

Data Report 2018 (Preliminary Draft)

Soil and Vegetation Monitoring

Network Center for EANET

1

Basic Survey for Soil and Forest

Mandatory parameters

Soil

pH(H₂O), pH(KCl), Exchangeable base cations (Na, K, Ca, and Mg), Exchangeable acidity, Effective cation exchangeable capacity (ECEC)

Forest

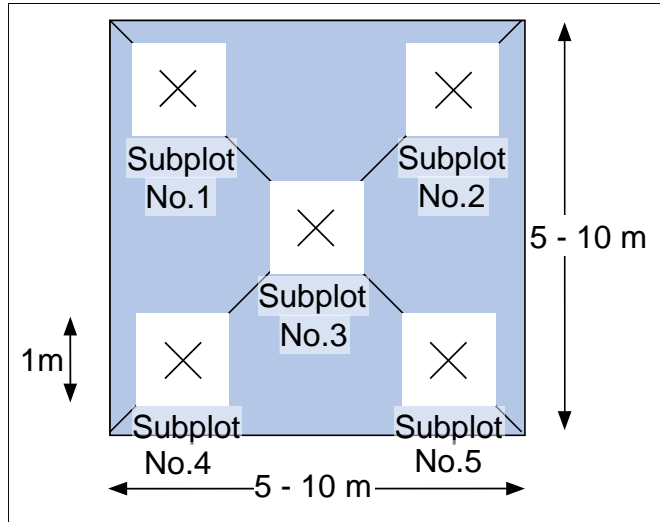
General description of the forest (Description of trees, and Understory vegetation), Observation of tree decline

Frequency of the monitoring: every 3-5 years

The Sub-Manual on Forest Vegetation Monitoring (2006) recommended that observation of tree decline should be done once a year .

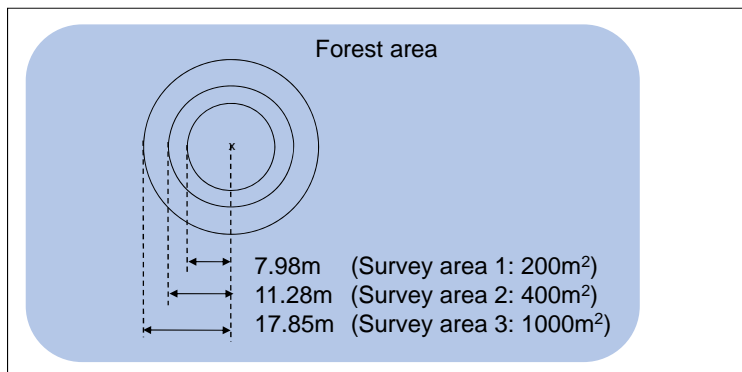
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Plots and Subplots for Soil Monitoring



Two layers (0-10, 10-20 cm) are collected in each sub-plot.
 Total number of soil samples should be 20 (2 plots x 5 subplots x 2 layers₃).

Plots for Forest Monitoring



Tree census: Name of species, DBH, Height of tree

Survey area 1: Tree height > 1.3 m

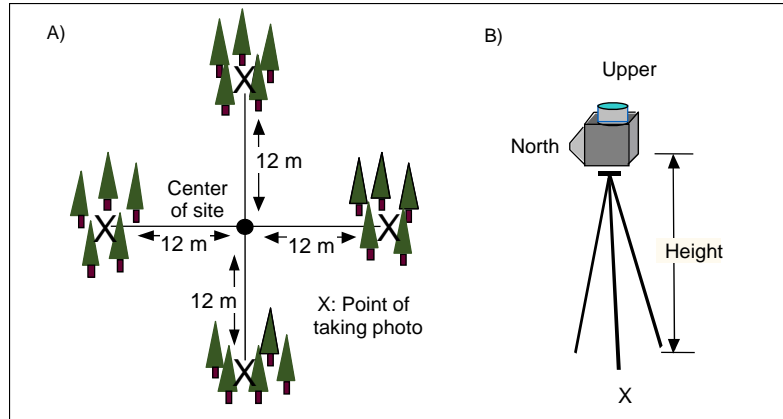
Survey area 2: DBH > 4 cm

Survey area 3: DBH > 18 cm

Understory vegetation survey:

Dominance scales of the respective species (Survey area 1)

Tree Decline Survey



For the twenty trees, observation and evaluation of decline, record of foliage by photograph (opt.), and estimation of a decline cause (opt.) should be carried out.

