



THE BUTTERFLY *CACYREUS MARSHALLI* IN NORTHERN ITALY AND SUSCEPTIBILITY OF COMMERCIAL CULTIVARS OF *PELARGONIUM*

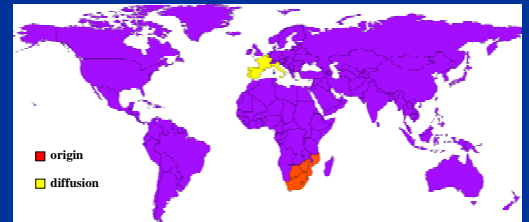
DANIELA LUPI, COSTANZA JUCKER

Istituto di Entomologia agraria, Università degli Studi di Milano Via Celoria 2, 20133 Milano



The ornamental geranium is a traditional and very common plant largely cultivated in Europe. The geranium bronze butterfly (*Cacyreus marshalli*) (Lepidoptera: Lycaenidae), inserted in EPPO A2 list, is now threatening the popularity of both *Geranium* spp. and *Pelargonium* spp.

The species was introduced from South Africa and first intercepted on imported plants and eradicated in the UK in 1978 (Sarto I Monteys, 1992). In 1986 it was found in Balearic Islands (Eitschberger & Stamer, 1990); it then occurred in the rest of Spain, Portugal, France, Belgium and the Principality of Monaco. In Italy, it was first detected in 1996; it has now spread throughout the country (Trematerra & Parenzan, 1997; Lupi & Jucker, 2004).



Eggs



Larvae



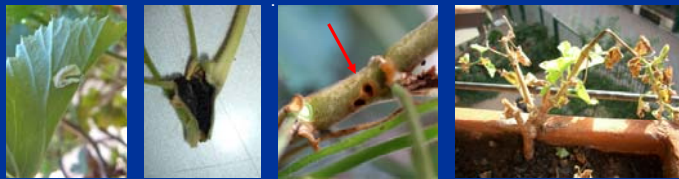
Pupae



Adults



Damages are caused by the larvae, which excavate mines in the leaves and also eat floral buds and leaves. They can even produce galleries inside stems, which then become packed with frass. Before pupation, larvae emerge from stems, making circular holes. Their activity destroys plants and favours the appearance of pathogenic fungi or bacteria.



Because of the importance of *Pelargonium* as ornamental plants in gardens and terraces, a study to verify the biology of the geranium bronze butterfly, and the susceptibility of different commercial cultivars, was carried out in 2004 in the north of Italy.

ZONAL	IVY-LEAFED	REGAL	SCENTED-LEAFED	
Fireworks cherry white	Balcon imperial	Burghi	Abrotanifolium	Orange fizz
Fireworks red white	Royal pink	Latemar	Asperum	Patons unique
Fireworks scarlet	Royal white	Pac randy	Attar of roses	Pink capitatum
Frank headley			Chocolate peppermint	Prince of orange
Happy orange			Concolor lace	Princeanum
Mrs pollock			Crispum major variegato	Purple unique
Real diana			Denticulatum	Queen of lemon
Sailing			Fair ellen	Royal oak
Samon flash			Filicifolium	Scarlet unique
White flash			Fragrans	Snowflake
			Lady plymouth	Tomentosum
			Odoratissimum	Wayward angel

MATERIALS AND METHODS

Studies on the biology of geranium bronze butterfly were conducted in Milan (northern Italy) on *Pelargonium* spp. from April to the end of December, observing directly the presence of adult, larvae eggs or damage.

To test the susceptibility to the attack of the butterfly, 40 different ornamental geraniums were used (see the table): 10 cvs of zonal pelargoniums (*Pelargonium × hortorum*); 3 cvs of ivy-leaved pelargoniums (*P. peltatum*); 3 cvs of regal pelargoniums (*P. × domesticum*); and 16 species or cvs of scented-leaved pelargoniums.

The plants were exposed to the pest from the end of May to the end of September, in two different localities. The plants were observed every week, and data on damage and their symptomatology were collected.



Different cvs of *Pelargonium*



Larvae on cv Lady plymouth

RESULTS



Many overlapping generations of the pest occurred, with adults detected from the beginning of May to the middle of October. Damages were first observed on zonal and ivy-leaved pelargoniums in June; regal and scented-leaved pelargoniums were attacked later and less severely. Most of the plants tested were attacked. Only on some scented-leaved pelargoniums (Abrotanifolium, Concolor lace, Denticulatum, Fair ellen, Filicifolium, Odoratissimum, Purple unique, Prince of orange, Royal oak, Wayward angel) were no larvae or damage found. Further research is needed to detect the reasons for this apparent resistance.

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