

Mediterranean container plants and their stowaways: a potential source of invasive plant species



Oxalis pes-caprae





Overview

- Additions to the catalogue of Belgian neophytes
- Mediterranean container aliens in Belgium
- Some are here to stay
- Where do we go from here ?



Additions to the catalogue of Belgian neophytes

Catalogue 1800-2005: 1969 taxa

Post-2005 additions: 144 taxa → + 7.3%
(not including 20 new additions from the current study)

More of the same?

	1800-2005	Post-2005
Introduced ornamentals	33 %	60 %
Poaceae + Asteraceae	29 %	5 %



Interpretation

Real changes

- Area of origin of diaspores
- Means of introduction: routes and vectors

Problems when working with a single species list (no time limits)

- Accumulation of historical artefacts

Bias in the database

- Focus of the observer(s) has shifted
- Growth potential for novelties in well-studied groups levels off



Mediterranean container aliens in Belgium



Diplotaxis eruroides

Why?

- A case study of propagule pressure

When?

- 2008

Where?

- Garden centres

What?

- Weeds growing in containers with Mediterranean plants (palms, olives, figs,...)
- Occasionally escapes from containers





Mediterranean container plants

A cascade of events and trends:

- Golden sixties
- Tourism abroad: Spain
- Gardening
- Memories of holidays in the South
- Early 21th century: a tinge of Mediterranean flavour in the garden

Mediterranean aliens

With the ornamentals: unintentional introduction of weeds

Through a dense network of garden centres: dispersal into private gardens



Results

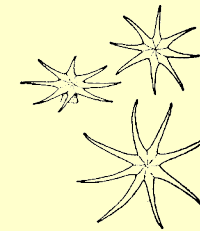
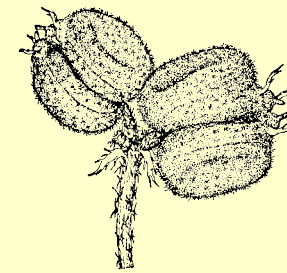
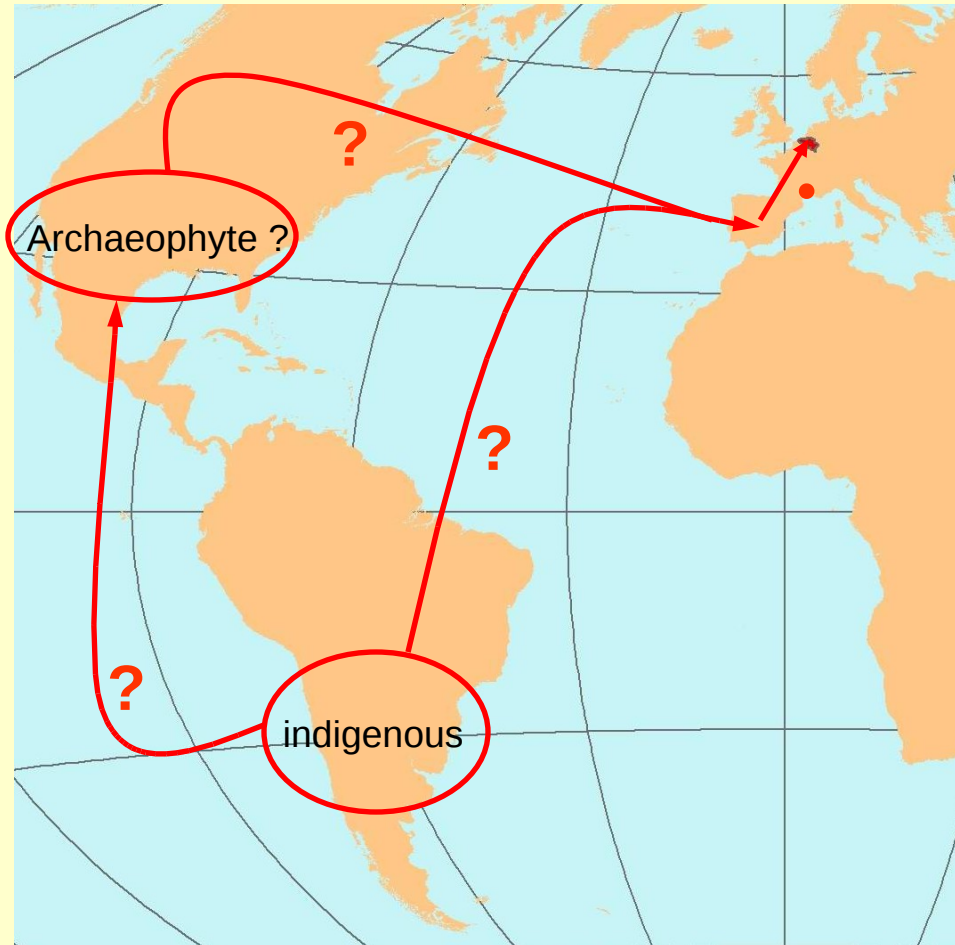
Status in Belgium	Indigenous to Spain and/or Italy	Naturalized, casual or not yet recorded from Sp. and/or It.	Total
Indigenous s.l.	27	3	30
Not indigenous, but rather widespread and/or more or less naturalized	16	9	25
Casuals	30	15	45
Not previously recorded	15	5	20
Total	88	32	120 (*)

