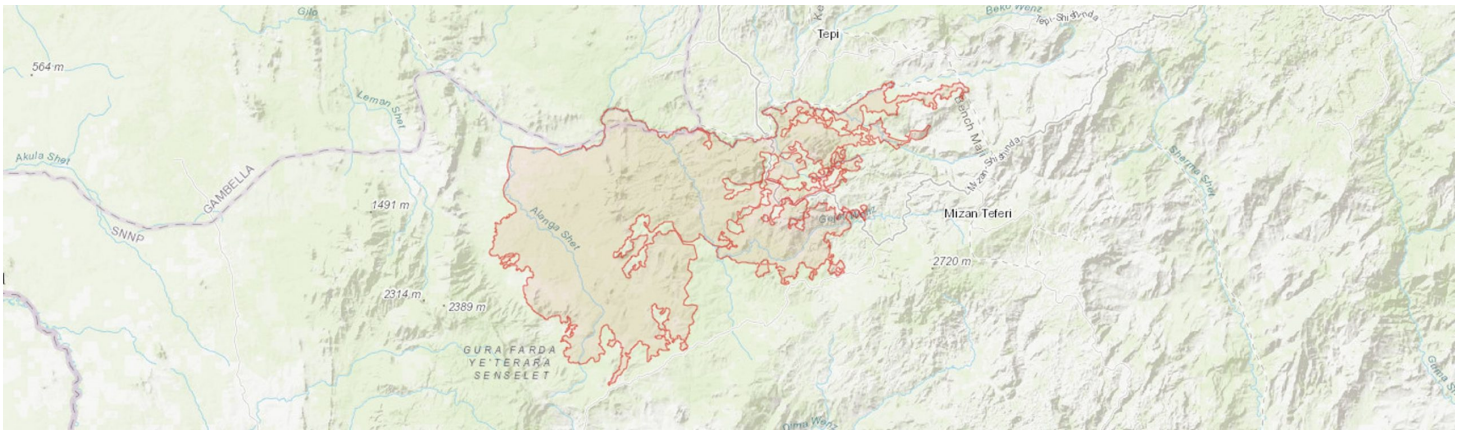
Available from https://tipas.kew.org/site/shako-bench-forest/
[Accessed 29 May 2024]

Shako-Bench Forest

ETHTIPA006



Country: **Ethiopia**
Administrative region: **Southern Nations, Nationalities, and Peoples' (Regional State)**
Central co-ordinates: **7.06198 N, 35.38716 E**
Area: **1114km²**

Qualifying IPA criteria

A(i)

IPA assessment rationale

Shako-Bench Forest qualifies as an IPA under criterion A(i) due to the presence of three globally threatened Ethiopian endemic species for which this IPA is an important site: Dorstenia soerensenii (EN), Streptocarpus phaeotrichus (EN) and Scadoxus nutans (VU). Additionally, this site is an important gene pool for the threatened Coffea arabica (EN). Also of note is the presence of the near-endemic threatened species Baphia abyssinica (VU).

Site description

Shako-Bench Forest is the collective name for the Berhane-Kontir and Amora Gedel forests, which reportedly make up ca. 71% of the land area in the Sheko wereda of the Bench Maji Zone (Wood et al., 2019). The IPA is located within the Southern Nations, Nationalities, and People's Regional State, in the southwestern Ethiopian highlands, within the Kefa and Illubabor floristic regions. The IPA is situated approximately 80 km west of the Bonga Forests IPA. The forests are bordered by the town of Tepi to the north and Mizan Teferi to the south. The B53, the main road running between Tepi and Bonga, runs through the IPA.

The IPA is comprised of transitional forest, riverine forest, and coffee plantations, surrounded by urban areas and agricultural land. The topology of Shako-Bench Forest is undulating hills to mountainous terrain with many rivers. Shako-Bench Forest is designated as a National Forest Priority Area (NFPA) and Key Biodiversity Area (KBA) (Key Biodiversity Areas, 2021a). The site overlaps with the Metu – Gore – Tepi Forests Important Bird Area (IBA), Metu – Gore – Tepi Forests KBA, and the Mizan Teferi Controlled Hunting Area. The northern section of the IPA marginally overlaps with the Godere NFPA and Yeki NFPA (Protected Planet, 2021). The UNESCO Sheka Forest Biosphere Reserve borders the IPA to the north.

