Available from https://tipas.kew.org/site/werder-kebri-dehar-shilabo/
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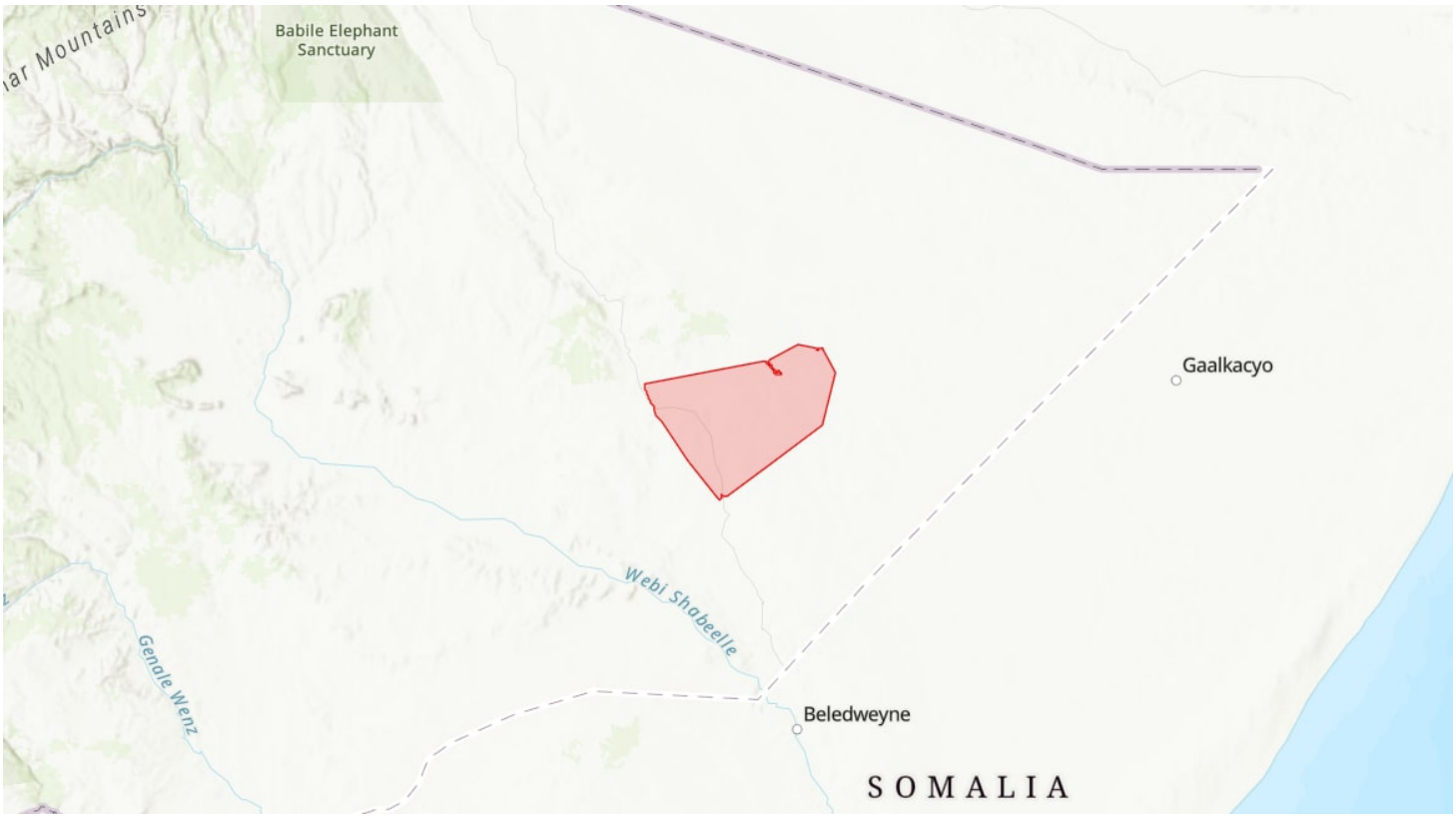
Werder

