

Data Report 2025 (Draft)

Soil and Vegetation Monitoring

Network Center for EANET



Basic Survey for Soil and Forest

Mandatory items

Soil

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

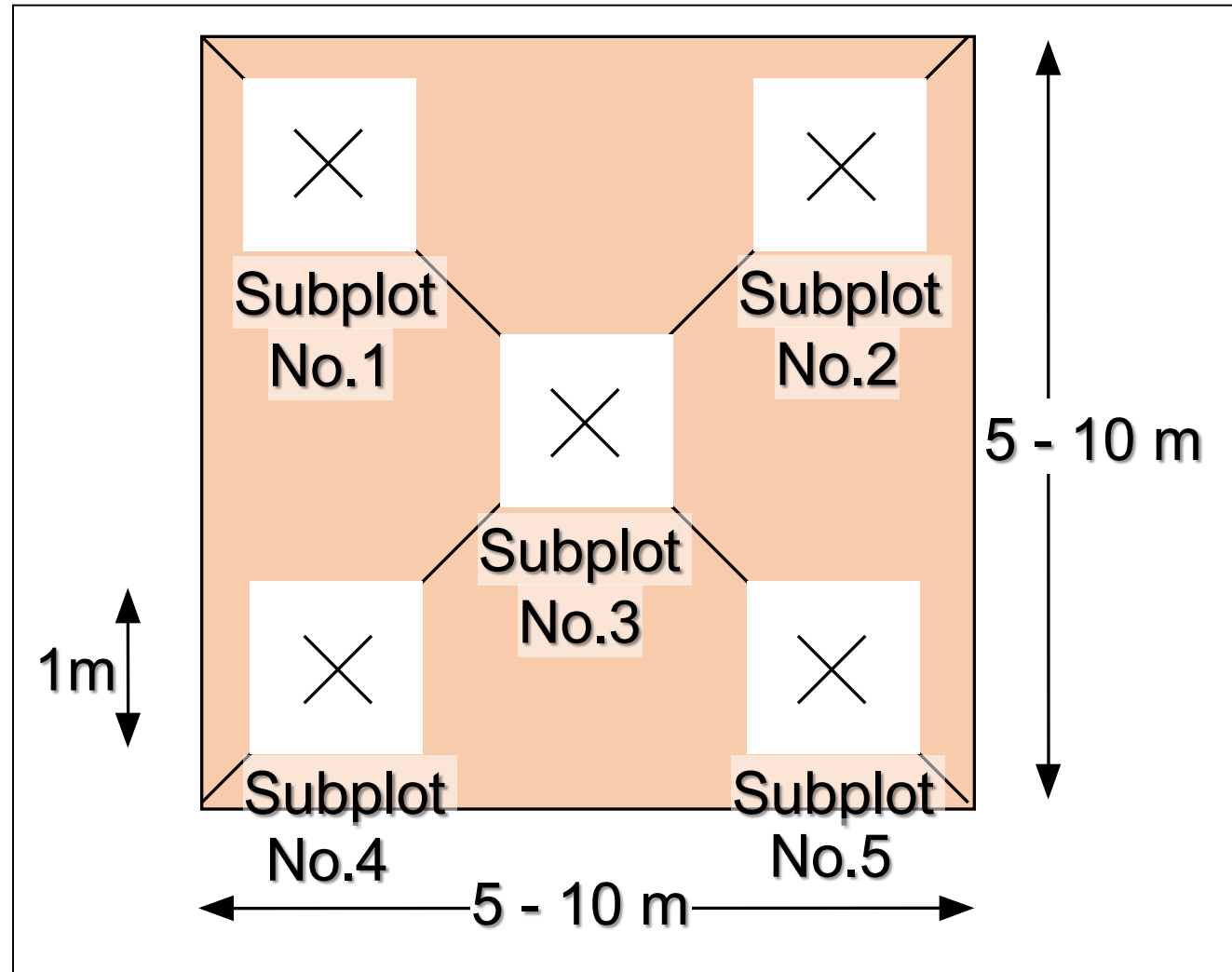
Forest

- General description of the forest
“description of trees” and “understory vegetation survey”
- Observation of tree decline

