



Monitoring protected species of insects with the help of citizens: scientific results and lessons learned

Dr. Sönke Hardersen

Reparto Carabinieri Biodiversità di Verona

Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale "Bosco Fontana"



Focus on Open Science





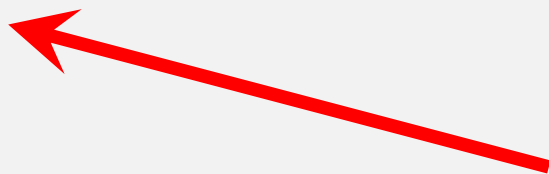
LIFE Project: 2012-2017

Budget: € 2.734.430
(co-financed 58,1 %)

28 Actions

3 main objectives

1. Conservation of saproxylic beetle species– **MONITORING**
2. Involve the public: **CITIZEN SCIENCE**
3. Dissemination



The project MIPP is the first LIFE project to gather records of insect species listed in the Habitats Directive by means of volunteers

Cerambyx cerdo



Morimus asper/funereus



Rosalia alpina



Osmoderma eremita



Lucanus cervus



Zerynthia polyxena



Lopinga achine



Parnassius apollo



Saga pedo

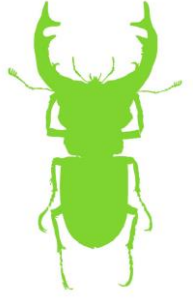
CHARACTERISTICS OF THE CITIZEN SCIENCE PROGRAM

Aims were:

1. **faunistic knowledge:** mapping the current distribution of the target species.
2. **education:** increasing the public knowledge on the habitat, biology and threats of the target species;
3. **awareness:** promoting environmental awareness and changes in attitudes and behaviour of the public;

Sampling scheme: "Cross sectional surveying" (Tulloch et al. 82 2013): volunteers are free to choose WHEN and WHERE to collect occurrence data.

Data quality: MIPP is a "verified citizen science" program (Gardiner et al. 87 2012), as validation of data is ensured by specialists, based on photographs.



HOW DO WE CONTACT THE CITIZENS?



A total of **403** activities were carried out during 2014-2016, with approximately **14,000** citizens reached directly

EVENTS LESSONS



SOCIAL WEB



GADGETS



PUBLICATIONS



MEDIA (newspapers, radio, TV)



THE WORKFLOW

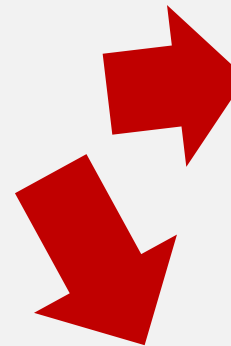


www.lifemipp.eu

OR



DATA
VALIDATION
BY EXPERTS



NATIONAL DB



Easy procedure
Friendly tools
Validation process

THE WORKFLOW



www.lifemipp.eu

OR



DATA
VALIDATION
BY EXPERTS



NATIONAL DB



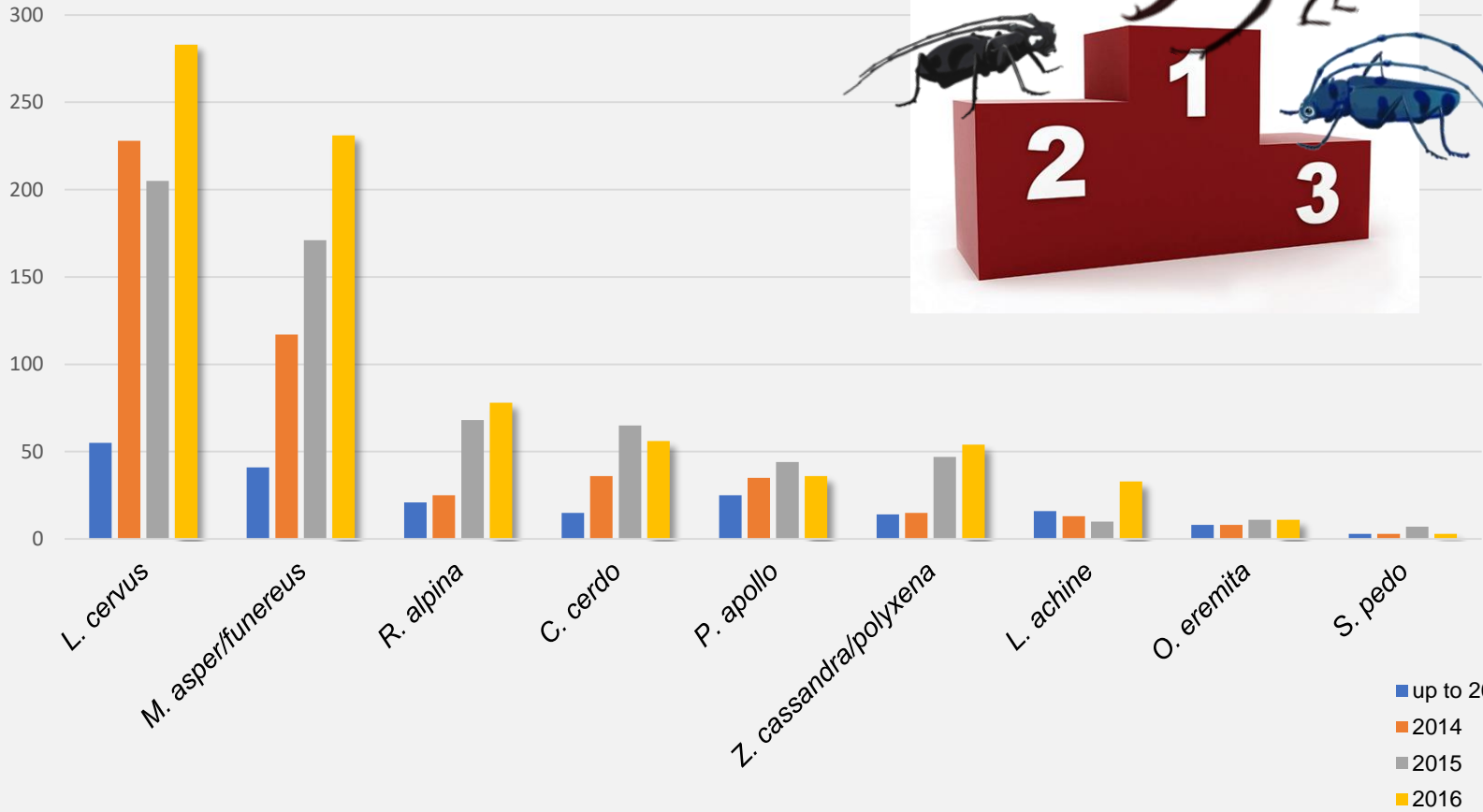
RESULTS

In the period 2014-
2017: **3,014**
records collected
and validated by
specialist