ETHTIPA011



Country: **Ethiopia**
Administrative region: **Somali (Regional State)**
Central co-ordinates: **6.59759 N, 44.92380 E**
Area: **7132km²**

Qualifying IPA criteria

A(i)

IPA assessment rationale

This site qualifies as an IPA under criterion A(i) due to the presence of nine globally threatened species: Caralluma wilhelmii (CR), Ceropegia gypsophila (CR), Ceropegia kaariyei (CR), Cibirhiza spiculata (EN), Cordeauxia edulis (EN), Erythrophysa septentrionalis (EN), Plicosepalus ogadenensis (EN), Seddera simmonsii (EN) and Stylochaeton oligocarpum (EN). Of those species, herbarium vouchers suggest that six are only known to occur within the IPA, emphasising the high irreplaceability of the site. Relatedly, Erythrophysa septentrionalis and Stylochaeton oligocarpum are believed to occur in just one and two other localities globally, respectively. Although the current status of Cordeauxia edulis within the IPA is not entirely clear, its potential presence further supports the site's selection as an Important Plant Area, not least given that it is both globally threatened and socio-economically important.

Overall, therefore, this site is believed to support a range of endemic, rare, threatened and socio-economically important plant species. This justifies its selection as an IPA and, importantly, highlights the need for further botanical exploration and protection in the region.

Site description

The Werder – Kebri Dehar – Shilabo IPA is situated in the Somali Regional State, in the Harerege floristic region of the eastern Ethiopian lowlands (Friis et al., 2010). It is located approximately 370 km southeast of Jijiga, the regional capital. This region is one of two locations in Ethiopia where the globally threatened species, Cordeauxia edulis (EN), was reported in 1988 (Drechsel & Zech, 1988), although its current status in the IPA is uncertain. Despite the presence of several endemic plant species that are only known to occur inside the IPA, the region's biodiversity is poorly understood and protected, not least due to long-standing security issues and, more recently, Al-Shabaab led attacks along the Ethiopian-Somalian border. The IPA encompasses many small villages and is bordered by the towns of Kebri Dehar, Shillabo and Werder, as well as the historic site where the battle of Korahe took place against the Italians in the 1930s (Levy et al., 1993). The main road from Jijiga to

Ferfer runs through the western region of the site.

Botanical significance

The Ogaden, within which the IPA resides, is one of the most floristically underexplored regions in Ethiopia, primarily due to socio-political instability over recent decades (Sebsebe & Dioli, 2000; Mabberley, 2009). Nonetheless, this region is believed to support a particularly high abundance of endemic plants, with great potential for the discovery of new species (Dioli, 2002; Thulin, 2011; cited in Thulin & Vollesen, 2015; Friis et al., 2016).

The Werder – Kebri Dehar – Shilabo IPA is a key site for the globally threatened, endemic species, Erythrophysa septentrionalis (EN), which is only known to occur in one other location outside of the IPA. The region was also reported as one of the two remaining locations for the globally threatened, socio-economically important species, Cordeauxia edulis (EN), known locally as yeheb (Drechsel & Zech, 1988). Endemic to Ethiopia and Somalia, yeheb is a multipurpose plant with a range of uses: their nuts are eaten by local communities; stalks are used in construction and as fuel; and seeds, leaves and flowers are ethnomedicinal (Abubaker et al., 2021; Alemu et al., 2022). Its potential presence within the IPA is supported by a herbarium voucher from the East African Herbarium, Nairobi, Kenya, which provides an approximately georeferenced record of a specimen in the eastern region of the IPA. However, recent reports suggest that the species may now be restricted to the Boh woreda (district) of Somali Regional State (see Mekonnen et al., 2010; Yusuf et al., 2013; Seyoum & Mekbib, 2014; Beech et al., 2018). Further botanical exploration is thus required to determine the status of Cordeauxia edulis within the IPA.

