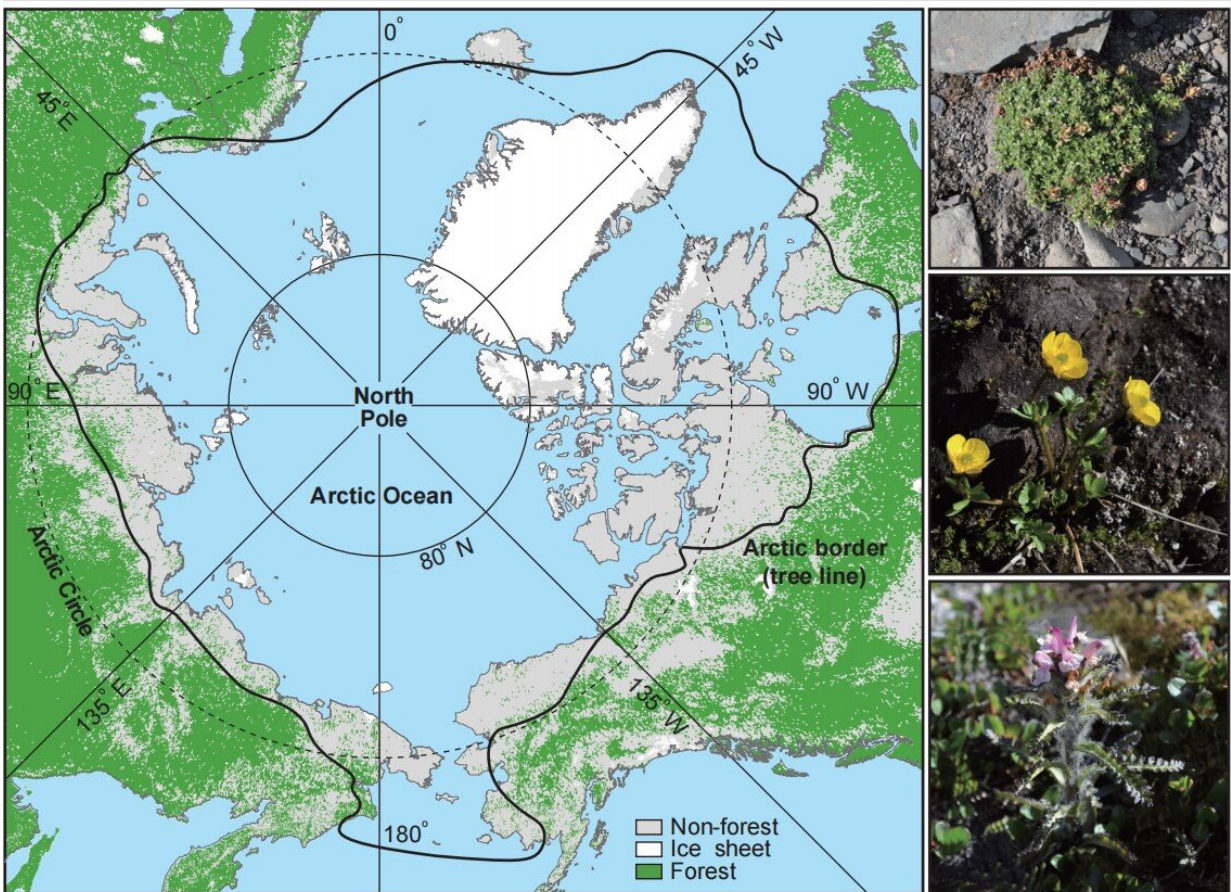


Scientists unravel evolutionary history of the Arctic flora

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Geographic map of the Arctic and representative plants. Credit: IBCAS

A team led by Prof. Wang Wei from the Institute of Botany of the Chinese Academy of Sciences (IBCAS) has unraveled the evolutionary

