

State of the research in Spain and in the Mediterranean area

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Tavola rotonda: il *Rhynchophorus ferrugineus* in Italia e nel Mediterraneo. 19/05/08. Bari

Research not on the RPW but for its control



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Mediterranean research location and start time linked to the recent pest explosion

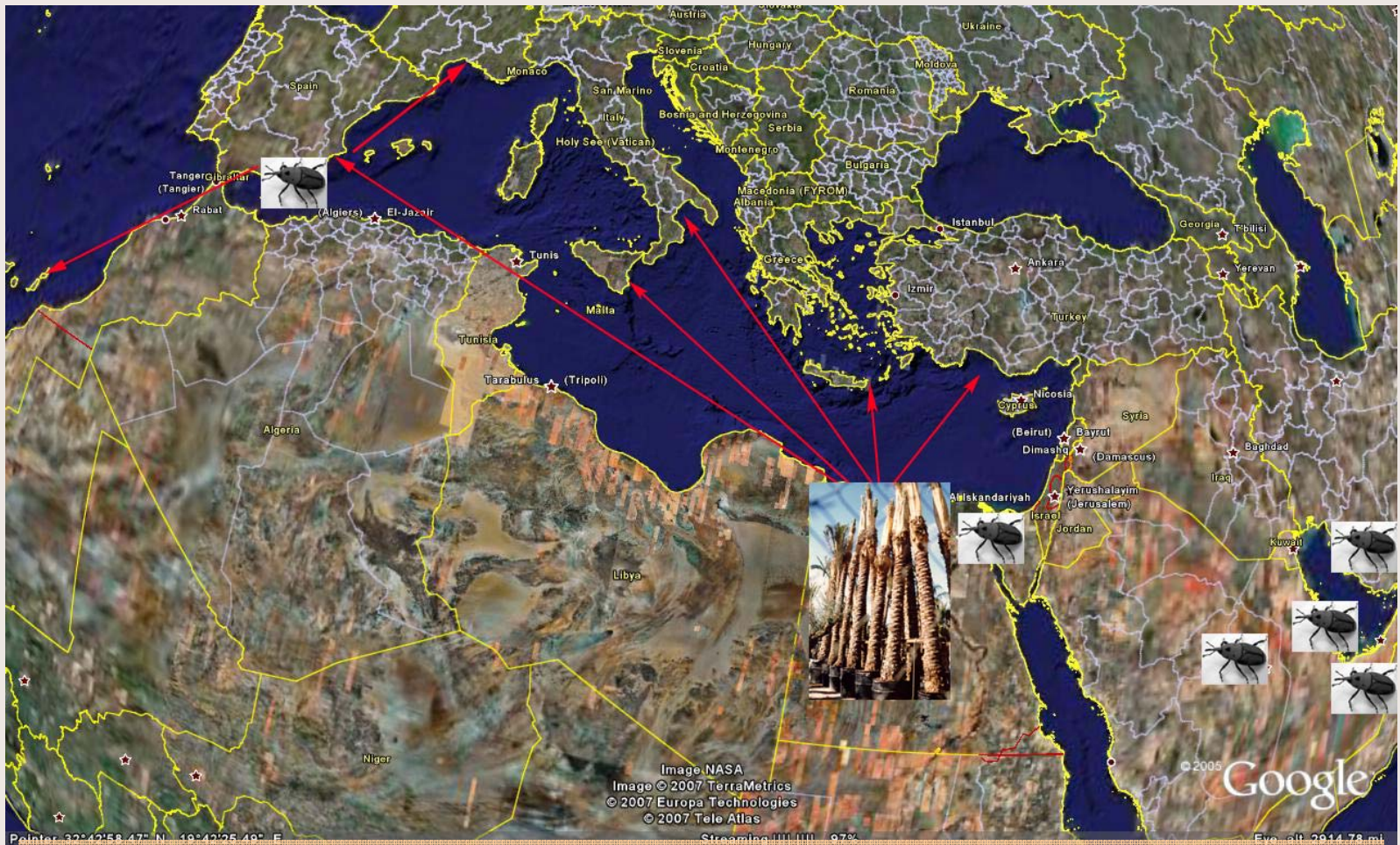


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Abundant previous research

- A lot of anterior research results from India, Middle East, Egypt but on RPW as pest of **coconut and date palm** not as pest of ornamental palms
- France: Rochat. **Thesis of Avand Faghieh** on date palm as a crop (2004)
- Spain: Barranco and Cabello team: **thesis of Martin** (2004), Esteban Duran (INIA). First research on ornamental palms.