2,241 of these
were confirmed
(74 %)

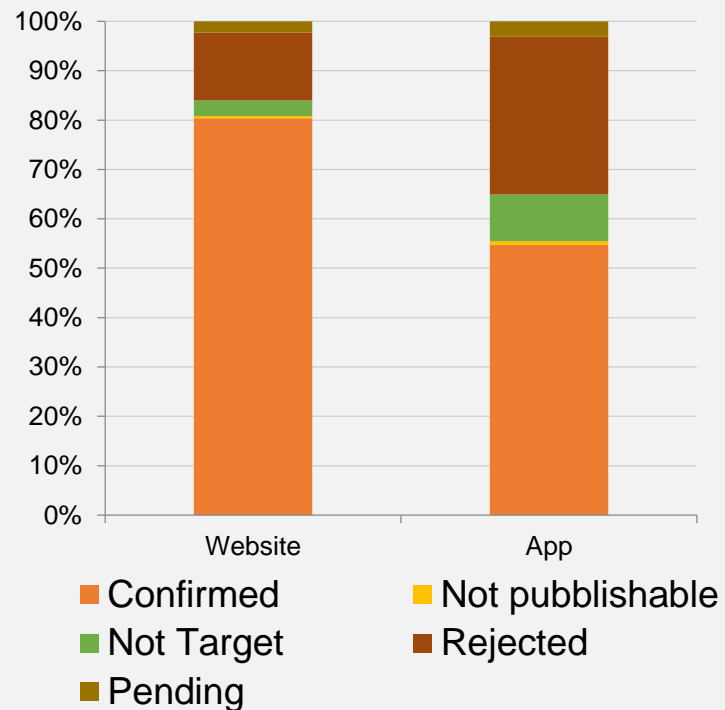
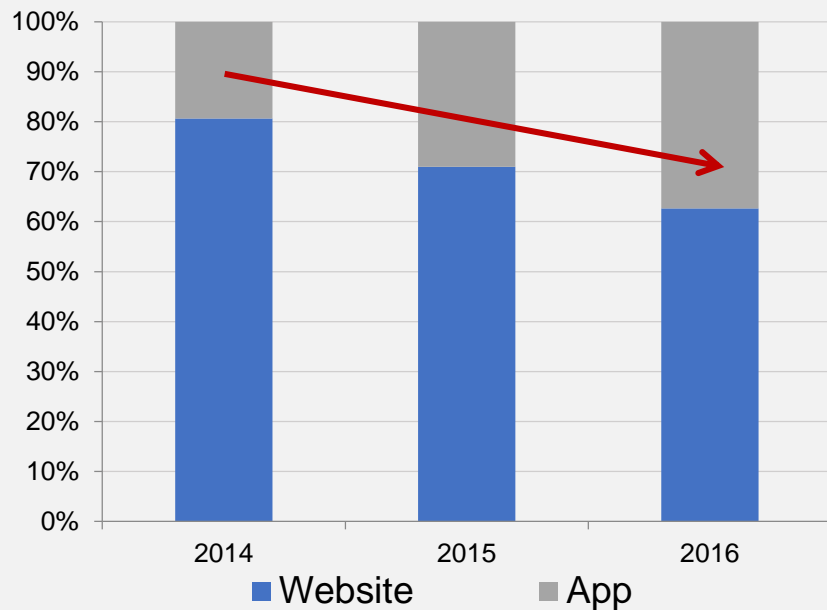


MOST RECORDED SPECIES



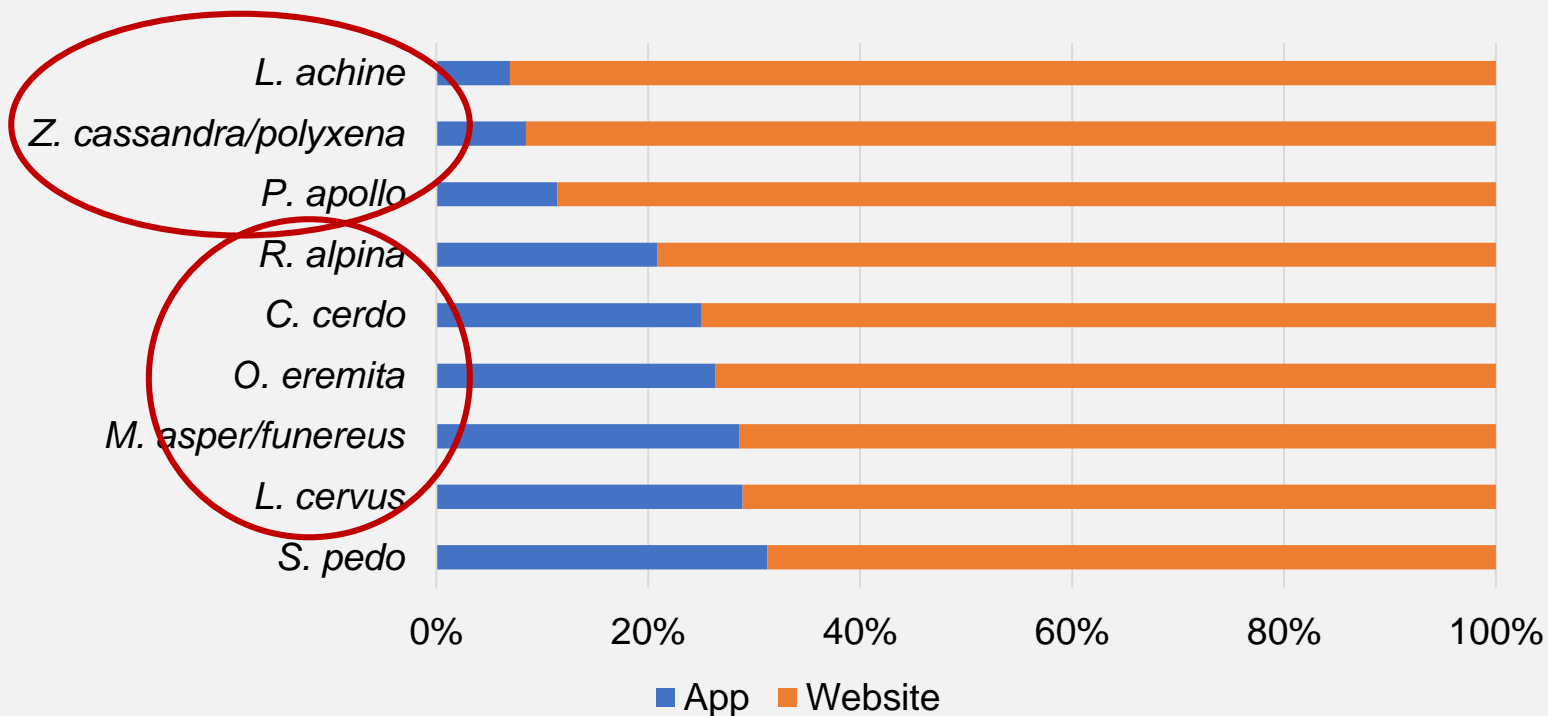
APP vs. WEBSITE

Most records were submitted via the web-site (n=1,653, 71.6 %)



