OP-076 [Bee Biology]
The memory of a wild honey bee and its strength today!

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Background
Since 1987, wild colonies of Apis mellifera siciliana in Sicily have been transferred to rational hives. These naturally surviving strains, bred without beekeeper intervention, have shown superior survival and performance compared to selected lines of other subspecies, as demonstrated in several national or European projects.

Problem Description
Early on, colonies more affected by varroa were removed and not allowed to reproduce, enacting an accelerated natural selection. After over 30 years of coexistence, relict strains now show minimal varroa susceptibility, much like naturally reared strains on islands. They also exhibit low honey consumption by anticipating seasonal changes. Their total independence from human intervention reinforces their resilience in the wild.

Methodology
Relict strains were selectively bred on Sicily's smaller islands and at isolated land mating stations to ensure genetic conformity to the subspecies. Initially verified through electrophoresis in 1987 (allozyes), subsequent morphometric, mitochondrial DNA and microsatellite markers were used to discard non-compliant strains. Genetic conformity to the subspecies helped to fix adaptive traits. The goal was to restore the nearly extinct Sicilian bee population by crossing separate relict strains and reintroducing them to their original territories. Importantly, wild honey bees are not domesticated bees gone feral but rather a lineage uninterrupted since prehistoric times.

Results and CONCLUSION: For all Apis mellifera subspecies, beekeepers and researchers should focus on identifying and reproducing wild honey bee strains in areas avoided by mainstream beekeeping. Propagating these naturally adapted bees would significantly reduce management costs, which are becoming unsustainable due to climate change and declining yields. This type of breeding supports the bee's total independence from humans, and the author is deeply convinced that their ability to survive in the wild is also his as a beekeeper, and not vice versa.

Practical Implications for Beekeepers
Wild honey bee management enables production of honey free from oxidizing agents like sugary feeds and acaricides, which weaken immunity. The Sicilian bee's naturally high antioxidant and vitellogenin levels, supported by scientific research, highlight the benefits of allowing wild bees to thrive without human interference.

THE MEMORY OF A WILD HONEY BEE AND ITS STRENGTH TODAY!

LA MEMORIA DI UN'APE SELVATICA E DELLA SUA FORZA OGGI!

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Apis mellifera siciliana

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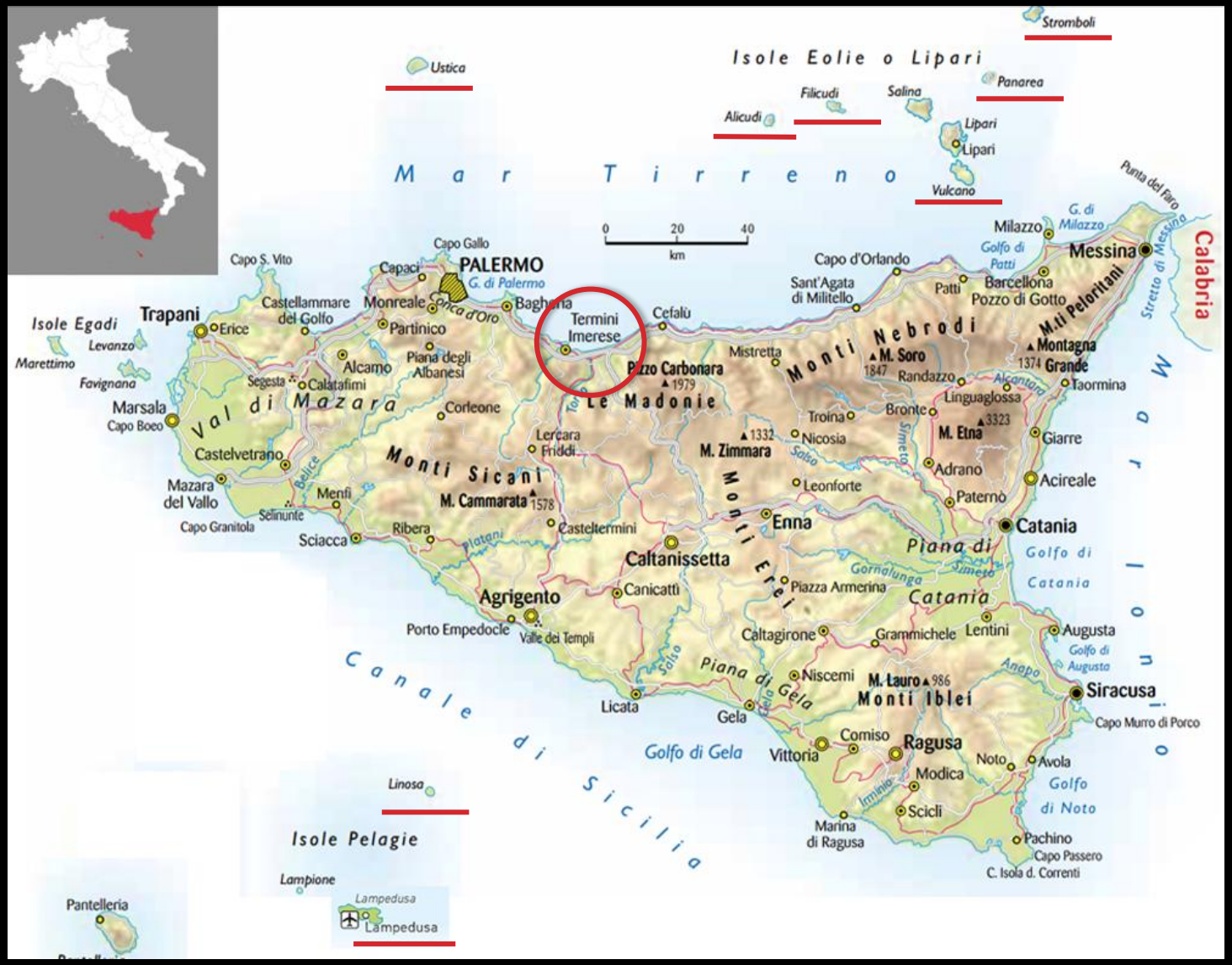
Dopo oltre 30 anni di convivenza, i ceppi relitti mostrano ora una minima suscettibilità alla varroa, simile a quella delle colonie allevate naturalmente su isole.

