2nd Mediterranean Plant Conservation Week
"Conservation of Mediterranean Plant Diversity: Complementary Approaches and New Perspectives"

In situ conservation of a rare plant (*Dictamnus albus* L.) and its pollinator community

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in situ conservation

Integrated approach

Habitat requirements

Interaction with pollinators

CONSERVIAMO, IMPOLLINIAMO, RACCONTIAMO
DICTAMNUS

PP-ICON - Plant-Pollinator Integrated CONservation approach: a demonstrative proposal

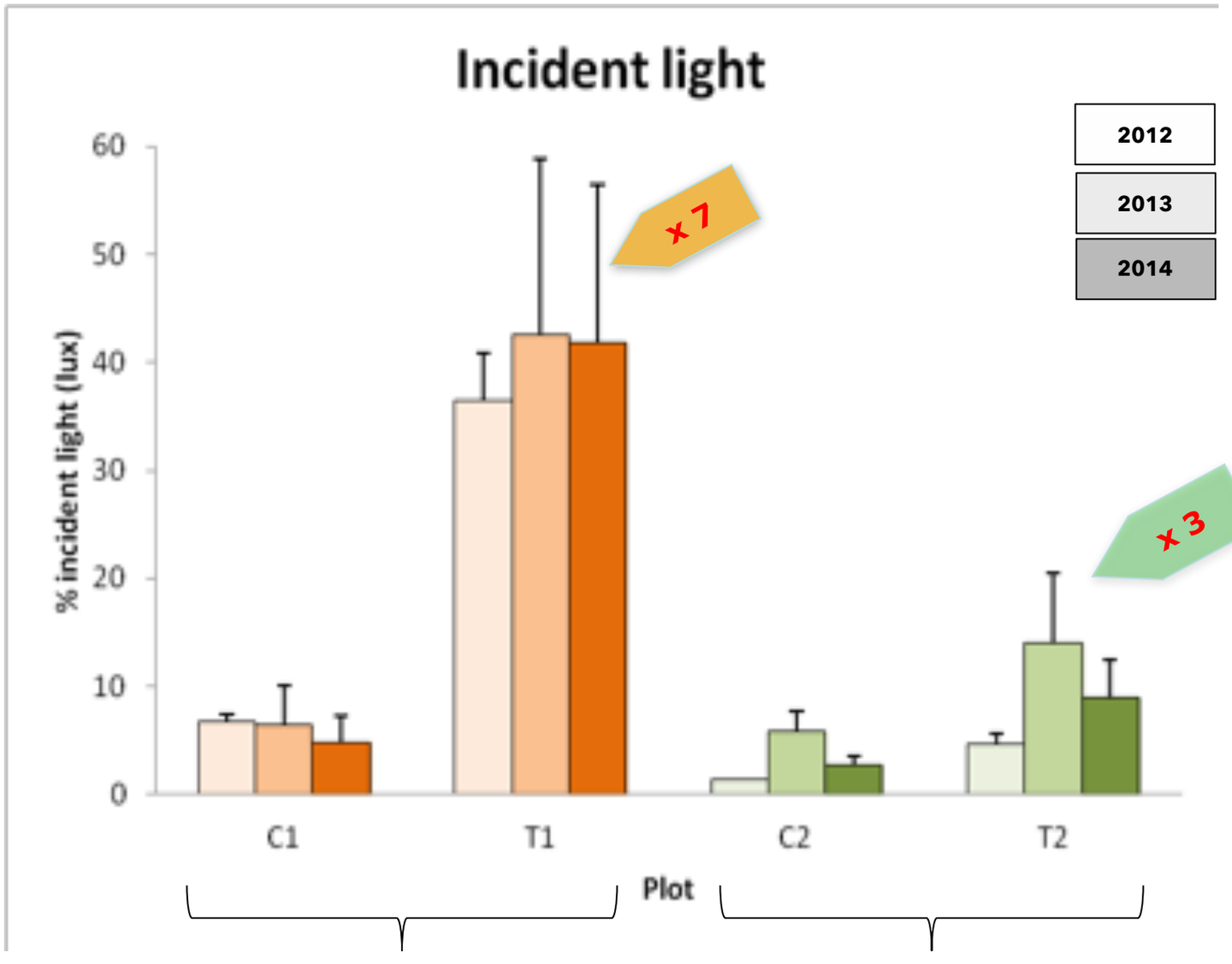
