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Potamogeton trichoides Cham. & Schlecht. in Egypt.

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The first record of *Potamogeton trichoides* Cham. & Schlecht., in Egypt dates back to May 1962 when it was collected by Professor V. TÄCKHOLM and the author from some irrigation canals running through the ground of Assiut University. Assiut is located on the western bank of the Nile, about 375 km south of Cairo.

The plant has also been collected by the author in April 1963 from some canals around Manfalout and Dayrout, which places are located 40 and 70 km north of Assiut respectively.

The plant is still growing frequently in the irrigation canals of Assiut University mixed with an alga, *Chara sp.*, and occasionally with *Potamogeton pectinatus* L. and *P. crispus* L.

During the winter months the plant is not seen at all, but in late March it starts sprouting and new vegetative branches appear. In May it is in full flower.

The plant has not been found outside the three localities enumerated above, which are all situated within the Assiut Province. But probably it is more widespread in the country although overlooked by collectors who may have thought that it represented the narrow-leaved form of *P. pectinatus*, so commonly met with in Egypt. The most striking differences between the two may be summarized as follows:

	<i>P. pectinatus</i>	<i>P. trichoides</i>
<i>Leaf sheaths</i>	present	absent
<i>Leaf blade</i>	3-nerved	1-nerved
<i>Peduncle</i>	elongated	short
<i>Spike</i>	up to 5 cm	about 1 cm

In North Africa and Near East it has only been observed with the fruits tubercled on the keel, var. *tuberculosis* Rchb. (syn. *P. condylocarpus* Tausch). In Egypt the plant has smooth fruits, var. *liocarpus* Asch., which is a more rare case (HEGI, 1908).

The record of the plant from Egypt fills a gap in its general distribution around the Mediterranean, as it is previously recorded from Morocco-Algeria (MAIRE, 1952) and from Palestine-Syria (DINSMORE, 1933).

DANDY, 1937, in his account on the genus *Potamogeton* in tropical Africa, pointed out that the first tropical African records of this species are those published by A. PETER in 1928 and 1929. He added that the species probably occurs in other localities and has to be searched for in East Africa.

The detailed records from where it has been found within its distribution area (Central and South Europe, North and Tropical Africa, West Asia) are as follows (references are put between brackets):

SWEDEN: East Tommarp, North Åsum, Lund, Svalöv, around Göteborg (Hylander, HULTÉN map 107); rare.

DENMARK: West Jylland, Falster, Lolland, South Sjaelland, Bornholm (Hylander, HULTÉN map 107); rare.

ENGLAND: East England from East Cornwall and Gloucester to Sussex and Kent. Rare northwards to Laucs and Yorks, also Anglessy, Dunbarton and Stirling (CLAPHAM, PERRING & WALTERS).

FRANCE: Normandie, Western France, Paris, Central France, East France, La Bressé, rare in Pyrenée (DOUIN).

BELGIUM: rare or very rare (DOUIN).

HOLLAND: rather common (18 records) in lake districts of Friesland; rare or less common in Haf-, Fluviatiele- and Kempense-districts (van OOSTSTROOM & REICHGELT).

GERMANY: Ostpreussen, Westpreussen, Posen, Schlesien, Sachsen, Brandenburg, Bremen, Hamburg, Schleswig-Holstein, Westfalen, Rheinprovinz, rare in Bayern (HEGI).

SWITZERLAND: Dubendorf near Zürich (HEGI, DOUIN), Port Noir at Genève, very rare (VAUTIER).