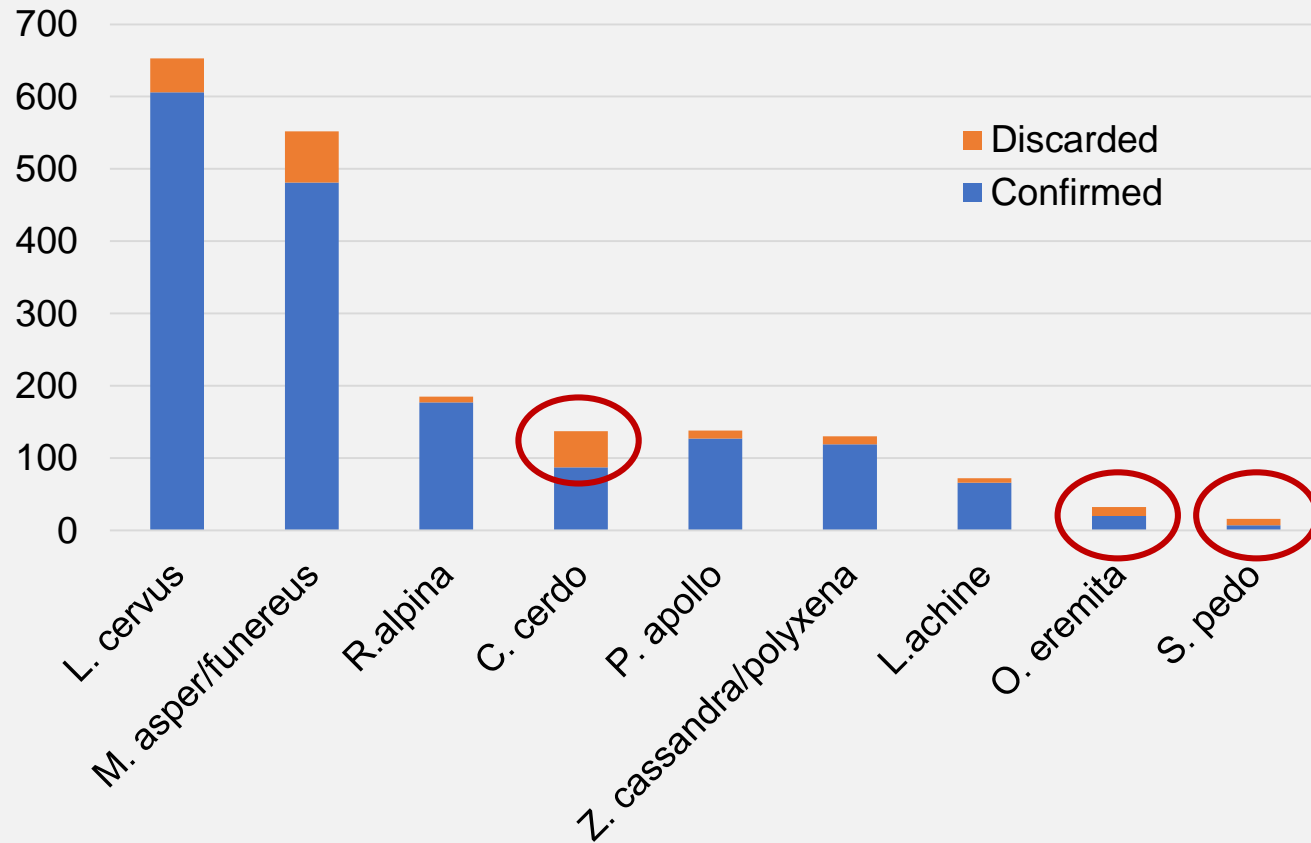
APP vs. WEBSITE

The app was used to transmit **21% to 31%** of record for the 5 beetle species. In contrast, for the butterflies only **7% -11%** of records were transmitted via app.