1999: Israel. Quick control and limited research



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2003: Valencia (España)



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2004: Toscana (Italia)



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2005: Alicante, Castellón, Murcia y Almería, Tarragona, Canarias (España). Campania y Sicilia (Italia). Turquía y Creta.



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2006: Corse (France). Huelva, Baleares, Barcelona (Spain), Sardegna (Italia), Cyprus



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2007: Algarve (Portugal), French and Italian Rivieras, Malta,



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The challenges for research to control this pest

First challenge: to contribute to save a
patrimony of high value

Urban landscape based on palms



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Natural landscape of Canary Islands



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Elche palm grove world heritage



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Oasis agriculture and date production

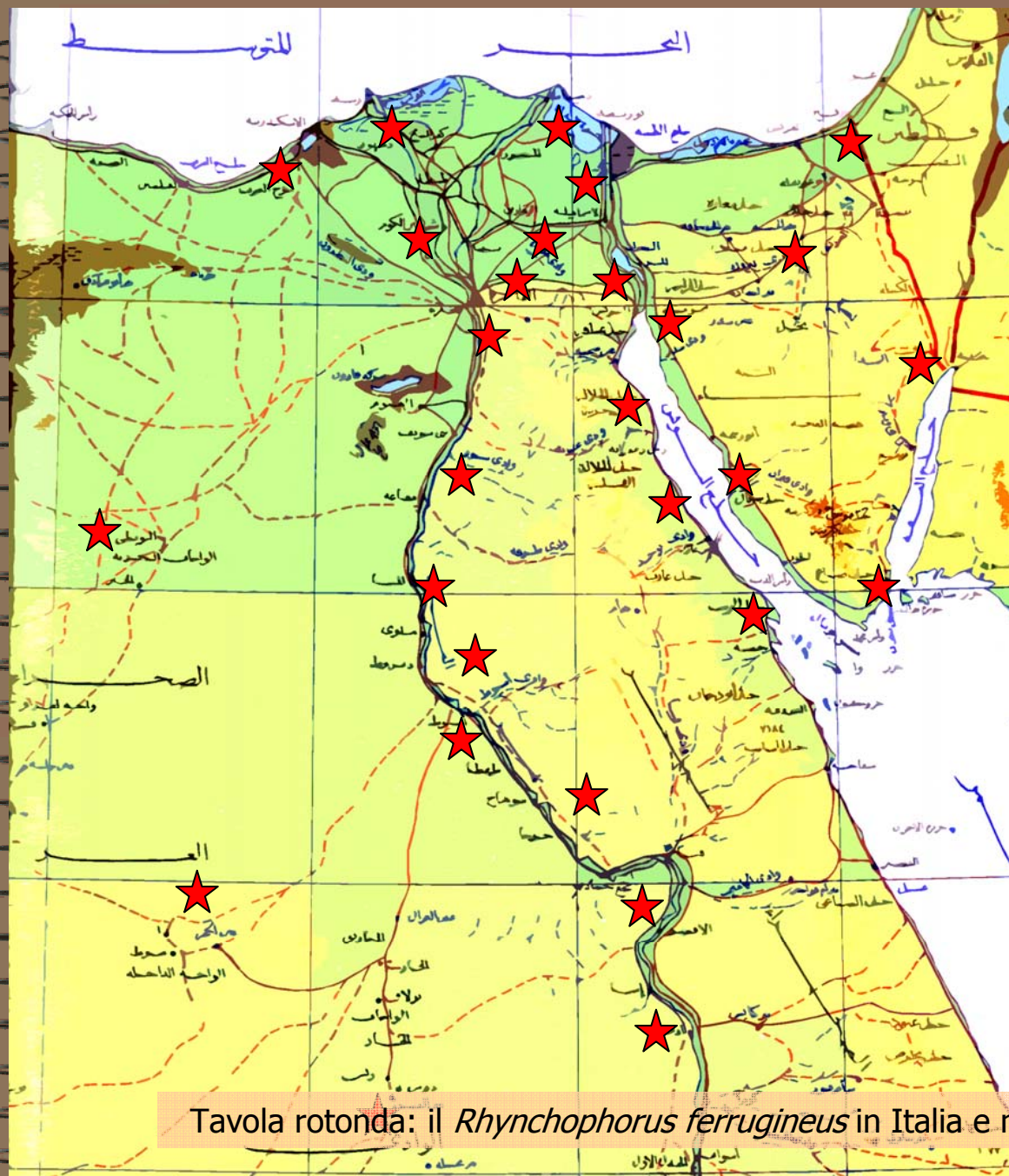


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A disaster for the small farmers



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Distribution of RPW in Egypt

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A serious threat on North African oasis



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Nursery palm production



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- **La venta de palmeras cae un 40%** por el picudo rojo y la crisis de la construcción La mitad de los ingresos de los viveros de Alicante y Elche procede de la comercialización de las palmáceas J. MARTÍNEZ La verdad (04/04/2008)
- dall'Associazione nazionale dei vivaisti esportatori (Anve), l'Ordine di agronomi e forestali di Roma ed Eur Spa, oggi nella Capitale. In particolare, Maurizio Lapponi, presidente dell'Anve, ha stimato **un danno nel 2007 per i vivai in 40 milioni di euro** tra export e indotto ANSA (07/03/2008)

Second challenge: to propose urgently solutions

RPW has a **limited natural large distance dispersion** but a **very quick local invasive capacity**. Furthermore, concerning the ornamental palms, the **dispersion of infested trees** has been generalized and uncontrolled during the last five years.



Distribuzione delle palme infestate a Palermo

(from G. Lo Verde, 2007)



