

Occurrence of neophytes in agrophytocoenoses - field survey in the Czech Republic in 2006-2007



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Neophytes are progressively more numerous in arable fields and their proportion significantly increased during the second half of the 20th century (Pyšek et al. 2003). According to invasive status of neophytes, Richardson et al. (2000) distinguish the casual, naturalized and invasive ones. The casuals are those species which can grow and flourish in an area, but do not form self-replacing populations. The naturalized ones reproduce consistently and sustain populations over more than one life cycle without direct intervention by humans. The invasive plants are naturalized plants that produce reproductive offspring, often in very large numbers, at considerable distances from parent plants.



Abutilon theophrasti Med.



Veronica persica Poiret

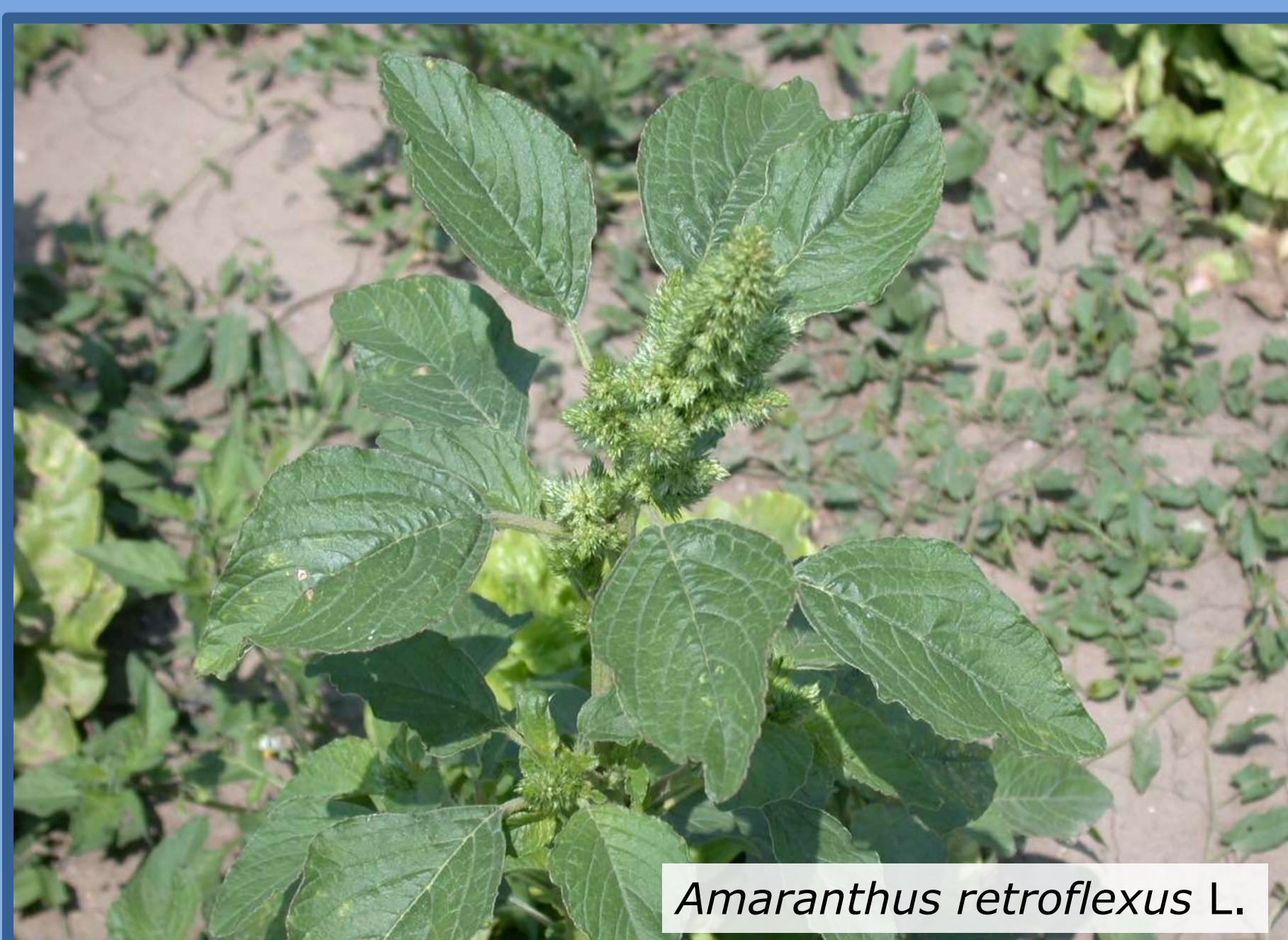
In 2006 and 2007, the phytocoenological survey was carried out in selected farms across the Czech Republic in various climate and soil conditions. The altitude varied between 200-650 m above sea level. The observation was conducted in cereals and root-crops. The weediness was evaluated in June and July in cereals and in late July, August, September and in the beginning of October in root-crops. In total, 169 phytocoenological relevés were carried out, 113 thereof in organic farms and 56 in conventional farms. 170 weed species were found (volunteer crops were not included). The native/alien status was classified for each taxa (sensu Pyšek et al. 2002).

For individual species, the frequencies of occurrence were calculated. Just the presence of the species in a relevé was taken into account for frequency calculation.

