

# The genus *Papaver* in the Åland Islands, SW Finland

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Eight taxa of the genus *Papaver* have been found in the Åland Islands, SW Finland. All of them have been more or less rare, from the first observation in 1863 to the most recent one in 2019. *Papaver argemone*, *P. dubium* subsp. *dubium* and *P. rhoeas* are partly arable field weeds, partly ruderal plants. Of these, *P. dubium* subsp. *dubium* has been found in arable fields at the estate of Bolstaholm in the municipality of Geta on several occasions between 1875 and 2004. The other two have been found as arable field weeds in a few places during rather short periods only. *P. croceum*, *P. orientale*, *P. pseudoorientale* and *P. somniferum* are ornamental plants which are also found as garden escapes in ruderal sites. *P. dubium* subsp. *lecoqii* has been found only once as a ruderal plant. The observations of each taxon are briefly treated.

## Introduction

Eight taxa of the genus *Papaver* have been found in the Åland Islands, SW Finland: *P. argemone*, *P. croceum*, *P. dubium* subsp. *dubium*, *P. dubium* subsp. *lecoqii*, *P. orientale*, *P. pseudoorientale*, *P. rhoeas* and *P. somniferum*. Of these, *P. argemone*, *P. dubium* subsp. *dubium* and *P. rhoeas* can be considered as mainly or partly arable field weeds, *P. croceum*, *P. orientale*, *P. pseudoorientale* and *P. somniferum* as garden ornamental plants. *P. dubium* subsp. *lecoqii* has been found as a ruderal plant only. However, all the other *Papaver* taxa treated here occur also as ruderals and the ornamental species are frequent garden escapes occurring in ruderal sites.

The nomenclature of the vascular plants is according to Hämet-Ahti et al. (1998, 2005).

## The records of *Papaver* taxa in the Åland Islands

### *Papaver argemone*

The first observation of *P. argemone* is from the village of Labbnäs, the municipality of Geta. Three persons collected it in an arable field on June 20, 1919 (H, TUR; Table 1). The next observation was made 61 years later when the species was collected in a rye field in the village of Överby, the municipality of Jomala (H). The species was still growing at the margin of the same field in 1992, now cultivated with sugar beets. It grew there together with, e.g. *Consolida regalis* subsp. *regalis* f. *glandulosa* (Fig 1). Three collections were made in the same field in 1993, now cultivated with fodder plants, e.g. *Medicago sa-*



Fig. 1. Three flowerings specimens of *Papaver argemone* and one flowering specimen of *Consolida regalis* subsp. *regalis* f. *glandulosa* growing on the margin of a sugar beet field. Åland Islands, Jomala, Överby, June 24, 1992. All photos by the author.

*tiva* (H, TUR). The next observation in the same field area was in 2002. *P. argemone* grew among wheat at the narrow field margin bordering a sugar beet field.

There are four more or less ruderal finds: two independent observations at the main road in the southern part of the town of Mariehamn in 1988, one in a mound of clay in Överby in 2002 and one in a flowerbed in Degerby in the south-eastern archipelago municipality of Föglö in 2003.

### *Papaver dubium* subsp. *dubium*

The first collection of *P. dubium* subsp. *dubium* was made in an oat field belonging to the estate of Bolstaholm in the municipality of Geta in 1875 (H; Table 1). Several collections were made later in cultivated fields at Bolstaholm: in 1885 (oat field), 1887, 1906, 1922, 1926 (pea field), 1954 (cucumber field), 1955 (oat field) (H, TUR, TURA). The author collected the taxon in a field with cultivated *Trifolium resupinatum* about 700 metres to the east of the main building of Bolsta-

holm, in 1993 (H). Other weedy plants observed in the field were *Chenopodium album*, *Fumaria officinalis*, *Matricaria discoidea*, *Sonchus asper* var. *pungens* and *Thlaspi arvense*.

*P. dubium* subsp. *dubium* was observed in the same field again in 2002 and 2004. One further observation at Bolstaholm was made in a cultivated field about 300 m south of the main building in 1996. Two further finds in rye fields are known in the island of Finnö in Geta, in 1907 (H) and 1925 (H, VOA).

Several ruderal finds are known from the Åland Islands. The oldest is from the ballast mounds at Marsund in Frebbsby, the municipality of Hammarland, in 1884 (H). A second collection in the same place was made in 1906 (H). Later, ballast and other ruderal finds were made in the Western harbour of the town of Mariehamn, in 1909, 1919 and 1945 (H). One was from the opposite seashore of Möckelö in the municipality of Jomala in 1919 (H).

Recent ruderal finds are known from Godby in the municipality of Finström in 2007 (H;



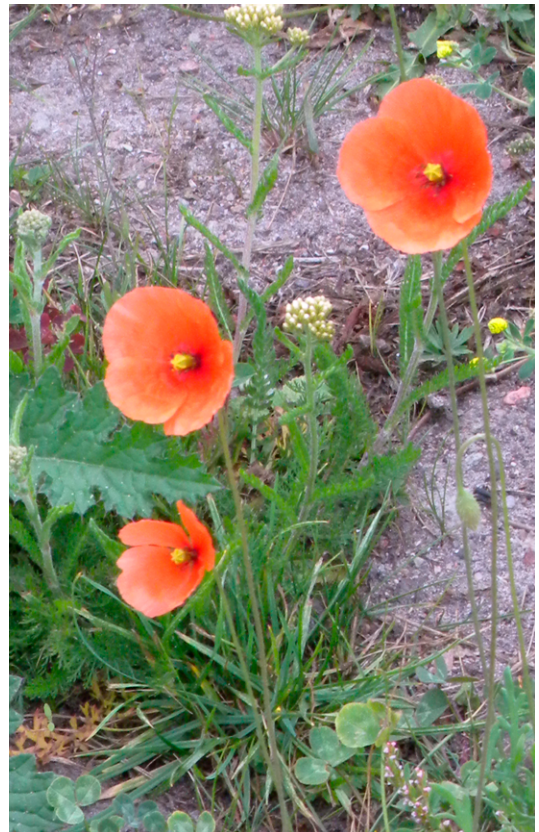
Fig. 2. Dr. Ralf Carlsson takes photographs of the stand of *Papaver dubium* subsp. *dubium* on the street side lawn at the corner of the streets Västra Esplanadgatan – Södragatan. Åland Islands, Mariehamn, July 31, 2017.

cf. Hæggström & Hæggström 2015) and 2015, at Svärtesnabba in the island of Nåtö, the municipality of Lemland in 2007, in Sviby in Jomala in 2011 (H), and on soil mounds in Östergeta in Geta in 2016 (TURA). Several observations were made by the author on lawns along streets in the central part of Mariehamn in 2015–2019 (Figs. 2–3).