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Outline of the Monitoring Sites in 2018

Country	Nearest deposition monitoring site	Site name	Soil type	Items*
China	Jinyunshan (Chongqing)	Jinyunshan	Acidi-Udic Argosols	F ₁
	Jiwozi (Xi'an)	Dabagou	Brown soil	F ₁
	Xiaoping (Xiamen)	Xiaoping	Red soil	F ₁
Japan	Ijira	Ijira	Dystric Cambisols	F ₁
		Yamato	Andosols	F ₁
	Banryu	Banryu-2	Cambisols	F ₁
		Iwami "rinku" Factory Park	Acrisols	F ₁
Malaysia	Petaling Jaya	Pasoh Reserve Forest 1	Orthoxic Tropudults	S
		Pasoh Reserve Forest 2	Plinthic Kandiaquults	S

S, soil chemical analysis; F₁, observation of tree decline; F₂, tree census and understory vegetation survey

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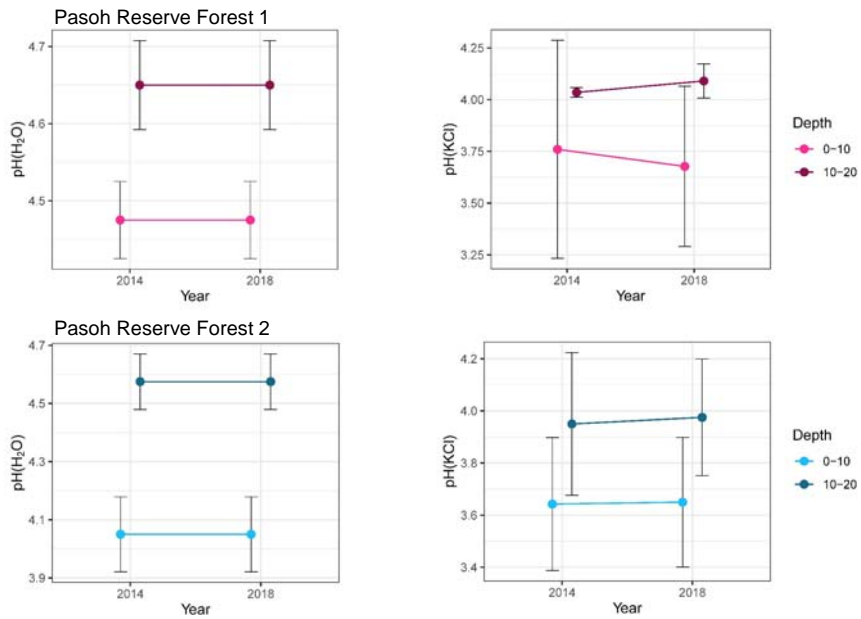
Soil Properties in 2018 (Pasoh Reserve Forest)

