species at risk of losing genetic variation and locally adapted genotypes	Existence of seedlings/young trees
2.c	Area, percent, and growing stock of plantations of native and exotic species	Regeneration(planted/natural)
3.a	Area and percent of forests affected by biotic processes and agents (e.g., disease, insects, invasive alien species) beyond reference conditions.	Damage by disease, pests, insects, etc
3.b	Area and percent of forest affected by abiotic agents (e.g., fire, storm, land clearance) beyond reference conditions	Damage by wind, snow, fire, flood, lightning strike, etc
4.2.b	Area and percent of forest land with significant soil degradation	Existence and degree of soil erosion

➤ NFI data were utilized in the the 3rd Country Report of MP in 2018

Indicator 1.1.a Composition of Forest Ecosystems by Age Class



Indicator 4.2.b Distribution of Soil Erosion

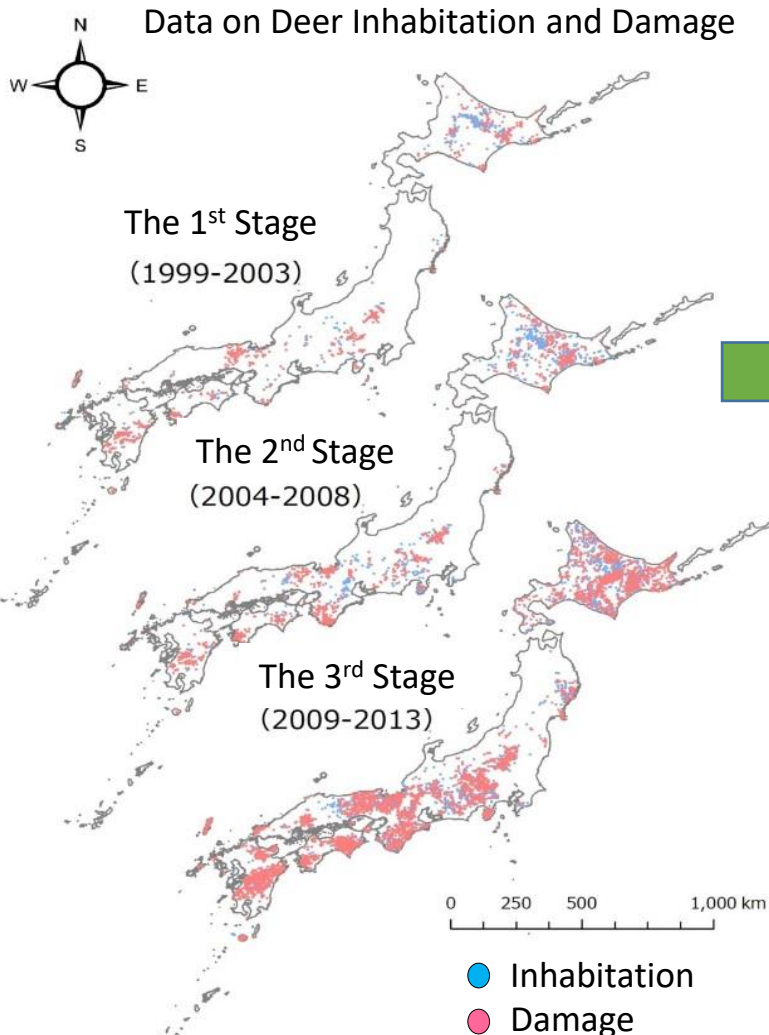


Note: The dots indicate the plots where any of a soil column, rill, or gully was found.



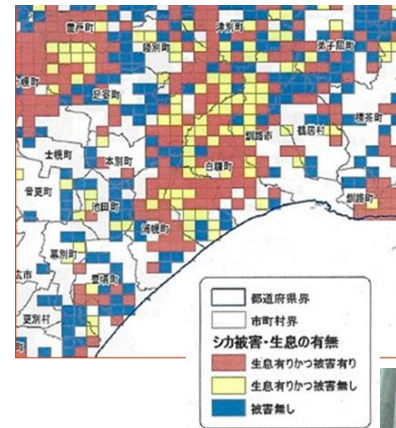
Utilization of NFI Data ② Application to forest policy

In accordance with the damages caused by deer, appropriate measures are being taken in each area.