### *Papaver rhoeas*

Rather few of the finds of *P. rhoeas* are from arable fields. The species has also been found on soil mounds of cultivated field origin. They are treated here as ruderal finds.

The first collection of *P. rhoeas* in a cultivated field was from a rye field in Mickelsö (Michelsö on the voucher label) in the municipality of Vårdö in 1930 (OULU; Table 1). The next collection was made in a fallow field in Sund without any further



► Fig. 3. *Papaver dubium* subsp. *dubium* among *Achillea millefolium*, *Cirsium vulgare*, *Medicago lupulina* and *Trifolium repens* at the corner of the streets Västra Esplanadgatan and Södragatan. Åland Islands, Mariehamn, July 31, 2017.

details in 1942 (H). A few specimens of *P. rhoeas* were observed in two oat fields and one specimen in an adjacent wheat field in Haga by (Haga village), the municipality of Saltvik in 1980 (H) and a few specimens again in 1981 (cf. Suominen 1986). Four more observations in arable fields are known: in a field in the island of Isaksö in Geta in 1996, in a wheat field in 2004 approximately in the same place in Haga by as the observations in 1980 and 1981 (Fig. 4), in a field with weeds in the island of Finnö in Geta in 2009 and in a fodder field in Listersby in Vårdö in 2015.

*P. rhoeas* have been found several times in ruderal localities. The oldest was made on the ballast mounds at Marsund in Frebbenby in the municipality of Hammarland in 1884 (H). The species was found in a loading area in the Western harbour of Mariehamn in 1886 (H), 1905 (TUR) and 1930 (H, JYV). One collection was made in 1906 in Mariehamn, without any further information about the habitat (VOA). The next find of *P. rhoeas* was in the archipelago mu-

nicipality of Kökar where the species was found in the cemetery on the island of Hamnö in 1974 (TUR). It was found on a road side at the island of Granholm in Lemland in 1982 (H). During the study of the vascular plant flora of the town of Mariehamn in 1988, Grönholm (1991) observed the species in three localities, two of which were probably growing on ruderal sites. However, one of these observations may have been of *P. somniferum* (see Table 1).

*P. rhoeas* grew together with among others, *P. somniferum*, *Descurainia sophia*, *Erysimum cheiranthoides* and *Sinapis arvensis*, on soil brought to a lawn at the main road Österleden in Mariehamn in 1992 (H). It was observed again on an adjacent lawn in 2003.

Several roadside finds of *P. rhoeas* are known from the 2000s. The first were in the main island of Storsottunga in the municipality of Sottunga and on the clayey road slope in Kroklund in Saltvik, both in 2002. The species grew along a road in the island of Äppelö in Hammarland in 2004.



Fig. 4. Seven specimens of *Papaver rhoeas* in flower in a wheat field. Åland Islands, Saltvik, Haga by, July 18, 2004.

Several specimens of *P. rhoeas* were growing on both sides of the road Varvsvägen in northern Mariehamn in 2008 (H). One tall plant grew on the road side in the village of Västmyra in 2008 (H). It was observed on a recently constructed slope at the main road in Simskåla, the municipality of Vårdö in 2009. A dense stand grew on the S roadside of the main road to Eckerö, immediately E of the road bank across the narrow strait Örsundet on the island Öra, the municipality of Hammarland, in 2018.

Two peculiar finds were made on cultivated field soil shovelled into mounds. The first was in Ytternäs in southern Mariehamn where more than ten specimens were found at a soil mound in 2008 (H). The other was on a large mound in a field in the village of Södersunda in Jomala in 2015. Hundreds of *P. rhoeas* in blossom grew on the mound (Fig. 5), a few more on the soil next to the mound. The species was still growing in the

area in 2018 (pers. comm. by Stina Roiha, October 19, 2018).

Quite a few of the observations of *P. rhoeas* are of garden origin, or introduced with ornamental plants. Grönholm (1991) observed it in a garden at Ytternäs in Mariehamn in 1988. Later, a few more garden finds were made: at a deserted fisherman's house in Baggholma in the municipality of Brändö in 1993; in a flowerbed at the street Kaptensgatan in Mariehamn in 2003; cultivated in a garden at Haga kungsgård in Saltvik in 2003; cultivated, together with *P. somniferum* and other ornamental plants on a soil bank at the main road in Granboda in Lemland in 2006–2007; in a former cultivated field, now a “flower field” with exotic plants in Norrboda in the municipality of Lumparland in 2006; cultivated in the island of Finnö in Sottunga in 2008; and together with two other garden plants, *Echinops bannaticus* Rochel ex. Schrad. and *Helianthus annuus* L., at a road bank in Sviby in Jomala in 2010.



Fig. 5. *Papaver rhoeas* on a large soil mound and on the adjacent ruderal ground at the S edge of a cultivated field. Åland Islands, Jomala, Södersunda, July 23, 2015.

### ***Papaver croceum***

*Papaver croceum*, a cultivated species native to Asia, is occasionally found as a garden escape. It was first observed in three localities close to each other in central Mariehamn in 1988 by Grönholm (1991; Table 1). A fourth locality was found in Sviby in Jomala 2010 where it grew in a waste area.

### ***Papaver orientale***

Native to the Caucasus, north-eastern Turkey and northern Iran, *P. orientale* is also a garden ornamental. It was found as a garden escape in three localities in Mariehamn in 1988, two in the central part, one in the northern part of the town (Grönholm 1991; Table 1). It was collected at the road crossing at Hinders in Flaka, Lemland in 2014 (H).

### ***Papaver pseudoorientale***

This taxon is native to Turkey and the Caucasus. It is cultivated as a garden ornamental and it can occasionally be found as an escape. Four observations are known from the Åland Islands, all found during recent years: at a road side in Kattby in the municipality Hammarland in 2005; about ten specimens growing on the edge of a cultivated field ditch in Mångstekta, Sund, in 2013; at the road crossing at Hinders in Flaka, Lemland in 2016; and one tall specimen on an earth mound at the gravel road about 60–80 m E of the ponds for fry in the Verkfladan area in the island of Nätö, the municipality of Lemland in 2018 (Table 1).

The locality of *P. pseudoorientale* at Hinders in Flaka in 2016 is almost identical to that where *P. orientale* was collected in 2014, see above. According to the coordinates given for the finds, *P. pseudoorientale* grew 9 metres to the north and 15 metres to the east of *P. orientale*.

### ***Papaver somniferum***

The native range of *P. somniferum*, the opium poppy, is probably the Eastern Mediterranean. However, as it has been used as a drug plant since ancient times, extensive cultivation and introduction of the species throughout Europe have ob-

scured its origin. In Finland, it is cultivated mostly as an ornamental plant in gardens and it is thus prone to escape.