LIFE09 NAT/IT/000212

http://www.pp-icon.eu

Habitat restoration

Selective cut

Optimal condition



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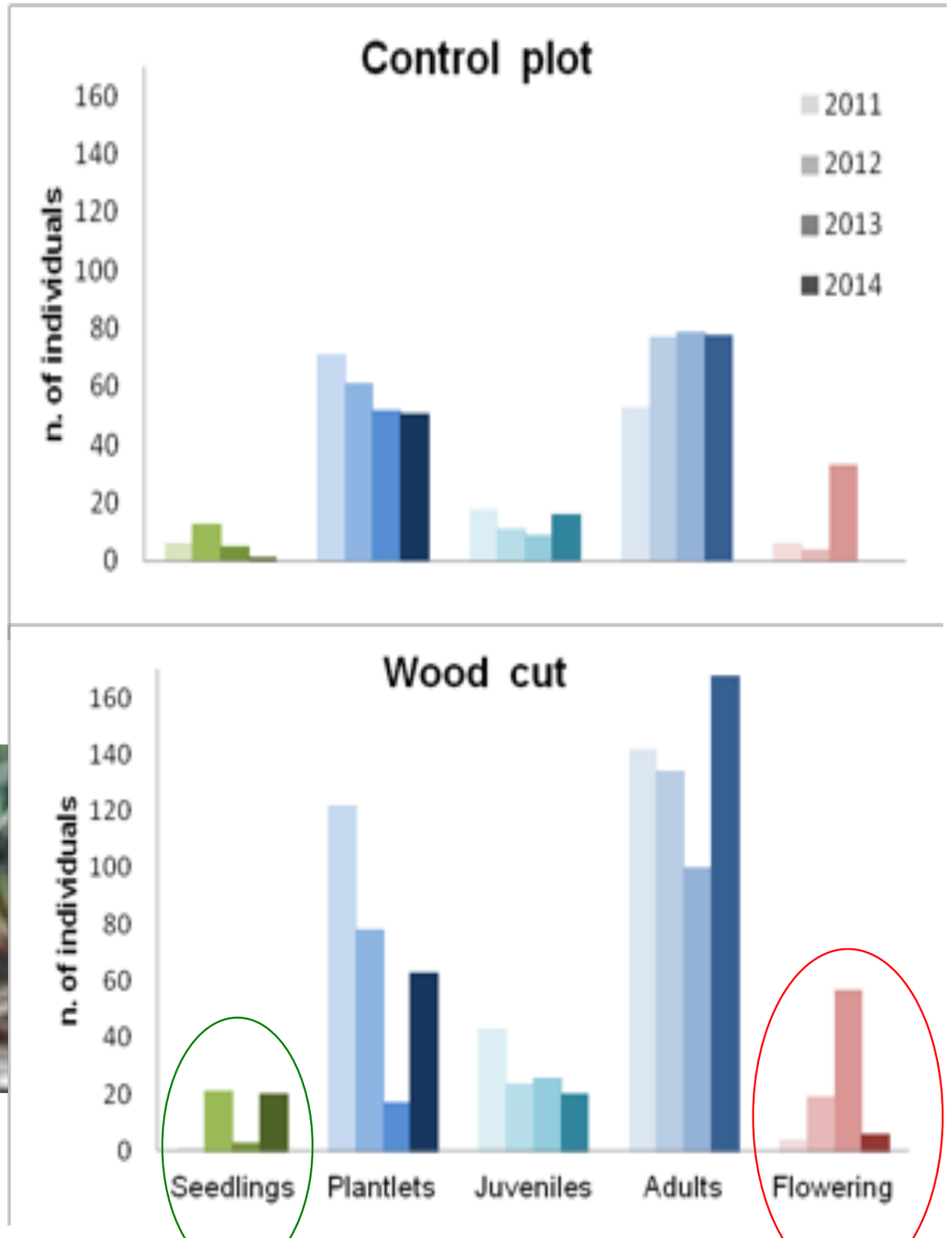


CONSERVIAMO, IMPOLLINIAMO, RACCONTIAMO DICTAMNUS

Fisogni et al., …

> Seedlings

> Flowering

Actions for pollinators

1. Artificial nests for wild bees

2. Bumble bee colonies reinfocement

3. Bee plants reinforcement

Fisogni et al., 2016 *PLANT BIOLOGY* 18: 445-454
Bortolotti et al. *Conservation Evidence* 13: 51-56 2016

