



Mentha gattefossei, Menthe de Perse

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Plantae	Tracheophyta	Magnoliopsida	Lamiales	Lamiaceae

Scientific Name: *Mentha gattefossei* Maire

Common Name(s):

- French: Menthe de Perse, Menthe de Gatefossé
- Arabic: Fliyyo dial jbel

Assessment Information

Red List Category & Criteria: Vulnerable B2ab(ii,iii,v) [ver 3.1](#)

Year Published: 2020

Date Assessed: May 17, 2018

Justification:

Mentha gattefossei is a strict endemic species to Morocco, found in four floristic divisions of Morocco; High Atlas, Middle Atlas, Anti Atlas, and Saharan Morocco. *Mentha gattefossei* is very local with a varied abundance from very rare occurrences to occasional and frequent in some locations but most of the subpopulations are isolated. The population trend of *Mentha gattefossei* is decreasing, the number of mature individuals and the population density is significantly reduced during the last decades. The estimated area of occupancy is less than 2,000 km² and the species is under numerous medium to high impact threats, especially; overharvesting for domestic uses and for trade, unsustainable harvesting, collection practices, overgrazing, agriculture intensification, erosion and drought, with an estimated continuing decline in the population size and the habitats quality on all the locations. Therefore, *Mentha gattefossei* is assessed globally as Vulnerable (VU B2ab(ii,iii,v)).

Previously Published Red List Assessments

2010 – Near Threatened (NT)

<https://dx.doi.org/10.2305/IUCN.UK.2010-2.RLTS.T164184A5767723.en>

Geographic Range

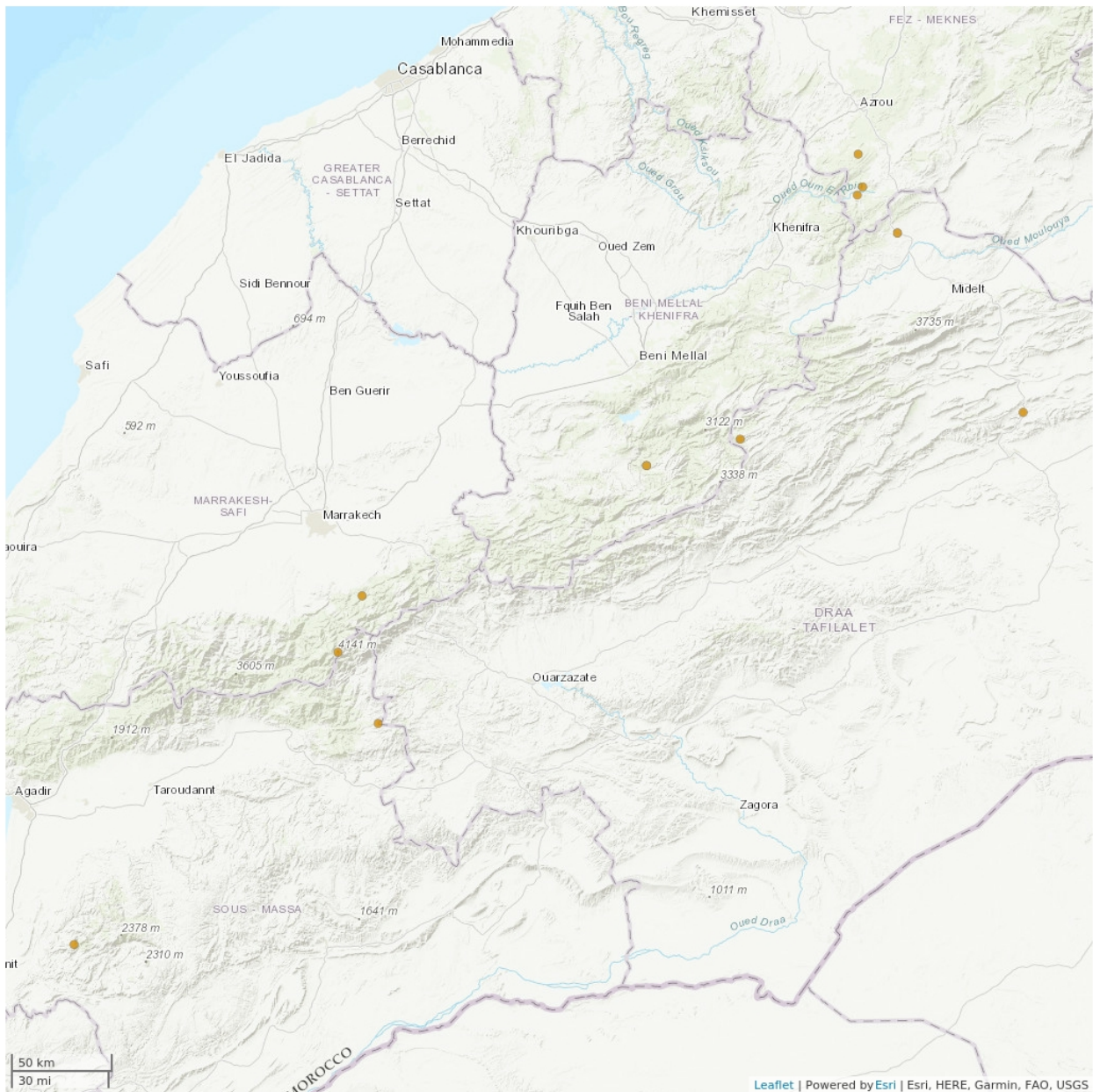
Range Description:

Mentha gattefossei is a strict endemic species to Morocco, found in four floristic divisions of Morocco, including; High Atlas (Azilal, Ourika, Timnkar, Glaoua, in Ider), Middle Atlas (central plateau around Timhadit, Bekrit, Aghbalou-Larbi, Ain-Leuh, and Ras-el-Ma), Saharan Morocco (East desert, Ziz River in oriental Moroccan Sahara) and Anti Atlas (Maire 1922, Jahandiez and Maire 1932, Fennane and Ibn Tattou 1998, Fennane and Ibn Tattou 2005, Fennane *et al.* 2007, Dobignard and Chatelain 2010, El Oualidi *at al.* 2012, Lamnaouer 2012, Rankou *et al.* 2013, Ciocârlan 2014, Euro+Med 2018, IPNI 2018, WCSP 2018, H. Rankou *et al.* pers. comm. 2018). The estimated area of occupancy (AOO) of *Mentha gattefossei* is around 500 km² and the altitude range is between 1,600 and 2,100 m asl.

Country Occurrence:

Native, Extant (resident): Morocco

Distribution Map

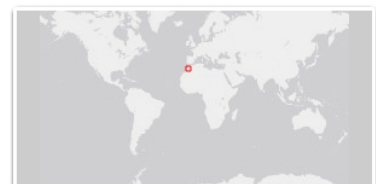


Legend

■ EXTANT (RESIDENT)

Compiled by:

IUCN 2019



The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.



Population

Mentha gattefossei is very local with a varied abundance from very rare occurrences to occasional and abundant in some locations but most of the subpopulations are isolated (Jahandiez and Maire 1934, Fennane and Ibn Tattou 1998, Lamnaouer 2012, H. Rankou *et al.* pers. comm. 2018).

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

Mentha gattefossei typical habitats include wet meadows, little damp pastures, river banks and edges of the irrigation canals in limestone and siliceous mountains (Jahandiez and Maire 1932, Fennane *et al.* 2007, Lamnaouer 2012, Ciocârlan 2014, H. Rankou *et al.* pers. comm. 2018). *Mentha gattefossei* is a perennial plant (hemicryptophyte) that flowers in June and July, prefers open and sunny habitats, and grows in subhumid and humid Mediterranean climates (Fennane *et al.* 2007, Lamnaouer 2012, Ciocârlan 2014).

Systems: Terrestrial, Freshwater (=Inland waters)

Use and Trade

Mentha gattefossei is commonly used for essential oils, aromatic flavouring and food, including; condiment or spices, used to prepare several traditional dishes, flavouring the tea, conservation and aroma to protect dried figs from attack by insects (Boulos 1983, Belakhder 1997, Fujita and Moriyoshi 2001).

Mentha gattefossei is exploited for the extraction of essential oils to be traded at national and international level with a very high economic value (Ciocârlan 2014). The essential oil is considered a broad-spectrum antimicrobial with antioxidant properties (Holeman *et al.* 1984, Bellakhdar 1997, Fujita and Moriyoshi 2001, Ciocârlan 2014, Aprotosoiaie *et al.* 2018). The chemical analysis of the essential oil of *Mentha gattefossei* identified the following components; neomenthone, pulegone, d-limonene, α -pinène, β -pinène, eucalyptol and caryophyllène (Holeman *et al.* 1984, Bellakhdar 1997, Fujita and Moriyoshi 2001, Aprotosoiaie *et al.* 2018).

Mentha gattefossei is commonly traded nationally at a price ranging from 1 to 2 Dhs / bouquet and 2 Dhs/kg for the seeds.

Threats (see Appendix for additional information)

Mentha gattefossei population size decreasing and the habitats quality declining due to numerous medium to high impact threats, including, overharvesting for domestic uses (medicinal and food) and for trade (nationally and internationally as essential oils), unsustainable harvesting (cutting begin before the flowering time), collection practices (successive cuts and cutting the entire plant including the roots), overgrazing, smallholder agriculture intensification in the wetlands habitats and erosion.

