

The *Varroa destructor* Infestation: A Persistent Challenge for Beekeeping

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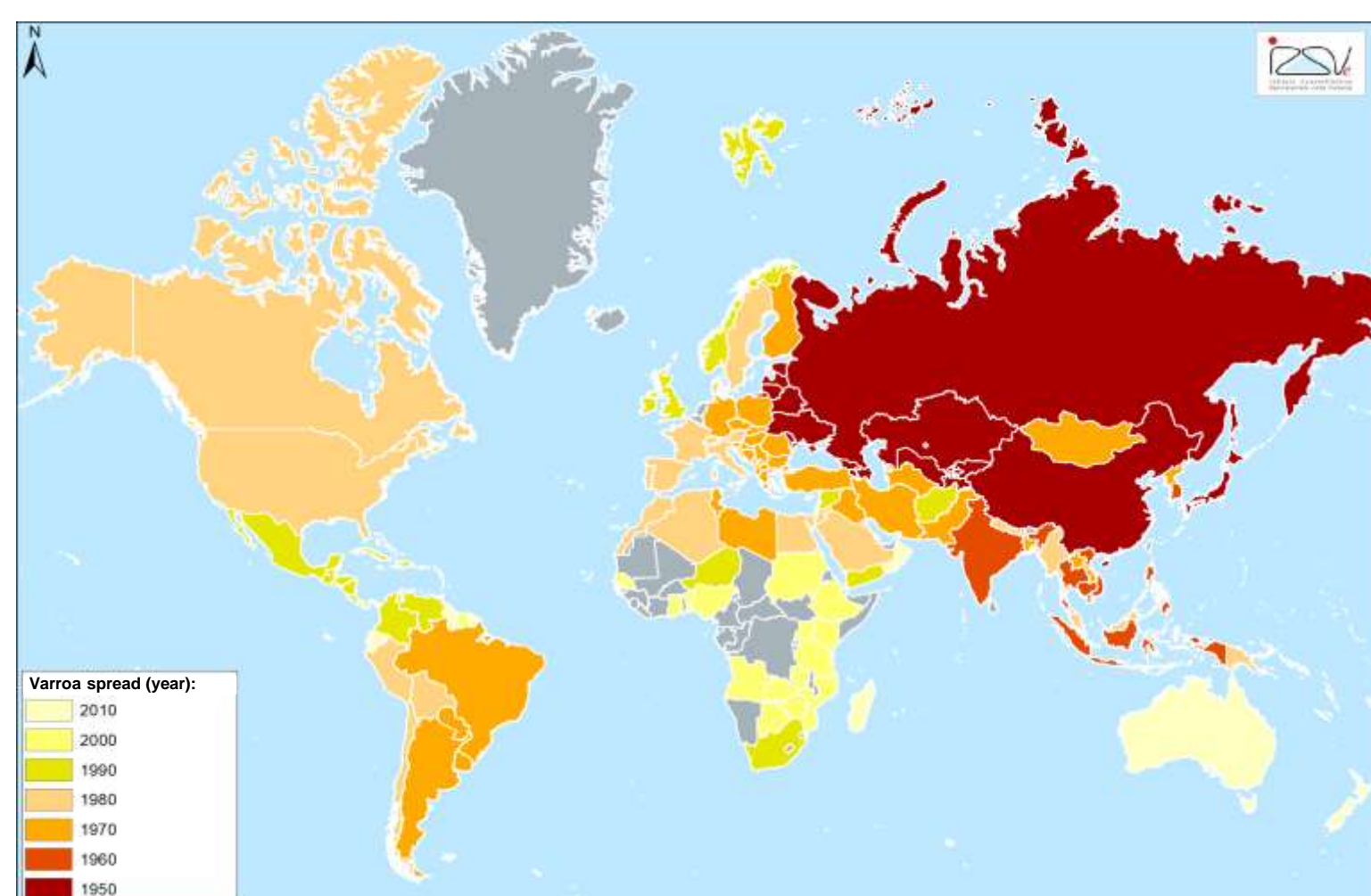


Figure 1: Current distribution of *V. destructor* in *Apis mellifera* colonies worldwide.



Figure 2: Geographic distribution and year of introduction of *V. destructor* in Mediterranean Basin.

Current global situation:

- Currently, infestation with *Varroa destructor* represents the main problem for beekeeping worldwide.
- This mite is responsible for varroosis (or varroatosis), a disease in honey bees caused by both direct damage and the transmission of viruses.
- Currently, *V. destructor* is present all over the world wherever climatic conditions allow for beekeeping, in both temperate and tropical regions (Fig. 1).
- WOA: Terrestrial animal health code (chapter 9.6).
- FAO: Good Beekeeping Practices Manual and Sustainable Apiculture Guidelines (2021).

Current European situation:

- Varroa was detected in the Soviet Republics on *Apis mellifera* as early as the late 1960s, and in Eastern European countries from the early 1970s (Fig. 2).
- 2018: EU listed honey bee disease: category C, D, and E.
- Currently, there are Varroa-free territories: Åland Islands in Finland since 2013 (except Brändö municipality) and six Azores islands in Portugal since 2019.
- Regulation (EU) 2016/429 "Animal Health Law".
- Delegated Regulation (EU) 2018/1629.
- Delegated Regulation (EU) 2018/1882.
- Delegated Regulation (EU) 2020/689.