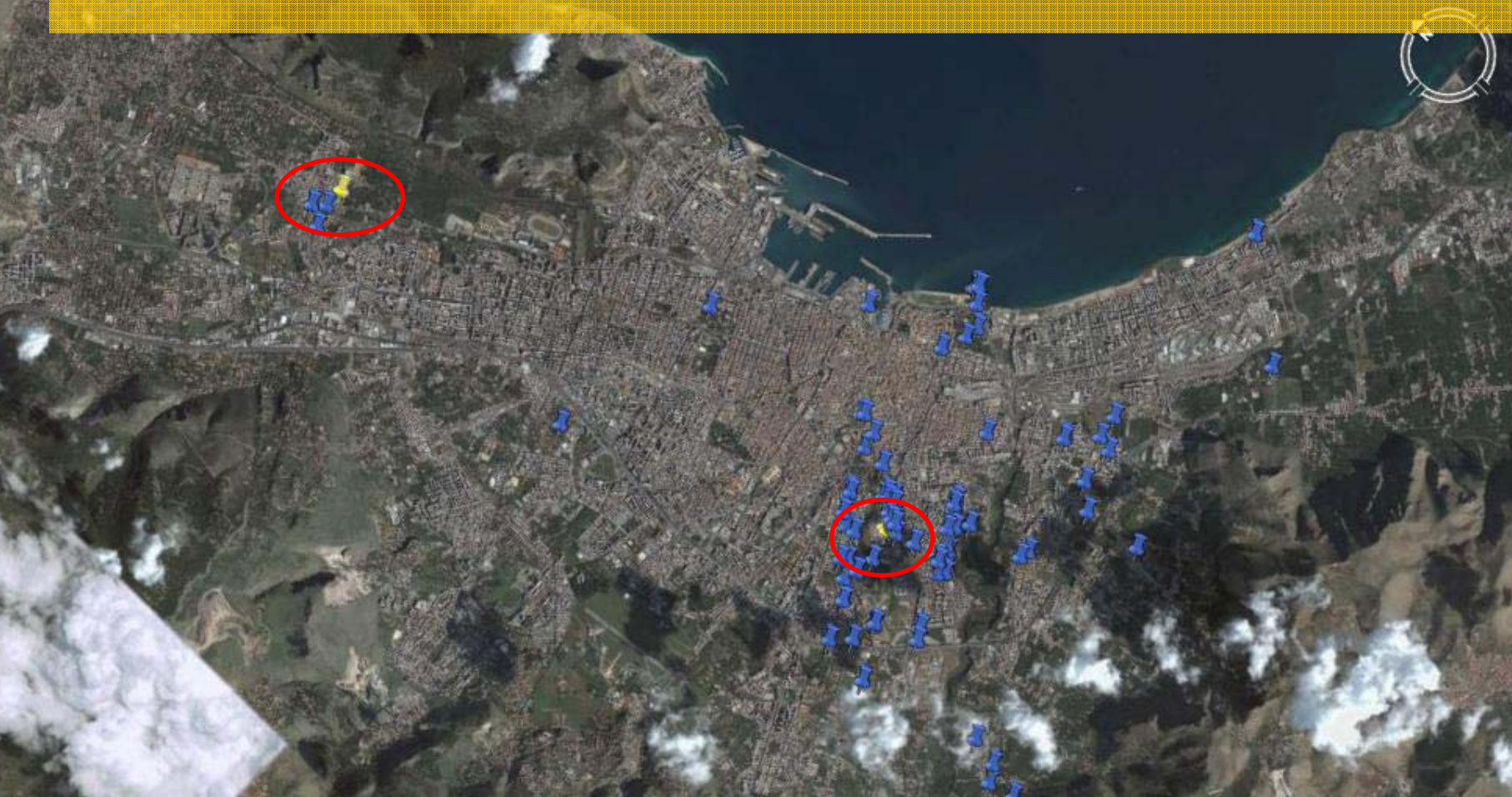
● Gennaio-Aprile 2006

Image © 2007 DigitalGlobe

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Distribuzione delle palme infestate a Palermo

(from G. Lo Verde, 2007)