(*) Not including a number of crypto-aliens, probable ornamental escapes and taxa that could only be identified to genus level

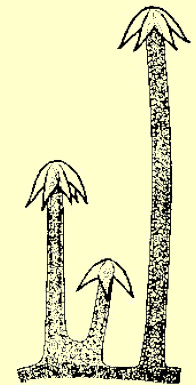


Bowlesia incana

- 19th century: S. France, local
- Today: Spain → Belgium



B. incana



B. flabilis



Chamaesyce div. sp.

C. maculata

- First recorded <1950
- Frequent in nurseries

C. serpens

- First recorded 1992
- Probably a casual grain alien from America

C. prostrata

- First recorded 2002
- Urban weed, mode of introduction not clear

2008: all three species frequently recorded as Mediterranean container aliens

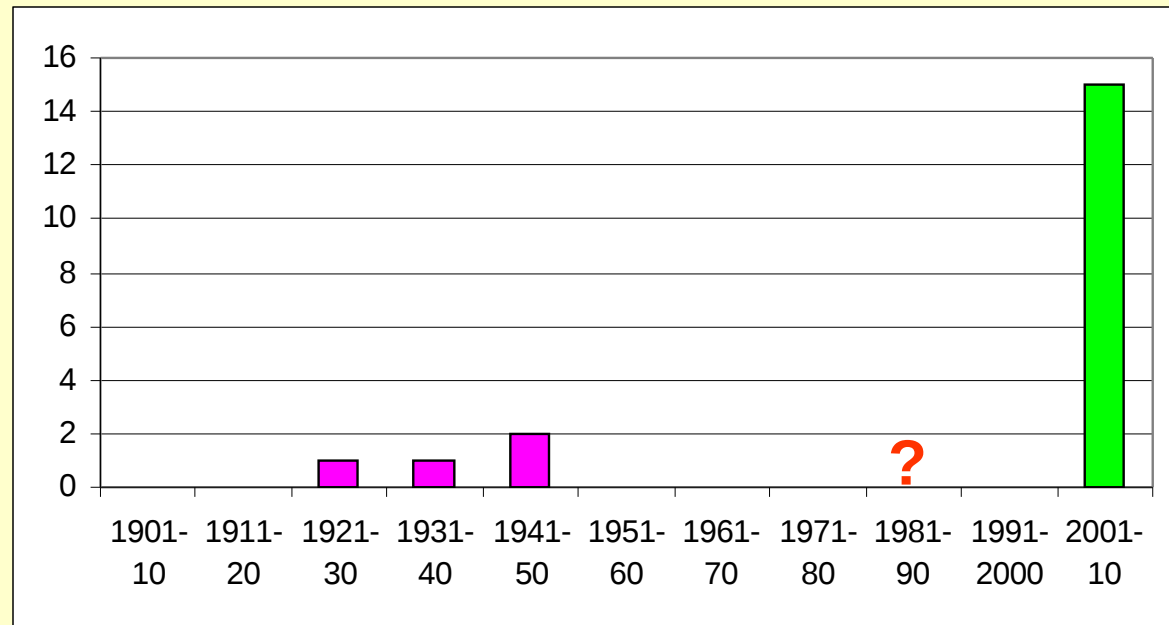




Setaria adhaerens

Previous records: a rare wool alien (Vesdre valley)

2008: a frequent Mediterranean container alien



Some are here to stay

Mediterranean container aliens in an historical context

A new episode in the worldwide exchange of biota

- In part new species
- In part 'old' species entering along new paths
- Propagule pressure bias toward species of warmer climates

Which species can be expected to be successful?

- Over 130 taxa recorded in 2008 alone
- The tens rule (M. Williamson)



Some candidates