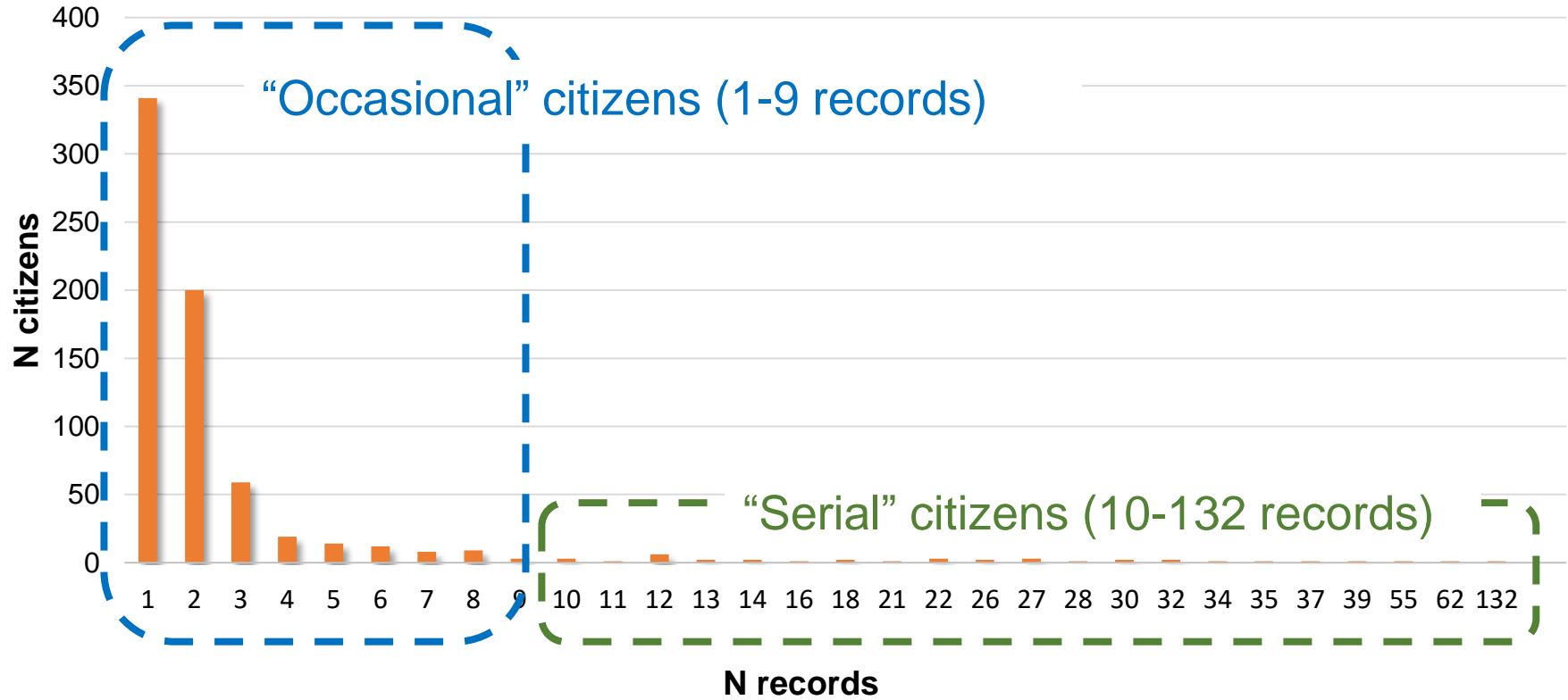


DATA QUALITY PER SPECIES

The proportion of confirmed records for *L. cervus*, *M. asper*, *R. alpina*, *P. apollo*, *Z. cassandra/polyxena* and *L. achine* varied between **87%** and **96%** .
For *C. cerdo*, *O. eremita* and *S. pedo* between **44%** and **64%**.

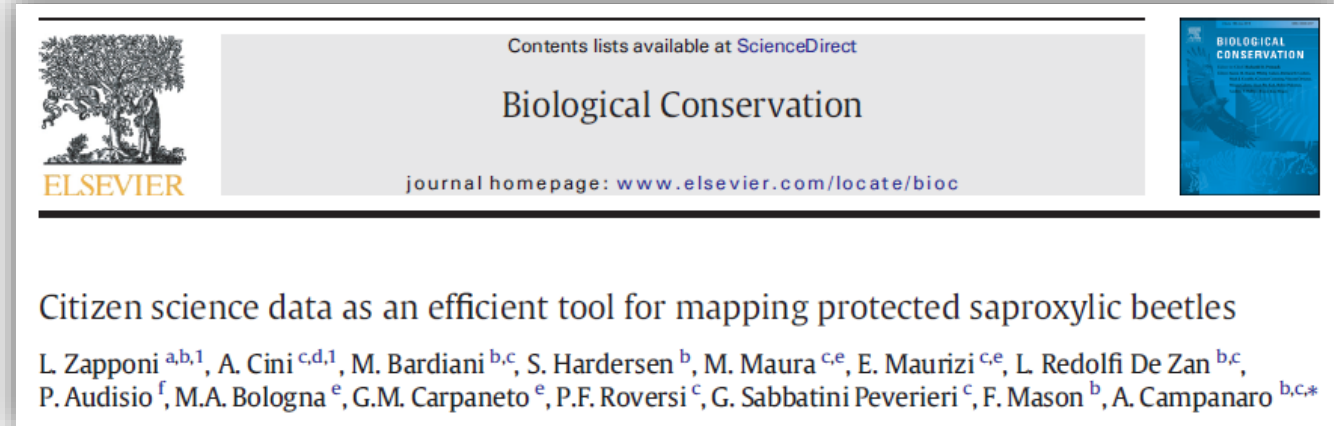


CITIZENS vs. RECORDS



CASE STUDY: CAN WE MAP SAPROXYLIC DISTRIBUTION USING CITIZEN SCIENCE DATA?

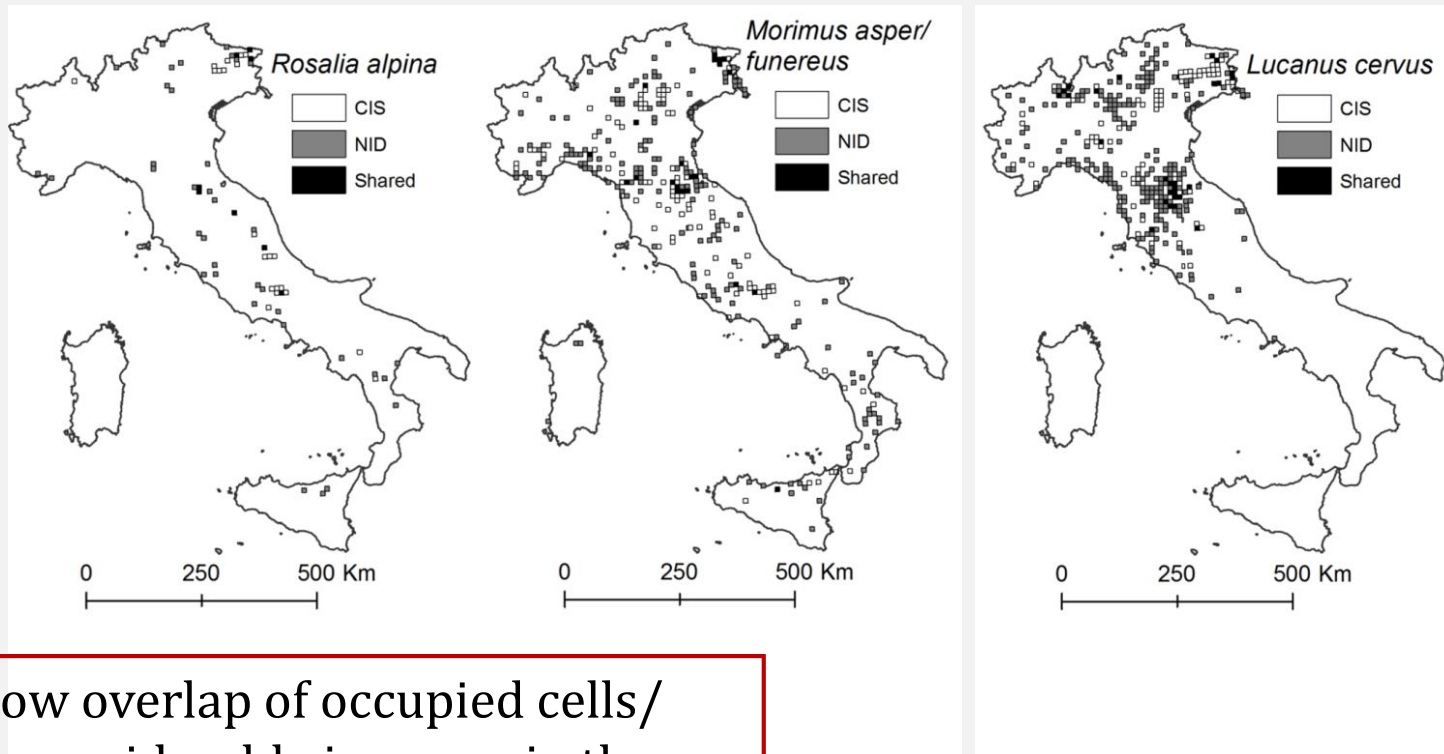
Yes, we can!



