

## ANTHYLLIS VULNERARIA SUBSP. POLYPHYLLA (LOTEAE-FABACEAE), A NEW RECORD FOR THE FLORA OF IRAN

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Received 2023.12.04; accepted for publication 2024.04.08

Moradi, A., Alidost, M. & Mahdavi Fikjvar, E. 2024.06.30: *Anthyllis vulneraria* subsp. *polyphylla* (Loteae- Fabaceae), a new record for the flora of Iran. -*Iran. J. Bot.* 30(1): 35-38. Tehran.

During a floristic study of the Hyrcanian region, *Anthyllis vulneraria* L. subsp. *polyphylla* (DC.) Nyman was identified for the first time from Mazandaran province and reported as a new record to the flora of Iran. This taxon's most important morphological traits have been compared with its only related taxon in Iran, *A. vulneraria* subsp. *boissieri* (Sagorski) Bornm. Additionally, a distribution map and detailed photos of both taxa are provided.

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**Keywords:** *Anthyllis*; Fabaceae; new record; Hyrcanian region; Iran

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مسعود علیدوست: کارشناس پژوهش، بخش تحقیقات منابع طبیعی، مرکز تحقیقات و آموزش کشاورزی و منابع طبیعی استان گیلان، سازمان تحقیقات، آموزش و ترویج کشاورزی، رشت، ایران

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طی یک بررسی فلوریستیک از منطقه هیرکانی، زیرگونه *Anthyllis vulneraria* L. subsp. *polyphylla* (DC.) Nyman برای اولین بار از استان مازندران شناسایی و به عنوان گزارش جدید برای فلور ایران معرفی می گردد. این زیرگونه از نظر مهم ترین صفات ریخت شناسی با تنها آرایه خویشاوند آن در ایران، *A. vulneraria* subsp. *boissieri* (Sagorski) Bornm. مقایسه شده است. همچنین نقشه انتشار و عکس هایی از هر دو آرایه ارائه شده است.

### INTRODUCTION

*Anthyllis* L. belongs to the Fabaceae family, tribe Loteae. It is a Mediterranean element comprising about 60 species worldwide. The species of *Anthyllis* have high fodder value and are readily used by livestock, especially sheep and goats. In Western Europe, it is

cultivated, especially for grazing purposes (Yuzepchuk 1945).

*Anthyllis vulneraria* L. is a polymorphic species divisible into about 30 infraspecific taxa (Cullen 1968). The species is widely distributed throughout most of Europe, extending south to the Mediterranean basin and

North Africa, and East to Southwest Asia, primarily Turkey, the Caucasus, and Iran (Rola 2012). Additionally, it has been introduced in North America and New Zealand (Rola 2012). The species features an inflated calyx with an oblique throat and five unequal teeth. Its legume is one or two-seeded and not constricted between the seeds (Cullen 1968 & 1970). Characteristics such as plant height, stem hairiness, leaf distribution on the stem, abundance of rosette leaves, calyx color, and length are important for identifying subspecies (Puidet & al., 2005; Rola 2012). Thus far, only one subspecies, namely *A. vulneraria* L. subsp. *boissieri* Bornm., has been identified from the North and Northwest of Iran (see Map 1) which also occurs in Turkey and Caucasus (Rechinger 1984; Jalilian 2023). This study identifies and introduces *A. vulneraria* L. subsp. *polyphylla* (DC.) Nyman is the second subspecies from northern Iran.

## MATERIALS AND METHODS

During the floristic study of the Hyrcanian region, a specimen of the genus *Anthyllis* was collected and

deposited in the Guilan Agricultural and Natural Resources Research and Education Center. The specimen underwent examination and identification utilizing keys found in various regional floras (Yuzepchuk 1945; Cullen 1968; Cullen 1970; Rechinger 1984; Jalilian 2023).