The Shako-Bench Forest IPA is surrounded by many botanically important forests that are yet to be assessed, such as the Guraferda Forest to the west.

Botanical significance

This IPA is comprised of transitional forest containing a mixture of species from Moist Evergreen Afromontane forest and Guineo-Congolian lowland rainforest vegetation, within the Eastern Afromontane Biodiversity Hotspot (Friis et al., 1987; Senbeta, 2006; Friis et al., 2010; Sutcliffe et al., 2012).

Shako-Bench Forest is considered to be an important site for conserving the gene pool of the endangered wild Coffea arabica L. (Senbeta, 2006; O'Hara, 2016). Wild and cultivated Coffea arabica are found extensively throughout the IPA. This site is also of particular botanical significance for the presence of three threatened Ethiopian endemics: Streptocarpus phaeotrichus Chiov. ex B.L.Burtt (EN), Scadoxus nutans (Friis & I.Bjornstad) Friis & Nordal (VU), and Dorstenia soerensenii Friis (EN).

Of the 14 Ethiopian endemics recorded by Friis et al. (1987) and Senbeta (2006) in the Berhane-Kontir Forest and surrounding forested areas, nine are still considered endemic according to POWO

(2021): Brillantaisia grottanellii Pic.Serm. (riverine forest), Ceropegia sobolifera N.E.Br. (transitional forest), Clematis longicauda Steud. ex A.Rich. (moist afromontane forest), Euphorbia omariana M.G.Gilbert (moist afromontane forest), Millettia ferruginea (Hochst.) Hochst. ex Baker (LC), Polystachya caduca Rchb.f. (moist afromontane forest), Scadoxus nutans (VU, moist afromontane forest), Solanecio gigas (Vatke) C.Jeffrey (moist afromontane forest), and Vepris dainellii (LC) (Pic.Serm.) Kokwaro (various habitats). Also of note is the presence of the near-endemic, Baphia abyssinica Brummitt (VU). However, the identification of Euphorbia omariana at this site is likely to be incorrect, as the Shako-Bench Forest falls outside the otherwise-known range for this species.

The globally threatened tree species Dombeya longebracteolata Seyani (VU) has been recorded in areas surrounding the IPA and could be present within Shako-Bench Forest.

Habitat and geology

The topology of Shako-Bench Forest is characterised by undulating hills to steep slopes (Senbeta, 2006). The IPA is located within the Baro-Akobo Basin and contains many rivers and streams (Sutcliffe, 2009; Girma et al., 2012). The Shako-Bench Forest habitat is characterised by transitional forest containing vegetation characteristic of Moist Evergreen Afromontane forest, Guineo-Congolian lowland rainforest, and linking species between the two (Friis et al., 1987; Yeshitela & Bekele, 2002; Senbeta, 2006). Examples of the Guineo-Congolian lowland rainforest vegetation includes Pouteria altissima (A.Chev.) Baehni, Celtis toka Hepper & J.R.I.Wood, C. zenkeri Engl., Blighia unijugata Baker, Trilepisium madagascariense DC., Morus mesozygia Stapf., and Argomuellera macrophylla Pax (Yeshitela & Bekele, 2002; Senbeta, 2006). Moist Evergreen Afromontane forest elements are characterised by Manilkara butugi Chiov., Olea capensis subsp. macrocarpa (C.H.Wright) I.Verd., and Macaranga capensis (Baill.) Sim (Yeshitela & Bekele, 2002).

According to Friis et al. (1987) the upper canopy is dominated by Alstonia boonei De Wild. (a medicinal tree), Pouteria altissima, Anthocleista schweinfurthii Gilg, Antiaris toxicaria (J.F.Gmel.) Lesch., Blighia unijugata, and Ficus mucuso Welw. ex Ficalho. The middle canopy is dominated by Albizia grandibracteata Taub., Celtis spp., Croton sylvaticus Hochst., Ficus spp., and Lannea welwitschii (Hiern) Engl. (Friis et al., 1987). The lower canopy is dominated by Alchornea laxiflora (Benth.) Pax & K.Hoffm., Baphia abyssinica, Bridelia atroviridis Mull.Arg., Bridelia micrantha (Hochst.) Baill., Combretum spp., and Diospyros abyssinica (Hiern) F.White (Friis et al., 1987). Other notable tree species recorded by Senbeta (2006) include Zanha golungensis Hiern. Senbeta (2006) noted that the ground layer is often sparse, with frequent species including Achyrospermum schimperi (Hochst. ex Briq.) Perkins, Hilleria latifolia (Lam.) H.Walter, Leptaspis zeylanica Nees ex Steud., Olyra latifolia L. and Whitfieldia elongata (P.Beauv.) De Wild. & T.Durand.

