

Ecoregion

South Deccan Plateau Dry Deciduous Forests



Area of the ecoregion
82,248 km²



Altitude
50-800 m



Annual rainfall
500-2000 mm



Temperature
9°C-40°C



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Overview

This ecoregion is a vast belt of forests that are shaped by the five rain-deficit months each year. The forest type is dominated by a deciduous tree canopy (at about 20 m height) with variable and geography-specific understoreys of lianas, shrubs, and some evergreen trees. The ecoregion is nestled between the Western Ghats and the Eastern Ghats and spans most of central Tamil Nadu and extends into southwest Karnataka.

Ecological Restoration Projects in the Ecoregion

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Adjoining ecoregions

This ecoregion is a broad transitional belt that extends out from the North and South Western Ghats Moist Deciduous Forests to the west and is flanked on the east by the Deccan Thorn Scrub Forests.

Geography

The South Deccan Dry Deciduous Forests span an area of 82,248 km² with a length of 673 km. The ecoregion extends south as a thin belt (23-45 km wide) from near the



Dry deciduous forest canopy in the Javadi hills

Bhadra Wildlife Sanctuary in Karnataka before flaring out to the east to straddle the Palar river and flank the southern leg of the Eastern Ghats. This is the widest (310 km) point of the ecoregion. From this point, the region tapers down following the shape of the peninsula until the Tamiraparani river. Thus the ecoregion forms a broad belt straddled between the moisture-abundant Western Ghats and the flank of the southern Eastern Ghats. The eroded pediplains are characterized by an undulating terrain dotted with granite formations, low and isolated hill clusters and occasional interlinked broad ranges. The geographic spine of the landscape is the Kaveri river and its extensive fluvial basin which includes major tributaries such as the Amaravathi river.

Geology and Soil

The landscape is dominated by alluvial and erosional processes. The landscape is most porous ferralitic, nutrient-poor soil that is based on large Charnockite-granitic formations both below the ground as a bedrock as well as eroded remnants that form the hills and slopes. In contrast the soil within valleys, along rivers and fluvial basins of the river are a weathered, fertile, alluvial loam, both formed as deposits from the long term weathering of granite as well as the landscape level transport of sediment from the west along channels of water. Land between the Eastern and Western Ghats are more dominated by sand and quartz, with thin soil horizons frequented with rock.

Climate

This region shares the tropical-peninsular monsoonal regime with other ecoregions with around 70 percent of the rainfall occurring during the south-west monsoon between the months of July and September. The remaining rainfall arrives as a combination of the north-east monsoon, between October to December and local summer thunderstorms during the month of May. Annual precipitation ranges from as low as 500 mm in some years to as much as 2000 mm in other extremes, with an average between 900 –1300 mm.

This ecoregion is defined by a stark and prolonged dry period spanning five months of the year which causes the mass shedding of leaves for most species in this forest type. Temperatures range from 38° C – 40° C highs to lows of 9° C – 25° C. Diurnal and nocturnal temperatures may vary as much as 15° C. In June and July, there is a very strong local dry wind traveling northeast (Aadi kaathu), that has strong impacts on vegetation growth and moisture.



Trees[left to right]: *Anogeissus latifolia*, *Pterocarpus marsupium*, *Mallotus philippensis*, *Diospyros montana*



Shrubs[left to right]: *Grewia asiatica*, *Catunaregam spinosa*, *Dodonaea viscosa*, *Helicteres isora*



Climbers and Lianas[left to right]: *Hiptage benghalensis*, *Pterolobium hexapetalum*, *Ventilago maderaspatana*, *Ziziphus oenoplia*

Natural vegetation

South Deccan Dry Deciduous Forests predominantly have a three storey structure: a canopy, understory or sub-canopy, and undergrowth. The 15 to 25 m tall canopy is the most dense and dominant layer with the highest species abundance in this forest type and consists of deciduous and brevi-deciduous tree species. In select pockets and old growth forest there may be a significant presence of climbers and lianas. The understory is far more variable in community structure and density with a mixture of some transitional evergreen species and transitional species from arid-scrubland regions. The understory community is very limited in species composition and density and significantly includes grasses (*Cymbopogon* spp.), a few shrubs and annual herbs.