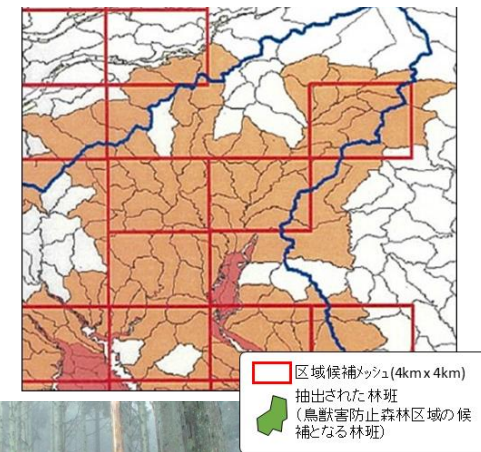


As damages by deer have increased recently, forest planning system was revised in which municipal governments are to establish Wild Animals Damage Control Forest Area in their forest plans. Municipal government utilize the data regarding deer inhabitation and damage collected in NFI for better management.

◎ Data on Deer Inhabitation and Damage on the 4 km-grid map



◎ Extracted unit of damaged-forest

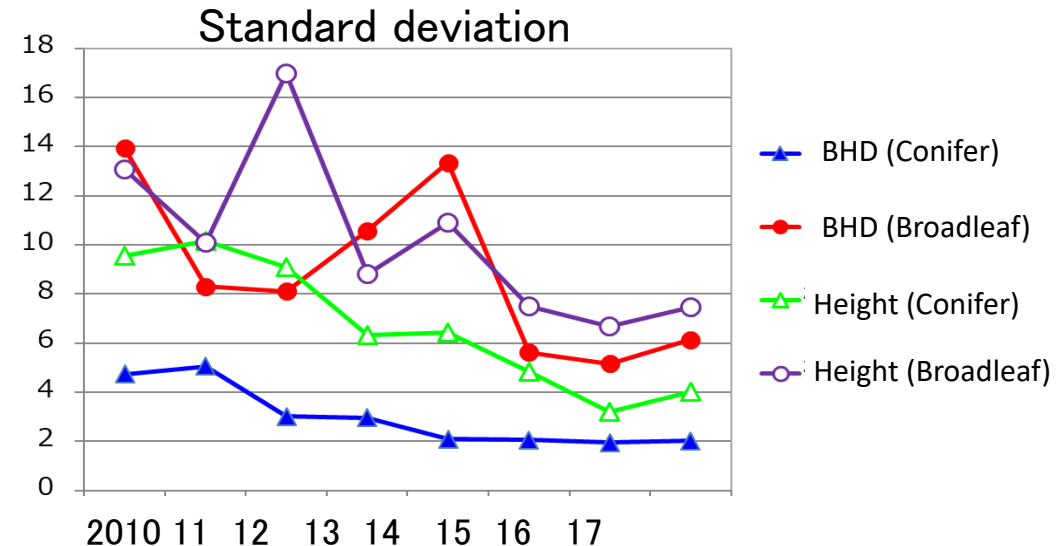
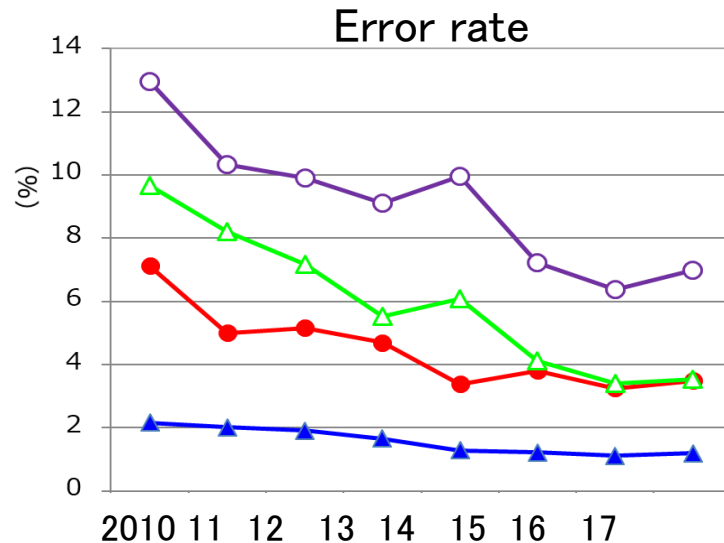


◎ Damage by deer in a planted forest

Results of accuracy verification

Accuracy verification

- Accuracy verification has been carried out since 2010, the 3rd stage of NFI.
- Independent verification survey team reexamine some of the survey sites and verify the collected data, to analyze error rate, possible factor of error and so on.



→ ***The accuracy is stabilizing***

Utilization of verification results

- Training for field examiners
- Improvement of manuals, data collection format, data input programme, etc.



1. Implementation of the 5th stage of NFI

- The 5th Stage of NFI starts in 2019 with several modifications on on-site data collection methods, manuals, data input programme, etc.
- Accuracy verification is also carried out in parallel to maintain standards of survey.

2. Promotion of data disclosure system

- Promotion of data disclosure system is under consideration, e.g. method and rule of providing original data for administrative body, etc.

Thank you for your attention!