In total, Senbeta (2006) recorded 374 species across 91 families during a floristic survey of the Berhane-Kontir Forest, with Orchidaceae, Rubiaceae, Euphorbiaceae s.l., Moraceae, Acanthaceae, Fabaceae, Poaceae, Aspleniaceae, Amaranthaceae, and Sapindaceae as the ten most species rich families. Friis et al. (1987) noted that the high number of Moraceae species in the areas surrounding Tepi and Mizan Teferi could suggest that the forest in those areas are partly secondary.

Large areas of the Shako-Bench Forest and surrounding areas are dominated by plantations of Coffea arabica. NTFP (2013) characterised forest areas of Coffea arabica into three types: undisturbed wild coffee, semi-forest coffee (clearing of understorey and thinning of upper canopy trees), and semi-forest coffee plantations (clearing of understorey, thinning of upper canopy trees, and the intentional planting of coffee seedlings).

The general lithology of the area is comprised of underlying Precambrian basement rock overlain by Tertiary volcanic rocks including rhyolites (Yeshitela & Bekele, 2002; Schluter et al., 2008; Kassa et al., 2017a). Soils are predominantly umbric nitisols, however acrisols and regisols have also been recorded (Senbeta, 2006; Jones et al., 2013). The climate is characterised by unimodal rainfall with the rainy season running from mid-March to mid-November (Kassa et al., 2019). The annual mean rainfall for the Berhane-Kontir Forest is approximately 2,200 mm (Senbeta, 2006), whilst the mean rainfall for the town of Mizan Teferi to the south of the IPA is approximately 1,780 mm (Kassa et al., 2019).

Conservation issues

The main threats to Shako-Bench Forest are from conversion of forest to agricultural land and settlements, and degradation of the forest by the clearing of understory for coffee production (Wood, 2013; O'Hara, 2016). Comparison between natural forest and coffee plantations within the Berhane-Kontir Forest show that clearance of understorey vegetation has resulted in a significant decrease in the number of species recorded (Senbeta, 2006). Additionally, the natural forest is threatened by logging and charcoal production (NTFP, 2004; Kassa et al., 2017a).

During the 1960s, private coffee plantations started emerging around the town of Tepi (Gole & Getaneh, 2011). By the 1970s and 80s, large scale coffee plantations had been established by the state (Gole & Getaneh, 2011). Both commercial and small-holder coffee plantations are thought to be expanding, and there are talks of introducing rubber plantations (Wood, 2013; Kassa et al., 2017a; Key Biodiversity Areas, 2021b).

Population pressure increased in the 1980s due to the resettlement of people from northern Ethiopia; this led to a more rapid conversation of forest to agricultural land and expansion of urban areas (Senbeta, 2006). The development of a tarmac road between Mizan Teferi and Addis Ababa and the improvement of gravel roads

surrounding Mizan Teferi over the last decade has increased the accessibility of the IPA (Hwang et al., 2020).

Land change maps from 1973 to 2013 provided by NTFP (2013), show large areas of the Shako-Bench Forest that have been converted to agriculture, cultivation, and settlement. These land use changes are supported by satellite imagery, which also shows a large area of plantation to the south of the IPA (Google Earth, 2021).

In 2005, Participatory Forest Management (PFM) was introduced into the Sheko wereda of the Bench-Maji Zone where the IPA resides (Bakala et al., 2021). As of 2021, PFM was implemented in 15 out of 26 kebeles within the Sheko wereda, covering ca. 13,456 ha of coffee forest and 15,316 ha of natural forest (CSRC, 2016; Bakala et al., 2021). The Non-Timber Forest Products and Participatory Forest Management (NTFP-PFM) project ran from 2003 to 2013 within the IPA, operated by the Southern Nations, Nationalities, and Peoples' Regional State, NGOs and community-based organisations. The project aimed to ensure key areas of the Berhane-Kontir and Amora Gedel forests were conserved through PFM by the local communities while providing an economic benefit (NTFP, 2009; Wood, 2013). The project was succeeded by the Wild Coffee Conservation and PFM Project (WCC-PFM), aiming to maintain the forest and wild coffee. Wood (2013) reported slow progress and some initial hurdles from 2010 to 2012 due to institutional issues. A 2016 study found that while PFM areas experienced less forest loss than non-PFM areas, PFM had not succeeded in halting the degradation of natural forest (O'Hara, 2016).