The observations of *P. somniferum* outside gardens in the Åland Islands are chiefly of typical ruderal character. The oldest collections were made in 1863 and 1885 at the ruins of the mediaeval castle of Kastelholm in Sund (H; Table 1). Two collections have connexion with the era of sailing ships: on ballast at Marsund in Frebby, the municipality of Hammarland in 1906 and at a coal heap in the harbour of Mariehamn in 1945 (both H).

There are a few finds between 1971 and 2017 in different ruderal sites in Mariehamn. Other more or less ruderal sites are at roads: in Överby, Jomala, in 1980 (H); on the island of Granholm in Lemland 1981 (H); in Västra Ytternäs in Mariehamn 1988 (Grönholm 1991); together with among others, *Papaver rhoeas*, *Descurainia sophia*, *Erysimum cheiranthoides* and *Sinapis arvensis*, on soil brought to a lawn at the main road Österleden in Mariehamn in 1992 (H); in Äppelö in Hammarland 2004; near the ferry harbour in the island of Storsottunga in Sottunga in 2008; and in Sviby in Jomala 2008. Two finds are from soil mounds, one in Hummelvik in Eckerö 1998 and the other in Rörstorp in Lemland in 2016 (TURA).

Some of the collections and observations are obviously of cultivated opium poppies, e.g. in the church yard of Jomala in 1886 (H), in a garden in Kastelholm in 1890 (H), in a garden in Ytternäs in Mariehamn in 1922 (TURA), in a garden in Bergö Husö in Finström in 1946 (TURA), both cultivated and as an escape in the church yard of Hammarland in 1980 (H), also as an escape in the same place in 1962 (H), and cultivated, together with *P. rhoeas* and other ornamental plants on a soil bank at the main road in Granboda in Lemland in 2007. One observation in Finström in 1991 lacks further information about the habitat.

### ***Papaver dubium subsp. lecoqii***

This subspecies was collected once growing on gravelly ruin soil at the mediaeval castle of Kastelholm in the municipality of Sund in 1948 (OULU; Table 1).

**Table 1.** The records of the *Papaver* taxa found in the Åland Islands according to the database KASTIKKA (Lampinen & Lahti 2018), the author's annotations and literature. Observations of *Papaver* sp. or spp. are not included. The records of each taxon are in chronological order. The original information in Finnish or Swedish is translated into English. Additional notes are in square brackets. The coordinates are according to the Uniform Coordinate System (UCS): Grid 27 °E. The month in the dates are given in Roman numerals. In a few cases the coordinates are given more exactly than on the labels of voucher specimens or information in Lampinen & Lahti (2018). In the cases with only three plus three coordinate numbers, the exact location is not known. For herbarium acronyms, see Index Herbariorum (2017). — Abbreviations: CAH = Carl-Adam Hæggström; EH = Eeva Hæggström; (OBS) = observation without voucher specimen.

***Papaver argemone***

Geta, Labbnäs, cultivated field, UCS 671:310, 20.VI.1919, Pertti Sandren (H).  
 Geta, Labbnäs, grass field, UCS 671:310, 20.VI.1919, Tauno Putkonen (H, TUR).  
 Geta, Labbnäs, cultivated field, UCS 671:310, 20.VI.1919, Carl Cedercreutz (H).  
 Jomala, Överby, in the rye field W of the road between Överby and Jomalaby, about 500 m S of the brook at Strömvalla, UCS 66929:31111, 25.VII.1980, EH (H).  
 Mariehamn, Ytternäs, Dalen, 10 specimens with flower buds and fruits growing in the gravel on the E side of the road Järsövägen about 100 m N of the southern road to Espholm, UCS 66826:31086, 20.VI.1988, EH (H). – [The roadside was mown less than an hour after the plants were observed.]  
 Mariehamn, Ytternäs, Dalen, on the gravelly roadside at Järsövägen, dozens of flowering and fruiting plants which had survived the mowing, [UCS 66828:31086], VI-VIII.1988 (Grönholm 1991). – [This is approximately the same locality as the previous one.]  
 Jomala, Överby, field margin on the W side of the road about 600 m NNE of Mokulla, UCS 66929:31111, 24.VI.1992, CAH 7363 (H; Fig. 1).  
 Jomala, Överby, Rihagen, a few specimens with semi-mature fruits at the margin of a fodder field, UCS 6692:3111, 19.VI.1993, Kalevi Alho & Unto Laine (TUR).  
 Jomala, Överby, a small stand (one specimen?) with flowers and fruits at the margin of a sugar beet field on the W side of the road about 600 m NNE of Mokulla, UCS 66929:31111, 22.VI.1993, CAH 7490 (H).  
 Jomala, Överby, Rihagen, sparsely on the field margin (the field cultivated with fodder cereal and alfalfa), UCS 6692:3111, 2.IX.1993, Raiili Alho & Kalevi Alho (TUR).  
 Jomala, Överby, on a clay mound at a road on the S side of Överbybergen, a few adventitious specimens, UCS 66906:31116, 18.VII.2002, Arto Kurtto & Leena Helynranta (OBS; photographed by Jorma Peiponen).  
 Jomala, Överby, Överby – Jomalby, a few specimens on the W side of the road between the two villages, amongst wheat at the narrow field margin bordering a sugar beet field, obviously a constant weed in the field, UCS 669299:311113, 19.VII.2002, Arto Kurtto & Leena Helynranta (OBS; photographed by Jorma Peiponen).  
 Föglö, Degerby, as a weed in a flower bed at Enigheten, UCS 66763:31324, 18.VII.2003, CAH & EH.

***Papaver dubium* subsp. *dubium***

Geta, oat field SW of lake Finnviksträsket at Bolstaholm, UCS 671:310, 15.VII.1875, R. Hult & J. J. Tikkanen (H).  
 Geta, at lake Finnvik, in an oat field, UCS 671:310, 15.VII.1875, R. Hult & J. J. Tikkanen (H).  
 Hammarland, on ballast mounds at Marsund, not far from Frebby, UCS 670:309, 17.VII.1884, W. Granberg (H).  
 Geta, Bolstaholm, cultivated field, UCS 671:310, 13.VII.1885, Justus Montell (H).