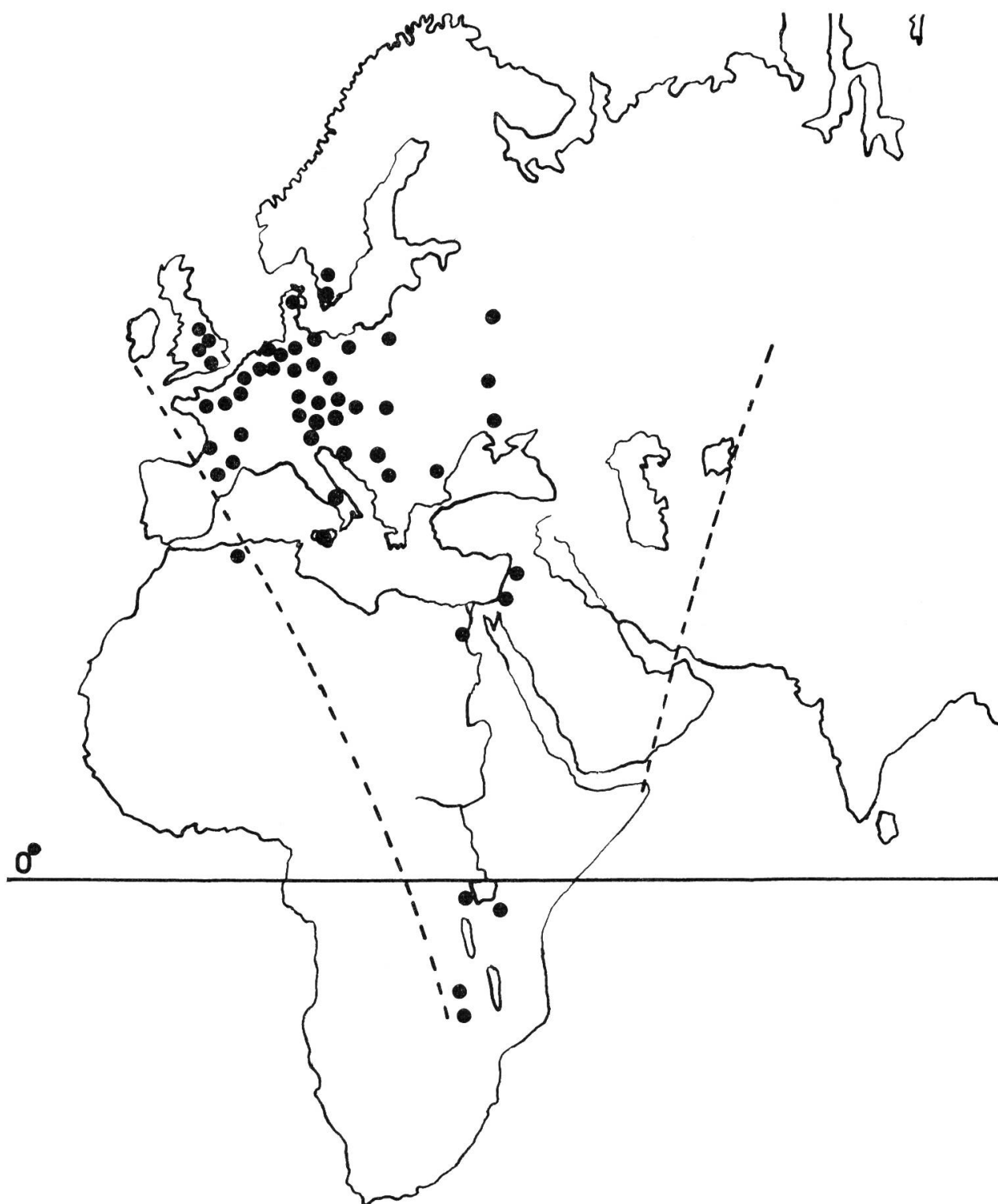
AUSTRIA: Niederösterreich, Salzburgland, Oberösterreich, Tirol, Voralberg, Kärnten (HEGI).

ITALY: Pedule di Bientina, Laghi del Monte Vulture, Sebeto near Napoli, Gurgo near Palermo, Fiume di S. Pietro and Fiume Torto in Sicily (PARLATORE).

BALKAN: Islands in Quarnero Bay, Yugoslavia (Bosnia, Hercegovina, Serbia), Bulgaria (HAYEK).

U.S.S.R.: Yoruslav, Kostrom, Smalljen, Moscow, Ivanov, Tatar and Shuvaska regions of A.S.S.R., Orlov, Olianuff, Kurk, Varoneg, Sarat (MAEVSKII).