Frequency of the monitoring: every 3-5 years

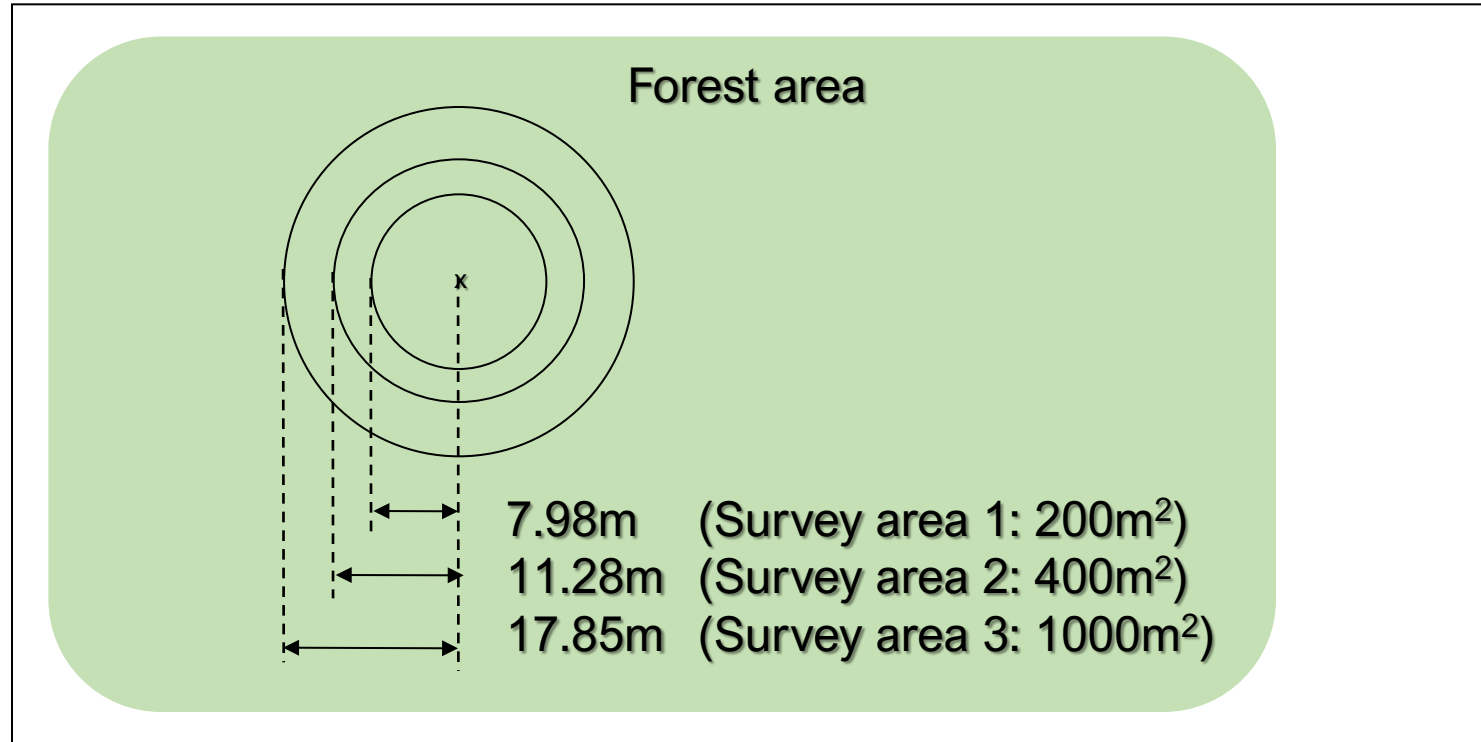
Observation of tree decline should be conducted once a year (*Sub-Manual on Forest Vegetation Monitoring (2006)*) .

Plots and Subplots for Soil Monitoring



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

Plots for Forest Monitoring



Description of trees: Name of species, Diameter at breast height (DBH), Height of tree

