

# Subtropical/ warm temperate broadleaf forest



TENNESSEE, USA

CREDIT: KRISTINA J. ANDERSON-TEIXEIRA

## Vegetation

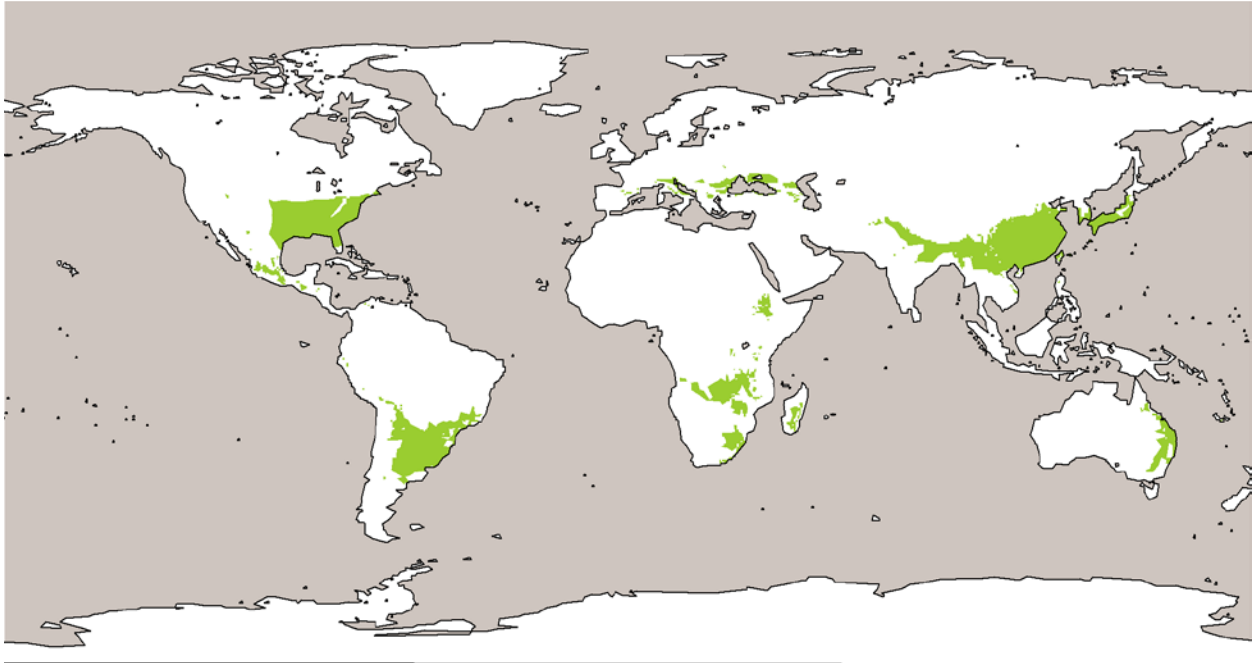
Subtropical/ warm temperate broadleaf forests are dominated by broadleaf trees. Also known as hardwoods, broadleaf trees have flat leaves and produce seeds protected by fruits. There is commonly a mix of evergreen and deciduous species, with deciduous species more common in regions with colder climates and in the overstory.

## Climate

Subtropical/ warm temperate broadleaf forests are found in relatively moist subtropical and warm temperate climates (Cwa, Cwb, Cfa in the Köppen-Geiger climate system).

### Potential Distribution

This distribution map illustrates the climate zones in which this ecosystem type occurs, with stippled areas indicating climate zones where it is rare. It is not present in all parts of its climatic range.



# Examples

## CTFS-ForestGEO Forest Monitoring Sites

The Center for Tropical Forest Science- Forest Global Earth Observatory (CTFS-ForestGEO) is a Smithsonian-led global forest monitoring network, including over 6 million trees and over 10,000 tree species in over 60 forested sites worldwide. Scientific research at these sites includes measurements that help to quantify the climate regulation services of these and similar sites. Examples of Subtropical/ warm temperate broadleaf in this network include the following sites:

[DINGHUSHAN, CHINA](#)

[HEISHIDING, CHINA](#)

[FUSHAN, TAIWAN](#)

[LILLY DICKEY WOODS, USA](#)

[SMITHSONIAN CONSERVATION BIOLOGY INSTITUTE, USA](#)

[SMITHSONIAN ENVIRONMENTAL RESEARCH CENTER, USA](#)

[TYSON RESEARCH CENTER, USA](#)

[ILHA DO CARDOSO, BRAZIL](#)

[BADAGONGSHAN, CHINA](#)

[GUTIANSHAN, CHINA](#)

[TIAN TONG SHAN, CHINA](#)

[HONG KONG, CHINA](#)

[NONGGANG, CHINA](#)

[XISHUANGBANNA, CHINA](#)

[BAOTIANMAN, CHINA](#)

[LIENHUACHIH, TAIWAN](#)

## Climate regulation value

The average greenhouse gas value for ecosystems of this type is 770 metric tons CO<sub>2</sub>-equivalents per hectare over a 50 year time frame (t CO<sub>2</sub>-eq ha<sup>-1</sup> 50 yrs<sup>-1</sup>). This includes 588 t CO<sub>2</sub>-eq ha<sup>-1</sup> 50 yrs<sup>-1</sup> from storage of organic matter that would result in greenhouse gas release if cleared and 182 t CO<sub>2</sub>-eq ha<sup>-1</sup> 50 yrs<sup>-1</sup> from ongoing greenhouse gas exchange between the ecosystem and the environment.

When biophysical effects are taken into account, the average climate regulation value for ecosystems of this type is 708 metric tons CO<sub>2</sub>-equivalents per hectare (t CO<sub>2</sub>-eq ha<sup>-1</sup> 50 yrs<sup>-1</sup>). This is an 8% decrease relative to the value based on greenhouse gas regulation alone.

Considering an average car, emitting 1.1 lb CO<sub>2</sub> per mile driven, clearing 100 square feet (9.3 m<sup>2</sup>) of this ecosystem type would, on average, be equivalent to driving 1,432 miles/2305 km (counting greenhouse gasses only). Counting biophysical effects, clearing the vegetation would be equivalent to driving 1,317 miles/ 2,119 km.