LEBANON: Râshayya (DINSMORE).



MAP 1.

● Records of *P. trichoides*; ----- Limits of Cauc.-Zamb. fan of bird migration.

PALESTINE: Birket ur-Râm and Birket Atta near Hadera (DINSMORE).

EGYPT: Assiut, Manfalout, Dayrout.

ALGERIA: Ait Khalfoun, Mowzia lakes, Ben Chicao and Mitidja (MAIRE).

MOROCCO: Senhadja in Wadi Dissia, La Calle, Marrakech, Gedira Lake near Larache, Boulhaut, Beni Snassen (MAIRE).

TROPICAL & SOUTH AFRICA: Kenya in Kikuyu Province, Uganda in Western Province, Southern Rhodesia in Mashonaland and as far south as Cape Province (DANDY).

There is a close relationship between the general distribution of *P. trichoides* (so far as records are available) and the so-called "Caucaso-Zambesian" fan of bird migration (see *map 1*), which points to the conclusion that the plant must be distributed by water-fowls. It is a well-known fact that many birds feed on *Potamogeton*. YOCOM, 1951, refers to an examination of the stomach of various water-fowls, including teals and mallards, and concludes that *Potamogeton* constitutes the major foodstuff of these birds.

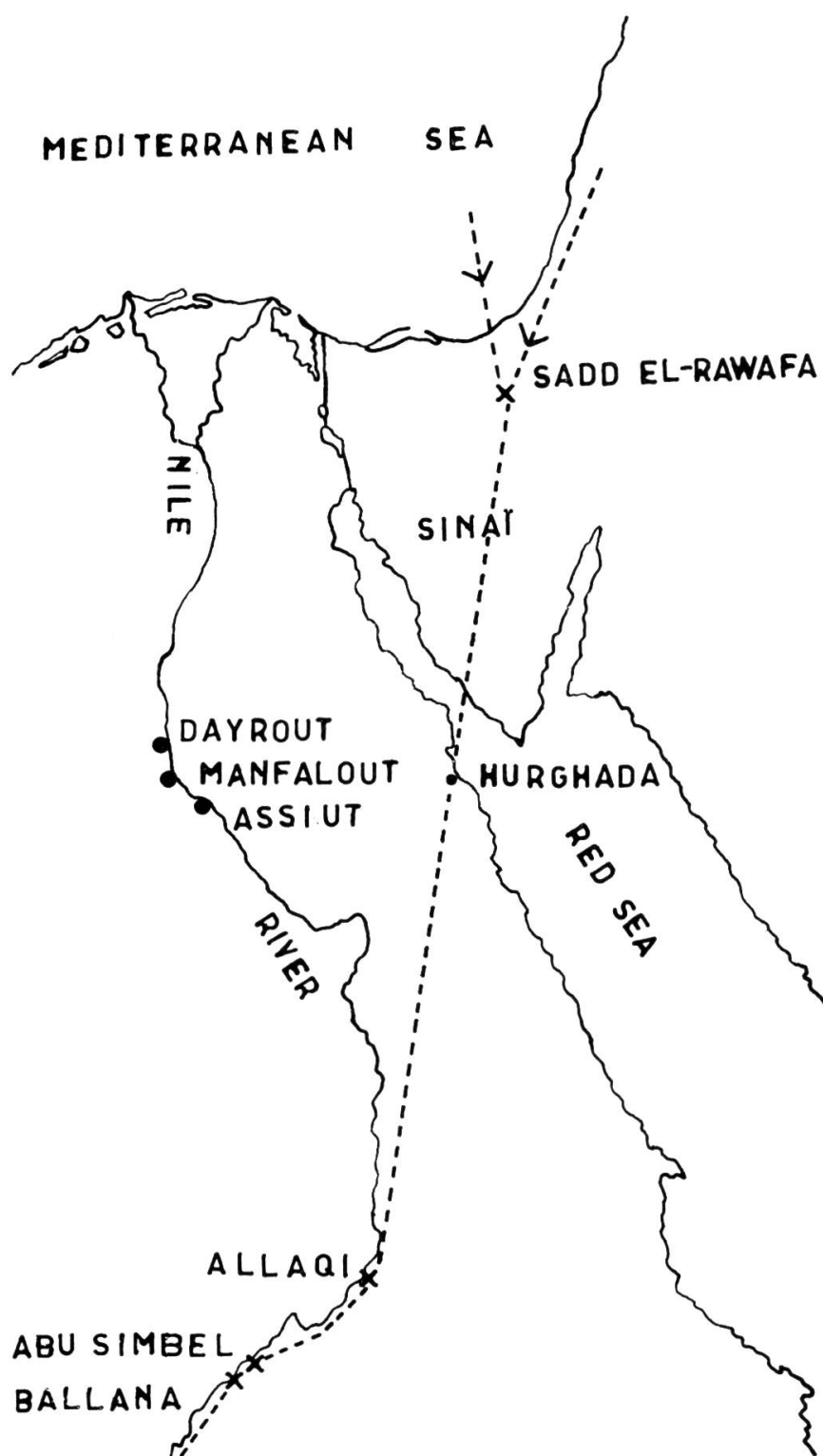
Several teals, particularly the Garganey teal, *Anas querquedula* L. known in Egypt as Sharshir sefi, nests a little everywhere in Europe including Scandinavia (where it is known as Årta: DURANGO, 1962). During the winter months it hibernates in tropical Africa. Most of the birds hibernating in Africa follow the migration route known as Caucaso-Zambesian fan, which includes Egypt within its boundaries. But the major number of birds, particularly teals and mallards, do not remain in the country except for a short period. For them Egypt is only a resting place on their migratory route southwards (compare BROOKSBANK, 1925).