- Gennaio-Aprile 2006
- Settembre-Dicembre 2006

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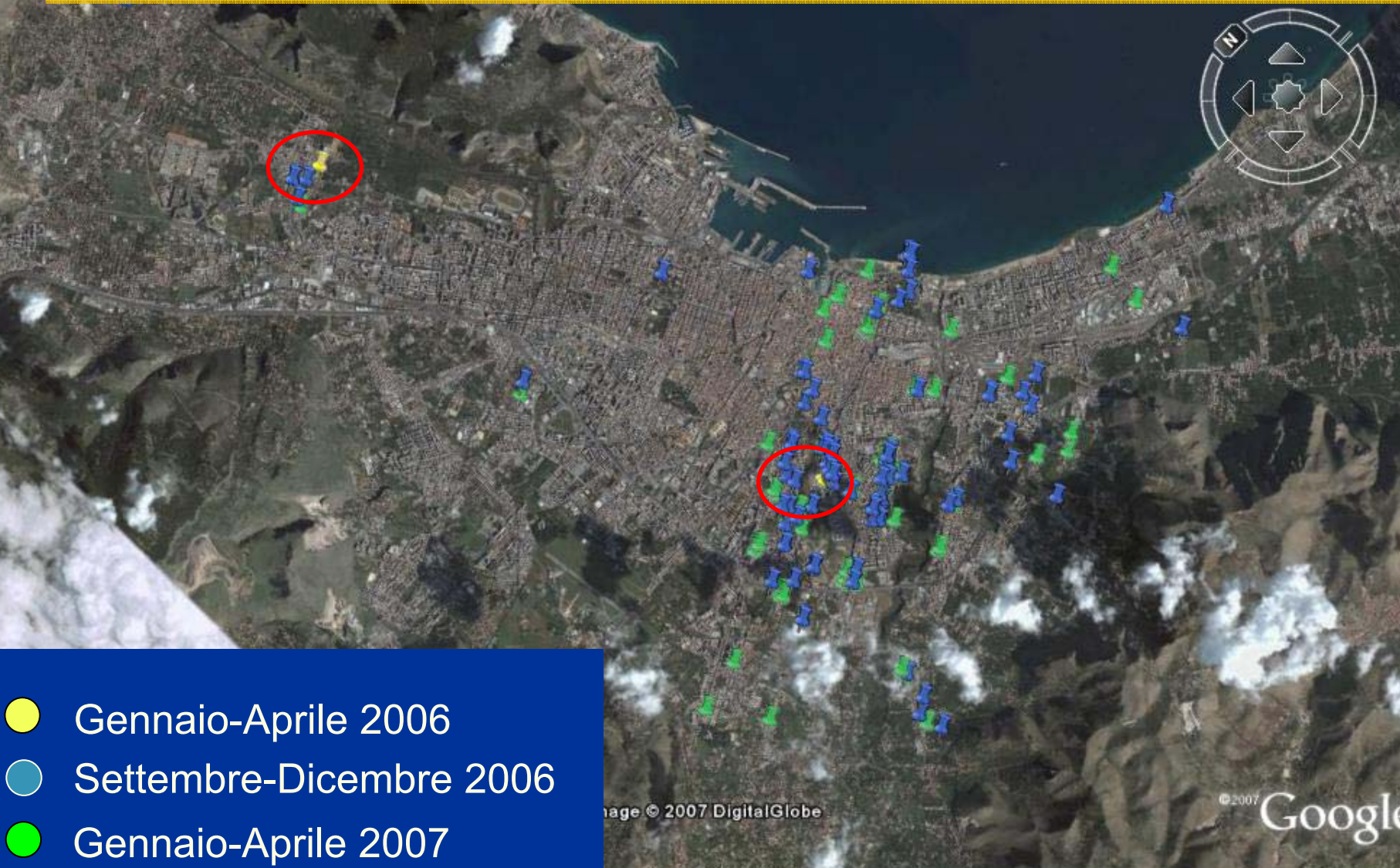
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100%