Survey area 1: Tree height > 1.3 m

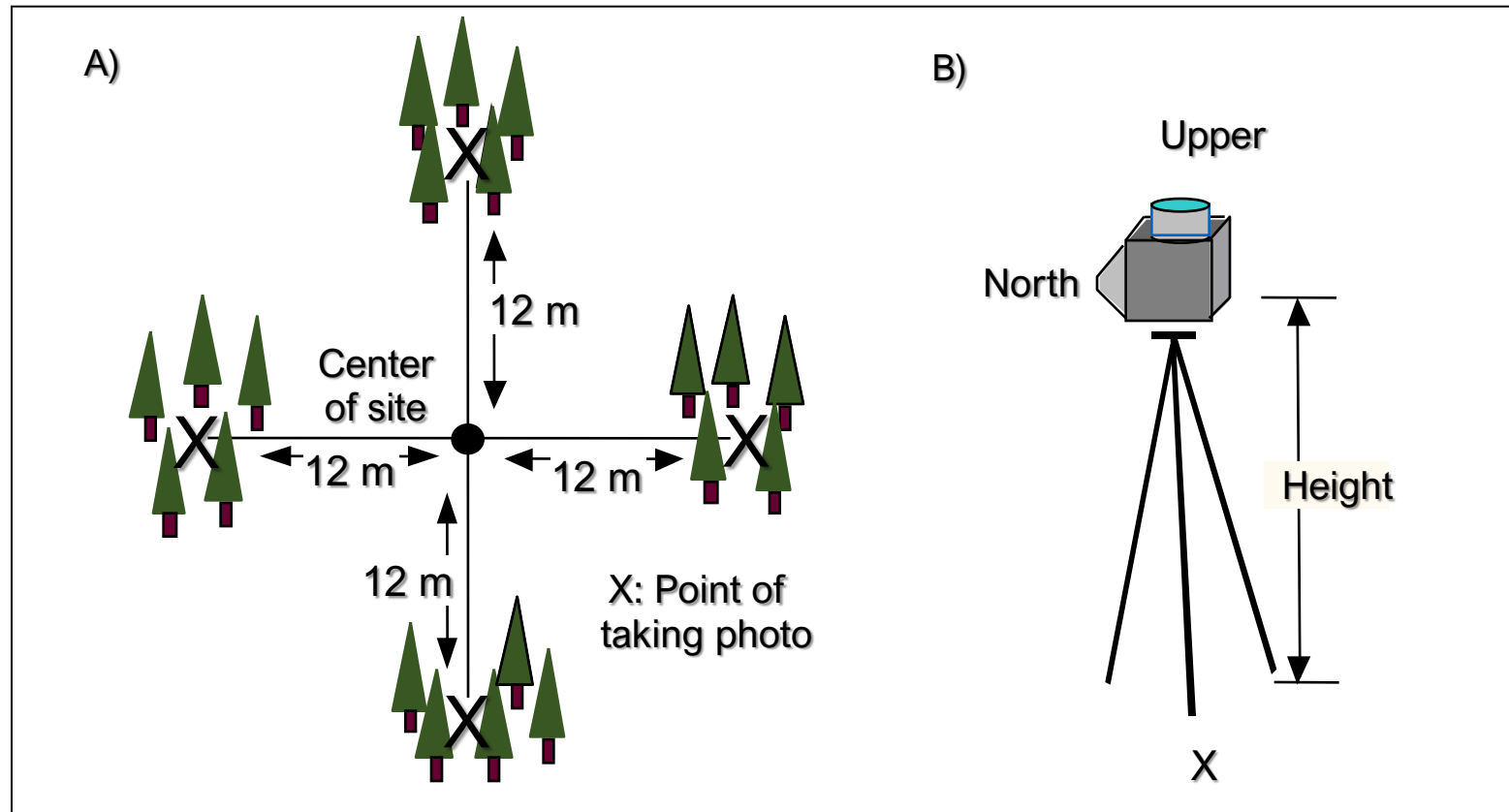
Survey area 2: DBH > 4 cm

Survey area 3: DBH > 18 cm

Understory vegetation survey:

Dominance scales of the respective species (Survey area 1)

Observation of Tree Decline



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.

Outline of the Monitoring Sites in 2025

Country	Nearest air concentration/acid deposition monitoring site	Site name EANET site code	Soil type	Items* ¹
China	Jinyunshan (Chongqing)	Jinyunshan CNS004	Acidic-Udic Argosol	S, F ₁ , and F ₂
	Jiwozi (Xi'an)	Dabagou CNS007	Brown soil	S, F ₁ , and F ₂
	Xiaoping (Xiamen)	Xiaoping CNS009	Red soil	S, F ₁ , and F ₂
	Zhuxiandong (Zhuhai)	Zhuxiandong CNS011	Red soil	S, F ₁ , and F ₂
Japan	Happo	Sekido-san JPS005	Cambisols	S, F ₁ , and F ₂
	Ijira	Ijira JPS006	Cambisols	F ₁
		Yamato JPS106	Andosols	F ₁

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

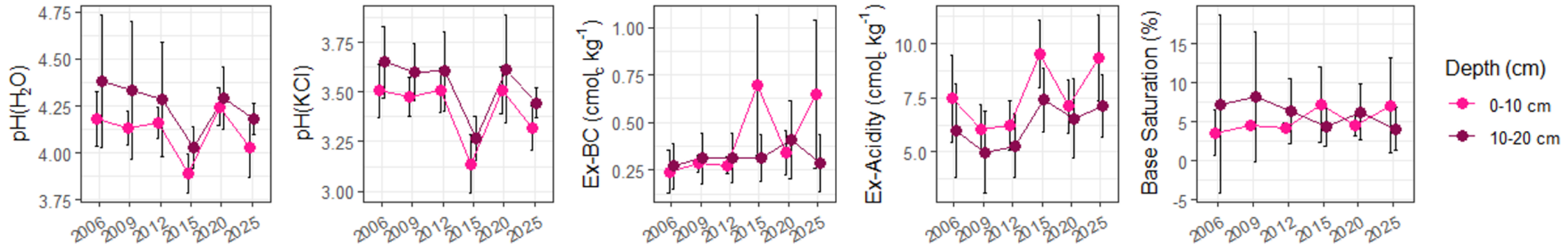
Monitoring Data in 2025

- Table 5.5 Soil chemical analysis
- Table 5.6 Observation of tree decline
- Table 5.7 Description of trees
- Table 5.8 Understory vegetation survey