We compared distribution obtained using two Italian datasets:

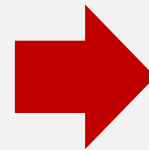
- **Citizens Science Data** - collected during two years (2014-2015) within the MIPP project
- **National Inventory Data** - CkMap, records collected by experts, 2 data frames: 25 years (1979-2003) and 10 years (1994-2003)

Results: species range



Low overlap of occupied cells/
a considerable increase in the
number of cells

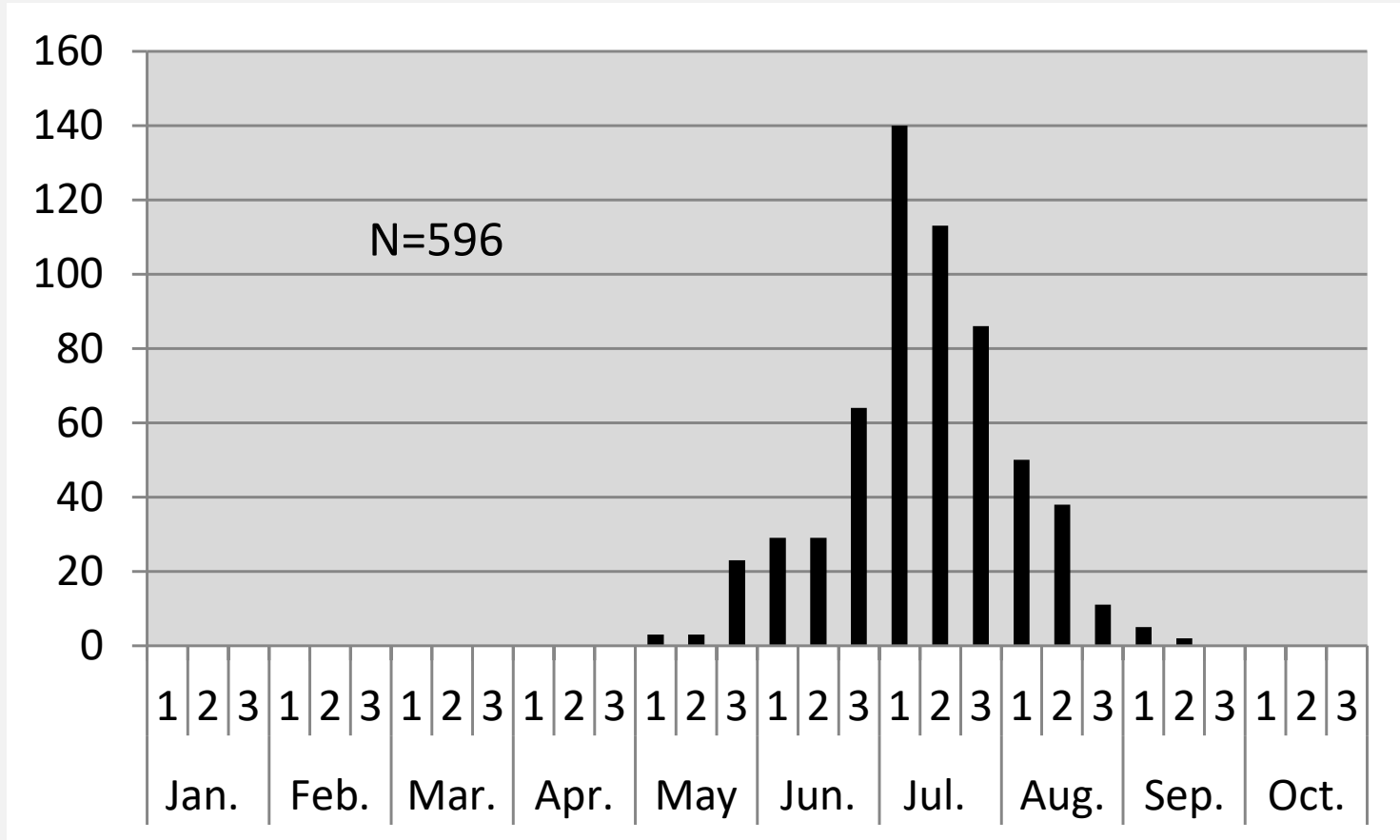
	CSD	NID	Shared	Range expansion
<i>Lucanus</i>	147	218	8%	24%
<i>Morimus</i>	139	202	9%	36%
<i>Rosalia</i>	31	47	15%	31%



The dataset obtained in two years by citizens resulted in an **increase of the distributional ranges** of three beetle species, compared to a national inventory provided by experts

