



Why is bee health preserved
in Latin America ?



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in Latin America ?

1. Situation
2. Beekeeping practices
3. Land use
4. Toxicology
5. Small scale is beautiful?
6. Native bees

- Biodiversity losses at world scale: an ethical problem, with social and economic consequences.
- Problem of losses of pollinators, despite they contribution with 9.3% of the world crops value, and despite > 60% of cultivated species require pollination.
- Bees as main pollinators; distinction between the well-known *Apis mellifera* and other bee species.

1. Situation

THE INDEPENDENT
The New York Times
Le Monde.fr
Lajornada

Apidolog e
  INRA/DIB-AGIB/EOP Sciences, 2010
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Review article

**Preserved honey bee health in Latin America:
a fragile equilibrium due to low-intensity agriculture
and beekeeping?***

R my VANDAME¹, Mar a Alejandra PALACIO²


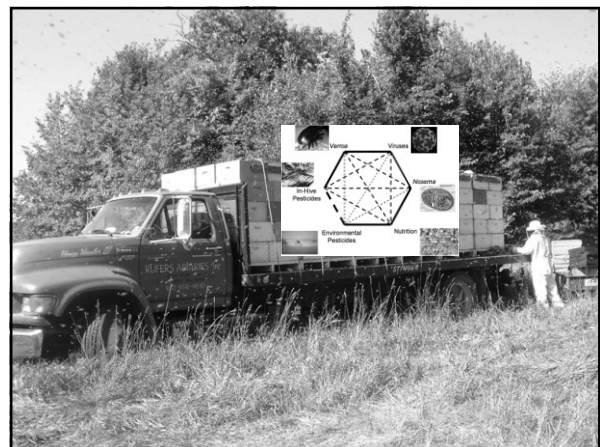
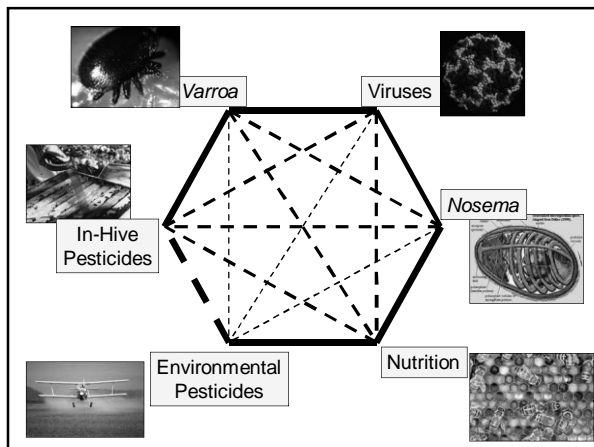
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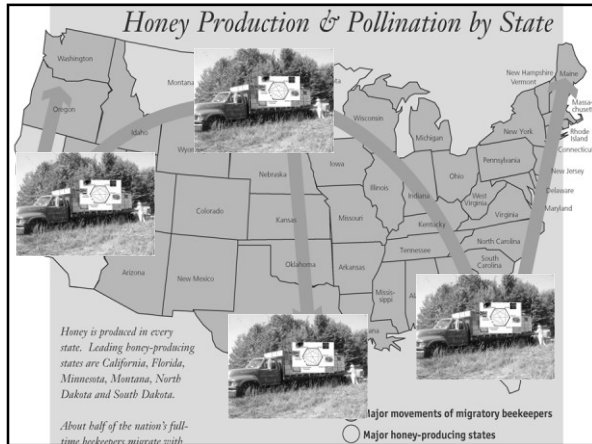
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Abstract - The Latin American subcontinent contains some of the world's major honey producing and exporting countries, but the status of bee health in this part of the world has not been clearly documented. There have been no reports of massive colony losses in Latin America, at least from the symptoms of CCD (colony collapse disorder) or in the proportion and extent of the situations in the US and Europe. We examine possible reasons for the difference, and discuss hypotheses that this situation could have health conse-

sont brut

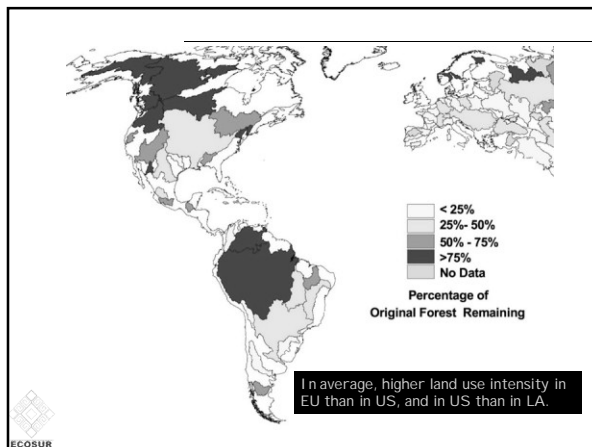
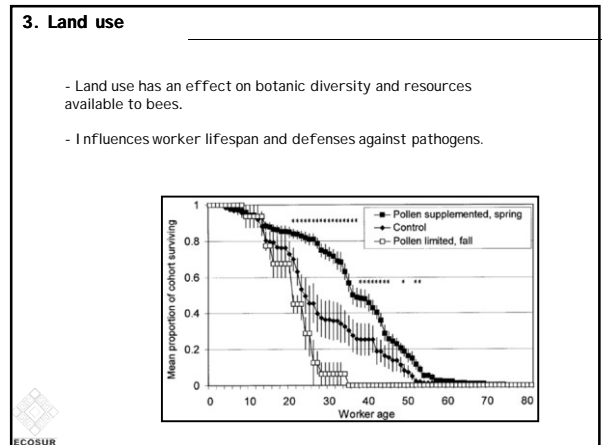
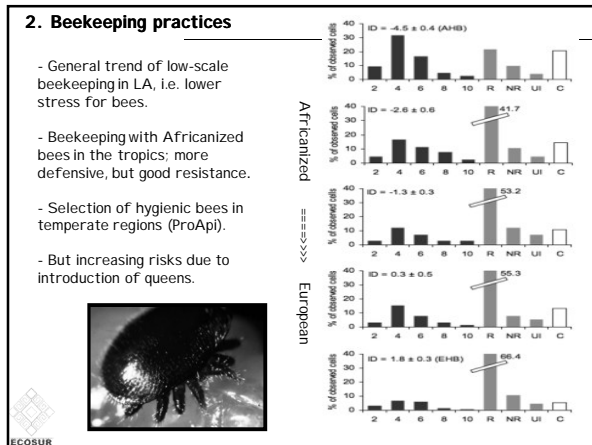





