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Studies on the flora of Jordan 6. On the flora of Ras en Naqb

LOUTFY BOULOS & DAWUD AL-EISAWI

Résumé

Boulos, L. & D. Al-Eisawi (1977). Etude de la flore de Jordanie 6. Flore de Ras en Naqb. *Candollea* 32: 111-120. En anglais.

Les auteurs énumèrent 137 espèces d'Angiospermes récoltées de 1974 à 1976 dans la région montagneuse de Ras en Naqb, dont les particularités floristiques et phytogéographiques sont soulignées.

Abstract

Boulos L. & D. Al-Eisawi (1977). Studies on the flora of Jordan 6. On the flora of Ras en Naqb. *Candollea* 32: 111-120. French abstract.

The authors enumerate 137 Angiosperm species collected in the years 1974-1976 in the mountain area of Ras en Naqb, whose particular floristic and phytogeographical interest is pointed out.

The present tentative study is based on several short visits to Ras en Naqb, and cannot be considered an extensive investigation. Collections were made along the Aqaba—Amman Highway, or from the slopes in its vicinity. The purpose of presenting this list is to encourage future study of this most interesting area. Floristic, ecological, and phytogeographical research on Ras en Naqb will no doubt reveal many stimulating results. Boulos & al. (1975) drew attention to the importance of the Ras en Naqb area through the discovery of *Thalictrum isopyroides* C. A. Meyer there. Other interesting elements such as *Biebersteinia multifida* DC., *Tulipa polychroma* Stapf, *Iris palaestina* Boiss., *Atraphaxis spinosa* L. var. *sinaica* (Jaub. & Spach) Boiss., *Scorzonera tortuosissima* Boiss., *Pyrethrum santolinoides* DC., etc., are found almost nowhere in Jordan except at Ras en Naqb.

Ras en Naqb lies at latitude 30°N and longitude 35°30'E. The highest point is 1650 m above sea level, near Ras en Naqb Rest House. The mean annual rainfall is 146.5 mm. In addition to this adequate rainfall (in the middle of a more arid zone), numerous seepages from different exposed rocks contribute further to the luxuriant and variable vegetation characterizing our area.

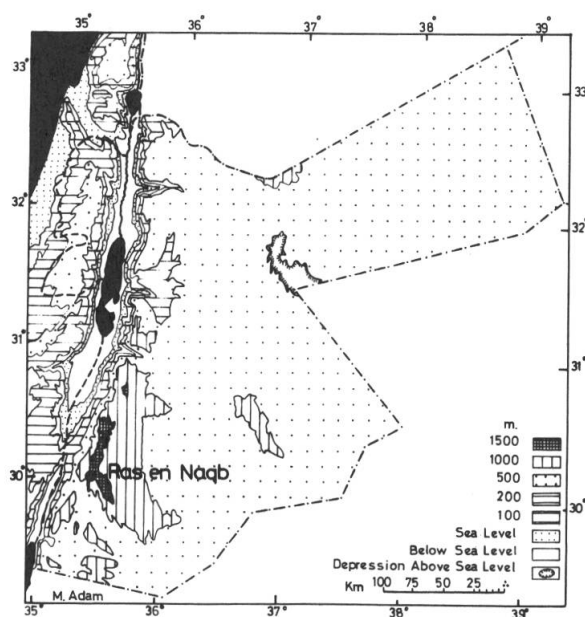


Fig. 1. — Map of Jordan showing Ras en Naqb.

The mean maximum air temperature is 26.8°C, in July; while the mean minimum air temperature is 1.9°C, in January.

The geomorphic pattern of the area is mainly sculptured by landslides and rill wash. Generally speaking, the rock units belong to the Lower and Upper Cretaceous ages. They consist of sandstones, limestones, dolomites, marls, chalks, and shales.

The area is a part of the Ras en Naqb tectonic escarpment which exposes the present Cretaceous sedimentary sequence in stripes striking N.W.—S.E. Due to its hydrological and topographical nature, Ras en Naqb functions as a watershed area for El Jafr Basin in the N.E. and for Wadi 'Araba to the W. The groundwater is deep, exceeding 100 m. The soil is yellow-Mediterranean to yellow-steppe, and the parent rock lies at an average of 50 cm below the soil.