Polycarpon tetraphyllum

(first record: 1844)

Sisymbrium irio, *S. orientale*

(first records: 1886, 1823)

Piptatherum miliaceum

(first record: 1947)



All have (very) recently been described as expanding urban weeds:
warm microclimate

Phenomenon not restricted to Belgium; see e.g. *Galium murale* and
Urtica membranacea in England



Where do we go from here ?

Beyond casual data gathering:

Linking natural history with history and ecology

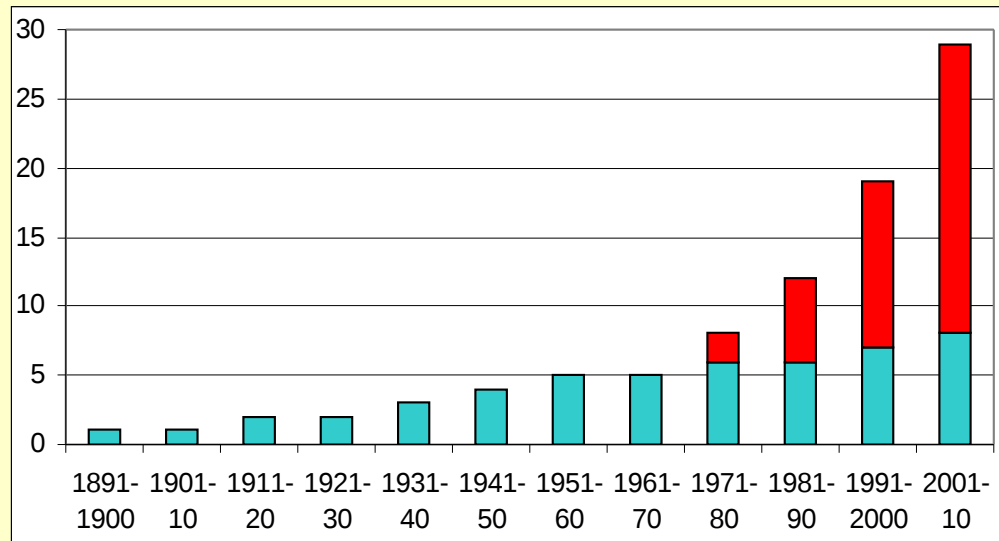
- More data on dispersal mechanisms, documenting both historical and current events
- Critical case by case evaluation of the applicability of *lag time* or *global warming* in explanation and prediction



How important are repeated introductions?

Fictional:

2 introductions



Strong hypothesis: *Senecio inaequidens* from S. Africa
→ introduction of preadapted and plastic genotypes



Human tinkering creates ever-changing networks

Alien species move around through these networks

→ The new science of networks:

“Networks are only the skeleton of complexity, the highways for the various processes that make our world hum.”

(A.-L. Barabási, *Linked*)