Variation within ecoregion

Rainfall and other climatic patterns are extremely variable in this landscape with extreme drought years followed by years of plenty. The same variability occurs in summer temperatures and prevailing winds especially for regions closer to the coast. The rivers originate from the Western Ghats and flow east in arched routes creating vital habitats and ecosystems by bringing water to rain-deprived regions found in the central tracts of this ecoregion.



Cauvery Wildlife Sanctuary

Characteristic native plant species

Trees

Albizia amara
Anogeissus latifolia
Butea monosperma
Chloroxylon swietenia
Dalbergia latifolia
Deccania pubescens
Diospyros chloroxylon
Diospyros montana
Ficus benghalensis
Ficus glomerata
Ficus mollis
Hildegardia populifolia
Lagerstroemia parviflora
Madhuca longifolia
Mallotus philippensis
Mitragyna parviflora
Phyllanthus emblica
Polyalthia coffeoides
Pongamia pinnata
Premna latifolia
Pterocarpus marsupium
Pterospermum suberifolium
Stereospermum personatum
Syzygium cumini

Shrubs















Terminalia arjuna
Terminalia bellerica
Terminalia tomentosa
Vitex altissima
Ziziphus xylopyrus

Catunaregam spinosa
Dodonaea viscosa
Grewia asiatica
Helicteres isora
Ixora nigricans
Memecylon umbellatum
Tarenna asiatica

Climbers

Hiptage benghalensis
Gymnema sylvestre
Ichnocarpus frutescens
Jasminum angustifolium
Pterolobium hexapetalum
Scutia myrtina
Toddalia asiatica
Ventilago maderaspatana
Ziziphus oenoplia

Plant seasonality

J	F	M	A	M	J	J	A	S	O	N	D
											
											
											

The western belt of this ecoregion along the Western Ghats function more as a transitional ecosystem between the moist deciduous and the rain shadow regions of the Deccan plateau, especially in the northern parts. Forests tracts towards the west are more reliant on the southwest monsoon compared to forests closer to the coast. The latter receive a larger proportion of rainfall from the northeast monsoon. The species community of western dry deciduous forests may differ in dominant species and composition of the vegetation community from the forests on the eastern flank; due to the differing transitional boundaries that these forests share. The eastern tracts have a greater concentration of transitional dry-evergreen species (i.e., *Nothopegia* spp, *Diospyros sepiaria*, *Neolitsea* spp, *Chionanthus zeylanica*) and a higher concentration of arid scrub communities in the understory. Western belts have a higher number of dominant species which originate from more moist forests but have adapted to drier areas (i.e., *Tectona grandis*, *Ficus microcarpa*, *Schleichera* spp, *Gyrocarpus indicus*).

Plant seasonality

In these forests there is a clear synchronized pattern of fruiting, flower and flushing episodes within the plant community as these patterns occur in concentrated windows of time. Trees produce copious amounts of flowers and nectar, with different rates of growth and maturation during the dry months. Fruit maturation peaks after the monsoons and carries into the next dry period. Fruits take 2 - 4 months to develop, occasionally longer. Leaf flushing mostly occurs during the advent of the pre-monsoon showers.

Pollination and seed dispersal ecology

Pollination is conducted both by arthropods dominated by bees (hemiptera) and moths/ butterflies (lepidoptera); and by a multitude of bird species that are attracted to the copious production of nectar. Most flowers are generalized to pollination by multiple species. The fruits are equally dispersed by wind as by frugivory by birds, primates, and small mammals.