Additionally, the IPA is an important locality for six globally threatened, endemic species thought to only occur within the IPA: Caralluma wilhelmii (CR), Ceropegia gypsophila (CR), Ceropegia kaariyei (CR), Cibirhiza spiculata (EN), Plicosepalus ogadenensis (EN) and Seddera simmonsii (EN). Although none of the six have been published on the IUCN Red List at the time of writing, they have all been evaluated and five have also been reviewed, with a review of Seddera simmonsii likely to follow shortly. Assessments of all six species will thus be published in due course. The georeferenced herbarium vouchers available for these species reveal that this IPA is the sole confirmed locality for all six, with just one or two occurrence records for five of them (Caralluma wilhelmii, Ceropegia gypsophila, Ceropegia kaariyei, Cibirhiza spiculata and Seddera simmonsii). Therefore, while further exploration may reveal a more widespread distribution for some or all of these species, the IPA is currently thought to have a very high level of irreplaceability. Furthermore, the globally threatened, near-endemic, Stylochaeton oligocarpum (EN), and the widespread Ethiopian endemic, Senegalia fumosa (LC), formally known as Acacia fumosa, are also known to occur in the IPA.

Habitat and geology

The IPA is situated within the catchment of the Fafen river, the main tributary of the Wabi Shebelle River (JICA, 2013), and is characterised by flat, arid plains with outcrops of limestone and gypsum (Mege et al., 2015). It has a relatively varied landscape, comprising a number of different land cover types, including desert and semi-desert scrubland with various drought tolerant species (Friis et al., 2010; Asefa et al., 2020), open savanna (Liew, 2003), agricultural fields, urban areas and wetlands (permanent and seasonal rivers and streams). The IPA is also characterised by Haud-type mixed bushland, consisting of Acacia-Commiphora thickets (White, 1983; Drechsel & Zech, 1988; Friis et al., 2010).

The Haud, typified by grassland and thorn-bush, is a vast plateau located in the Horn of Africa, spanning the northern and eastern areas of Ethiopia's Somali Region, although its exact extent is debated and, as such, difficult to quantify accurately. Haud-type mixed bushland is associated with a number of tree species: Albizia anthelmintica, Delonix baccal, Delonix elata, Gyrocarpus hababensis, Senegalia senegal, Vachellia edgeworthii, Vachellia horrida subsp. benadirensis, Vachellia tortilis, and several species of Commiphora and Grewia (Hemming, 1966). Many other species are found in the mixed bushland, such as Boswellia neglecta, Cordia sinensis, Euphorbia robecchii, Jatrophu dichtar, Lannea obovata, Maerua crassifolia, Sesamothamnus busseanus and Terminalia orbicularis (Hemming, 1966), some of which have ethnomedicinal properties. The region's grasslands are characterised by Aristida kelleri, Aristida paoliana and Stipagrostis uniplumis (Hemming, 1966; Drechsel & Zech, 1988).

Lithologically, the IPA is dominated by the Jesomma (Yesomma) sandstone formation (Drechsel & Zech, 1988). Limestone and gypsum outcrops are also common occurrences across the IPA (Hemming, 1966; Segalen, 1973). Auradu limestone outcrops are found in the eastern part of the Werder region (JICA, 2013), consisting of crystalline, hard limestone embedded between layers of strata, particularly shale (Purcell, 1979; JICA, 2013). The Haud's soils are quite distinctive, comprising red loamy sands formed from the Jesomma formation, with a high rainwater infiltration rate (Hemming, 1966; Drechsel & Zech, 1998). According to Jones et al. (2013), soils within the IPA are predominantly lithic leptosols, petric calcisols, petric gypsosols, and haplic vertisols. The IPA's climate is considered hot-arid, part of the Bereha climatic zone (Mege et al., 2015). Mean annual temperature is 28 C (Drechsel & Zech, 1988) and rainfall is bimodal, with two rainy seasons occurring in March-May and October-November (Liew, 2003; Seyoum & Mekbib, 2014). Mean annual rainfall varies across the IPA, ranging from approximately 150-280 mm (Bauduin, 1973; Drechsel & Zech, 1988; JICA, 2013).

Conservation issues

There is currently no site protection, biodiversity management, Important Bird Area or Key Biodiversity Area designation within or

overlapping the IPA. As previously mentioned, the wider Ogaden region has been floristically underexplored. Throughout the last several decades, it has experienced droughts, floods and territorial wars that have led to socio-political instability and made it challenging to assess and protect biodiversity.