Mentha gattefossei more generally threatened by the direct and indirect impact of human activities such as infrastructure development, land clearing, management practices of water canals and long periods of drought (Benabid 2002, Blondel and Medail 2009, Plan Bleu 2009, Taleb and Fennane 2011,

H. Rankou *et al.* pers. comm. 2018).

In a study carried out on a selection of different Mediterranean plant species on how warmer climate could affect nectar production on these plants (Takkis *et al.* 2018), it was found that there was a significant effect of temperature on nectar secretion, with a negative effect of very high temperatures in all species. Takkis *et al.* (2018) conclude that climate warming will likely have a distinctive effect on both plant and pollinator populations and their interactions across different seasons, either by direct effects or by the consequent shifts in the plant phenology.

Conservation Actions (see Appendix for additional information)

Mentha gattefossei conservation measures should be designed in a participative approach with the local population for a sustainable use of the resource.

Although one of the locations is within the National park of Toubkal, and the species is cultivated successfully in plant nurseries as an *ex situ* conservation measure, more conservation actions are recommended to protect *Mentha gattefossei* and its native habitats;

- Protection of the species sites from habitat loss and fragmentation, random cutting and overgrazing.
- The creation of protected areas to ensure complete regeneration of the species, ecosystems and to restore the quality of wild environments.
- Rising of public awareness.
- *Ex situ* conservation: artificial propagation, re-introduction, seed collections.
- Monitoring and surveillance of the existing populations and sites.
- Estimation of population sizes and study of their dynamics, trends, biology and ecology.

Credits

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External Resources

For [Supplementary Material](#), and for [Images and External Links to Additional Information](#), please see the Red List website.

Appendix

Habitats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Habitat	Season	Suitability	Major Importance?
3. Shrubland -> 3.4. Shrubland - Temperate	Resident	Suitable	Yes
4. Grassland -> 4.4. Grassland - Temperate	Resident	Suitable	Yes
5. Wetlands (inland) -> 5.1. Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls)	-	Suitable	-
5. Wetlands (inland) -> 5.2. Wetlands (inland) - Seasonal/Intermittent/Irregular Rivers/Streams/Creeks	-	Suitable	-
5. Wetlands (inland) -> 5.7. Wetlands (inland) - Permanent Freshwater Marshes/Pools (under 8ha)	-	Suitable	-
5. Wetlands (inland) -> 5.8. Wetlands (inland) - Seasonal/Intermittent Freshwater Marshes/Pools (under 8ha)	-	Suitable	-
5. Wetlands (inland) -> 5.11. Wetlands (inland) - Alpine Wetlands (includes temporary waters from snowmelt)	-	Suitable	-

Plant Growth Forms

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Plant Growth Form
F. Forb or Herb

Use and Trade

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

End Use	Local	National	International
Food - animal	Yes	No	Yes
Food - human	No	No	Yes
Medicine - human & veterinary	No	No	No
Other chemicals	No	No	No

Threats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Threat	Timing	Scope	Severity	Impact Score
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2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.1. Nomadic grazing	Ongoing	-	-	Low impact: 3
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.2. Small-holder grazing, ranching or farming	Ongoing	-	-	Low impact: 3
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
5. Biological resource use -> 5.2. Gathering terrestrial plants -> 5.2.4. Motivation Unknown/Unrecorded	Ongoing	-	-	Low impact: 3
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation		
6. Human intrusions & disturbance -> 6.3. Work & other activities	Ongoing	Majority (50-90%)	Very rapid declines	High impact: 8
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		
11. Climate change & severe weather -> 11.2. Droughts	Ongoing	Whole (>90%)	Very rapid declines	High impact: 9
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		

Conservation Actions in Place

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Conservation Action in Place
In-place land/water protection
Conservation sites identified: Yes, over entire range

Conservation Actions Needed

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Conservation Action Needed
1. Land/water protection -> 1.2. Resource & habitat protection
3. Species management -> 3.1. Species management -> 3.1.1. Harvest management
3. Species management -> 3.1. Species management -> 3.1.2. Trade management
3. Species management -> 3.2. Species recovery
3. Species management -> 3.3. Species re-introduction -> 3.3.1. Reintroduction
3. Species management -> 3.4. Ex-situ conservation -> 3.4.1. Captive breeding/artificial propagation
3. Species management -> 3.4. Ex-situ conservation -> 3.4.2. Genome resource bank

Conservation Action Needed
4. Education & awareness -> 4.3. Awareness & communications
5. Law & policy -> 5.1. Legislation -> 5.1.2. National level
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.2. National level

Research Needed

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Research Needed
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
1. Research -> 1.4. Harvest, use & livelihoods
1. Research -> 1.6. Actions
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.2. Harvest level trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km ²): 500
Continuing decline in area of occupancy (AOO): Yes
Estimated extent of occurrence (EOO) (km ²): 54000
Continuing decline in extent of occurrence (EOO): Yes
Number of Locations: 10
Lower elevation limit (m): 1,600
Upper elevation limit (m): 2,100
Population
Continuing decline of mature individuals: Yes
Population severely fragmented: Yes

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