Geta, Bolstaholm, oat field, UCS 671:310, 22.VII.1885, Enzo Reuter (TURA).  
 Geta, Bolstaholm, UCS 671:310, 23.VII.1885, E. Sandell (H).  
 Geta, in a cultivated field at Bolstaholm, UCS 671:310, 1–31.VII.1887, J. A. Bomansson (TUR, TURA).  
 Geta, Bolstaholm, cultivated field, UCS 6714-6715:3107, 19.VII.1887, Justus Montell (TURA).  
 Hammarland, ballast mound at Marsund near to Frebby, UCS 670:309, 12.VII.1906, Harald Lindberg (H).  
 Geta, Bolstaholm, cultivated field, UCS 671:310, 13.VII.1906, Anna Andersson (H).  
 Geta, Finnö, in a rye field, UCS 671:310, 7.VII.1907, A. Nyström (H).  
 Mariehamn, hillock at the Western harbour, UCS 668:310, 18.VII.1909, Emil Graeffe (H).  
 Mariehamn, loading area, UCS 668:310, 18.VI.1919, Tauno Putkonen (H).  
 Jomala, Möckelö, loading area, UCS 668:310, 28.VI.1919, Pertti Sandren (H).  
 Geta, Bolstaholm, cultivated field, UCS 671:310, 15.VII.1922, Sten Stenius (H).  
 Geta, Finnö, rye field, UCS 671:310, 26.VI.1925, Ragnar Bäck (H).  
 Geta, in a cultivated field, UCS 671:10, 26.VI.1925, Ragnar Bäck (H).  
 Geta, Bolstaholm, "Riekärret", in a pea field, UCS 6714:3107, 12.VII.1926, Carl-Eric Sonck (TUR).  
 Geta, Bolstaholm, in a cultivated field, UCS 671:310, 12.VII.1926, Carl-Eric Sonck (H).  
 Mariehamn, Western harbour, loading area, UCS 6686:3107, 17.VII.1945, Eero S. Avela (JYV).  
 Geta, Bolstaholm, cucumber field, UCS 6714:3107, 29.VII.1954, Kaarlo J. Valle (TUR).  
 Geta, Bolstaholm, oat field, UCS 6714:3107, 5.VII.1955, Kaarlo J. Valle (TUR).  
 Geta, Bolstaholm, in the cultivated field on the E side of the road about 700 m NE of the main building, several dozens of plants scattered in the field, UCS 67151:31077-31078, 11.VIII.1993, CAH 7509 (H).  
 Geta, Bolstaholm, about 300 m from the main building, in a field next to a wood, UCS 671:310, 5.VIII.1996, Annika Holmström (OBS).  
 Geta, Bolstaholm, cereal field margin on the E side of the main road south of the road to Fridhem, sparsely, obviously a permanent weed in the field, UCS 671506:310788, 17.VII.2002, Arto Kurtto & Leena Helynranta (OBS; photographed by Jorma Peiponen).  
 Geta, Bolstaholm, cereal field margin on the E side of the main road south of the road to Fridhem, sparsely, obviously a permanent weed in the field, UCS 671506:310788, 20.VI.2004, Arto Kurtto & Leena Helynranta (OBS; photographed by Jorma Peiponen).  
 Finström, Godby, on the ruderal area on the E side of the road to Geta, about 70 m N of the health station etc. in Godby centre, 7 specimens together with, among others *Echium vulgare*, UCS 67006:31120, 14.VI.2007, CAH 9361 & EH (H).

- Lemland, Nätö, Svärtesnabba, on the gravel yard at the building at Lastklubbsvägen about 200 m N of Lastklubb, UCS 667918:310966, 2.IX.2007, CAH & EH (OBS).
- Jomala, Sviby, on ruderal ground on the E side of roads Flygfältsvägen – Norra Svibyvägen, along Svibyvägen eastwards to the border against Mariehamn, dozens of specimens at the roadside, UCS 66888:31068, 21.VI.2011, CAH 9863 (H).
- Finström, Godby, 30–40 m NW of the health centre, on the NE side of a broad path on the meadow area, on the bare soil and on the edges of a low depression, three specimens of which one flowering and two fruiting, UCS 6700633:3112076, 18.VI.2015, Timo Hietanen (OBS).
- Mariehamn, Öfvernäs, one flowering specimen on ruderal ground at an open area with a lawn on the W side of the street Kaptensgatan between the streets Köpmansgatan and Styrmansgatan, UCS 668650:310793, 20.VII.2015, CAH & EH (OBS).
- Geta, Östergeta, Söderbosta E, on soil mounds at the road, UCS 6717:3108, 7.VII.2016, Rautiainen, Pekka 16-221 & Jukka Vauras (TURA).
- Mariehamn, Öfvernäs, about ten branched specimens with ripe capsules and seeds and at least one specimen with flower buds on ruderal soil at the pavement at an open area with a lawn on the W side of the street Kaptensgatan between the streets Köpmansgatan and Styrmansgatan, UCS 668650:310793, 9.VIII.2016, CAH & EH (OBS).
- Mariehamn, Öfvernäs, about 100 specimens with buds, flowers and capsules on ruderal ground at an open area with a lawn on the W side of the street Kaptensgatan between the streets Köpmansgatan and Styrmansgatan, UCS 668650:310793, 24.VI.2017, CAH, EH & Ebba Hægström (OBS).
- Mariehamn, Öfvernäs, several dozens of specimens with buds and fruits on the lawns N and E of the house Västra Esplanadgatan 10, at the SW corner against the street Södragatan, weedy vegetation in an area which was dug up for cable work in 2016; the area was mown on July 31, 2017, UCS 668585-668586:310755-310757, 30.VII.2017, CAH (OBS; Figs. 2–3).
- Mariehamn, Öfvernäs, a few specimens with capsules on the lawn at the NW corner of the streets Mariegatan – Neptunigatan, weedy vegetation in an area which was dug up for cable work in 2016, UCS 668573:10737, 30.VII.2017, CAH (OBS).
- Mariehamn, Öfvernäs, a few specimens with capsules on the lawn E of the entrance to the courtyard of Södragatan 28, weedy vegetation in an area which was dug up for cable work in 2016, the area was mown on July 31, 2017, UCS 668588:310744, 30.VII.2017, CAH (OBS).
- Mariehamn, Öfvernäs, one flowering specimen on the lawn at the NW corner of the streets Södragatan – Västra Esplanadgatan, UCS 668588:310756, 12.VI.2018, CAH (OBS).
- Mariehamn, Öfvernäs, five specimens with flower buds and a few unripe capsules growing in the fissure between the house wall and the pavement at the house Kaptensgatan 10, UCS 668647:310793, 28.VI.2018, CAH (OBS).
- Mariehamn, Öfvernäs, two flowering specimens and one with flower buds at the E side of the street Torggatan close to the E end of the street Södragatan, weedy vegetation in an area which was dug up in 2018, the area was mown on July 24, 2019, UCS 668586-668587:10802, 21.VII.2019, CAH (OBS).
- Papaver rhoeas***  
Hammarland, om ballast mounds at Marsund, not far from Frebberby, UCS 670:309, 17.VII.1884, W. Granberg (H).
- Mariehamn, Western harbour, loading area, UCS 668:310, VIII.1886, A.A. Ekman (H).
- Mariehamn, loading area, UCS 668:310, 1.VIII.1905, R. Ruoranen (TUR).
- Mariehamn, UCS 668:310, 1906, Uno Widlund (VOA).
- Vårdö, Michelsö, rye field, UCS 669:312, VI.1930, J. Virtakallio (OULU).
- Mariehamn, Western harbour, loading area, UCS 668:310, 10.VII.1930, Risto Tuomikoski (H).
- Mariehamn, harbour, loading area, UCS 6686:3107, 21.VII.1930, Olavi Elers 3072103 (JYV).
- Sund, fallow field, UCS 670:311, 18.VII.1942, Gösta Idman (H).
- Kökar, The northernmost part of Karlbylandet island, Hamnö promontory, on the cemetery, UCS 6664:3158, 18.VII.1974, Unto Laine & Juhani Virtanen (TUR).
- Saltvik, Hagaby, two specimens, of which one with capsules in an oat field at Haga ringväg about 200 m S of Norrholmen, UCS 6707-6708:3114, 28.VII.1980, EH (H) (cfr. Suominen 1986).
- Saltvik, Haga by, five specimens at the margin of an oat field on the E side of the road about 200 m S of the house of Norrholmen; one specimen grew in a wheat field 50 m further south, UCS 6707:3114, 28.VII.1980, CAH 3246 (H) (cfr. Suominen 1986).
- Saltvik, Haga by, two small stands on the in a wheat field on the E side of Haga ringväg about 220–250 m S of the house of Norrholmen, UCS 6707:3114, 26.VII.1981 CAH & EH (OBS; photos taken by CAH).
- Lemland, Lemböte, Granholm, a few specimens on the W side of the road Järsövägen, UCS 6681:3108, 29.VII.1982, EH (H).
- Geta, Västergeta / Grägnäs, on the roadside topsoil on the S side of the main road about 70 m W of the road to Soltuna, 67173:31056, 12.VIII.1984, EH.
- Mariehamn, Ytternäs, Dalen, one specimen among weeds in an allotment, UCS 66827:31084, 1988 (Grönholm 1991).
- Mariehamn, Sviby, Klinten, UCS 66873:31077, 1988 (Grönholm 1991. N.B. uncertain determination, *P. somniferum?*).
- Mariehamn, Hindersböle, Strandnäs, garden escape in a courtyard, UCS 66880:31082, 1988 (Grönholm 1991).
- Mariehamn, [Hindersböle, Strandnäs,] dozens of specimens on filling soil between the streets Österleden and Lagervägen, together with *Papaver somniferum*, *Descurainia sophia*, *Erysimum cheiranthoides* and *Sinapis arvensis*, UCS 66875:31081, 2.VII.1992, CAH 7367 (H).
- Brändö, Baggholma, cultivated in the garden of deserted fisherman's croft at the N promontory of the island, UCS 67131:31704, 24.VIII.1993, Sakari Hinneri (TUR).
- Geta, Isaksö, in a field, UCS 6716-6717:3100-3101, 5.VIII.1996, Annika Holmström (OBS).
- Sottunga, Storsottunga, UCS 668:314, 9.VII.2002, CAH & EH (OBS).
- Saltvik, Krokklund, the western end of road no. 50, a few specimens on a steep clayey road verge, UCS 67090:31111, 17.VII.2002, Arto Kurtto & Leena Helynranta (OBS; photographed by Jorma Peiponen).
- Mariehamn, Öfvernäs, one specimen in a flowerbed at the street Kaptensgatan 9, UCS 6686:3107, 23.VI.2003, CAH & EH (OBS).
- Finström, Godby, three specimens at a gravel road at the S edge of the ruderal ground on the E side of the road Getavägen about 100 m N of the crossroads in Godby centre, UCS 67006:31120, 23.VI.2003, CAH 8701 & EH (H).
- Saltvik, Haga kungsgård, cultivated in the garden, UCS 67087:31138, 4.VII.2003, CAH & EH (OBS).
- Mariehamn, [Öfvernäs], lawn at the road Östra utfarten in the park where the bath Mariebad was to be built, UCS 66872:31082, 12.VII.2003, CAH & EH (OBS).
- Hammarland, Äppelö, Norrgård, along the sand and gravel roads from the boat harbour to the apple orchard on Näset and from the harbour to the house of Norrgård, UCS 6717:3097-3098, 17.VII.2004, CAH & EH (OBS).



