

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM**

Plant Abstract

Element Code: PDMNY02010

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Menyanthes trifoliata*

COMMON NAME: Bog Buckbean

SYNONYMS:

FAMILY: Menyanthaceae

AUTHOR, PLACE OF PUBLICATION: Linnaeus, Carl Von. Plantarum 1:145. May 1, 1753.

TYPE LOCALITY: "Habitat in Europae paludibus" Smiley 1921.

TYPE SPECIMEN: LINN-HL203-4. Anon. No date. (Lectotype).

TAXONOMIC UNIQUENESS: The Menyanthaceae family has three genera. The genus *Menyanthes* has only the single species, *trifoliata*.

DESCRIPTION: Rhizomes usually in mud but sometimes floating. Petiole erect, 12-20(-30) cm; leaf blade base vaginate; leaflets elliptic, 2.5-4(-8) cm, base cuneate, margin entire or crenulate, apex obtuse, midvein distinct. Inflorescences many flowered; racemes including scape 30-35 cm; bracts 5-7 mm, margin entire, apex obtuse. Pedicel spreading, 1-1.8 cm. Calyx 4-5 mm; lobes ovate, apex obtuse. Corolla white, tubular, 1.4-1.7 cm, outside glabrous, inside long fimbriate pilose; lobes elliptic-lanceolate, 7.5-10 mm, apex obtuse. Filaments linear, 5.5-6.5 mm; anthers sagittate, 1.8-2 mm. Styles linear, short styles 6-7 mm, long styles 1-1.2 cm; stigma lobes oblong. Capsules globose, 6-7 mm in diam. Seeds orbicular, 2-2.5 mm in diam., smooth.

AIDS TO IDENTIFICATION: Bog buckbean is an aquatic plant. The 'bean' part of the name refers to the smooth-edged shiny leaves, which are roughly similar in appearance to those of young broad beans. Each leaf is divided into three leaflets, hence the specific part of the Latin name, *trifoliata*, meaning 'three leaves'. The leaves and flowers are typically raised above the surface of the water, arising from creeping root-like storage organs. The smooth flower stalk can grow to 30 cm. It bears numerous white delicate, feathery, and star-like flowers which have a pinkish flush on the outside of the petals. (Encyclopedia of Life.)

ILLUSTRATIONS:

Photos and drawings: <http://eol.org/pages/584945/media>.

Photos and drawings: <http://plants.usda.gov/core/profile?symbol=METR3>.

TOTAL RANGE: *M. trifoliata* is found throughout most of Europe, but becomes rare in the Mediterranean area. It also occurs in north and central Asia, Morocco, Greenland and North America (excluding the southeast United States).

RANGE WITHIN ARIZONA: There are only two collections from Arizona. Both are from the White Mountains in Apache County, from lakes between Whiteriver and Eagar, in the vicinity of McKays Peak, at elevations above 7000 feet.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Perennial, herbaceous aquatic plant with stout rootstock and rhizomes.

PHENOLOGY: Range-wide reportedly flowers from May to July. Collections in Arizona from these months also report flowers, and one reports fruit in May.

BIOLOGY:

HABITAT: Swamps and bogs, and margins of lakes, ponds and other water bodies, growing in both mud and open water. Collections in Arizona report growth in 10-16 inches of water, and also on decaying logs, floating vegetative mats and shoreline muck.

ELEVATION: Worldwide: 1315 – 11,800 feet (400 – 3600m). From Arizona collections: 7080 – 7500 feet (2160 – 2285m).

EXPOSURE: Open to partial shade (based on collection note stating that one Arizona population was shaded by tall pines in the afternoon). Cannot live in shade (EOL).

SUBSTRATE: Saturated bog soils or shoreline muck.

PLANT COMMUNITY: In Arizona, mixed conifer forests. Associated species include: *Pinus ponderosa*, *Abies concolor*, *Potamogeton*, *Lamna*, *Ranunculus*, *Trifolium repens*, *Poa pratensis*, *Plantago major*, *Taraxacum officinale*, *Eleocharis acicularis*, *Carex pellita*, *C. stipata*, *C. interior*, *C. ultriculata*, *Cirsium vulgare* and *Verbascum thapsus*.

POPULATION HISTORY AND TRENDS: Not known in Arizona, but because there are only two collection sites, the species is considered critically imperiled in the State. However, at one of the collection sites the plant was noted to be common in 1969. At the second site, the plant has been observed and collected for over 60 years, and two collections records from 1952 and 2013 indicated that the plant was locally abundant. Accordingly, for at least one site, the population seems well established and abundant, and the trend appears to be stable.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None.
STATE STATUS: None.
OTHER STATUS: None.

MANAGEMENT FACTORS: *M. trifoliata* is generally common throughout its range although some US states (Maryland, North Carolina and Ohio) consider the plant endangered and Iowa lists it as threatened. As previously mentioned, Bog Buckbean is considered critically imperiled in Arizona due to its extremely limited known distribution. Factors that can pose a threat to local populations include land-use conversion, habitat fragmentation and succession (EOL). Range-wide, conservation action is not required for this common species.

PROTECTIVE MEASURES TAKEN: None known in Arizona.

SUGGESTED PROJECTS: Survey other water bodies in the White Mountain locale to determine if other populations are extant.

LAND MANAGEMENT/OWNERSHIP: BIA, Fort Apache Indian Reservation.

SOURCES OF FURTHER INFORMATION**REFERENCES:**

- Encyclopedia of Life, *Menyanthes trifoliata*, accessed 4/25/2014.
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JSTOR| Global Plants, accessed 4/25/2014,
<http://plants.jstor.org/search?plantName=%22Menyanthes+trifoliata%22&syn=1>.
NatureServe Explorer, an Online Encyclopedia of Life, accessed 4/25/2014.
<http://explorer.natureserve.org/servlet/NatureServe?searchSciOrCommonName=Menyanthes+trifoliata&x=13&y=10>.
Smiley, Frank Jason. 1921. A report upon the boreal flora of the Sierra Nevada of California. University of California Press. Vol. 9, p. 295.
Tropicos, accessed 4/25/2014, <http://tropicos.info/Name/20800053>.
USDA, NRCS, Plants Database, accessed 4/25/2014,
<http://plants.usda.gov/core/profile?symbol=METR3>.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION: The flowers are pollinated by various insects. Both leaves and roots have a bitter taste, and were once used to treat jaundice and rheumatism. The leaves

were also used to flavor beer instead of hops in northern England and parts of Europe (Encyclopedia of Life).

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