The IPA overlaps with the Shako Forest National Forest Priority Area, established in the 1980s. The IPA also marginally overlaps with the Mizan-Teferi controlled hunting area established in 1985 (Protected Planet, 2021). The Shako Forest Key Biodiversity Area was identified in 2011 based on the presence of the Dime Forest Treefrog (Leptopelis vannutellii; VU, now LC) (Key Biodiversity Area, 2021a). The Metu – Gore – Tepi Forests IBA and KBA were identified in 1996, based on the occurrence of 26 bird species, all now classified as LC with the exception of Blue-winged Goose (Cyanochen cyanoptera, VU), Abyssinian Longclaw (Macronyx flavicollis, NT) and Rouget's Rail (Rougetius rougetii, NT) (BirdLife, 2021).

Site assessor(s)

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IPA criterion A species

SPECIES	QUALIFYING SUB-CRITERION	≥ 1% OF GLOBAL POPULATION	≥ 5% OF NATIONAL POPULATION	1 OF 5 BEST SITES NATIONALLY	ENTIRE GLOBAL POPULATION	SOCIO-ECONOMICALLY IMPORTANT	ABUNDANCE AT SITE
Dorstenia soerensenii Friis	A(i)	✓	✓	✓	–	–	
Scadoxus nutans (Friis & I.Björnstad) Friis & Nordal	A(i)	✓	✓	✓	–	–	
Streptocarpus phaeotrichus B.L.Burtt	A(i)	✓	✓	✓	–	–	
Coffea arabica L.	A(i)	✓	–	–	–	–	
Baphia abyssinica Brummitt	A(i)	✓	✓	–	–	–	

IPA criterion C qualifying habitats

HABITAT	QUALIFYING SUB-CRITERION	≥ 5% OF NATIONAL RESOURCE	≥ 10% OF NATIONAL RESOURCE	1 OF 5 BEST SITES NATIONALLY	AREAL COVERAGE AT SITE

General site habitats

GENERAL SITE HABITAT	PERCENT COVERAGE	IMPORTANCE
Forest - Subtropical/Tropical Moist Lowland Forest	–	Major
Forest - Subtropical/Tropical Moist Montane Forest	–	Major
Wetlands (inland) - Permanent Rivers, Streams, Creeks [includes waterfalls]	–	Major
Artificial - Terrestrial - Plantations	–	Major
Artificial - Terrestrial - Pastureland	–	Minor
Artificial - Terrestrial - Arable Land	–	Minor

Land use types

LAND USE TYPE	PERCENT COVERAGE	IMPORTANCE
Forestry	–	Major
Agriculture (arable)	–	Major
Residential / urban development	–	Minor

Threats

THREAT	SEVERITY	TIMING
Agriculture & aquaculture - Annual & perennial non-timber crops - Small-holder farming	High	Ongoing - increasing
Agriculture & aquaculture - Annual & perennial non-timber crops - Agro-industry farming	High	Ongoing - increasing
Residential & commercial development - Housing & urban areas	Medium	Ongoing - trend unknown

Protected areas

PROTECTED AREA NAME	PROTECTED AREA TYPE	RELATIONSHIP WITH IPA	AREAL OVERLAP
Shako National Forest Priority Area	National Forest Priority Area	protected/conservation area overlaps with IPA	–
Godere National Forest Priority Area	National Forest Priority Area	protected/conservation area overlaps with IPA	–
Yeki National Forest Priority Area	National Forest Priority Area	protected/conservation area overlaps with IPA	–

Conservation designation

DESIGNATION NAME	PROTECTED AREA	RELATIONSHIP WITH IPA	AREAL OVERLAP
Metu – Gore – Tepi Forests IBA	Important Bird Area	protected/conservation area overlaps with IPA	–
Metu – Gore – Tepi Forests KBA	Key Biodiversity Area	protected/conservation area overlaps with IPA	–
Shako Forest KBA	Key Biodiversity Area	protected/conservation area overlaps with IPA	–

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