Notophyll rainforests are the most extensive rainforest formation in the bioregion. A vast array of structural and floristic variation is encompassed within the formation, including complex and simple structural associations, evergreen, semi-evergreen and semi-deciduous types, and variations in stature from very tall closed forest to vine thickets with canopy heights of less than 9m (Webb, 1959). This apparently disparate array of associations is bound by the common thread of having a predominance of notophyll leaf sizes in the canopy layer. The reduction in leaf size from mesophyll rainforest to notophyll rainforest is often a result of increasing adversity (Webb, 1959) which may take the form of lower soil moisture availability, impeded drainage, drier climate, increased elevation and exposure and less fertile soils. The complex interaction between environmental variables from coastal lowlands to highlands has resulted in this formation displaying a very high degree of variety of both floristic and structural features.

Complex notophyll vine forests (CNVF) represents the highest level of development within this alliance and occurs from cloudy uplands and highlands on basalt to alluvial lowland flood plains to very wet granite boulder fields on the foothills. Floristic associations and structural features vary markedly with altitude and rainfall although complex features including high species diversity, diverse life form assemblages and prominence of plank buttressing in canopy trees are typical of all complex alliances.

Araucarian notophyll vine forests (ANVF) are also classified as either simple or complex. This group is characterised by the presence of Kauri pines (Agathis robusta) as a common emergent species with complexity being afforded largely by the often spectacular plank buttressing of brown tulip oaks (Argyroderdon polyandrum). Hoop pine (Araucaria cunninghamii var. cunninghamii) dominated rainforests tend to have simpler structural features, due to the limitations imposed by the drier climatic regions in which they occur. An unusual forest characterised by Bunya pines (Araucaria bidwillii) is also recognised under this alliance which is floristically aligned to simple notophyll vine forests.

The distinction between notophyll vine forests (NVF) and simple notophyll vine forests (SNVF) is based on the diversity and complexity of structural features although the utility of this distinction is not always immediately apparent. Simple notophyll vine forests are referred to by Tracey (1982) as pole forests due to the uniformity of girth sizes and the regularity of spacing between canopy trees. A tendency towards dominance by a single canopy species; even canopy height and crown cover, rarity of epiphytes in the lower structural layers and lack of plank buttressing are all character traits of simple forests. Notophyll vine forests will have a less regular distribution of girth sizes and canopy heights, and complex features including vine tangles, epiphytes, plank buttresses and cauliflory, although rarely abundant, will form a component of the structural fabric.

In semi-deciduous alliances the majority of canopy emergents and a portion of canopy trees are seasonally deciduous. Deciduous species are defined as those species where leaf fall is obligate during drier winter months. This includes Mabi rainforests [13a], which represent the maximum development of semi-deciduous forest in the bioregion. The combination of fertile basaltic soils and decreasing rainfall across a climatic gradient towards the west has led to the development of a complex forest with a significant component of deciduous canopy trees such as Toona ciliata, Ficus virens, Melia azedarach and Terminalia sericocarpa. This is one of the most heavily fragmented and threatened forest communities in the bioregion.

Semi-evergreen notophyll vine forests (SENVF) are characterised by the presence of facultatively deciduous canopy species in which complete leaf fall only occurs during periods of severe drought (Webb, 1959). Typical facultatively deciduous species include Paraserianthes toona, Castanospermum australe, Pleiogynium timorensis, Ganophyllum falcatus, and Nauclea orientalis. Semi-evergreen notophyll vine forests as an alliance are mapped only in the drier southern portion of the bioregion although a semi-evergreen canopy component will be a feature of most rainforest communities in drier climatic zones.

References
Facts and figures
Vegetation alliances

- Complex notophyll vine forests (CNVF)
- Araucarian notophyll vine forests (ANVF)
- Notophyll vine forests (NVF)
- Notophyll vine thickets (NVT)
- Simple notophyll vine forests (SNVF)
- Semi-evergreen notophyll vine forests (SENVF)
- Semi-evergreen notophyll vine thickets (SENVT)
- Semi-deciduous notophyll vine forests (SDNVF)

Current extent in the bioregion 337,218ha
Area protected 272,073ha (81%)

Geography
Notophyll rainforests are an extensive formation in the Wet Tropics, occurring in nearly all sub-regions and occupying wide-ranging and relatively continuous tracts from foothills to uplands on a range of geologies. The formation is not generally associated with lowland areas, but is found forming discontinuous slivers associated with coastal dunes and swamps.

Impacts and changes
Notophyll rainforests were subject to extensively logging prior to 1987 over much of their range which has obscured a number of floristic variations (Peter Stanton pers. comm.). Intact stands of notophyll rainforest are now largely restricted to inaccessible localities. Heavily logged notophyll rainforests in upland areas have also been found to be subject to sporadic dieback events caused by Phytophthora cinnamomi.

Complex semi-deciduous notophyll rainforests (Mabi forest, [13a]) are heavily fragmented as a result of extensive clearing on the Atherton Tablelands and remnants are being severely degraded through edge effects, smothering vines and overuse by native fauna (e.g. Tolga Scrub). Fragmentation has also occurred in coastal areas where the type has been disturbed and destabilised through recreational activity.

Key values
- Extensive areas of unfragmented upland habitat
- Major habitat for a large number of rare and threatened plant and animal species
- Recreational values (e.g. bushwalking).

Threatening processes
- Wind disturbance in previously logged areas
- Dieback caused by Phytophthora cinnamomi
- Habitat fragmentation and edge effects causing degradation
- Coastal erosion
- Disturbance by recreation in littoral forests.

Tenure
Major areas are within the boundaries of the World Heritage area with some well preserved examples held in Wooroomooran, Daintree and Paluma National Parks. Extensive areas also occur in state forest reserve and council reserves on the coastal lowlands. It occupies most of the central rainforest massif section of the World Heritage Area.

Management considerations
- Monitoring and management of edge effects in fragmented remnants
- Phytophthora cinnamomi research and recreational exclusion high risk areas
- Restriction of access in fragile coastal areas.