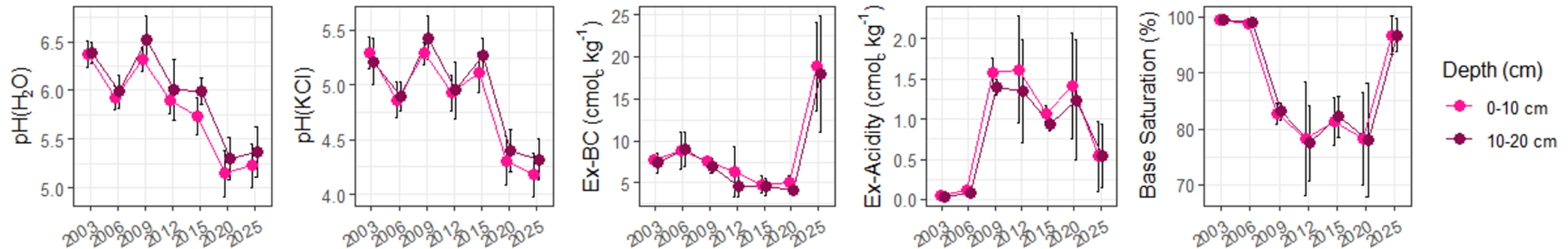
Please refer to preliminary draft manuscript for detailed monitoring data.