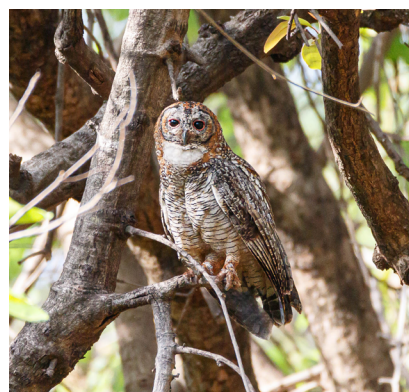
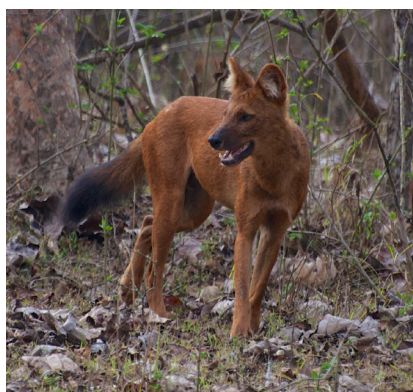
Animal life

This ecoregion holds around 75 species of mammals such as wild dogs, ruddy mongoose, chital, barking deer, and slender loris and provides an important extended range for large mammals such as the Asian elephant, tiger, and gaur. About 260 species of birds either reside in this landscape, pass through on local migration (i.e, racket-tailed drongo, forest wagtail, Indian paradise flycatcher), or occur as winter migrants, (i.e Indian pitta, brown-breasted flycatcher, Indian blue robin, black redstart).

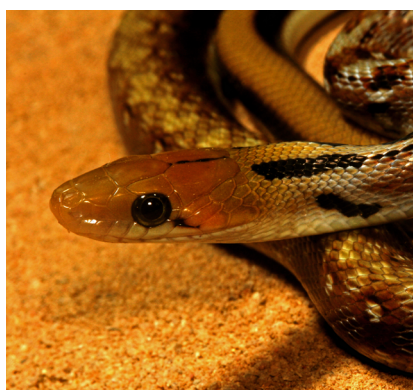
Resident birds include the white-rumped shama, mottled wood owl, large cuckooshrike, and small minivet. The landscape is home to many butterflies and other arthropods that migrate within the Peninsula or who have an annual reproductive cycle. Reptile species include the rock python, monitor lizard and the trinket snake to name a few.

Conservation

Most of the forest tracts in the region are held within the sanctuaries and reserve forests which themselves are located and restricted mostly along the slopes of hill ranges or ghat sections with close to no forest tracts remaining in the alluvial plains, or the plateaus atop the Eastern Ghats hills. Southern Dry Deciduous Forests are one of the most disturbed forest types with extensive historical logging for timber besides other pressures such as grazing by cattle and goats and firewood extraction. Annual repeated fires for grazing also play an important role in the disturbance and extent of these forests. Both fire and grazing may, however, contribute to maintenance of grasses and tree savanna-like formations within the region.



Left to right: *Wild dog, white rumped shama, mottled wood owl*



Left to right: *Common trinket snake, black redstart, Indian monitor lizard*

Important Protected Areas in the Ecoregion

1. Sathyamangalam Tiger Reserve
2. Cauvery Wildlife Sanctuary
3. Bhadra Wildlife Sanctuary
4. Javadi Hills Reserve Forests
5. Kalvarayan Hill Reserve Forests
6. Kalrayan Hill Forests
7. Palani Hills Reserve Forest
8. Jarugamalai Reserved Forest
9. Kolli Hills Reserve Forest
10. Gangavali Reserve Forest
11. Nagoor Reserve Forest
12. Karandamalai Reserved Forest
13. Sathanur Reserve Forest

Ecological Restoration Projects in the Ecoregion

The forest way

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[Pg 3] *Anogeissus latifolia*: Dinesh Valke
[Pg 3] *Pterocarpus marsupium*: Dinesh Valke
[Pg 3] *Mallotus philippensis*: Aparajita Datta
[Pg 3] *Diospyros montana*: Dinesh Valke
[Pg 3] *Grewia asiatica*: Dinesh Valke
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One Earth Ecoregion Snapshot

<https://www.oneearth.org/ecoregions/south-deccan-plateau-dry-deciduous-forests/>



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