Senecio squalidus **System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Asterales	Asteraceae

Common name oxford ragwort (English)

Synonym

Similar species

Summary Oxford ragwort *Senecio squalidus* is a short-lived perennial herb derived from plant material introduced to Britain from Mount Etna (Sicily) at the beginning of the eighteenth century. It appears to have spread rapidly through a large part of the British Isles across an ecological gradient involving large changes in temperature and rainfall.

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Species Description
Senecio squalidus is an annual or short-lived perennial plant that normally flowers in its first year of growth (Stace 1997, in Allan & Pannell 2009).

Notes
A survey of randomly amplified polymorphic DNA marker variation demonstrated that *S. squalidus* is a diploid hybrid derivative of *S. aethnensis* and *S. chrysanthemifolius* that grow at high and low altitudes, respectively, on Mount Etna (Sicily) and that form a hybrid zone at intermediate altitudes (James & Abbott 2005). A particularly interesting finding in recent years has been the importance of hybridisation in plant invasions. It has been suggested that hybridisation may promote the evolution of invasiveness by increasing genetic variability or introducing novel genes that allow invasion of new habitats (Abbott 1992, Abbott *et al*. 2003, Ellstrand & Schierenbeck 2006, Rieseberg *et al*. 2007, in Allan & Pannell 2009). Many invasive species are the result of hybridisation events (Ellstrand and Schierenbeck 2006, in Allan and Pannell 2009), and hybridisation has also been shown to allow range expansion in native species (Rieseberg *et al*. 2007, in Allan & Pannell 2009). In this case, the fact that *S. squalidus* is of hybrid origin may have meant that it had sufficient genetic variation to expand its range in Britain, following introduction, by adapting to the different climatic conditions encountered there (Allan and Pannell 2009).

Habitat Description
Senecio squalidus is now a common sight in most urban areas of the British Isles south of the Great Glen, and is still spreading (Harris 2002). More recently, the species has spread along motorway verges in Britain, and it is now ubiquitous on waste-ground especially in urban areas (James & Abbott 2005). This species is typical of nutrient-rich soils and waste grounds, walls, paths and graves (Botham *et al*. 2009).
Several different experiments suggest that local adaptation has occurred in the introduced species *S. squalidus* across its new range. The results of these experiments indicate that adaptation may have occurred for a range of traits, allowing *S. squalidus* to survive in the cooler and wetter north of its British range (Allan & Pannell 2009). Drought experiments by Allan & Pannell (2009) suggest that southern populations of *S. squalidus* in Britain are better able to cope with drought stress than northern ones.

Reproduction
Senecio squalidus is an annual or short-lived perennial plant that normally flowers in its first year of growth (Stace 1997, in Allan & Pannell 2009).

General Impacts
Senecio squalidus is a sleeper weed. A sleeper weed is defined as a sub-group of invasive plant species for which their population sizes has increased significantly more than 50 years after becoming naturalised (Groves 2006). *S. squalidus* has had important influences on the evolution of the British *Senecio* flora including hybridisation of native flora with the introduced weed (Abbott 1992, in Harris 2002). \n
S. squalidus is an excellent model for studying many aspects of the ecology, genetics, and evolution of an invasive diploid plant species (Abbott *et al*. 2009). *S. squalidus* exhibits sporophytic self incompatibility (Hiscock 2000a, b, in Abbott et al. 2009) and has hybridised with a native United Kingdom species to give rise to three new *Senecio* taxa within the last 70 years (Abbott 1992, Ingram & Noltie 1993, Lowe & Abbott 2003, in Brennan *et al*. 2005): two new self-fertile hybrid species and one stabilised introgressant form of a native self-fertile taxon (Abbott et al. 2009). Two new polyploid species of *Senecio* have originated in the British Isles in recent times following hybridization between native *S. vulgaris* (2n = 40) and introduced *S. squalidus* (2n = 20). One of these is the allohexaploid *S. cambrensis* (2n = 60), the other is the recombinant tetraploid *S. eboracensis* (2n = 40) (Abbott & Lowe 2004). Currently, Abbott and colleagues (2009) are using a number of approaches, including genomic screens and microarray analysis to isolate genes that may have been important in adapting *S. squalidus* to conditions in the British Isles. The isolation of such genes in this and other invasive plant species will lead to a greatly improved understanding of the genetic basis of invasiveness in plants.

Management Info
Preventative measures: The European horticultural trade and botanic gardens are increasingly working in partnership on some issues and invasive ornamental species is a highly appropriate topic for working out joint policies (Heywood & Brunel 2008). Various other Codes or guidelines exist that are aimed specifically at botanic gardens such as the German-Austrian Code of Conduct for the cultivation and management of invasive alien plants in Botanic Gardens, or the International Plant Exchange Network (IPEN) Code of Conduct and, in the United States, the *Chicago Botanic Garden Invasive Plant Policy Synopsis* and the *Missouri Botanical Garden Code of Conduct* (Heywood & Brunel 2008).

Pathway
The spread of the species from Oxford, United Kingdom, was initially aided by the exchange of seeds between botanic gardens (Abbott *et al*. 2009).

Principal source:

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Review:

Pubblication date: 2010-06-08

ALIEN RANGE

[1] FALKLAND ISLANDS (MALVINAS)
[2] UNITED KINGDOM
[1] IRELAND
[1] UNITED STATES

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26 references found for **Senecio squalidus**

Managment information

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Summary: Available from: http://www.plantnetwork.org/aliens/code_of_conduct_aliens_eu.pdf [Accessed 26 July 2010]
IUCN/SSC Invasive Species Specialist Group (ISSG)., 2010. A Compilation of Information Sources for Conservation Managers.
Summary: This compilation of information sources can be sorted on keywords for example: Baits & Lures, Non Target Species, Eradication, Monitoring, Risk Assessment, Weeds, Herbicides etc. This compilation is at present in Excel format, this will be web-enabled as a searchable database shortly. This version of the database has been developed by the IUCN SSC ISSG as part of an Overseas Territories Environmental Programme funded project XOT603 in partnership with the Cayman Islands Government - Department of Environment. The compilation is a work under progress, the ISSG will manage, maintain and enhance the database with current and newly published information, reports, journal articles etc.
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