Saltvik, Haga by, seven specimens in flower in a wheat field on the east side of Haga ringväg about 200 m S of the house of Norrholmen, UCS 6707:3114, July 18, 2004, CAH & EH (OBS; Fig. 4).

Lemland, Granboda, on the N side of the main road 50 m E of the road to Bäckängarna, cultivated on a soil bank S of Björkebo, UCS 66821:31202, 20.VII.2006, CAH & EH (OBS).

Lumparland, Norrboda, at the main road 100 m SE of Märlo, in a previous cereal field, now a "flower field" with cultivated exotic species, UCS 6687:3126, 2.VIII.2006, CAH & EH (OBS).

Lemland, Granboda, on the N side of the main road 50 m E of the road to Bäckängarna, cultivated on a soil bank S of Björkebo, UCS 66821:31202, 15.VII.2007, CAH & EH (OBS).

Sottunga, Finnö, the main island, cultivated near the mall boat harbour, UCS 6679:3150-3151, 26.VI.2008, CAH & EH (OBS).

Mariehamn, Sviby, dozens of specimens on both sides of the street Varvsvägen immediately W of the main street Västra utfarten, UCS 66876:31074, 16.VII.2008, CAH 9575 & EH (H).

Hammarland, Westmyra, one tall specimen on the S roadside about 150 m NE on Västmyra Södergård, UCS 66978:30991, 7.IX.2008, CAH 9655 & Ralf Carlsson (H).

Mariehamn, Ytternäs, Östergård, more than 10 specimens at a soil mound between Östergård and the street Lillängsvägen, about 60 m E of Östergård, UCS 66836:31084, 6.X.2008, CAH 9671 & EH (H).

Vårdö, Östra Simskåla, Österövägen – Västra Simskåla, Västerövägen, on a new-built road verge, UCS 6711:3132, 22.VI.2009, Raino Lampinen & Ville Lampinen (OBS).

Geta, Finnö, Finnövägen, abundant in a weedy field, UCS 6717:3103, 24.VI.2009, Raino Lampinen & Ville Lampinen (OBS).

Jomala, Sviby, on the road verge on the N side of the crossroads at Norra Svibyvägen – Jomala Torpvägen, together with *Echinops bannaticus* and *Helianthus annuus*, UCS 669050:310710, 31.VII.2010, CAH & EH (OBS).

Jomala, Södersunda, Södersundavägen 625, on a large soil mound and on the adjacent ruderal ground at the S edge of the cultivated field W of Fårskär, a few specimens on the gravelly ground, hundreds of flowering specimens on the mound, UCS 669129-669130:310390-310392, 23.VII.2015, CAH & EH (OBS; Fig. 5). – The species was still growing in the area in 2018 (pers. comm. by Stina Roiha, October 19, 2018).

