TERRESTRIAL ECOLOGY

Taiwan's forests were classified into 21 types based on data from the National Vegetation Survey and Mapping Project in 2013. It revealed that 14 forest types are climate-related, exhibiting wide and zonal distributions that are significantly related to temperature and rainfall gradients. These forest types reflect the representative vegetation composition and structure under Taiwan's natural environmental conditions.

Climate change aects the growth rates and reproductive success of several species, potentially driving populations or individuals to migrate in search of more suitable habitats. Species or populations that cannot rapidly relocate to more appropriate environments or develop more adaptive behaviors may be at risk of extinction.A species distribution model for subalpine woodlands and shrubs revealed a substantial decline in suitable habitat, ranging from 16.08% to 2.58% under RCP 4.5 and RCP 8.5 scenarios, with a potential upward shift from 173 to 268 meters (Lin, 2020). High mountain peaks, characterized by cold, windy,and barren conditions with little to no soil, are harsh environments that hin der plant growth. These factors may accelerate the population decline and extinction of alpine plants (Figure).

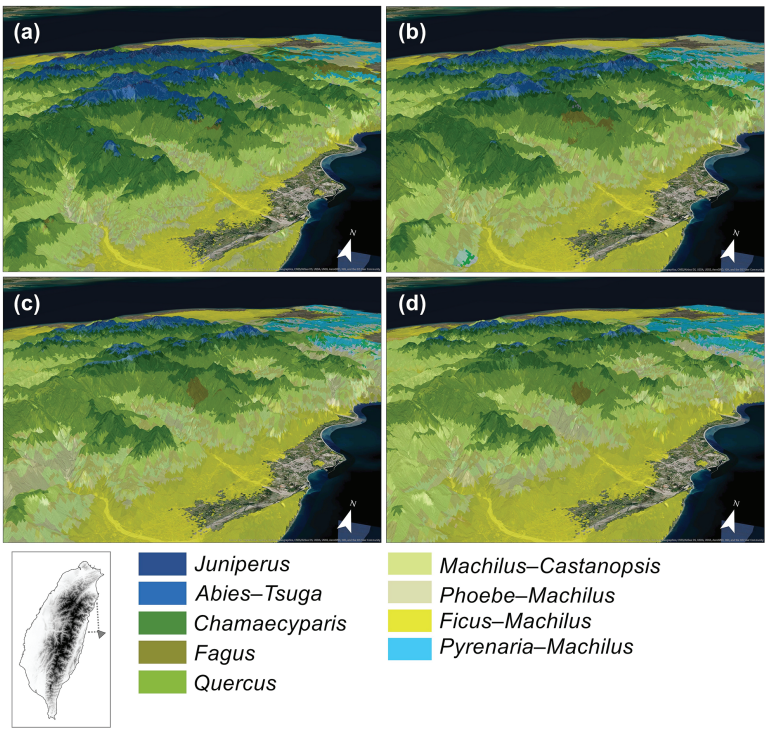

Figure
Simulated Coverage for Various Forest Types under the AR5 Scenarios

Note:
(a) Baseline period of 1986–2006, (b) 2030–2040, (c) 2060-2070, and (d) 2090–2100. The simulation reveals a distinct decline in the range of high-mountain forests, indicating that alpine and subalpine areas could be highly affected by climate change. (Produced by Dr. Huan-Yu Lin)