Temporal changes in soil chemical properties-1

Jinyunshan, China

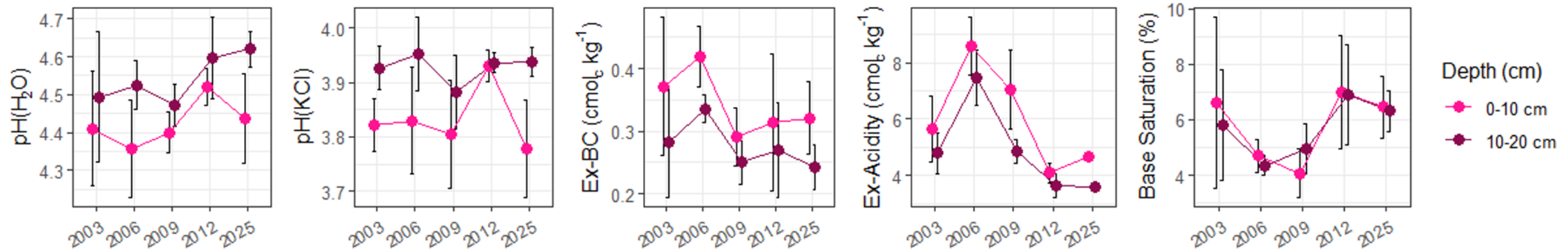


Dabagou, China

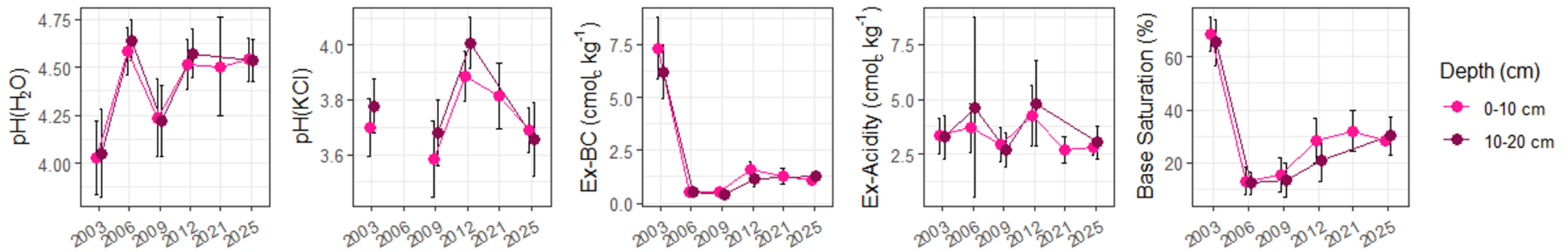


Temporal changes in soil chemical properties-2

Xiaoping, China

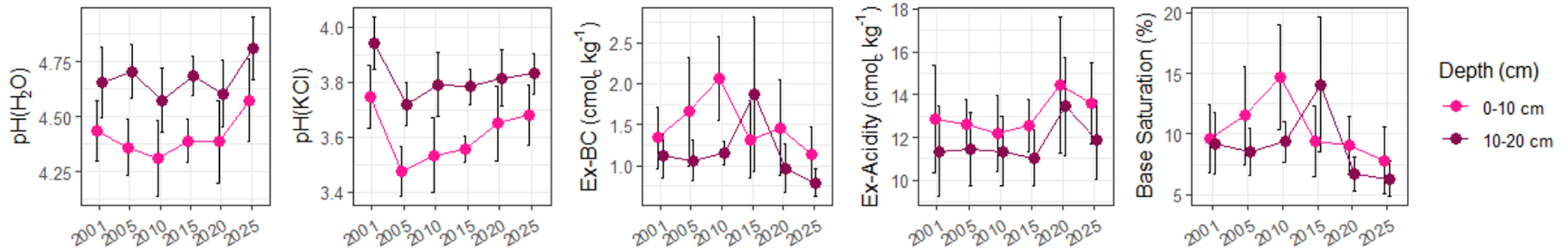


Zhuxiandong, China



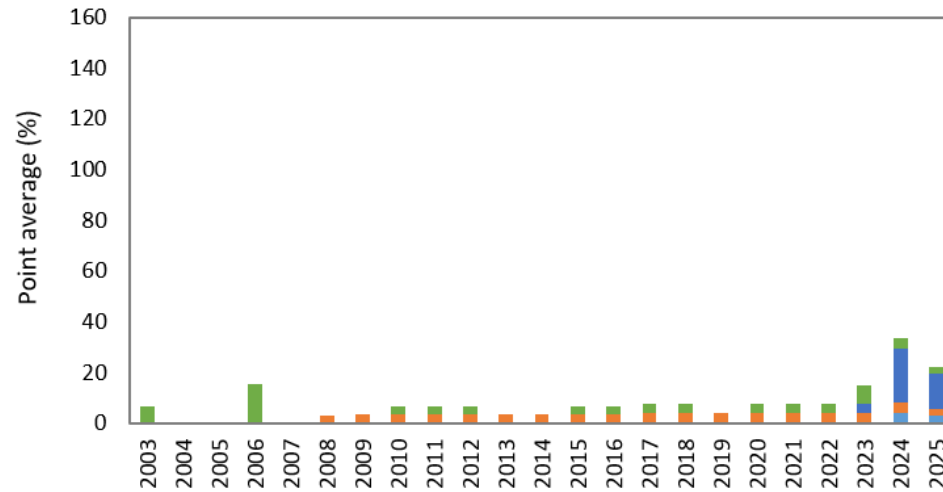
Temporal changes in soil chemical properties-3