Vårdö, Listersby, one flowering specimen in a hay field about 90 m S of Oskarsborg, UCS 669757:313375, 13.VIII.2015, CAH & EH (OBS).

Hammarland, Öra, dozens of specimens, a few with flowers and many with flower buds, on the S roadside of the main road to Eckerö, immediately E of the road bank across the narrow strait Örsundet, 67009:0947, 8.VI.2018, Ralf Carlsson (OBS).

#### *Papaver croceum*

Mariehamn, [Öfvernäs], at the street crossing of Skillnadsgatan and Västra Esplanaden, in a courtyard in NE, cultivated and escaped, UCS 6685:3107, 22.VIII.1988, Sonja Grönholm 45 (H).

Mariehamn, Öfvernäs, as a garden escape in a courtyard at the NE corner of the streets Östra Esplanadgatan and Väktargränd, UCS 66856:31076, 1988 (Grönholm 1991).

Mariehamn, Öfvernäs, as a garden escape in a courtyard near to the street Östra Esplanadgatan between the streets Mariegatan and Väktargränd, UCS 66856:31076, 1988 (Grönholm 1991).

Jomala, Sviby, S of the road Norra Svibyvägen, ruderal ground between Björkäng and the small-scale industry area, UCS 669129:310754, 31.VII.2010, CAH 9814 & EH (H).

#### *Papaver orientale*

Mariehamn, Öfvernäs, garden escape at the house Torggatan 47, UCS 66853-66854:31079, 1988 (Grönholm 1991).

Mariehamn, Öfvernäs, garden escape at Nygatan 16 (Bio Savoy), UCS 66863:31077, 1988 (Grönholm 1991).

Mariehamn, Dalkarby, Johannebo, in a court yard, one garden escape growing on gravel, UCS 66885-66888:31079-31080, 1988 (Grönholm 1991).

Lemland, Flaka, at the S edge of the road Flakavägen at the crossroads, W of the road Herrövägen, N of Hinders, a dense stand of about 1,5 m x 3 m; no houses or plantations are in the immediate vicinity; probably not cultivated on this spot, UCS 6676758:3119734, 8.VI.2014, Hannu Kämäräinen 2014-17 (H).

#### *Papaver pseudoorientale*

Hammarland church village, [= Kattby], the eastern corner of the crossroads between the main roan (no. 1) and the easternmost road to Postad, sparsely, garden escape, UCS 67003:30985, 5.VII.2005, Arto Kurtto (OBS; photographed by Jorma Peiponen).

Sund, Mångstekta, Sandbacka, on the bank of a field ditch, about 10 specimens, voucher collected, UCS 670131:312528, 8.VI.2013, Pekka Valtonen (OBS).

Lemland, Flaka, Hinders, at the crossroads between the main road and the road to Hinders, six flowering specimens on one square metre, UCS 6676767:3119749, 11.VI.2016, Timo Hietanen (OBS).

Lemland, Nätö, one tall specimen on an earth mound at the gravel road about 60-80 m E of the dams for fry in the Verkfladan area, UCS 667918:310908, 24.VI.2018, CAH (OBS).

#### *Papaver somniferum*

Sund, Bomarsund, in the ruins, UCS 669:312, 1863, A. Bomanson (H).

Sund, Bomarsund, on gravel mounds of the ruins, UCS 669:312, 2.VIII.1885, John Lindén (H).

Jomala, [Kyrkoby,] the cemetery, UCS 668:310, 13.VII.1886, Emil Sandell (H).

Sund, Kastelholm, garden, UCS 670:311, 16.VIII.1890-08-16, J. O. Bergroth (H).

Hammarland, Frebbenby, on ballast at Marsund, UCS 670:309, 12.VII.1906, Harald Lindberg (H).

Mariehamn, [Jomala in those days], in a garden at the village of Ytternäs, UCS 668:310, 2.VIII.1922, Gunnar Idestam (TURA).

Mariehamn, at an old coal heap in the harbour, UCS 668:310, 12.VII.1945, Jaakko Jalas (H).

Finström, Bergö, Husö, garden, UCS 670:310, 21.VII.1946, Justus Montell (TURA).

Hammarland, garden escape on the cemetery, UCS 670:309, 20.VII.1962, Annikki Saarisalo-Taubert (H).

Mariehamn, numerous garden escapes on a cleared building plot at the street Ålandsögratan [ought to be Ålandsvägen], UCS 6685-6686:3107, VII.1971 (Erkamo & Erkamo 1977).

Jomala, Överby, about 100 specimens on the E side of the road at Högvalla immediately S of the crossroads to Narmo, UCS 6690:3110, 3.VIII.1980, EH (H).

Hammarland, Prästgården, cultivated on a grave and dispersed to the nearest hillock just SW of the cemetery, UCS 6700:3098, 4.VIII.1980, Kaj Kyrklund (H).

Lemland, Lemböte, Granholm, one specimen on the roadside on the E part of the island, UCS 6681:3109, 1.IX.1981, CAH 3438 & Roland Skytén 3741 (H).

Mariehamn, Ytternäs, Västra Ytternäs, SW of the crossroads Västra Ytternäsvägen – Korrviksvägen, UCS 66840:31077, 1988 (Grönholm 1991).

Mariehamn, Öfvernäs, building plot at the corner of the streets Norragatan – Västra skolgatan, UCS 66826:31075, 1988 (Grönholm 1991. N.B., uncertain determination).

Mariehamn, Sviby, Klinten, UCS 66873:31077, 1988 (Grönholm 1991. N.B., uncertain determination, *P. rhoeas?*).

Finstrom, UCS 6700:3112, 26–27.VI.1991, Raino Lampinen (OBS).

Mariehamn, [Hindersböle, Strandnäs,] dozens of specimens on filling soil between the streets Österleden and Lagervägen, together with *Papaver rhoeas*, *Descurainia sophia*, *Erysimum cheiranthoides* and *Sinapis arvensis*, UCS 66875:31081, 2.VII.1992, CAH 7368 (H).

Eckerö, Hummelvik, on a soil mound, UCS 6704:3087, 19.VIII.1998, Joakim Ekman (OBS).

Hammarland, Äppelö, along the sand and gravel roads from the boat harbour to the apple orchard on Näset and from the harbour to the house of Norrgård, UCS 6717:3097-3098, 17.VII.2004, CAH & EH (OBS).

Lemland, Granboda, on the N side of the main road 50 m E of the road to Bäckängarna, cultivated on a soil bank S of Björkebo, UCS 66821:31202, 15.VI.2007, CAH & EH (OBS).

Sottunga, Storsottunga, roadside between the ferry harbour and the church, UCS 6683:3148-3149, 25–26.VI.2008, CAH & EH (OBS).

Jomala, Sviby, on ruderal soil and roadsides at the Post centre under construction at the road Flygfältsvägen, UCS 66889:31067-31068, 16.VII.2008, CAH & EH (OBS).