Location	Soil type	Plot No.	Subplot No.	Layer analyzed (cm)	Repeat analysis	Water contents (%)	pH		Exchangeable base cations (B)					Ex-acidity (A)	Ex-acid cations		EC/EC (A)+(B)	Total C	Total N	Available P
							H ₂ O	KCl	Ca	Mg	K	Na	Al		H	(mg kg ⁻¹)				
Pasoh Reserve Forest 1 MS/S01	Orthoxic Tropudults	1	1	1	1	4.5	3.4	0.52	0.61	0.33	0.13	2.37		2.33	0.16	0.45				
			2	0-10	1	4.4	3.5	0.06	0.23	0.06	0.10	3.21		1.53	0.12	0.73				
			3	1	4.5	4.2	0.49	0.62	0.32	0.10	2.40		2.27	0.14	0.35					
			4	1	4.5	3.6	0.45	0.56	0.35	0.14	2.30		2.00	0.10	0.37					
		1	1	1	4.7	4.2	0.07	0.11	0.16	0.16	3.58		0.42	0.10	0.86					
		2	10-20	1	4.7	4.1	0.06	0.05	0.10	0.12	3.60		0.42	0.06	0.61					
		3	1	4.6	4.1	0.04	0.06	0.10	0.09	3.28		0.31	0.05	0.54						
		4	1	4.6	4.0	0.08	0.07	0.09	0.10	3.62		0.23	0.08	0.55						
Pasoh Reserve Forest 2 MS/S01	Plinthic Kandaquehulis	2	1	1	1	3.9	3.5	0.12	0.17	0.10	0.10	3.00		1.76	0.10	1.00				
			2	0-10	1	4.1	3.6	0.05	0.03	0.03	0.03	3.42		1.03	0.12	0.60				
			3	1	4.2	3.5	0.02	0.02	0.03	0.10	3.40		2.27	0.14	0.45					
			4	1	4.0	4.0	0.11	0.14	0.10	0.12	2.13		2.00	0.14	0.38					
		1	1	1	4.5	4.1	0.03	0.04	0.02	0.03	3.31		0.35	0.14	0.66					
		2	1	4.5	3.6	0.10	0.00	0.03	0.02	3.46		0.24	0.07	0.53						
		3	10-20	1	4.7	4.1	0.15	0.04	0.03	0.04	3.70		0.24	0.03	0.48					
		4	1	4.6	4.1	0.04	0.01	0.02	0.04	4.38		0.16	0.03	0.65						

Monitoring Data in 2018

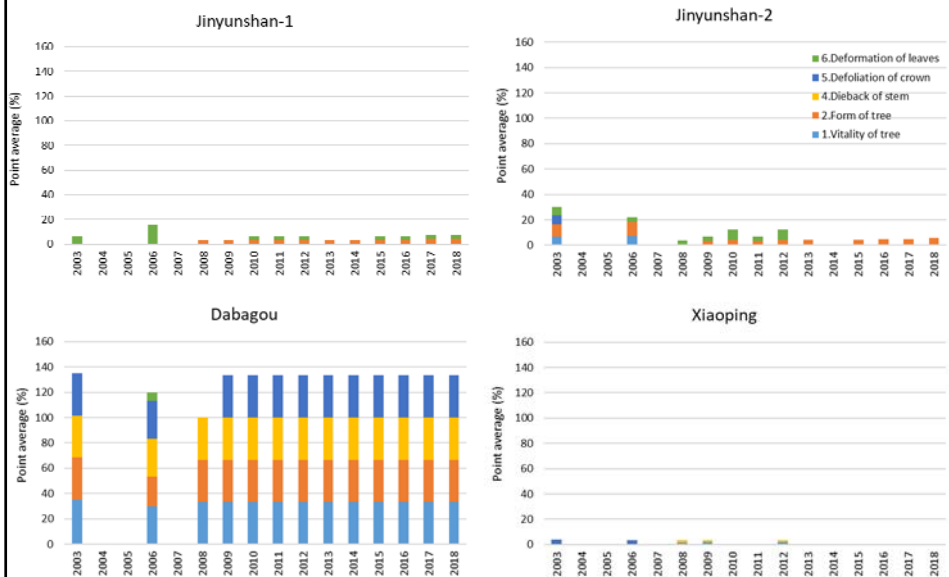
- Table 5.5: Soil Chemical analysis
- Table 5.6: Observation of tree decline
- Table 5.7: Tree census (no submission)
- Table 5.8: Understory vegetation survey (no submission)