CASE STUDY: Phenology of *Lucanus cervus*

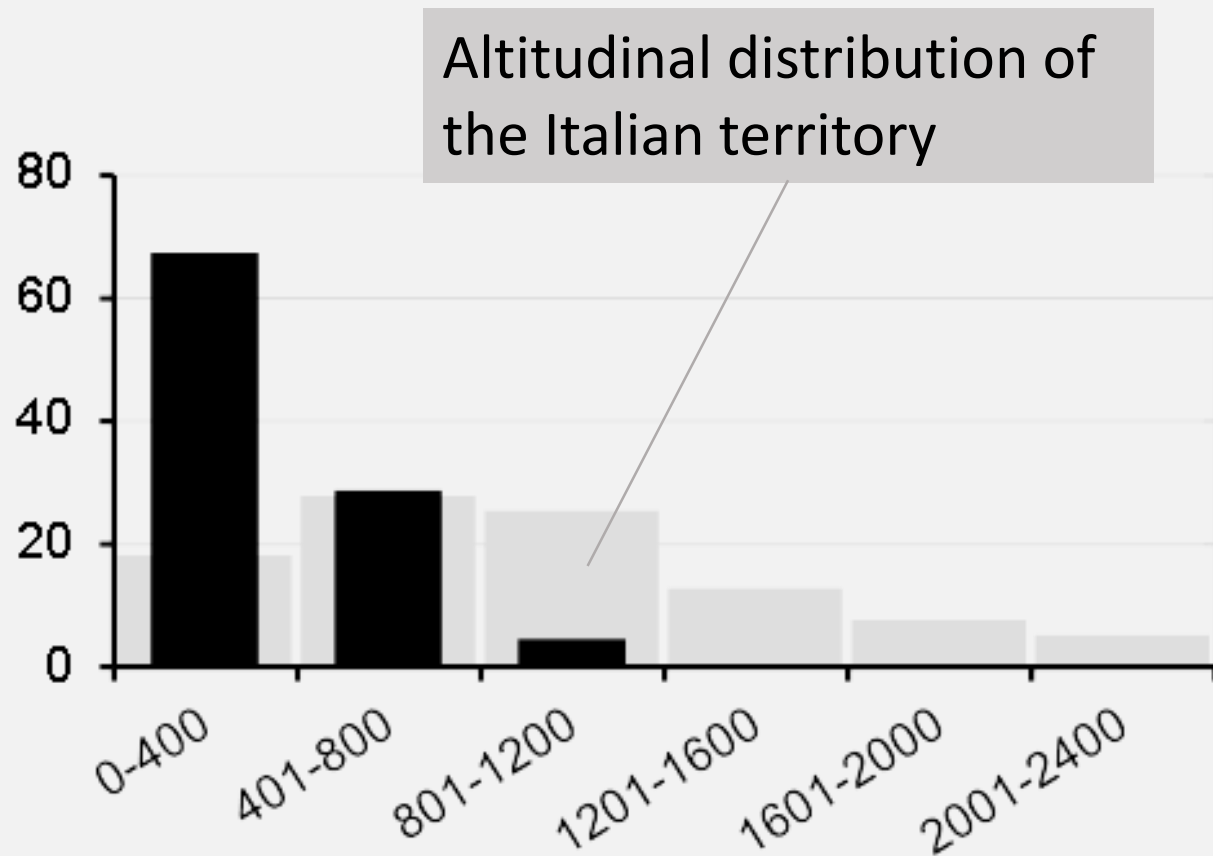
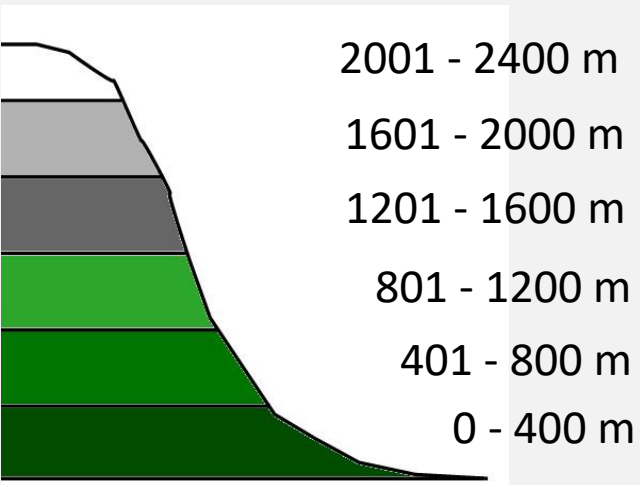
Citizen Science data are also useful to investigate phenology



CASE STUDY:

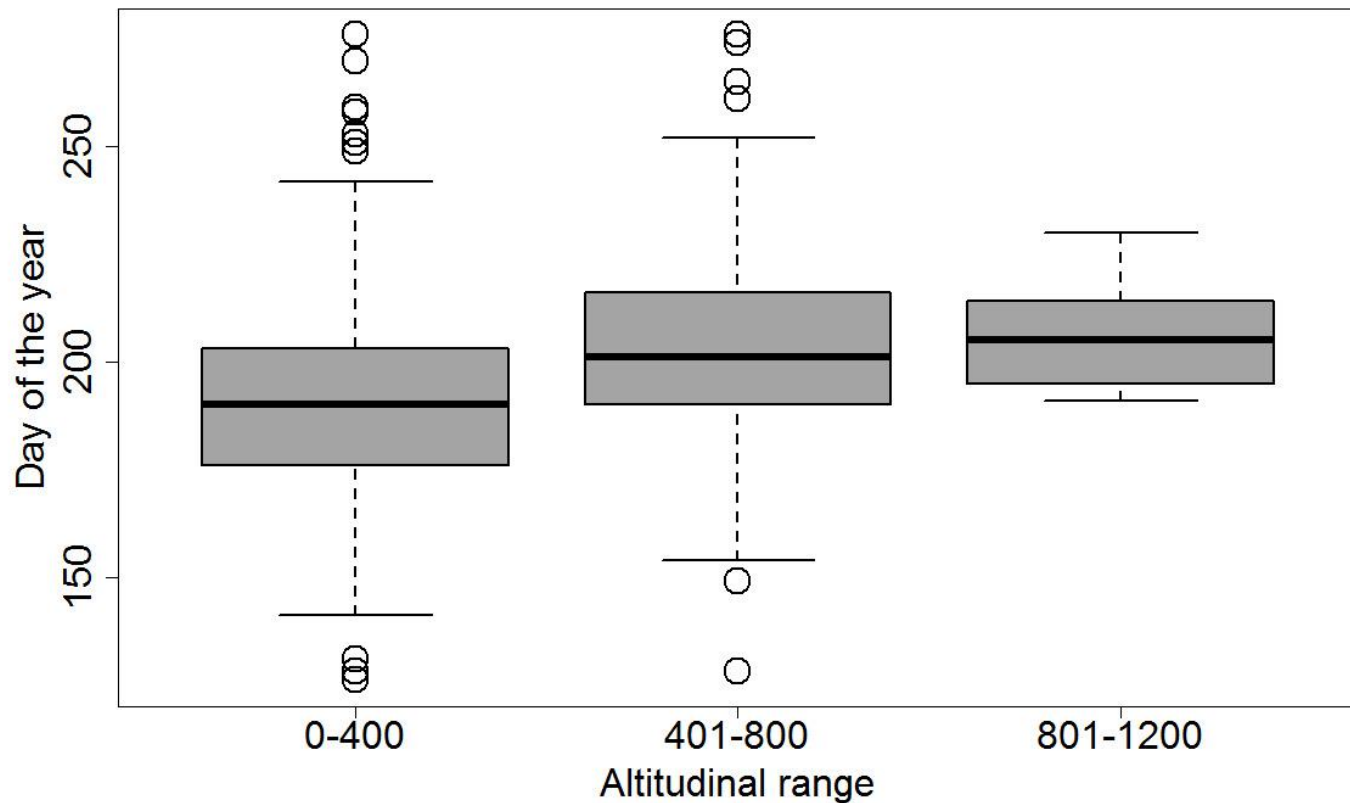
Altitudinal distribution of *Lucanus cervus*