B. terrestris

B. pascuorum

Habropoda tarsata

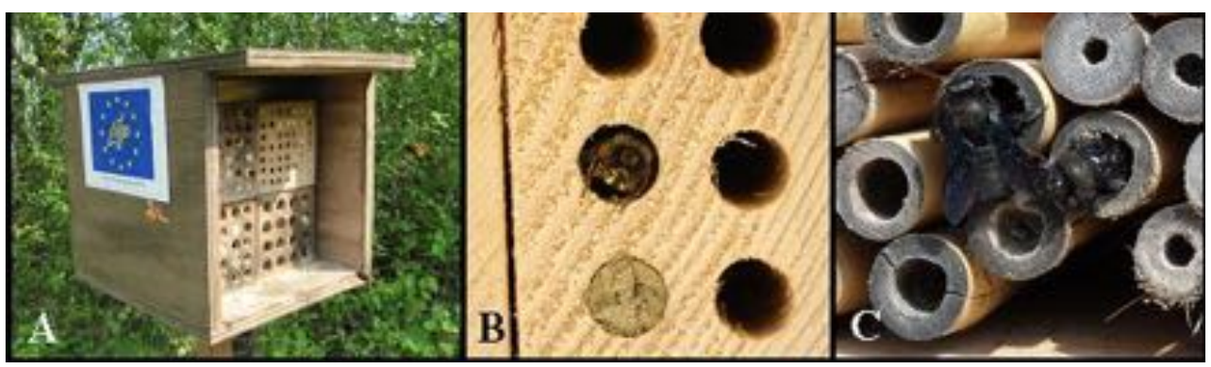
Xylocopa violacea

Megachile sp.

1. Artificial nests for wild bees

for solitary bees

for bumble bees



HIGH OCCUPATION by
mason bees, leafcutter bees, carpenter bees

NO nesting
bumble bees

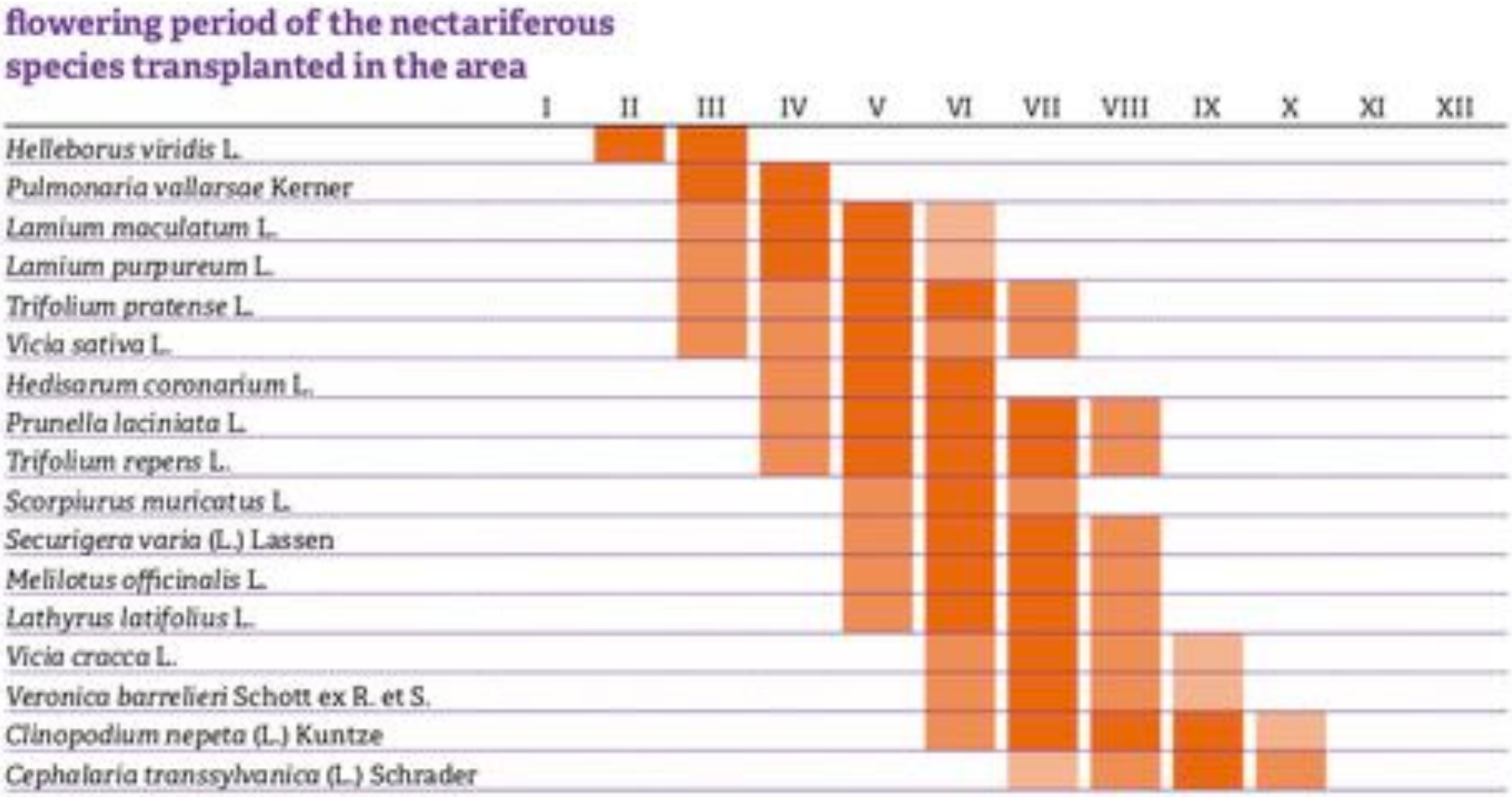
Bortolotti et al. 2016 *Conservation Evidence* 13: 51-56