History of Varroa in Italy and current situation:

- 1980: Varroosis classified as a notifiable disease (mandatory reporting for beekeepers).
- 1981: First official detection of *V. destructor* in the North-East of Italy [1].
- 1981 and 1983: Specific ordinances of the Ministry of Health (MH)
 - MH issued regulations recommending colony monitoring, preventive measures, and emergency actions (culling) in case of outbreaks
 - Some regions provided compensation for destruction of infested apiaries
- 1986: Infestation spread across the entire national territory [2].
- 1988: Varroa reported in all Italian provinces [3] (Fig. 3).
- 1995: National recognition of widespread infestation and mandatory disinfection or hive destruction in severe cases of infestation (isolated/local outbreak perspective).
- 2013: MH issued authentic interpretation of the regulation in force (updated at the current state of the art) → Structured, integrated and coordinated management approach for prevention, monitoring, and treatment of varroosis (epidemic/endemic disease perspective):
 - Use of authorized veterinary medicinal products
 - Integrated pest management strategies (IPM)
 - Continuous education and training for beekeepers
- 2022: Italian Veterinary Police Regulation repealed by Decree n. 136/2022 ... waiting for a new regulation on biosecurity

Increasing awareness of the importance of honey bee health and the economic and environmental impact of varroosis under pharmacovigilance and pharmacosurveillance frameworks

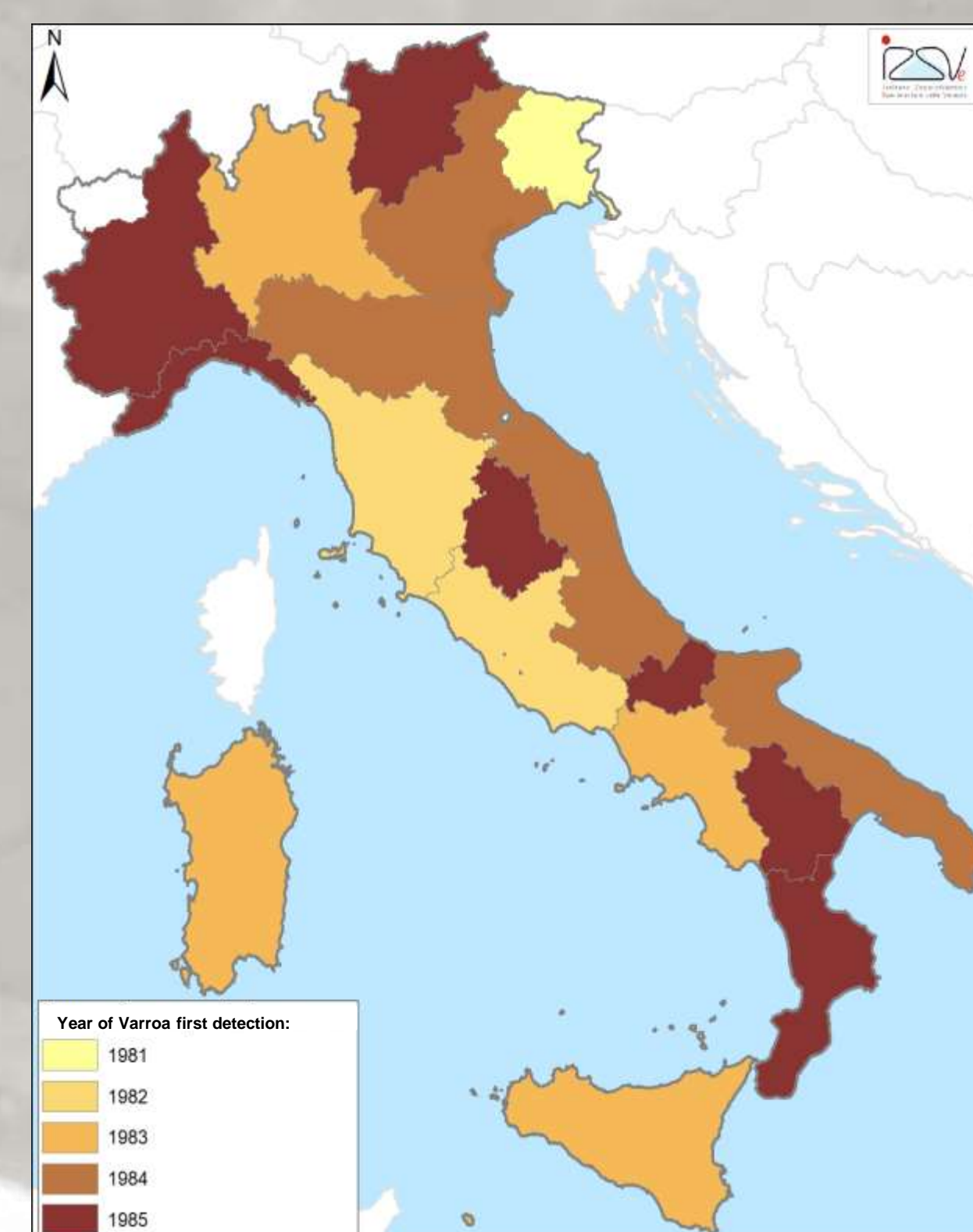


Figure 3: Temporal progression of *V. destructor* infestation across Italian regions.

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3. UNAAPI. 1989. Atti del seminario nazionale di studio. Strategie tecniche e organizzative per il controllo sul campo della varroasi delle api mellifiche. Roma, 25-26 febbraio 1988, pp. 150.