All 16.2

Distribuzione delle palme infestate a Palermo

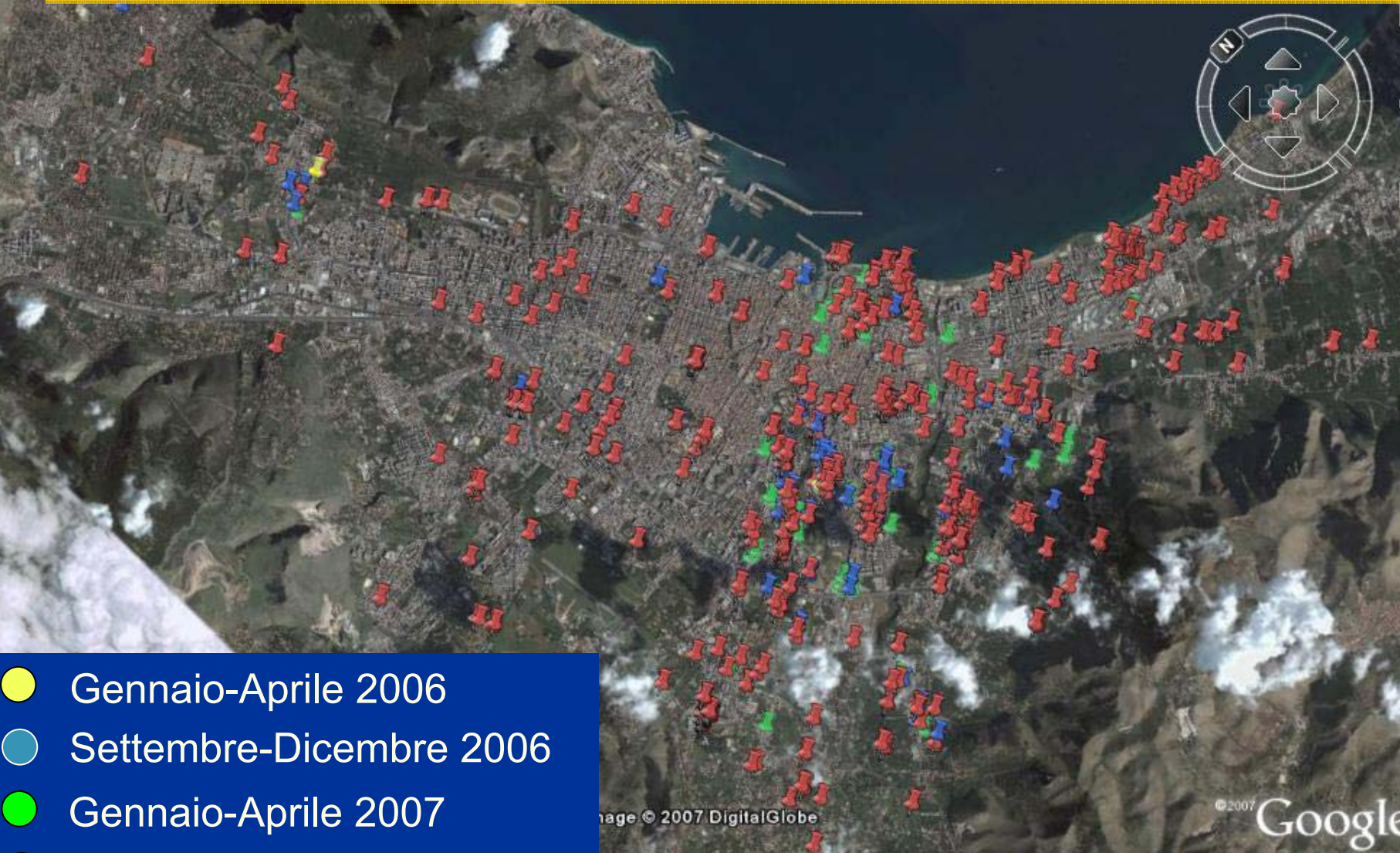
(from G. Lo Verde, 2007)



- Gennaio-Aprile 2006
- Settembre-Dicembre 2006
- Gennaio-Aprile 2007

Distribuzione delle palme infestate a Palermo

(from G. Lo Verde, 2007)



- Gennaio-Aprile 2006
- Settembre-Dicembre 2006
- Gennaio-Aprile 2007
- Settembre-Dicembre 2007

Furthermore, RPW is an extremely rapid killer especially of the *Phoenix canariensis*



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Miércoles 14/09/2005

Sequence of the collapse of the palm



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Jueves 15/09/2005



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Viernes 16/09/2005



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Lunes 19/09/2005



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Miércoles 21/09/2005



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Tentative presentation of the main researches going on in the Mediterranean area and of the principal gaps

- Essentially in relation with *P. canariensis* for North Mediterranean countries and with date palm for Egypt and Israel
- Many recent initiatives including private ones.
- Difficulty to know:
 - who is involved and in which exact research project
 - At which level: lab, semi field or field level.
 - Planned, initiated, running
- In relation with ornamental palms, state of the art very preliminary or difficult to assess because of the small number of well based technical and scientific publications

Papers of the last five years (CAB abstracts)

	Egypt	France	Israel	Italy	Spain	Turkey	Total
Situation	1	2	1	7	2	2	15
Regulation	1			1			2
Nat insectic.	1						1
Syn insectic.	1						1
Nat. enemies	3			1			4
Trapping	1		1		2		4
<i>B. bassiana</i>	1		1				2
Nematodes	8				1		9
Biology	2				1		3
Endotherapy					2		2
Early detec			1				1
IPM					2		2
Total	19	2	4	9	10	2	46