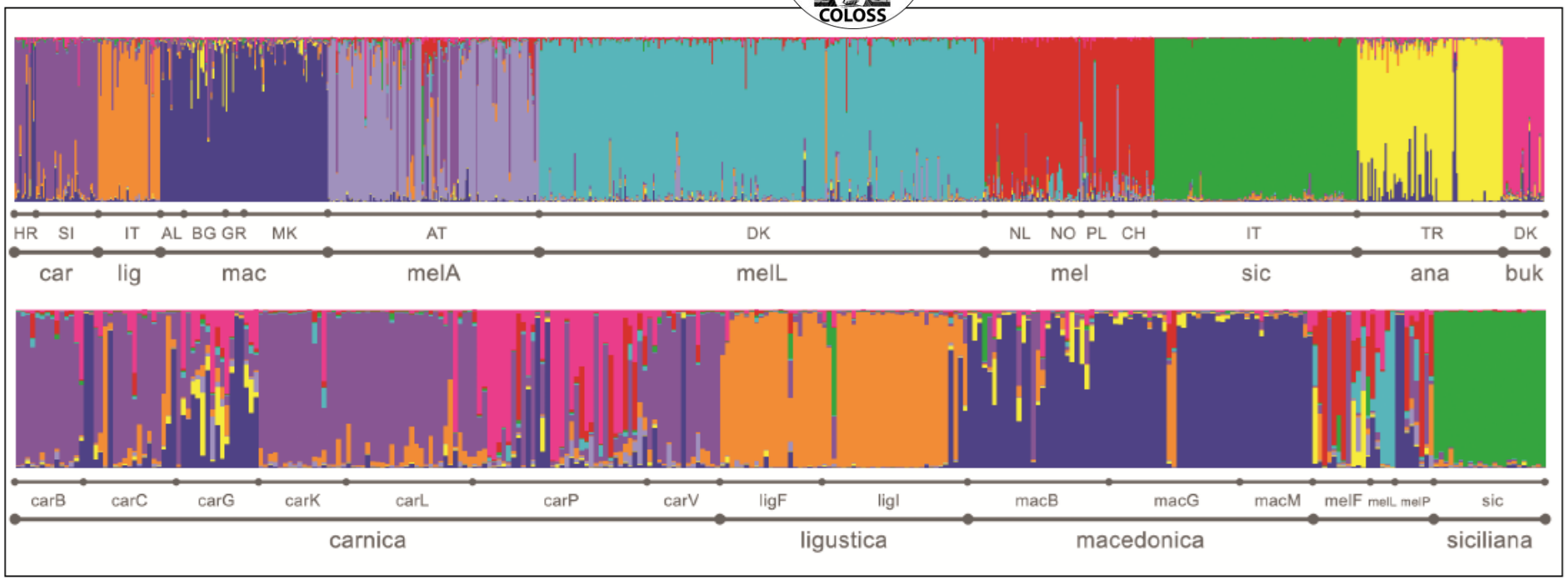
Relict strains were selectively bred on Sicily's smaller islands and at isolated land mating stations to ensure genetic conformity to the subspecies.



I ceppi relitti sono stati allevati selettivamente sulle isole minori della Sicilia e in stazioni di fecondazione isolate per garantire la conformità genetica alla sottospecie.

Genetic conformity

to the subspecies helped to fix adaptive traits.



The genetic origin of honey bee colonies used in the COLOSS Genotype-Environment Interactions Experiment: a comparison of methods (Roy *et al.*, 2014)

La conformità genetica ha permesso di fissare tratti adattativi.

Propagating these naturally adapted bees would significantly reduce management costs, which are becoming unsustainable due to climate change and declining yields.

Propagare api naturalmente adattate ridurrebbe significativamente i costi gestionali, ormai insostenibili a causa dei cambiamenti climatici e della riduzione delle rese.

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Questo tipo di allevamento crea la totale indipendenza dell’ape dall’uomo, e l’autore è profondamente convinto che la loro capacità di sopravvivere allo stato selvatico sia anche la sua come apicoltore, e non viceversa.

The Sicilian bee’s naturally high antioxidant and vitellogenin levels, supported by scientific research, highlight the benefits of allowing wild bees to thrive without human interference.

I livelli naturalmente elevati di antiossidanti e vitellogenina nell’ape siciliana, confermati da ricerche scientifiche, evidenziano i benefici di permettere alle api selvatiche di esprimere pienamente il loro potenziale senza interferenze umane.

Apicoltura Carlo Amodeo

Thank you …Grazie

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