206 numbers were collected by the authors and others from Ras en Naqb during the springs of 1974-1976. The species recorded number 137 and are related to 31 families, of which the largest are: *Compositae*, represented by 24 species; *Cruciferae*, 18 species and *Leguminosae*, 10 species.

The following is a list of the localities from which collections were made:

5991-6004: 1-3 km S. of Ras en Naqb, 12.3.1974, *B.*, *A-E.* & *J.*¹

149-151: idem, *J.*

¹Collectors' names are abbreviated as follows: *A-E.* = D. Al-Eisawi; *A-H.* = M. A. Abu-Hmaidan; *B.* = L. Boulos; *J.* = W. Jallad; *L.* = J. Lahham; *Q.* = M. Qumsiyeh; *T.* = M. Z. Tarabeih.

- 6219-6238: 5 km S. of Ras en Naqb, in white sand, 14.3.1974, *B., A-E. & J.*
 182-188: idem, *J.*
 6534-6566: slopes 1 km S.E. of Ras en Naqb, 4.4.1974, *B., J. & L.*
 113-114: idem, *L.*
 294-300: idem, *J.*
 7335-7347: Ras en Naqb, 19.3.1975, *B. & J.*
 7348-7378: 1-4 km S. of Ras en Naqb, 19.3.1975, *B. & J.*
 37-41: idem, *T.*
 7795: 5 km N. of Ras en Naqb, 25.3.1975, *B. & L.*
 7796-7801: 5 km S. of Ras en Naqb, 25.3.1975, *B., L. & A-H.*
 7803-7805: 1-2 km S. of Ras en Naqb, 4.4.1975, *B. & J.*
 7806-7807: Ras en Naqb, near the Rest House, 4.4.1975, *B. & J.*
 8490-8511: c. 3 km S. of Ras en Naqb, 1350 m, 29.4.1976, *B.*
 8546-8583: 3-4 km S. of Ras en Naqb, 1300-1400 m, 1.5.1976, *B., A. & Q.*

Specimens of the above-mentioned collections are deposited in the Herbarium, Faculty of Science, University of Jordan, Amman, Jordan. Duplicates were distributed to the following herbaria: B, BR, CAI, G and K.

The following is an alphabetically arranged list of the families, with the genera and species related to them. The numbers refer to the localities from which the specimens were collected. The abbreviations used in the text are:

- fl. = flowering specimen
 fr. = fruiting specimen
 ster. = sterile specimen, without flowers or fruits.

Amaryllidaceae

***Ixiolirion tataricum* (Pallas) Herbert**

8490 (fl.). Flowers blue.

Boraginaceae

***Alkanna orientalis* (L.) Boiss.**

7363 (fl., fr.) – 7805 (fl., fr.) – 8573 (fl., fr.). Flowers orange-yellow.

***Alkanna tinctoria* Tausch**

6226 (fl., fr.) – 7347 (fl.). Flowers with blue limb and yellow throat.

***Anchusa aegyptiaca* (L.) DC.**

6543 (fl., fr.). Flowers pale yellow.

***Arnebia macrocalyx* (Cosson & Kralik) Boulos**

6540 (fl.). Flowers yellow.

***Buglossoides arvensis* (L.) I. M. Johnston subsp. *gasparrinii* (Heldr. & Guss.) R. Fernandes**
 = *Lithospermum incrassatum* Guss.

6551A (fl.). Delicate small annual with blue flowers.

Echiochilon fruticosum Desf.

6230 (fl.). Flowers blue.

Gastroctyle hispida (Forsskål) Bunge

6554 (fl., fr.). Flowers violet, small.

Nonea philistaea Boiss.

6538 (fl., fr.) – 7345 (fl., fr.) – 7807 (fl., fr.). Flowers creamy-yellow.

Paracaryum rugulosum (DC.) Boiss.

6558 (fl.) – 7804 (fl., fr.). Perennial herb with brownish-violet flowers.