Mariehamn, Öfvernäs, one specimen on the W side of the street Hamngatan about 10 m S of the Maritime Museum, together with one specimen of *Borago officinalis*, UCS 668607:310714, 16.VII.2012, CAH & EH (OBS).

Lemland, Rörstorp, on a soil mound on the E side of the road Mönbackavägen, E of the stone quarry, UCS 6681:3119, 6.VII.2016, Pekka Rautiainen 16-238 & Jukka Vauras (TURA).

Mariehamn, Öfvernäs, on the E side of the foundations of the burnt (2016) house at the corner of the streets Hamngatan and Skillnadsgatan, UCS 668573:310737, 30.VII.2017, CAH (OBS).

***Papaver dubium* subsp. *lecoqii***  
Sund, Kastelholm, in the gravelly ruins at the castle, UCS 6700:3117, 1–31.VII.1948, Yrjö Vasari (OULU).

## Discussion

All eight *Papaver* taxa found in the Åland Islands are more or less rare there. In all, 121–126 collections and observations have been made (Table 2). Eklund (1958) had only two observations of *Papaver* species in his study area comprising the four easternmost archipelago municipalities in Åland and the four westernmost municipalities in the Åbo / Turku archipelago. Eklund's both observations were in Ab, Korpo: in a cultivated field at the church (*P. dubium*) and in an old garden at the manor of Korpogård (*P. rhoeas*).

In Central Sweden, on the western side of the Åland Sea, most of the *Papaver* species, particularly *P. dubium*, are more common than in the Åland Islands. Jonsell (2010) gives a survey of the *Papaver* taxa in the province of Uppland. *P. argemone* is rare and has become rarer recently. It occurs mostly as a weed. The both subspecies of *P. dubium* are fairly common and they occur also on the large islands in the archipelago areas. *P. rhoeas* is rather rare. It is, however, often cultivated as an ornamental and its seeds are often included in seed mixtures which are used on newbuilt road verges and lawns. *P. somniferum* is commonly cultivated and is dispersed with seeds for birds and with garden refuse. *P. croceum* is very rare. Very few observations are known of *P. orientale* and *P. pseudoorientale* from Uppland.

The situation is fairly similar in the province of Södermanland (Sörmland) south of Uppland (Rydberg & Wanntorp 2001). *Papaver argemone* is rare on the larger islands where it is calciphilic and occurs as a cultivated field weed, otherwise it is casual as a ruderal plant. *P. dubium* subsp. *dubium* is fairly common. It seems to be an archaeophyte, previously occurring in cultivated fields, today chiefly in ruderal sites. It is absent in the archipelago. *P. rhoeas* is rare and often casual and introduced with lawn seed. *P. somniferum* and *P. croceum* are rare, *P. orientale* and *P. pseudoorientale* very rare.

The most numerous observations in the Åland Islands have been of *Papaver rhoeas* with 38 or 39 observations followed by *P. dubium* subsp. *dubium* with 35 or 37 observations and *P. somniferum* with 24 or 26 observations (Table 2). Of *P. argemone*, 11 observations are known. The three more or less garden escapes, *P. croceum*, *P. orientale* and *P. pseudoorientale*, have been observed four times each. *P. dubium* subsp. *lecoqii* has been found only once.

The *Papaver* taxa have been observed irregularly during the years, with the first observation in 1863 (*P. somniferum*) (Table 2). Only two observations of *Papaver*-taxa were made until 1879. The most numerous observations, in total 52, were made during the period 2000–2019, the second most with 31–34 observation during the pre-

vious two decades 1980–1999. During the period 1960–1979, only four observations were made. As no observations of *P. dubium* subsp. *dubium* were known between 1955 and 1993, Suominen (1986) and Hämet-Ahti et al. (1998) regarded it as regionally extinct in the Åland Islands.

The bulk of the observations of the *Papaver* taxa are scattered around the Åland Islands. Of all taxa, *P. dubium* subsp. *dubium*, has the most long-lasting observation period at one place, namely at Bolstaholm in the municipality of Geta. It was found on 13 occasions as a cultivated field weed during the period 1875–2004. In Mariehamn, it has occurred in the western harbour in 1909, 1919 and 1945 and on lawns and street sides in seven separate localities in 2015–2019.

*Papaver argemone* was observed on seven different occasions in the village of Överby in Jomala between 1980 and 2002. *P. rhoeas* was observed as a ruderal plant on five different occasions in the western harbour of Mariehamn (and perhaps adjacent places) 1886–1930 and on seven or eight different occasions in other parts of the town in 1988–2008. *P. somniferum* has been found as a ruderal plant six to eight times in Mariehamn between 1945 and 2017.

The finds of the three garden ornamental plants *Papaver croceum*, *P. orientale* and *P. pseudoorientale*, with four observations of each, are of rather recent date, between 1988 and 2018. There is a problem regarding the two species *P. orientale* and *P. pseudoorientale*. As *P. pseudoorientale* was not usually distinguished from *P. orientale* before the 1990s in the Nordic countries (cf. Karlsson & Nilsson 2001, Rydberg & Wanntorp 2001, Jonsell 2010), the determination of these two species may be wrong. This is illustrated by the two finds in Lemland, Flaka, the first representing *P. orientale* collected in 2014 (H), the other an observation of *P. pseudoorientale* in almost the same place in 2016. – I tried to find these species in the locality in Lemland Flaka on July 10, 2018. However, no *Papaver* was found.

Two life-forms occur among the *Papaver* species. Three of them are perennial hemicryptophytes, namely *P. croceum*, *P. orientale* and *P. pseudoorientale*, the other taxa are therophytes, most of them winter-annuals and occasionally summer-annuals, *P. somniferum* summer-annual only (Karlsson & Nilsson 2001).

The habitats of the *Papaver* taxa are varied. Besides the pure ruderal taxa, those with occurrences as arable field weeds will be treated here.

*Papaver argemone* is chiefly a ruderal plant. However, it has been found in two areas as a cultivated field weed, namely in Labbnäs in Geta in 1919 and in Överby in Jomala in 1980, 1993 and 2002. Thus, it may be regarded partly as an archaeophyte (Suominen & Hämet-Ahti 1993). In the east Swedish archipelago of Södermanland, *P. argemone* seem to be a native species, growing on calcium rich soils, it is a calciphilic species (Rydberg & Wanntorp 2001).

*Papaver dubium* s. lat. was regarded as one of the worst cereal field weeds in Sweden at the end of the 19th century (Svensson & Wigren 1982). At least subsp. *dubium* is regarded as an archaeophytic field weed (Suominen & Hämet-Ahti 1993, Karlsson & Nilsson 2001, Suominen 2013). The long period of finds in cultivated fields at Bolstaholm in Geta, from 1875 to 2007, confirms this. One further area with cultivated field observations is in a rye field in the island of Finnö in Geta, in 1907 and 1925. The taxon has formerly been brought in with ballast and also with transports of agricultural products, such as grain and hay seed, and with soil brought from former cultivated fields, etc. (cf. Karlsson & Nilsson 2001).