2. Bumble bee colonies reinfocement

Bumblebee rearing progress	2012	2013	2014	2015
Collected queens	9	10	32	26
Egg laying queens	5	7	18	15
Colonies released in the target area	0	5	9	7
Colonies survived in the field	0	1	6	7

Bortolotti et al. 2016 *Conservation Evidence* 13: 51-56

3. Bee plants reinforcement



3. Bee plants reinforcement

Species	Flowering period	Sampling[1]	Provenance[2]	Year	Total number of seeds and planted individuals	Number of established plants
Helleborus viridis	Feb, Mar	Adult	Wild	2011-2012	30 plants	30
Pulmonaria vallarsae	Mar, Apr	Adult	BG, Wild	2012	>25 plants	8
Lamium purpureum	Mar, Apr	Adult	BG	2012	>25 plants	> 20
Lamium maculatum	Mar, Apr	Adult	BG	2012	>25 plants	> 20
Vicia sativa	May-Jul	Seeds	Wild	2012	≈ 70 seeds, 5 plants	5
Lathyrus latifolius	May-Aug	Seeds	Wild	2012-2013	≈ 60 seeds, 5 plants	5
Securigera varia	May-Aug	Seeds, adult	Wild	2012-2013	> 300 seeds	> 10
Hedysarum coronarium	Jun, Jul	Seeds, adult	Wild	2011	15 plants	2
Trifolium pratense	Jun, Jul	Adult	BG, Wild	2012	≈250 seeds, >25 plants	> 25
Scorpiurus muricatus	Jun, Jul	Seeds	Wild	2012-2013	> 60 seeds, 5 plants	5
Trifolium repens	Jun-Aug	Seeds	Wild	2012-2013	> 300 seeds	> 25
Prunella laciniata	Jun-Aug	Seeds	Wild	2012	> 60 seeds, 5 plants	> 25
Melilotus officinalis	Jun-Sep	Adult	Wild	2012-2013	> 200 seeds, 5 plants	5
Veronica spicata subsp. barrelieri	Jun-Sept	Seeds, adult	Wild	2011	15 plants	15
Vicia cracca	Jun-Sept	Seeds, adult	Wild	2013	> 60 seeds, 10 plants	> 10
Cephalaria transsylvanica	Jul-Sept	Seeds	Wild	2012-2013	10 plants, ≈ 30 seeds	> 10
Clinopodium nepeta	Jul-Sept	Adult	Wild	2012	5 plants	> 5

[1]Adult = vegetative adult plants; [2] Wild = local populations; BG = Botanic Garden

Bortolotti et al. 2016 *Conservation Evidence* 13: 51-56

3. Bee plants reinforcement


Prunella laciniata


Helleborus viridis

Which effects of conservation actions on plant-pollinators system?

Monitoring+
Samplings

permanent transect

april to october
4-years

Network analysis
before and after
interventions

Pollination Network

after conservation measures:

higher species generalisation

interactions more evenly distributed

higher species diversity

→ network resilience

Memmott et al. 2004
Kaiser-Bunbury et al. 2010-

positive effect of flowering abundance on pollinator visits:

habitat amelioration through bee plants reinforcement resulted in increased bee visitation, highlighting the importance of plant abundance for pollination service

Conservation measures positively affected:

- *D. albus* reproductive fitness

Increased generalisation of mutualistic interactions → higher resilience

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