*Caryophyllaceae***Gymnocarpus decandrum** Forsskål

6000 (ster.) – 8579 (fl.).

Gypsophila arabica Barkoudah

8552 (fl.). Flowers white with pinkish stripes.

Gypsophila viscosa Murray

41 (fl.).

Holosteum glutinosum (M.B.) Fischer & C. A. Meyer

37 (fl., fr.) – 6545 (fl., fr.). Flowers white.

Minuartia meyeri (Boiss.) Bornm.

6553 (fr.).

Minuartia picta (Sibth. & Sm.) Bornm.

39 (fl.). Small delicate annual with pale mauve flowers.

Paronychia sinaica Fresen.

40 (fl., fr.).

Silene conoidea L.

38 (fl.) – 6557 (fl.).

*Chenopodiaceae***Anabasis articulata** (Forsskål) Moq.

7358 (ster.).

Bassia muricata (L.) Murray

6221 (fl.) – 7798 (fl.) – 8560 (fl., fr.).

Halogeton alopecuroides (Delile) Moq.

8568 (ster.).

Noaea mucronata (Forsskål) Ascherson & Schweinf.

6238 (ster.).

Salsola vermiculata L. var. *villosa* (Delile ex Roemer & Schultes) Moq.

6001 (ster.).

*Cistaceae***Fumana thymifolia** (L.) Spach

6232 (ster.).

Helianthemum vesicarium Boiss.

6549 (fl.) – 7806 (fl.) – 8503 (fl.). Flowers mauve.

*Compositae***Achillea santolina** L.

7359 (fl.) – 8504 (fl.).

Artemisia inculta Delile

8509 (ster.).

Artemisia monosperma Delile

6229 (old fr.). This species is rare in Jordan; see Boulos & Lahham (1977).

Asteropteris leyseroides (Desf.) Rothm.

8582 (fl., fr.).

Atractylis mutica C. C. Townsend

6561 (fl.) – 8576 (fl., old fr.).

Centaurea ammocyanus Boiss.

8500 (fl.).

Centaurea eryngioides Lam.

6003 (fl., fr.) – 6234 (fl., fr.) – 8558 (fl.).

Centaurea scoparia Sieb.

8583 (old fr.).

Centaurea sp.

8548 (fl.).

Echinops viscosus DC.

8564 (fl.).

Geropogon glabrum L.

8574 (fl., fr.).

Gymnarrhena micrantha Desf.

7801 (fl., fr.) – 8495 (fl.).

Jasonia montana (Vahl) Botsch.= *Varthemia montana* (Vahl) Boiss.

7376 (ster.) – 8547 (ster., old fr.).

Koelipinia linearis Pallas

8506 (fl., fr.).

Lactuca undulata Ledeb.

8502 (fl., fr.).

Onopordum heteracanthum C. A.

Meyer

8580 (fl.).

Pyrethrum santolinoides DC.

5999 (ster.).

Scorzonera mollis M.B.

6544 (fl., fr.). Flowers yellow.

Scorzonera papposa DC.7799 (fl.). Flowers mauve and smelling like *Vanilla*.**Scorzonera pseudolanata** Grossh.

7343 (fl.) – 7797 (fl., fr.). Flowers yellow.

Scorzonera tortuosissima Boiss.

8554 (fl., fr.). Flowers yellow, stem leafless.

Senecio coronopifolius Desf.

6539 (fl., fr.).

Tragopogon collinum DC.6542 (fl.). Flowers mauve, smelling like *Vanilla*.**Tragopogon** sp.

7352 (fl.). Flowers mauve.

*Crassulaceae***Umbilicus intermedius** Boiss.

5998 (ster.).

*Cruciferae***Aethionema carneum** (Banks & Sol.)

Fedtsch.

300 (fl., fr.).

Alyssum damascenum Boiss. & Gaill.

7365 (fr.).

Alyssum linifolium Stephan ex Willd.

7344 (fl., fr.).

Alyssum marginatum Steudel ex Boiss.

298 (fl., fr.).

Biscutella didyma L.

295 (fl., fr.).

Brassica tournefortii Gouan

184 (fl., fr.).