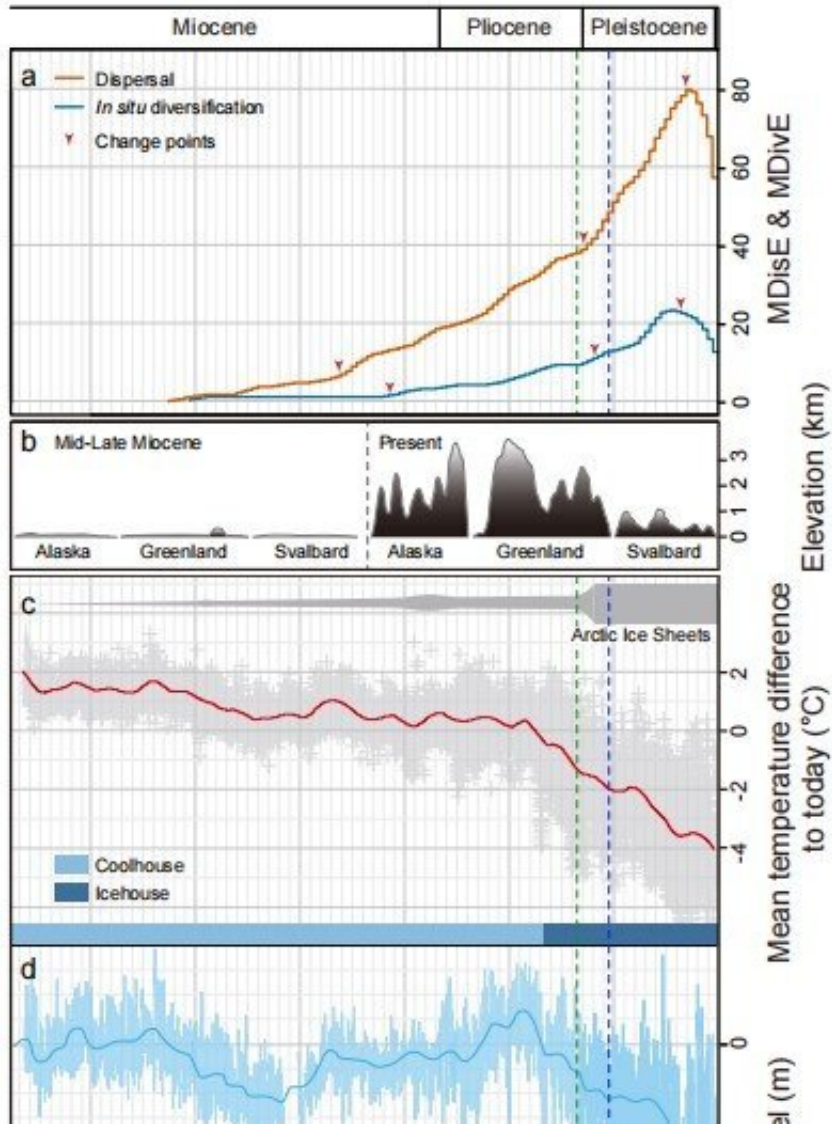
history of the Arctic flora. The study was published in *Nature Communications*.

The Arctic tundra, to the north of the natural tree line, is a relatively young and new type of biome and is particularly sensitive to the effects of global warming. The [composition](#), density, and distribution of Arctic vegetation have been changing as a result of climate warming. Therefore, there is an urgent need to better understand how the Arctic [flora](#) has been shaped over time.

In this study, the researchers selected 32 angiosperm clades comprising 3,626 species belonging to 10 orders and 16 families across the angiosperm tree of life. They found that dispersal to the Arctic and in situ diversification within the Arctic followed similar trends through time, beginning at about 10–9 Ma, increasing sharply at about 2.6 Ma, and peaking at about 1.0–0.7 Ma.

The researchers suggested that the initiation and diversification of modern Arctic flora may have been jointly driven by progressive landscape and [climate change](#) and sea-level fluctuations since the early Late Miocene.

In addition, they identified western North America as a major source of Arctic plant biodiversity.



The assembly dynamics of the Arctic flora and its potential driving factors.
Credit: IBCAS

"We found that the origin of the Arctic flora dates back to the early Late Miocene, which is much earlier than the prevailing view of when this flora first appeared. And we showed that both immigration and in situ speciation have contributed to the biodiversity of the Arctic biota, but the latter has long been overlooked," said Wang, corresponding author of the study.

The scientists also suggested that there is a long-term dispersal corridor between the Arctic and western North America.

"We should make the dispersal corridor between the Arctic and western North America a conservation priority," said Wang.

More information: Fu-Cai Xia, Evolutionary history of the Arctic flora, *Nature Communications* (2023). [DOI: 10.1038/s41467-023-39555-6](https://doi.org/10.1038/s41467-023-39555-6).
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