Citizen Science data are also useful to investigate the altitudinal distribution



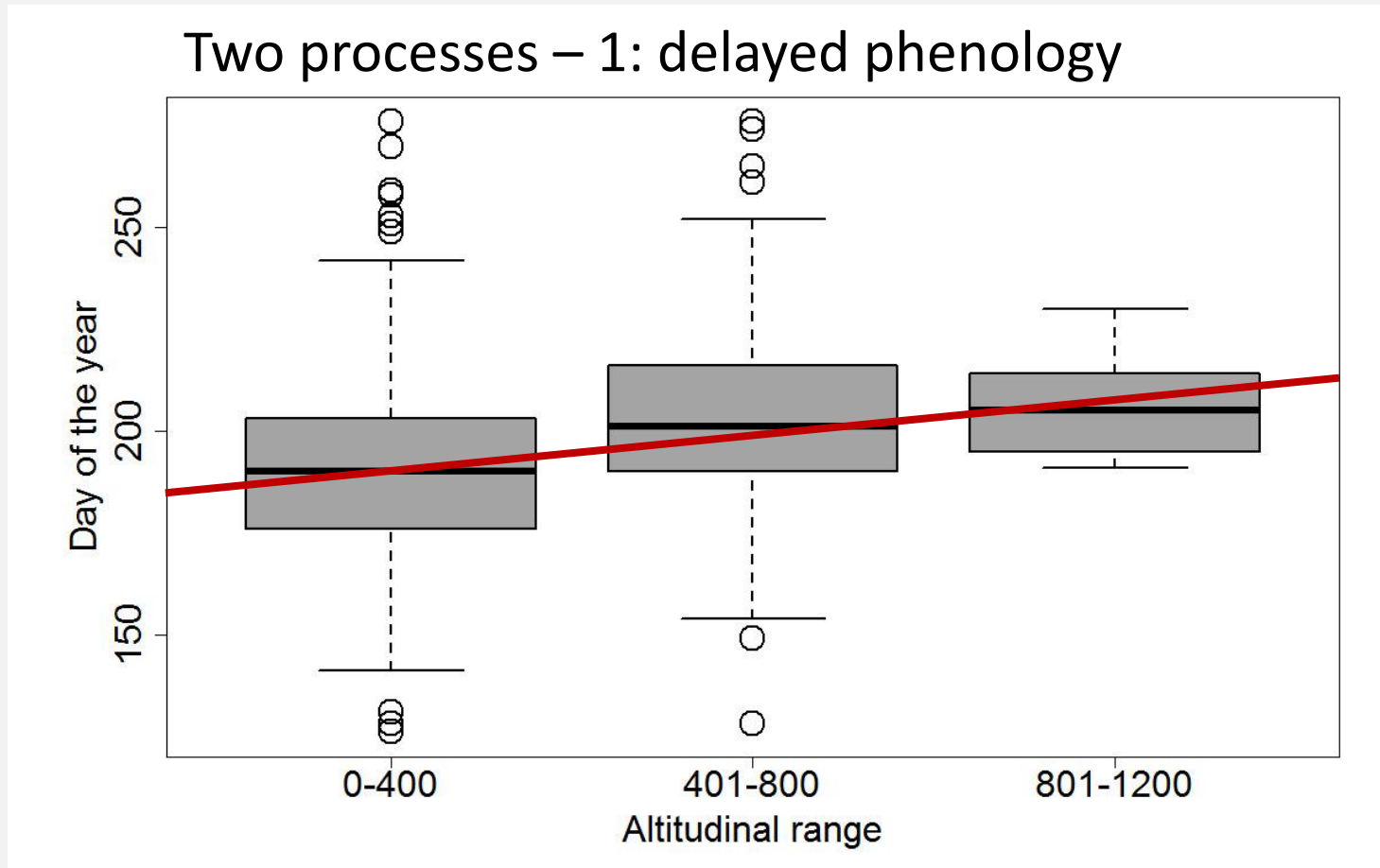
Phenology of *Lucanus cervus* at different altitudes

Can Citizen Science data be used to investigate changes in phenology with increasing altitude?