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Biology



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SUB-SUBJECT	PROVISIONAL LIST OF CONCERNED TEAM	ASSESSMENT OF THE STATE OF ART
Dispersion: modalities and capacities (distance,.)	Soto (Sp), Sarto (Sp), Lo Verde (It), Griffo (It)	Preliminary and controversial. Difficulty due to human interaction (palms movement, palms elimination)
Bio-ecology	El-Sebay (Eg)	Various previous data but still insufficient knowledge
Biological cycle	Sarto (Sp), Barranco (Sp), Cabello (Sp), Caprio (It), Jacas (Sp), Longo (It)	Well documented at the lab level but poorly at the field level (importance of feeding substrate)
Reproduction capacity	Cabello (Sp)	Documented at the lab level but unknown at the field level
Behaviour	Longo (It), Sarto (Sp), Gómez (Sp)	Very reduced knowledge
Infestation modalities	Ferry (Sp)	Well documented for date palm but still preliminary for <i>P. canariensis</i>

Preventive and curative treatments



SUB-SUBJECT	PROVISIONAL LIST OF CONCERNED TEAM	ASSESSMENT OF THE STATE OF ART
Sprayed insecticides		Real efficiency and persistency poorly documented. Difficult to use in urban context.
Synthetic systemic insecticides	Guerrierri (It) , Jacas (Sp), Gómez (Sp), Sarto (Sp), Tellez (Sp), Masso (Sp)	Various insecticides with a high efficiency at lab level. Good results at the field level but application modalities and persistency not well established.
Natural insecticides (Mainly Azadirachtin)	Gómez (Sp), Salama (Eg)	Preliminary but promising
Fungi (Mainly Beauveria bassiana)	López (Sp), Longo (It), Gindin (Is), Saleh (Eg)	Well documented at the lab level but inexistent at the field level. Application? Persistence in the field?
Glue	Sarto (Sp), Gómez (Sp), Peltier (Fr)	Not satisfactory with the present products
Fumigation	Jacas (Sp)	Field application too hazardous. Efficiency with big palms not well documented. Economic limitation.
Repellents		Inexistent when would be very useful

SUB-SUBJECT	PROVISIONAL LIST OF CONCERNED TEAM	ASSESSMENT OF THE STATE OF ART
Mechanical sanitation	Lo Verde (It), Ferry (Sp)	Increasing positive demonstrations for <i>P. dactylifera</i> and <i>P. canariensis</i> if early infestation detection. Essential part of IPM strategy.



Endotherapy



SUB-SUBJECT	PROVISIONAL LIST OF CONCERNED TEAM	ASSESSMENT OF THE STATE OF ART
Pesticides migration capacity	Ferry (Sp), Fertinyect (Sp), Caprio (It), Sipcam (Sp)	Few and variable results
Systems comparison		No data
Efficiency in field	Speranza (It), Arboriviridis (It), Technogreen (It), Fertinyect (Sp), Gómez (Sp), Difesa ambientale (It), Green World Consulting (It)	Empiric results. Very practical in urban conditions.
Long term sanitary consequences	Mello (It), Fertinyect (Sp)	Empirical data, but questionable issue

Other insecticides application techniques

SUB-SUBJECT	PROVISIONAL LIST OF CONCERNED TEAM	ASSESSMENT OF THE STATE OF ART
Irrigation	Gómez (Sp), Jacas (Sp)	Few anterior results
Painting	Jacas (Sp),	Preliminary

Nematodes

SUB-SUBJECT	PROVISIONAL LIST OF CONCERNED TEAM	ASSESSMENT OF THE STATE OF ART
Preventive and Curative treatments	Gomez (Sp), Jacas (Sp), Tellez (Sp), Sarto (Sp), Shamseldean (Eg), Idebio (Sp)	Well documented at the lab level. First results at the field level.
Viability in the palm and in the environment	Salama (Eg) , Monzer (Eg), Ferry (Sp)	Could allow palm protection by monthly treatments