The main threats to the IPA and its flora are overgrazing from livestock, resource overexploitation, agriculture and climatic change (Thulin, 2009; Alemu et al., 2018; Beech et al., 2018). Over 85% of the population within the Ogaden region are pastoralists (Yusuf et al., 2013), with grazing livestock exerting significant pressure on the area's natural vegetation, thus causing widespread habitat degradation. The globally threatened species, Erythrophysa septentrionalis (EN), Cordeauxia edulis (EN) and Ceropegia gypsophila (CR) are reported to be particularly threatened by grazing pressures (Thulin, 2009; Alemu et al., 2018; Beech et al., 2018). In addition to overgrazing, Cordeauxia edulis has declined by ca. 50% globally over three generations due to overexploitation by local communities and severe droughts (Beech et al., 2018), although the species is considered to be relatively drought resistant and desertification tolerant (Mihertu & Teshome, 2017). As aforementioned, its abundance in the IPA is unclear. Another Endangered species, Cibirhiza spiculata, is threatened by the loss of Andropogon kelleri, a tuft-forming grass that provides shelter for Cibirhiza spiculata and is overexploited as a building resource (Thulin et al., 2008). Likewise, Caralluma wilhelmii (CR) may also be negatively affected by the loss of Andropogon kelleri, which constitutes its main habitat (Thulin, 2009). Ceropegia kaariyei (CR), which is already rare, is particularly threatened because its tubers and stems are harvested by local communities as a food source (Thulin, 2009).

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
Cordeauxia edulis Hemsl.	A(i)	–	–	–	–	✓	Unknown
Caralluma wilhelmii Thulin	A(i)	✓	✓	✓	✓	–	Unknown
Ceropegia gypsophila Thulin	A(i)	✓	✓	✓	✓	–	Unknown
Ceropegia kaariyei Thulin	A(i)	✓	✓	✓	✓	–	Unknown
Cibirhiza spiculata Thulin & Goyder	A(i)	✓	✓	✓	✓	–	Unknown
Plicosepalus ogadenensis M.G.Gilbert	A(i)	✓	✓	✓	✓	–	Unknown
Erythrophysa septentrionalis Verdc.	A(i)	✓	✓	✓	–	–	Unknown
Seddera simmonsii Verdc.	A(i)	✓	✓	✓	✓	–	Unknown
Stylochaeton oligocarpum Riedl	A(i)	✓	✓	✓	–	–	Unknown

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
Savanna - Dry Savanna	–	Major
Shrubland - Subtropical/Tropical Dry Shrubland	–	Major
Grassland - Subtropical/Tropical Dry Lowland Grassland	–	Major
Desert - Hot Desert	–	Major
Wetlands (inland) - Permanent Rivers, Streams, Creeks [includes waterfalls]	–	Minor
Wetlands (inland) - Seasonal/Intermittent/Irregular Rivers, Streams, Creeks	–	Minor

Land use types

LAND USE TYPE	PERCENT COVERAGE	IMPORTANCE
Agriculture (arable)	–	Minor
Agriculture (pastoral)	–	Major
Residential / urban development	–	Minor
Harvesting of wild resources	–	Major

Threats

THREAT	SEVERITY	TIMING
Agriculture & aquaculture - Livestock farming & ranching - Nomadic grazing	High	Ongoing - trend unknown
Agriculture & aquaculture - Livestock farming & ranching - Small-holder grazing, ranching or farming	High	Ongoing - trend unknown
Agriculture & aquaculture - Annual & perennial non-timber crops - Small-holder farming	Unknown	Ongoing - trend unknown
Biological resource use - Gathering terrestrial plants	High	Ongoing - trend unknown
Human intrusions & disturbance - War, civil unrest & military exercises	Unknown	Past, not likely to return
Climate change & severe weather - Droughts	Unknown	Ongoing - trend unknown

Management type

MANAGEMENT TYPE	DESCRIPTION	YEAR STARTED	YEAR FINISHED
No management plan in place		–	–

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