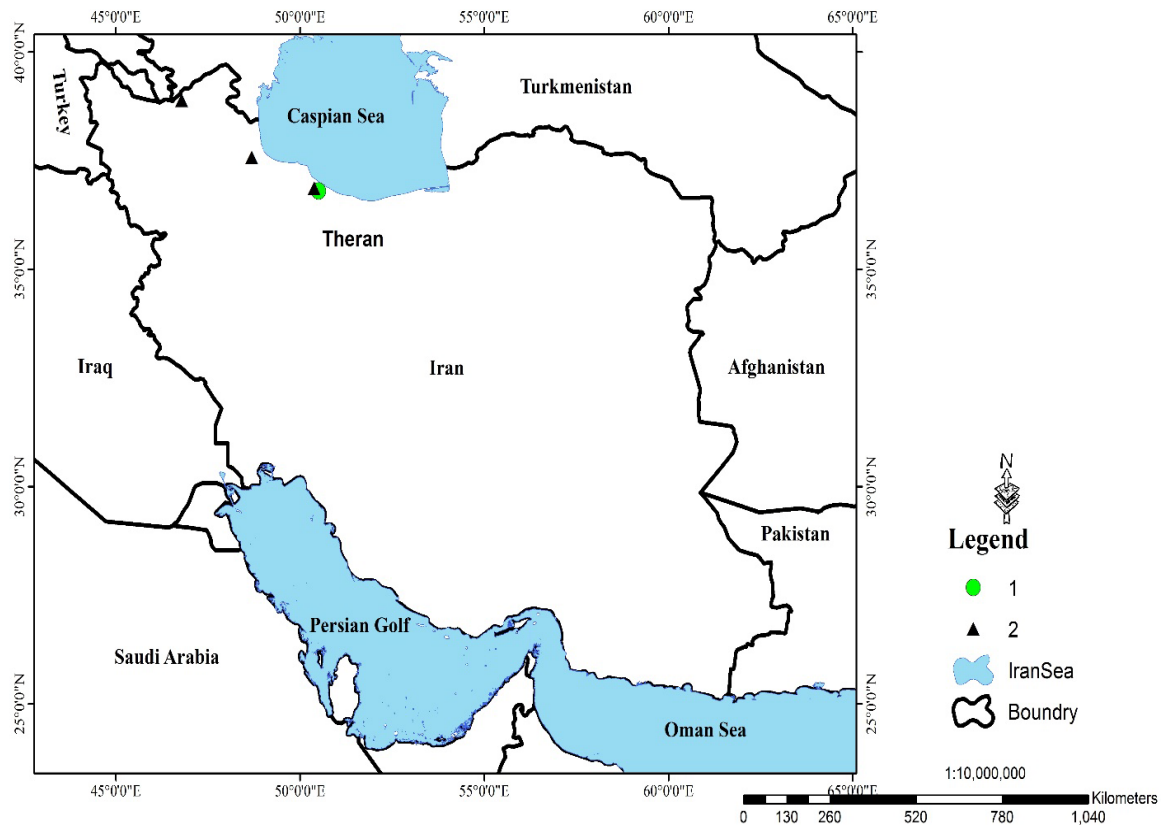
## RESULTS AND DISCUSSION

### New record

*Anthyllis vulneraria* L. subsp. *polyphylla* (DC.) Nyman

Biennial herb; stem 30-90 cm long, erect or ascending, with patent hairs on the lower parts. Leaves extend through the stem, with the lowest leaf bearing 3-7 unequal leaflets and the upper leaves with 11-15 equal leaflets. The Calyx is 9-11 mm long, with concolor apex; Bracts are subdivided more than half of their length and are the same length as the calyx. The calyx is strongly hairy-patent, and the corolla is yellow.

**Examined specimen:** Iran: Mazandran province, South of Ramsar, Grasmasar, 36° 48' 50" N, 50° 30' 00" E, 2620 m, 3.8.2023, Mahdavi Fikjvar & Alidost (GILAN 8215).



Map 1. The distribution map of *A. vulneraria* subsp. *polyphylla* (●) and *A. vulneraria* subsp. *boissieri* (▲).

**Habitat and Phenology:** In the study area, the subspecies was found growing in a small population in a Rocky habitat with shallow soils in the subalpine limit (2620 m a.s.l.). The species such as *Achillea millefolium* L., *Alchemilla* sp., *Anthemis talyschensis* Fed., *Bupleurum ghahremanii* Mozaff., *Hieracium longiscapum* Boiss., *Juniperus foetidissima* (Willd.) Ant., *Libanotis transcaucasica* Schischk., *Pimpinella tragiium* Vill., *Sempervivum iranicum* Bornm. & Gauba, *Teucrium chamaedrys* L. subsp. *sinuatum* (Cleak) Rech.f., *Thymus caucasicus* Willd. ex Ronniger subsp. *grossheimii* (Ronniger) Jalas, *Scrophularia*

*variegata* Rchb. ex Nyman, *Silene odontopetala* Fenzl grow in this habitat.

The flowering period of this plant is the same as the former subspecies starting from late May and continuing at mid-July. Its fruiting time is from late July to mid-August.

Main morphological differences between the new record and *Anthyllis vulneraria* subsp. *boissieri* are listed in Table 1. Also, for more comparison, the picture of herbarium specimens (Fig.1: A & B) of the two subspecies are illustrated.

Table 1: The diagnostic characters of *A. vulneraria* subsp. *polyphylla* and *A. vulneraria* subsp. *boissieri*.