Sekidosan, Japan

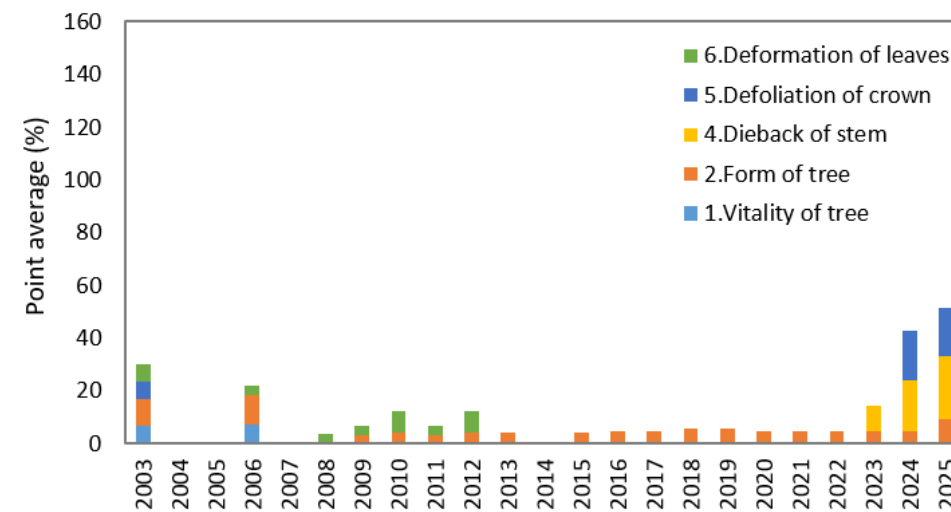


Temporal changes in tree decline symptoms-1

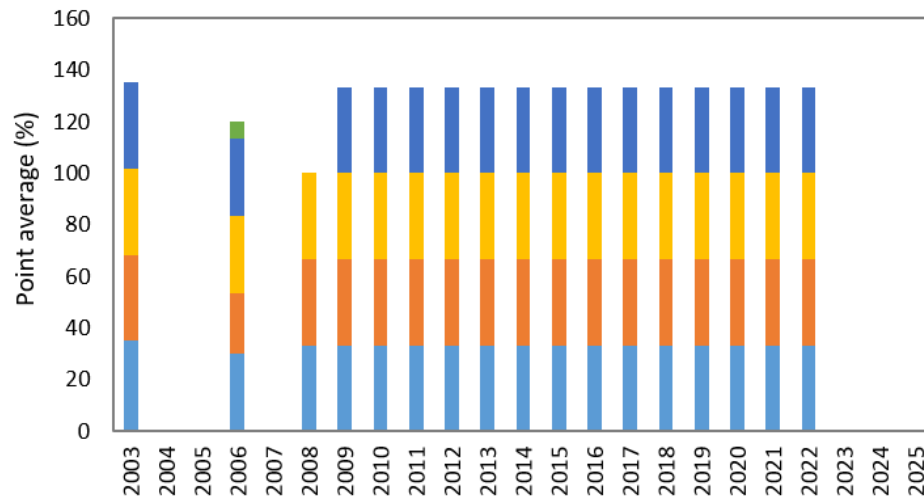
Jinyunshan-1



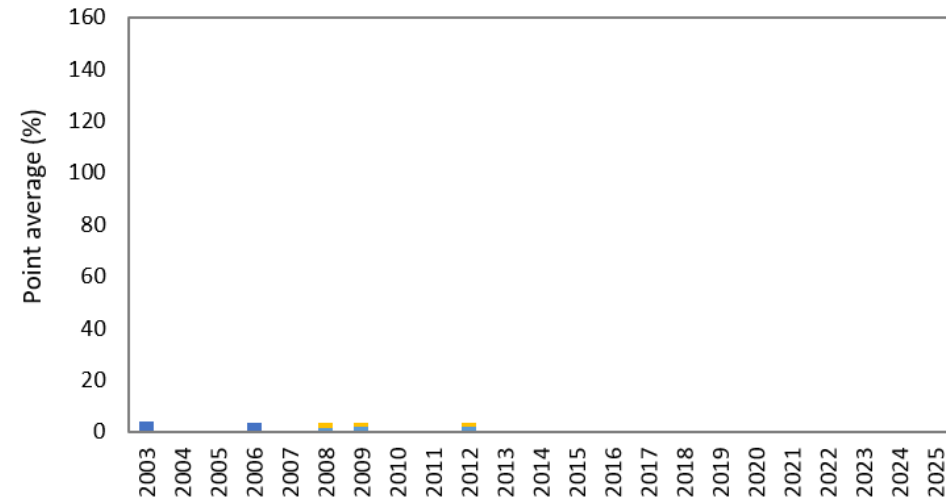
Jinyunshan-2



Dabagou

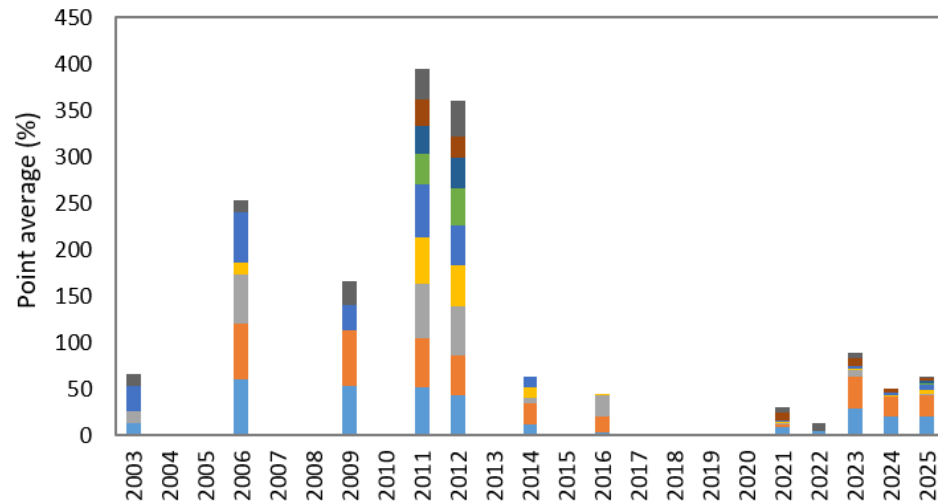


Xiaoping

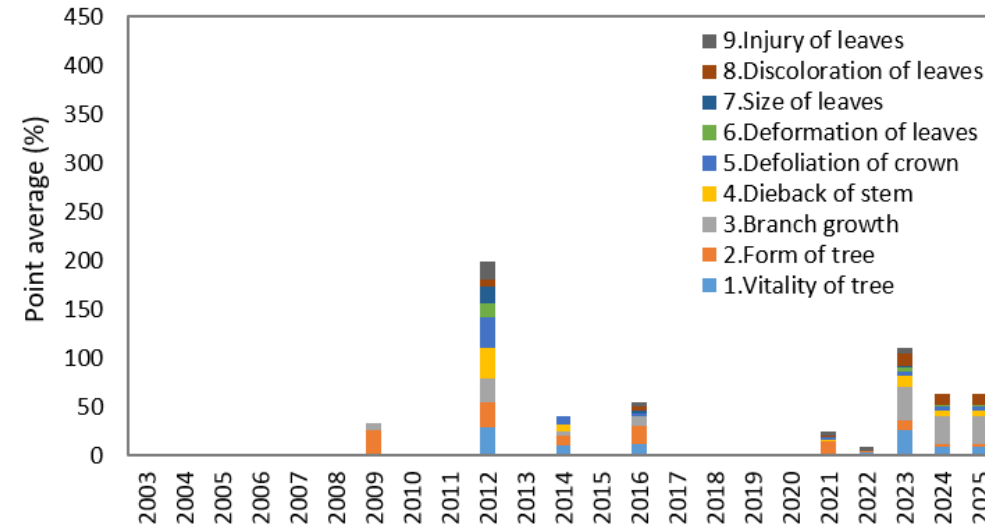


Temporal changes in tree decline symptoms-2

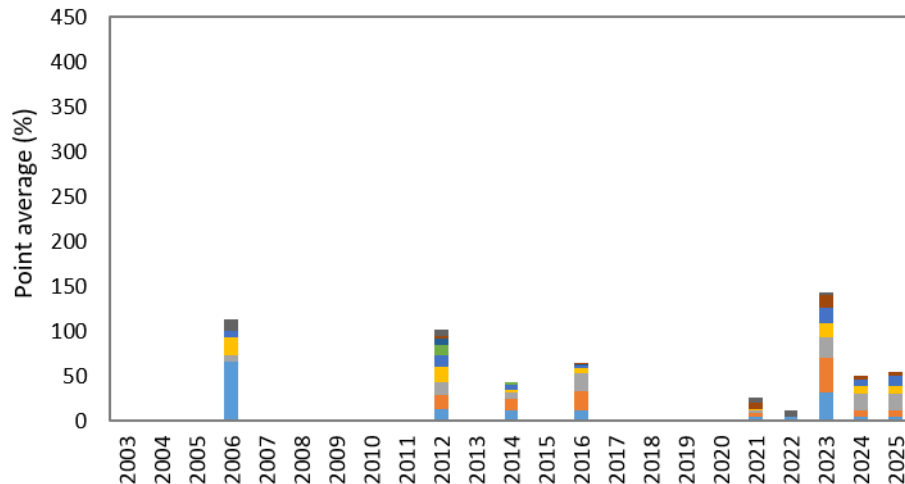
Zhuxiandong-1



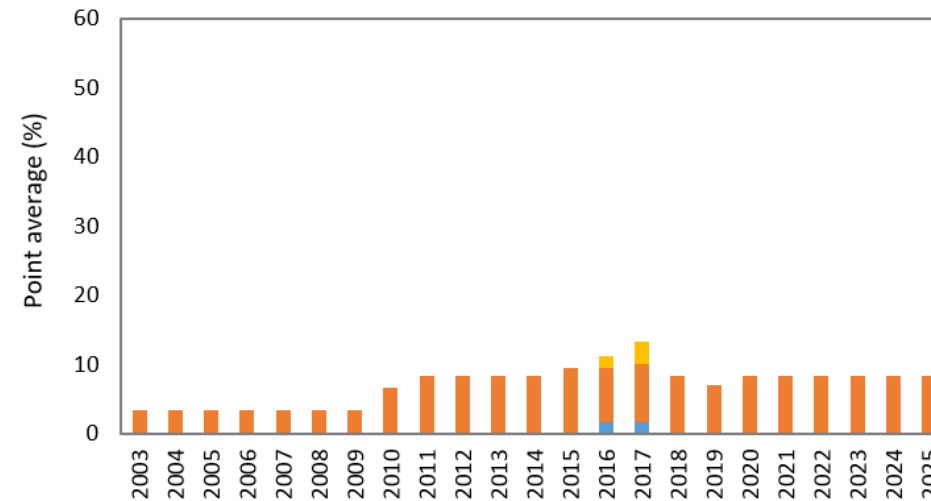
Zhuxiandong-2



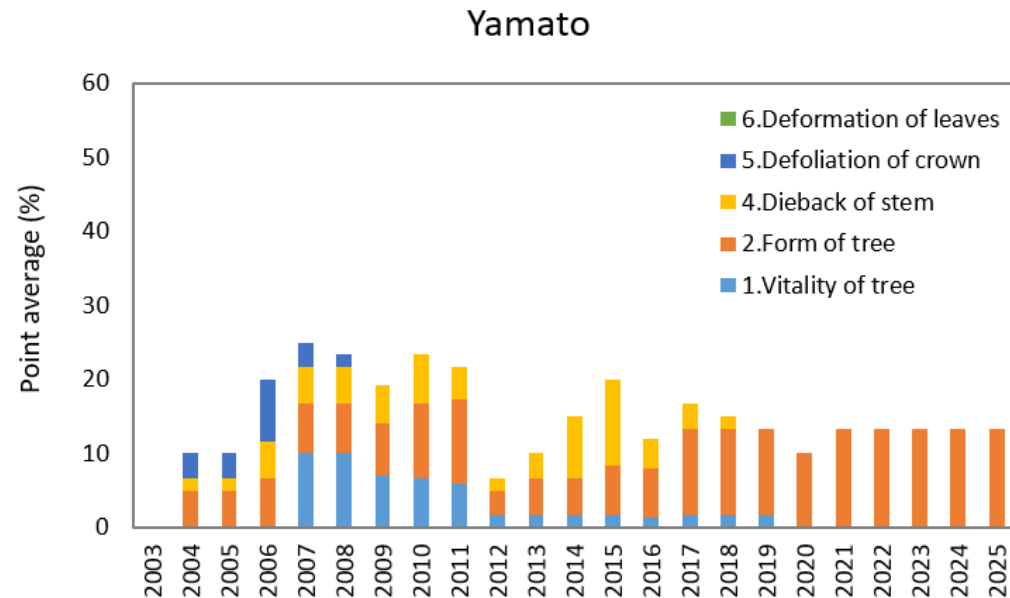
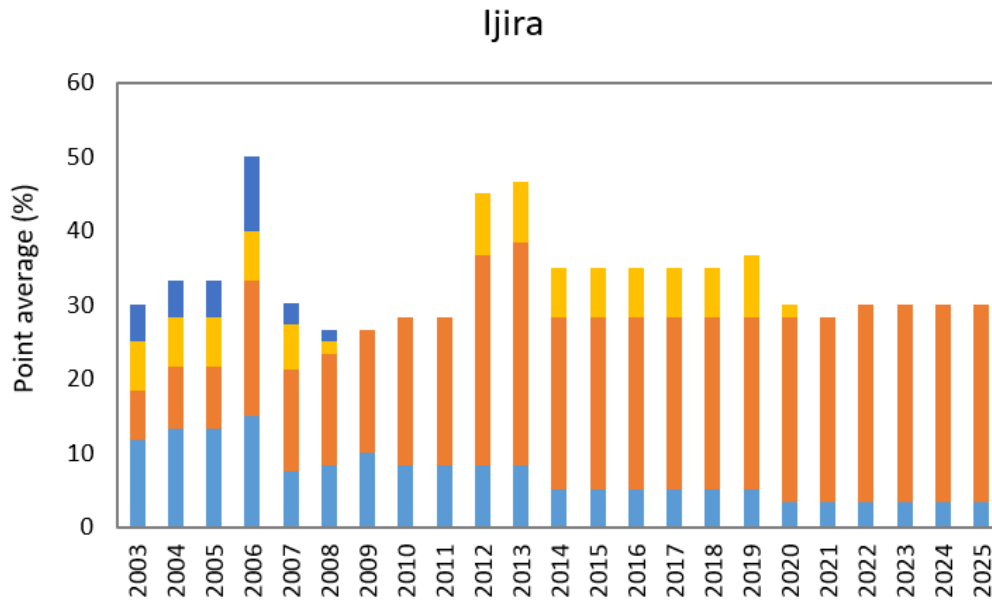
Zhuxiandong-3



Sekido-san



Temporal changes in tree decline symptoms-3



Verification of the data

- The monitoring data collected in 2025 were verified by the Ad Hoc Data Verification Group for Soil and Vegetation Monitoring.
- No significant errors or other issues were identified during the verification process.
- It was noted that the monitoring data accumulated over the past 20 years would be valuable for assessing the effects of air pollution on forest ecosystems in the context of ongoing climate change. A more detailed analysis of the data was also recommended.

Summary

- Soil and vegetation monitoring data from seven sites in China and Japan were submitted to the network.
- The long-term data indicate that soil chemical properties did not respond immediately to changes in atmospheric deposition of acidic substances. Soil acidification may still be continuing at one or two sites.
- Symptoms of tree decline were observed at most sites. At a small number of sites, tree decline appears to have progressed recently, although the severity remains low.
- Delayed recovery, meteorological variability, and site-specific factors—such as geology, soil type, and vegetation composition—may also have contributed to the observed changes in soil and tree conditions.
- Ongoing monitoring will clarify air pollution–forest health links.