Long-term Variation in Soil pH in Pasoh Reserve Forest, Malaysia



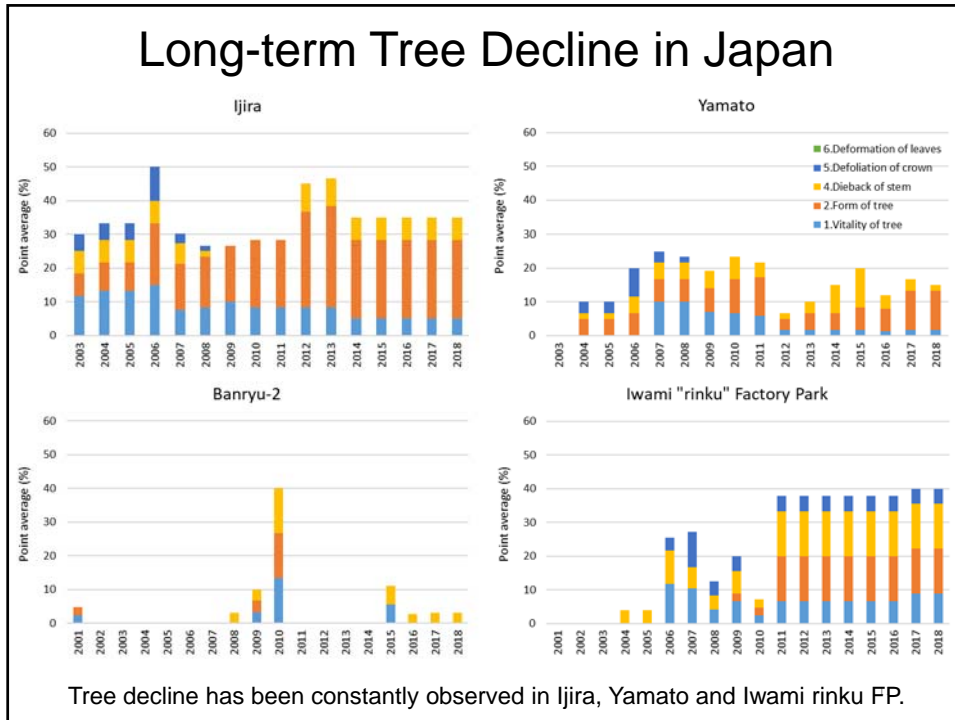
No significant change in soil pH was observed in 2018 compared to 2014. ⁹

Long-term Tree Decline in China



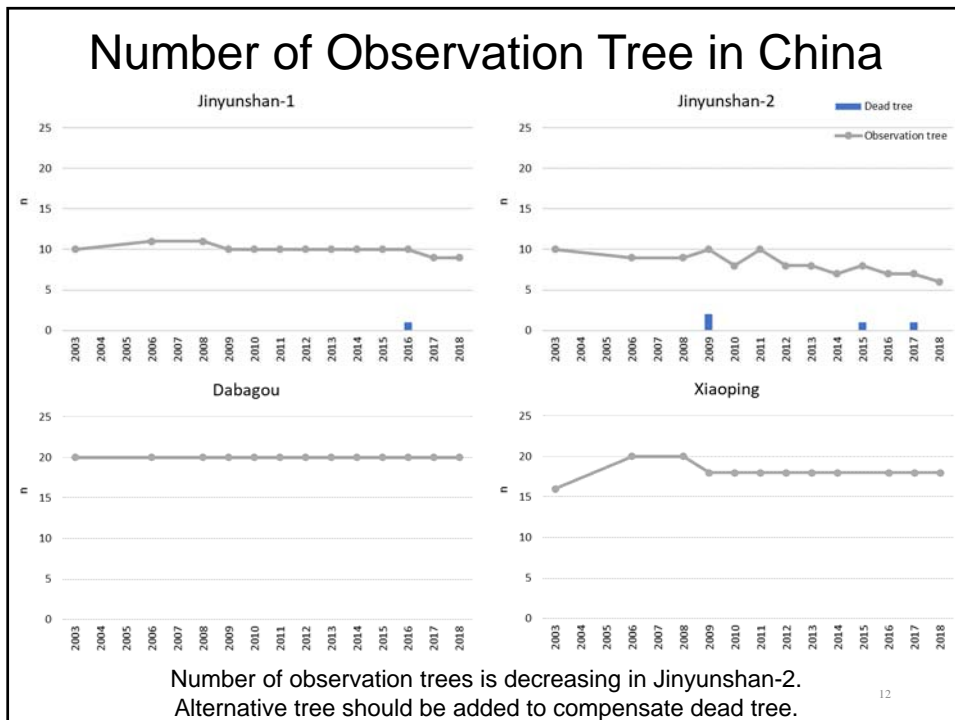
Tree decline has been constantly observed in Dabagou site. ¹⁰