Among observed species, 58% were considered as archaeophytes (98 species), 36% apophytes (61 species) and 6% neophytes (11 species). In respect of invasive status, 7 neophytes were considered as invasive (*Veronica persica* Poiret, *Amaranthus retroflexus* L., *Amaranthus powellii* S. Watson, *Matricaria discoidea* DC., *Conyza canadensis* [L.] Cronquist, *Galinsoga parviflora* Cav. and *Galinsoga quadriradiata* Ruiz et Pavón). Three species were naturalized (*Datura stramonium* L., *Consolida orientalis* [Gr. et Godr.] Schrödinger and *Oxalis fontana* Bunge). One species was considered as casual (*Abutilon theophrasti* Med.).

Three neophytes have the status as alien expansive weeds (sensu Jehlík 1998): *Abutilon theophrasti* Med., *Amaranthus powellii* S. Watson and *Consolida orientalis* (Gr. et Godr.) Schrödinger. These species are regularly introduced into Czech Republic, having high level of ecological adaptability and reproductive ability in synanthropic ecotopes, especially on cultivated arable land. In our survey, all of the above mentioned species occurred in low altitudes (200-350 m above sea level).

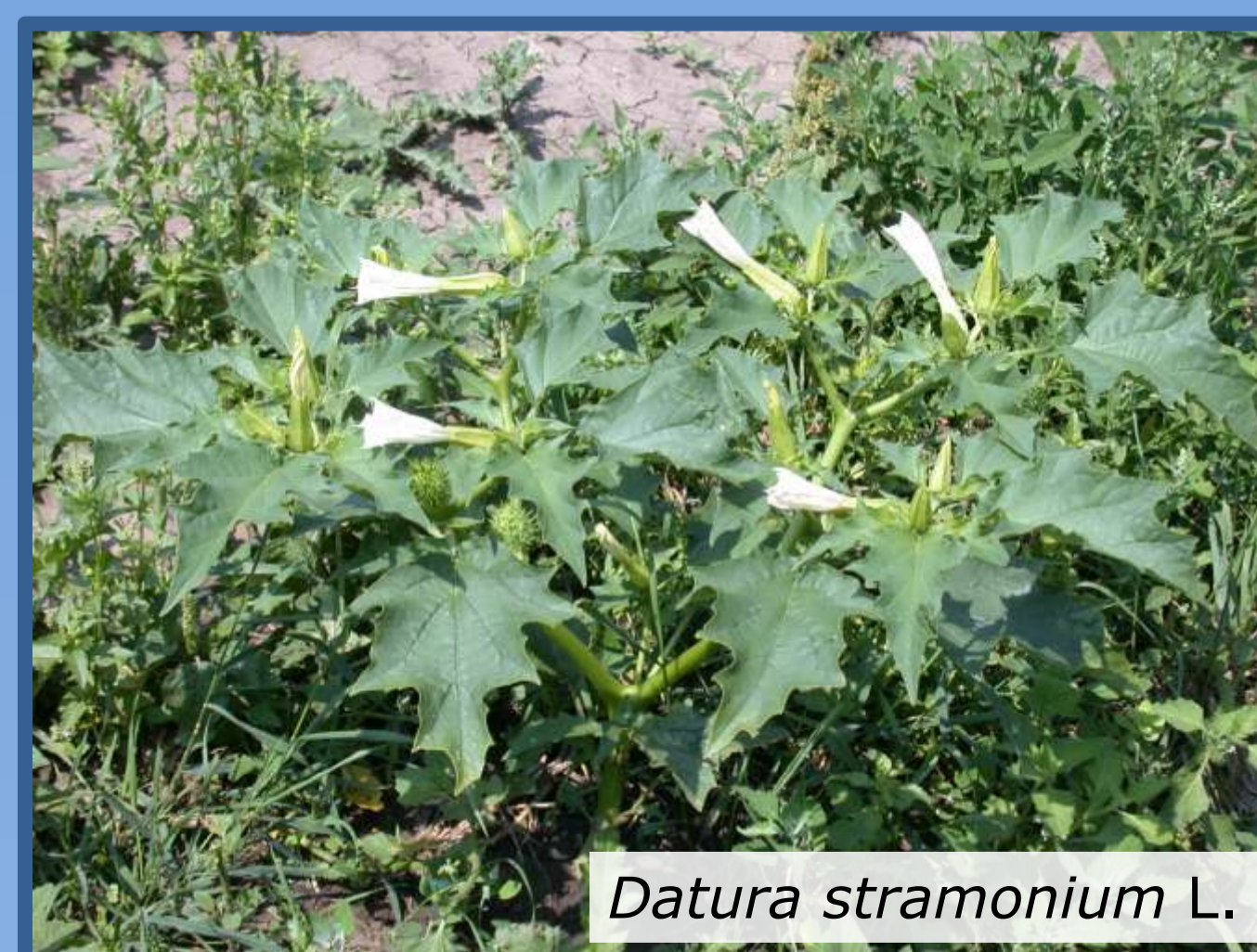
Following frequencies were found for individual species: *Veronica persica* Poiret (31,36 %), *Amaranthus retroflexus* L. (18.93%), *Amaranthus powellii* S. Watson (10.65%), *Matricaria discoidea* DC. (7.1%), *Conyza canadensis* (L.) Cronquist (4.14%), *Galinsoga parviflora* Cav. (3.55%), *Datura stramonium* L. (1.78%), *Galinsoga quadriradiata* Ruiz et Pavón (1.78%), *Consolida orientalis* (Gr. et Godr.) Schrödinger (1.18%), *Abutilon theophrasti* Med. (0.59%) and *Oxalis fontana* Bunge (0.59%). *Oxalis fontana* Bunge occurred just under organic farming system, while *Abutilon theophrasti* Med. was noticed just under conventional farming.



Amaranthus retroflexus L.



Galinsoga quadriradiata Ruiz et Pavón



Datura stramonium L.



Galinsoga parviflora Cav.

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