Cardaria draba (L.) Desv.

7364 (fl., fr.).

Clypeola aspera (Grauer) Turril

297 (fl., fr.) – 7367 (fl., fr.).

Descuraina sophia (L.) Webb ex Prantl

7341 (fl., fr.).

Diploxaxis harra (Forsskål) Boiss.

150 (fl., fr.) – 187 (fl., fr.) – 294 (fl., fr.) – 7348 (fl., fr.) – 8508 (fl., fr.) – 8566 (fr.).

Erucaria boveana Cosson

296 (fl., fr.).

Farsetia aegyptia Turra

185 (fl.) – 188 (fl.).

Leptaleum filifolium (Willd.) DC.

7366 (fl., fr.).

Lobularia libyca (Viv.) Webb & Berth.

299 (fl., fr.).

Malcolmia africana (L.) R. Br.

151 (fl.) – 7346 (fl., fr.) – 7357 (fl., fr.) – 8569 (fl., fr.).

Schimpera arabica Hochst. & Steudel
ex Boiss.

182 (fl.) – 7368 (fl., fr.).

Stigmatella longistyla Eig

183 (fl., fr.).

Zilla spinosa (Turra) Prantl

149 (fr.) – 186 (fl., fr., seedlings).

*Cuscutaceae***Cuscuta planiflora** Ten.

6562 (ster.).

*Cyperaceae***Carex stenophylla** Wahlenb.

6566 (fl., fr.) – 7354 (fl.).

*Dipsacaceae***Pterocephalus pulverulentus** Boiss.

8563 (fl.).

Scabiosa porphyroneura Blakelock

8561 (fl., fr.).

*Euphorbiaceae***Euphorbia chamaepeplus** Boiss. & Gaill.

113 (fl., fr.).

Euphorbia hierosolymitana Boiss.

114 (fl.).

*Geraniaceae***Biebersteinia multifida** DC.

7377 (fl.).

Erodium ciconium (L.) L'Hér.

8505 (fl., fr.).

Erodium hirtum Willd.

5994 (fl.) – 7800 (fl., fr.) – 8546 (fl., fr.).

Erodium laciniatum (Cav.) Willd. var.
laciniatum

8572 (fl., fr.).

Geranium tuberosum L.

7349 (fl.).

Gramineae

- Ammochloa palaestina** Boiss.
7371 (fl.).
- Boissiera squarrosa** (Banks & Sol.)
Nevski
8489 (fl., fr.).
- Bromus danthoniae** Trin.
8491 (fl., fr.).
- Cutandia dichotoma** (Forsskål) Trabut
8565 (fl.).
- Eremopyrum distans** (C. Koch) Nevski
8493 (fl.).
- Parapholis marginata** Runemark
6220 (fl.).
- Poa bulbosa** L.
7336 (fl.) – 7374 (fl.).
- Stipa hohenackerana** Trin. & Rupr.
8577 (fl., fr.).

Iridaceae

- Iris palaestina** Boiss.
5991 (fl.) – 7337 (fl.) – 7375 (fl.)
– 8571 (fr.). Flowers greenish-yellow.

Labiatae

- Ajuga chia** (Poiret) Schreber
7351 (fl.).
- Lallemantia iberica** (M.B.) Fischer &
C. A. Meyer
6563 (fl.) – 7796 (fl., fr.).
- Phlomis brachyodon** (Boiss.) Zoh.
8553 (fl.).

- Salvia lanigera** Poiret
6228 (fl.) – 7356 (fl.).

- Salvia palaestina** Bentham
8549 (fl., fr.).

- Salvia pinardii** Boiss.
8494 (fl., fr.).

- Ziziphora tenuior** L.
7369 (fl.). Flowers pink.

Leguminosae

- Astragalus ancistrocarpus** Boiss. &
Hauskn.
6002 (fl.) – 7340 (fl.) – 7360 (fl.).
Flowers purple-red.

- Astragalus caprinus** L. subsp. **lanigerus**
(Desf.) Maire
7338 (fl.). Flower with greenish-
yellow petals and reddish calyx.