Taxa	Color of calyx apex	Stem height	Stem and petiole hairs
<i>A. vulneraria</i> subsp. <i>polyphylla</i>	concolorous calyx	30-90 cm	patent hairs
<i>A. vulneraria</i> subsp. <i>boissieri</i>	bicolor with red apex	up to 35cm	appressed hairs

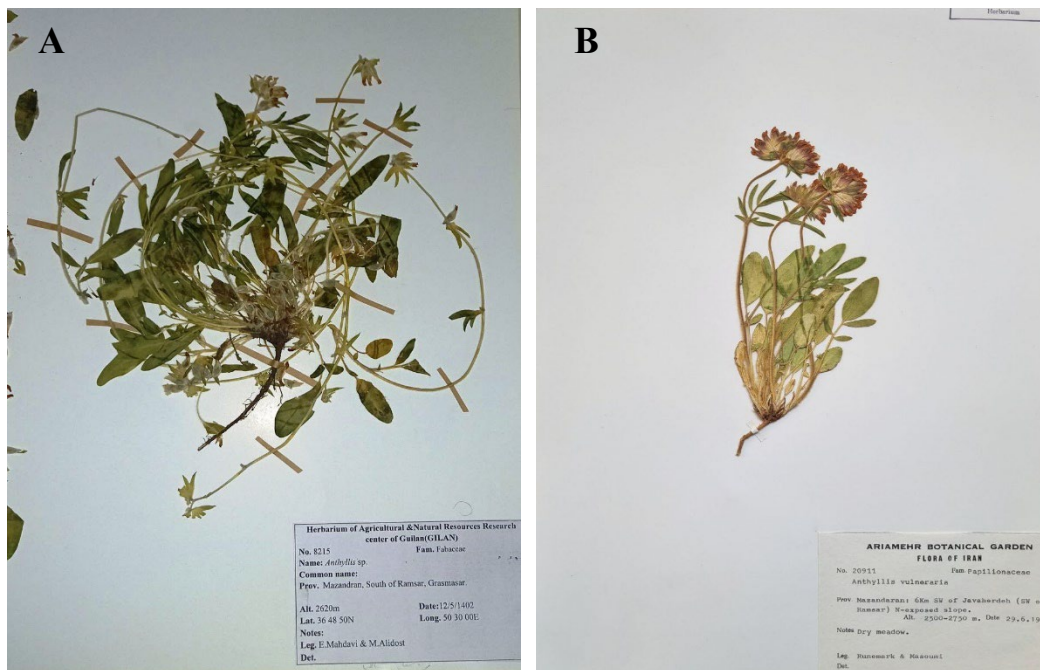


Fig. 1. Herbarium specimens of A, *Anthyllis vulneraria* subsp. *polyphylla* (GILAN); B, *A. vulneraria* subsp. *boissieri* (TARI).

*Anthyllis vulneraria* subsp. *polyphylla* is a Euro-Siberian element distributed in Northeast Turkey, Hungary, Central Europe, Northern and Southern Russia, Crimea, and the Caucasus (Cullen 1970). Its

presence in Iran marks the easternmost growth limit of the former subspecies, with only a few specimens observed in a small area, rendering it a rare taxon in the country (Map 1).

## REFERENCES

- Cullen, J. 1968: *Anthyllis* L. In: Tutin, T.G. (ed.), *Flora Europaea*, vol. 2: 179-181. -Cambridge University Press, Cambridge.
- Cullen, J. 1970: *Anthyllis* L. In: Davis, P.H. (ed.), *Flora of Turkey and the East Aegean Islands*, 3: 534-535. -Edinburgh Univ. Press, Edinburgh.
- Jalilian, N. 2023: *Anthyllis* L. In: Assadi, M. (ed.), *Fl. of Iran no. 177*: 513-515. -Research Institute of Forests Rangelands, Tehran (In Persian).
- Puidet, E., Liira, J., Paal, J., Paartel, M. & Piho, S. 2005. Morphological variation in eight taxa of *Anthyllis vulneraria* s. lato (Fabaceae). -*Ann. Bot. Fennici* 42: 293-304.
- Rechinger, K.H. 1984: *Anthyllis* L. In: Rechinger, K.H. (ed.), *Flora Iranica no. 157*: 343-344. -Graz.
- Rola, K. 2012. A morphometric study on *Anthyllis vulneraria* (Fabaceae) from Poland and its taxonomic implications. -*Biologia* 67(2): 296-302. DOI: 10.2478/S11756-012-0013-1
- Yuzepchuk, S.V. 1945: *Anthyllis* L. In: Schischkin, B.K. (ed.), *Flora USSR vol.11*: 197-210. -Akad. Nauk SSSR, Moskva-Leningrad.