Ripened nutlets of *P. trichoides* are probably consumed by these birds when they search for food in the European and Asiatic freshwater localities. As the nuts are difficult to digest, they may remain intact in the bird for some time and brought along to southern places where they may get released and have a chance to germinate. Thus, it is only natural, that the localities where the plant has been observed in Africa, are freshwater lakes or ponds where birds are known to take a temporary rest.

A similar case of a *Potamogeton*, brought by birds to the African continent, is *P. perfoliatus* L. It was discovered for the first time in Egypt by V. TÄCKHOLM in 1951, growing in the recently constructed freshwater reservoir "Sadd el Rauwafa" in Northern Sinai (see *map 2*). This place is one of the few with available freshwater in the arid land of Sinai and has become a favourite resting place for migrating birds after their long flight across the Mediterranean Sea or over the arid zones of Western Asia.

From Sadd el Rauwafa the birds have been observed to fly southwards through the Arabic desert. They have been noticed in countless number at Hurghada which is situated midway on the straight line from Sadd el Rauwafa to the Nile (MARCHANT, 1940).

The next favourite landing place after their flight through the Arabic desert (see *map 2*) is the Nubian region of the Nile Valley, where *P. perfoliatus* was discovered in 1960 at Allaqi. It was also later found in the Nile water at Abu Simbel and Ballana



MAP 2.

× Records of *P. perfoliatus*; ● *P. trichoides*; ----- Migration route

(BOULOS, 1964). It is quite evident that its occurrence in the Nile is due to the birds. GREAVES, 1940, pointed out that the Garganey teal regularly follows this route.

P. perfoliatus is of a world-wide distribution and is known to occur in Europe (except in Iceland and the southern Mediterranean districts), furthermore in Asia, Australia and North America southwards to Guatemala (ASCHERSON & GRAEBNER, 1913). JUMELLE, 1950, points out that it occurs in Asia between 8°-70° Lat. from Caucasus to Siberia.

In Africa it was earlier known only from Algeria (HEGI, 1908; ASCHERSON & GRAEBNER, 1913; DURAND & SCHINZ, 1895). BENNETT, 1902, in *Flora of Tropical Africa* uttered as his opinion, that it is likely to occur also in this region, although no records were known. His suppositions were later confirmed. Thus JUMELLE, 1950, recorded it from Madagascar, MONOD, 1954, from Mauritania, and ANDREWS, 1956, from Sudan.

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