- Astragalus sanctus** Boiss.
7355 (fl.) – 8575 (fr.).

- Astragalus** cf. **sieberi** DC.
6219 (fl.). Flowers greenish-yellow.

- Astragalus tribuloides** Delile var. **tribu-**
loides
8581 (fr.).

- Astragalus** sp.
8550 (fr.).

- Ononis natrix** L.
6235 (fl.) – 8551 (fl., fr.).

- Onobrychis ptolemaica** (Delile) DC.
6237 (fl.) – 7373 (fl.). Petals yel-
low, with reddish-brown stripes.

Retama raetam (Forsskål) Webb & Berth.

5996 (fl., fr.) – 6231 (fl.) – 6535 (fl.) – 8501 (fr.).

Trigonella stellata Forsskål

8562 (fl., fr.).

Leonticaceae

Leontice leontopetalum L.

6536 (fl., fr.).

Liliaceae

Asparagus stipularis Forsskål

6227 (ster.) – 6564 (fl.).

Asphodeline lutea (L.) Reichenb.

5992 (fl.) – 6225 (fl.) – 6537 (fl., fr.) – 8494 (fl.) – 8557 (fr.).

Bellevalia stepporum Feinbrun

6559 (fl.).

Colchicum ritchii R. Br.

6233 (fl.).

Gagea reticulata (Pallas) A. & H. Schultes

6224 (fl.) – 6565 (fl.) – 7342 (fl.).
Flowers yellow.

Leopoldia sp.

6534 (fl.).

Ornithogalum umbellatum L.

7362 (fl.).

Tulipa polychroma Stapf

6552 (fr.) – 7361 (fl., fr.).

Linaceae

Linum mucronatum Bertol.

6546 (fl.) – 8497 (fl.). Flowers yellow.

Papaveraceae

Glaucium arabicum Fresen.

6556 (fl.) – 8499 (fl., fr.). Flowers orange-red.

Glaucium grandiflorum Boiss. & Huet
var. **judaicum** (Bornm.) Sam. ex
Rech. fil.

7350 (fl., fr.).

Plantaginaceae

Plantago afra L.

6547 (fl., fr.).

Plantago albicans L.

7339 (old fr.).

Plantago cylindrica Forsskål

6223 (fr.).

Polygonaceae

Atraphaxis spinosa L. var. **sinaica** (Jaub. & Spach) Boiss.

8510 (fr.).

Rheum palaestinum Feinbrun

6550 (ster.) – 7378 (ster.).

Ranunculaceae

Adonis dentata Delile

6560 (fl.). Petals yellow with a basal black spot.

Thalictrum isopyroides C. A. Meyer

5997 (fl.) – 7353 (fl., fr.) – 7803 (fr.) – 8492 (fr.).

Rubiaceae

Callipeltis cucullaris (L.) Rothm. var.
aptera (Boiss. & Buhse) Rech. fil.
& Ehrend.
6555 (fl., fr.).

Crucianella herbacea Forsskål
6222 (ster.) – 7370 (ster.).

Rutaceae

Haplophyllum poorei C. C. Townsend
6236 (old fr.) – 8578 (fl., old fr.).

Scrophulariaceae

Anarrhinum orientale Bentham
8507 (fl. buds, old fr.) – 8570 (fl.,
old fr.).

Linaria simplex (Willd.) DC.
7372 (fl., fr.). Flowers yellow.

Linaria sp.
6548 (fl.). Flowers violet.

Scrophularia xanthoglossa Boiss.
5995 (fl.).

Solanaceae

Hyoscyamus aureus L.
8555 (fl., fr.).

Hyoscyamus reticulatus L.
7335 (fr.) – 7795 (fl.).

Umbelliferae

Ferula negevensis Zoh.
8511 (fl.) – 8556 (fl.).

Pituranthos tortuosus (Desf.) Bentham
& Hooker fil.
6004 (ster.).

Valerianaceae

Valerianella sp.
6541 (fl.). Flowers pale mauve.

Zygophyllaceae

Fagonia bruguieri DC.
8559 (fl., fr.). Flowers purple.

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