*Papaver rhoeas* was never seen as a serious weed in Sweden in former days (Svensson & Wigren 1982). In Finland, it may be regarded partly as an archaeophyte (cf. Suominen & Hämet-Ahti 1993), although the bulk of the observations are from more or less ruderal sites, mainly roadsides. As the seeds of *P. rhoeas* are often included in seed mixtures which are used on newbuilt road verges and lawns (Jonsell 2010), many of the finds in the Åland Islands, particularly during the last 20 to 25 years, may be of such origin, especially as Swedish road builders have been working with road constructing in the Åland Islands (Hægström & Hægström 2008).

Karlsson & Nilsson (2001) writes that *Papaver rhoeas* often persists some years, but it is probably not truly established, except perhaps in cereal fields in the Åland Islands. The observations of *P. rhoeas* as a cereal field weed are, however, few and only a weak persistence can be seen. The finds were in a rye field in Vårdö Mickelsö in 1930, in an oat and an adjacent wheat field in

**Table 2.** The number of observations of the eight *Papaver* taxa during periods of two decades, from 1863 to 2019. In a few cases the same locality has been visited by two or three persons on the same day; the observation is then counted as only one. Two numbers are given in the following cases: 1) *P. dubium* subsp. *dubium* was collected three times in Geta Bolstaholm by three persons on different days in July, 1885. The specimens collected may have been growing in the same cultivated field. The taxon was collected twice in Geta Bolstaholm in July, 1887, one with no date, another with an exact date. These are treated as two separate observations. 2) There was some uncertain species recognition between *P. rhoeas* and *P. somniferum* in Mariehamn in 1988 (cf. Grönholm 1991).  $\Sigma$  obs. /tax. = the number of the observations of each taxon.  $\Sigma$  obs/dec. = the number of observations of all taxa during the periods of two decades.

| <i>Papaver</i> taxon | <i>argemone</i> | <i>croceum</i> | <i>dubium dubium</i> | <i>dubium lecoqii</i> | <i>pseudo-orientale</i> | <i>orientale</i> | <i>rhoeas</i> | <i>somniferum</i> | $\Sigma$ obs/dec. |
|----------------------|-----------------|----------------|----------------------|-----------------------|-------------------------|------------------|---------------|-------------------|-------------------|
| Years                |                 |                |                      |                       |                         |                  |               |                   |                   |
| 1863–1879            |                 |                | 1                    |                       |                         |                  |               | 1                 | 2                 |
| 1880–1899            |                 |                | 4–6                  |                       |                         |                  | 2             | 3                 | 9–11              |
| 1900–1919            | 1               |                | 6                    |                       |                         |                  | 2             | 1                 | 10                |
| 1920–1939            |                 |                | 3                    |                       |                         |                  | 3             | 1                 | 7                 |
| 1940–1959            |                 |                | 3                    |                       |                         |                  | 1             | 2                 | 6                 |
| 1960–1979            |                 |                |                      | 1                     |                         |                  | 1             | 2                 | 4                 |
| 1980–1999            | 7               | 3              | 2                    |                       |                         | 3                | 9–10          | 7–9               | 31–34             |
| 2000–2018            | 3               | 1              | 15                   |                       | 4                       | 1                | 20            | 7                 | 51                |
| $\Sigma$ obs. / tax. | 11              | 4              | 35–37                | 1                     | 4                       | 4                | 38–39         | 24–26             | 121–126           |

Haga by in Saltvik in 1980, in a wheat field in 1981 and again in 2004, and in a field in Geta Isaksö 1996. Further, three finds, namely in a fallow field in Sund in 1942, in a weedy field in Geta Finnö in 2009 and in a hay field in Listersby in Vårdö in 2015, are from previously cultivated fields. Two finds at or on cultivated field soil shovelled into mounds are remarkable.

The seeds of *Papaver dubium* s. lat., *P. rhoeas*, *P. somniferum* and *P. argemone* may lie buried in the soil for long periods and dense populations sometimes appear on soil-heaps or in newly ploughed areas (Karlsson & Nilsson 2001). Thus *P. dubium* subsp. *dubium* occurred in three lawns at some streets in 2017, in places where cables had been dug into the ground in 2016. The soil dug up was shovelled back into the narrow cable ditches. The seed bank was probably activated because of the digging. Further, one plant was observed in a similar locality in 2018, and three plants in another in 2019. The accompanying vascular plant flora on these dug up areas were of typical lawn and meadow taxa, including common weeds, such as *Achillea millefolium*, *Artemisia vulgaris*, *Capsella bursa-pastoris*, *Cheno-*

*podium album* s. lat., *Cirsium vulgare*, *Erysimum cheiranthoides*, *Galium spurium* subsp. *vaillantii*, *Geranium pusillum*, *Glechoma hederacea*, *Lamium album*, *Lamium purpureum*, *Lapsana communis*, *Leontodon autumnalis*, *Medicago lupulina*, *Polygonum aviculare*, *Poa annua*, *Potentilla reptans*, *Rumex acetosella*, *Rumex longifolius*, *Scrophularia nodosa*, *Senecio vulgaris*, *Stellaria graminea*, *Taraxacum* sp., *Trifolium medium*, *T. pratense*, *T. repens*, *Veronica chamaedrys* and *Viola arvensis*.

The occurrence of *Papaver rhoeas* at the soil mound in Ytternäs in Mariehamn in 2008, and especially the abundant occurrence of the species on the large mound in a field in the village of Södersunda in Jomala in 2015 indicates the existence of a seed bank in cultivated field soil.

As a garden plant, *Papaver somniferum* can develop viable seeds that may germinate in the garden during the next year (Suominen 2013). The sudden occurrence in 2017 of *Papaver somniferum* on the E side of the foundations of a house which burnt down in the Western harbour of Mariehamn in 2016, indicates the presence of a seed bank of this species.

## Conclusions

The eight *Papaver* taxa found in the Åland Islands have been more or less rare, from the first observation in 1863 to the most recent ones in 2018. The three arable land weeds *P. argemone*, *P. dubium* subsp. *dubium* and *P. rhoeas* have obviously never been severe weeds. They have probably occurred in small numbers only and in a few fields, at least during the 20th and 21st centuries. One reason may be that Åland is located at the climatic limits for these weeds, another is that the modern agricultural methods with, e.g. use of herbicides, are ill suited for these plants (cf. Svensson & Wigren 1983).

On the other hand, the four ornamental species *Papaver croceum*, *P. orientale*, *P. pseudoorientale* and *P. somniferum* have better ways to escape from gardens today. Suitable ruderal sites are abundant almost everywhere.

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