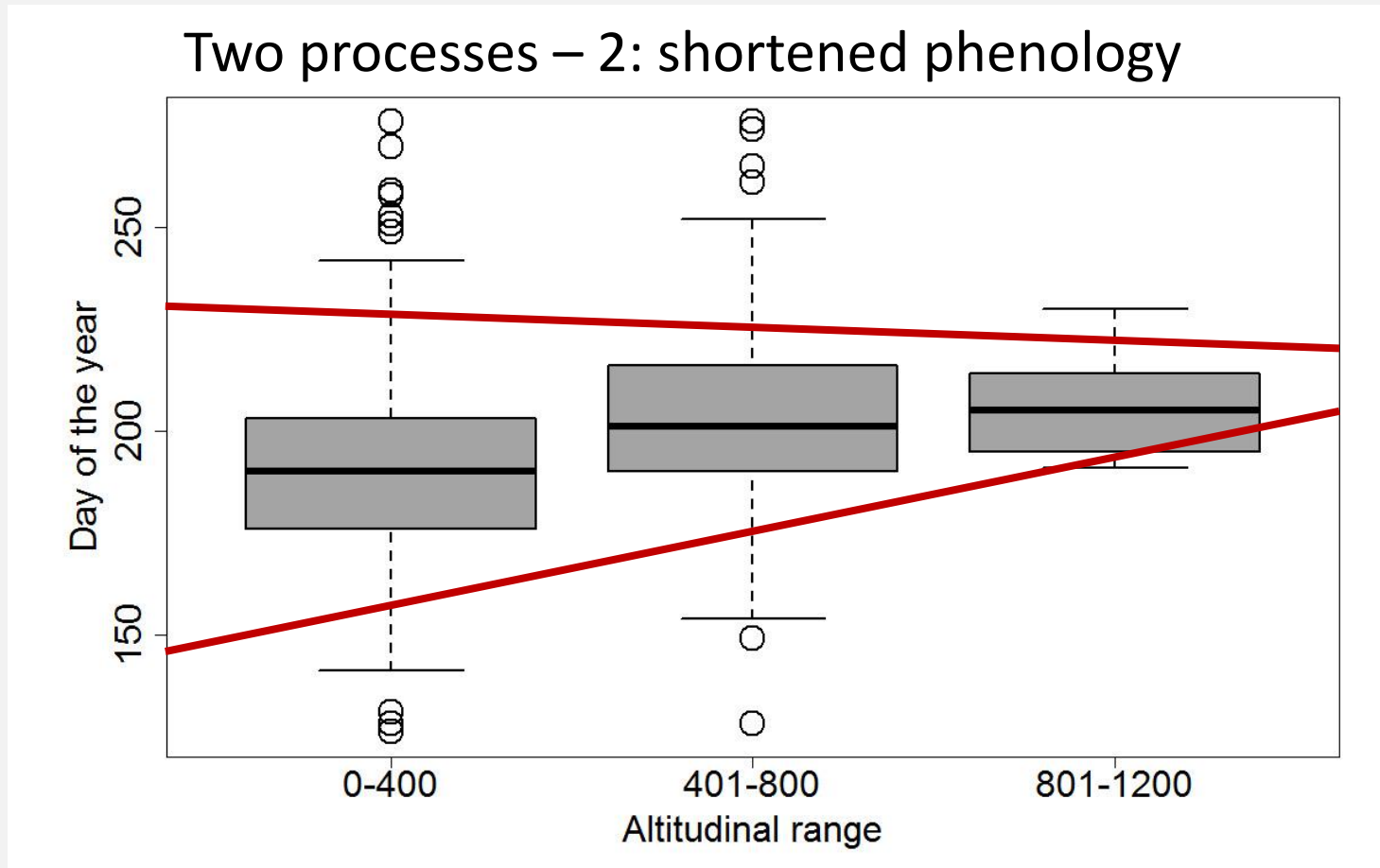
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Phenology of *Lucanus cervus* at different altitudes

Can Citizen Science data be used to investigate changes in phenology with increasing altitude?



InNat

Project InNat: “Increase awareness on Natura 2000 and national monitoring of protected insects”



EDUCATION



CITIZEN SCIENCE



MONITORING



Target species for Citizen Science

30 species:

MOTHS AND BUTTERFILES

Argynnis elisa

Coenonympha oedippus

Euphydryas aurinia

Euphydryas maturna

Lopinga achine

Lycaena dispar

Melanargia arge

Papilio alexanor

Papilio hospiton

Parnassius apollo

Parnassius mnemosyne

Phengaris arion

Phengaris teleius

Zerynthia polyxena/cassandra

Euplagia quadripunctaria

Proserpinus proserpina



COLEOPTERA

Cerambyx cerdo

Lucanus cervus

Morimus funereus

Osmoderma eremita s.l.

Rosalia alpina

ORTHOPTERA

Brachytrupes megacephalus

Saga pedo

ODONATA

Coenagrion mercuriale

Cordulegaster trinacriae

Gomphus flavipes

Leucorrhinia pectoralis

Ophiogomphus cecilia

Oxygastra curtisii

Sympecma paedisca



PROMOZIONE DELLA RETE NATURA 2000 E IL MONITORAGGIO A SCALA NAZIONALE DI SPECIE DI IN SETTI PROTETTI

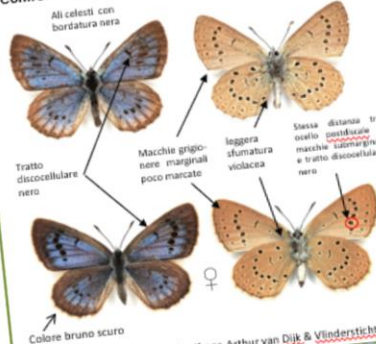
SCHEDA DI RICONOSCIMENTO

Phengaris teleius (Bergsträsser, 1779) – Maculinea della Sanguisorba (Lepidoptera, Lycaenidae)

Identificazione. Specie di medie dimensioni con una lunghezza dell'ala anteriore di 18-22 mm. La parte superiore delle ali in entrambi i sessi è celeste con numerose macchie nere. La parte inferiore delle ali, simile tra maschi e femmine, è di colore bruno chiaro con numerose macchie nere. *P. teleius* può essere confusa con *P. arion*, ma è possibile distinguerla grazie ai caratteri morfologici specifici: nervature alari maggiormente evidenziate di bruno-nero, minore estensione del colore di fondo più bruno marginale di punti scuri sulle ali posteriori poco distinguibili, nella parte ventrale un colore di fondo più grande chiaro e meno cinereo, punti neri tutti di simili dimensioni (al contrario in *P. arion* sono nettamente più grandi quelli sulle ali anteriori) e la ridotta sfumatura blu-verde nella parte basale delle ali posteriori.

Biologia ed ecologia. Specie igrofila, si trova in prati umidi, stagni e torbiere dalla pianura fino a 800 m di altitudine. Gli adulti sono attivi soprattutto tra la fine di giugno e la metà di agosto e vive in associazione con le formiche di alcune specie del genere *Myrmica* (in particolare: *M. scabrinodis*, *M. rubra*, *M. ruginodis* e *M. ruginosa*). Dalla schiusa delle uova fino alla terza muta il bruco si nutre delle infiorescenze immature di *Sanguisorba officinalis*, successivamente si lascia cadere al suolo e cerca di farsi adottare dalle operaie di *Myrmica* offrendo loro una sostanza zuccherina di cui le formiche vanno ghiotte e che ne inibisce l'aggressività. Le operaie sono indotte ad "adottare" la larva e la trasportano all'interno del formicaio, dove, nutrendosi delle larve delle formiche, compirà gli stadi finali del suo sviluppo fino allo sfarfallamento.

Confronto tra maschio e femmina (foto di Miloš Popović)



Distribuzione in Italia



Esemplari adulti (foto di Savitzky-Arthur van Dijk & Vlinderstichting-Albert Vliegenhart)



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Nome

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iscrivi la tua email

Email

elezione il luogo di avvistamento sulla mappa

Mappe Satellite



Informazioni sulla località

Località

iscrivi la data dell'avvistamento



Results



So far:
758 valid records
collected.

339 citizens
participated

Thanks!