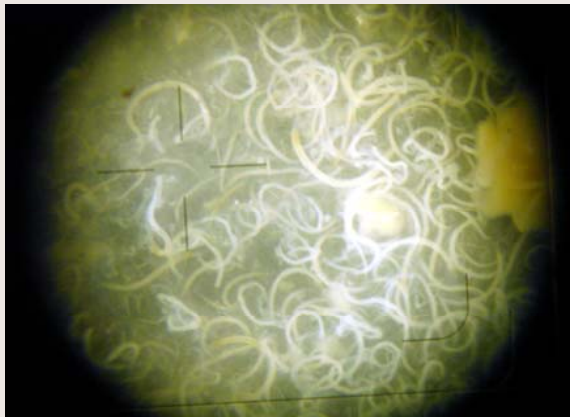


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Trapping

SUB-SUBJECT	PROVISIONAL LIST OF CONCERNED TEAM	ASSESSMENT OF THE STATE OF ART
Models of traps and location	Gómez (Sp), Tellez (Sp), Opennature (Sp)	Insufficient results on an important issue
Pheromone dispenser type	Toussaint (Ho), Sarto (Sp), Soroker (Is), Gómez (Sp)	Variable diffusion
Distance attraction	Sarto (Es), ferry (Sp)	Still unknown
Synthetic attractants	Rochat (Fr) Ortiz (Sp) Ferry (Sp)	Not yet found, preliminary research



Early detection



SUB-SUBJECT	PROVISIONAL LIST OF CONCERNED TEAM	ASSESSMENT OF THE STATE OF ART
Acoustic	Soroker(Is), Pérez (Sp), Ferry (Sp)	Not practical and insufficiently accurate except for date palm offshoots
Infrared		Not promising for early detection
Teledetection	Littardi (It)	Initial but problematic for really early detection
Chlorophyll	Speranza (It)	Preliminary
Odours		Previous interesting results with dogs
Visual	Ferry (Sp), La Mantia (It)	Visual early symptoms allow palms sanitation

Natural enemies

SUB-SUBJECT	PRELIMINARY LIST OF CONCERNED TEAM	ASSESSMENT OF THE STATE OF ART
Fungus		?
Nematodes	Caprio(It), Alfazairy (Eg), Shamseldean (Eg)	Efficiency not documented or too weak
Mites	Longo (It), Gomaa (Eg), Ragusa (It)	Efficiency not documented or too weak
Insects		Very few previous data
Bacillus and virus	Alfazairy (Eg), Salama(Eg)	Efficiency not documented or too weak

Other subjects

MAIN SUBJECT	PRELIMINARY LIST OF CONCERNED TEAM	ASSESSMENT OF THE STATE OF ART
<p>Localization, importance and evolution of the pest</p>	<p>Greece, Portugal (?), Spain; Italia, Turkey (initiated), Egypt, Israel; Other countries (?)</p>	<p>Sometimes not documented, disperse, incomplete, not well dated or hidden information</p>
<p>Integrated Pest Management</p>	<p>Ferry (Sp), Longo (It), Lo Verde (It), Porcelli (It)</p>	<p>Good Increasing empiric results but to intensify as it is the right strategy to control RPW</p>
<p>Phytosanitary Regulation</p>	<p>Anon. (It), Ferry (Sp), Salama (Eg)</p>	<p>Very important issue, insufficient cooperation with PPAs</p>
<p>Economy</p>		<p>Seriously missing especially for Egypt</p>
<p>Other species beside <i>P. dactylifera</i> and <i>P. canariensis</i></p>		<p>Some empiric data but insufficient especially for Washingtonia and substitution species</p>

Conclusions

- Need for better cooperation with PPAs, municipalities and date growers
- Urgent need of applied solutions and better IPM to contain the RPW and to save the affected patrimony
- Insufficient field or semi-field research. Priority.
- Data base of researchers and projects
- Network of exchanges
- Better national and regional cooperation
- International scientific and technical symposium

Molte grazie



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