Long-term Tree Decline in Japan

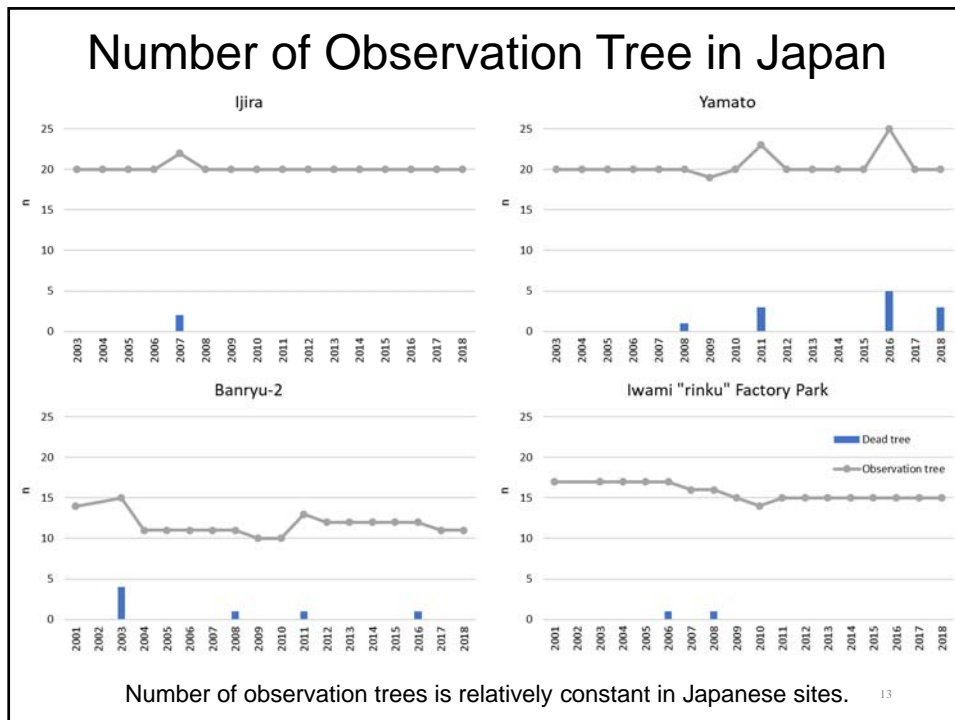


Tree decline has been constantly observed in Ijira, Yamato and Iwami rinku FP.

Number of Observation Tree in China



Number of observation trees is decreasing in Jinyunshan-2. Alternative tree should be added to compensate dead tree.



Outline of the Monitoring Data

- Observation of the tree decline was done in China and Japan in 2018.
No pronounced change have been observed in the forest condition.
- Soil surveys were conducted in Malaysia in 2018.
- NC is waiting for the submission of “soil data” from Indonesia, Malaysia, Philippines, Korea, Russia, Thailand, and Viet Nam.

Needs for Frequent Observation

- The Sub-Manual on Forest Vegetation Monitoring in EANET (2006) recommended that [observation of tree decline should be done once a year](#).
- The manual also recommended [that soil and forest survey should be conducted every 3~5 years](#).
- Long term ecological monitoring (decades) is essential for the evaluation of the effect of atmospheric deposition on the ecosystems.