- Important colony losses since 2006-2007 in the US and EU. General perception on a multifactorial origin: practices and anthropized environments.

- What about Latin America?
Until today, many local problems reported, but rarely formally analyzed.
Above all, there seems to be no massive problems.

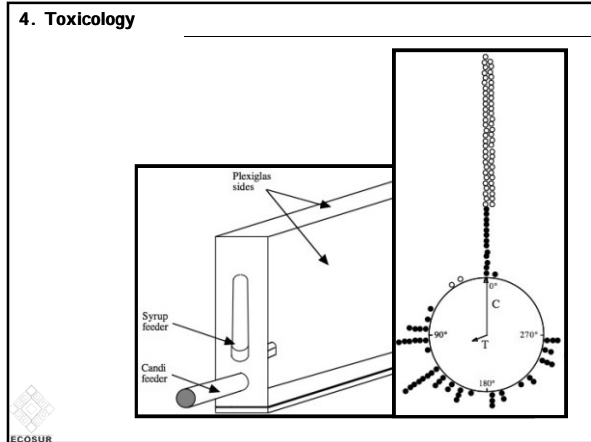
- Triple possibility:
- unselected (feral) bees
- lesser land use intensity
- lower exposure to pesticides



	Superficie cultivada (1000 ha)	Cultivos por 1000 habitantes (ha)	Cultivos en % de tierras
Fuente	EarthTrends	EarthTrends	EarthTrends
Fecha	1999	1999	1998
Mundo	1,501,452	251	11.3
Europa	307,286		
Países Bajos	948	60	23.0
Alemania	12,038	147	33.9
Francia	19,515	331	35.4
Italia	11,422	199	37.0
España	16,530	464	36.6
Norte América	224,703		
EUA	179,000	638	19.1
Centro América	43,426		
México	27,300		
Guatemala	1,905		
Honduras	1,827		
Cuba	4,465		
Sud América	116,131		
Brasil	65,200		
Chile	2,294	153	3.0
Argentina	27,200	744	9.8
Uruguay	1,307	394	7.4

In average, higher land use intensity in EU than in US, and in US than in LA.

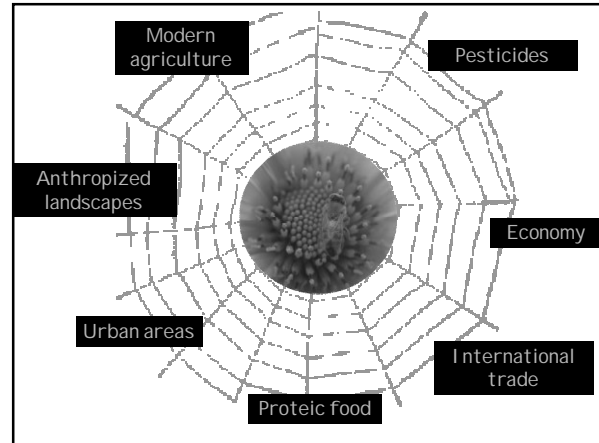
But intensive crops are gaining lands in Argentina, Brazil, even Mexico so...?



Fuente Fecha	Uso de fertilizantes (kg/ha)	Uso de insecticidas (T)	Uso de insecticidas (g/ha)
	EarthTrends 1999	FAOSTAT 1990-2001	Calculado
Mundo	94	388743	259
Europa			
Países Bajos	501	488	514
Alemania	252	1426	118
Francia	244	6109	313
Italia	155	25215	2208
España	129	9345	504
Norte América			
EUA	111	102682	574
Centro América			
México	66	-	-
Guatemala	95	234	123
Honduras	159	1480	810
Cuba	33	-	-
Sud América			
Brasil	90	15076	231
Chile	207	2893	1281
Argentina	30	7422	273
Uruguay	103	222	170

5. Small scale is beautiful?

Possible reasons for preserved bee health...	... but a fragile equilibrium
Low intensive beekeeping and few pathogens	Trend to intensification (migration)
Feral bees	Introduction of exotic and unfitted lines
Good resources for the bees	Intensification of the land use
Lower use of pesticides	Increase of pesticide use



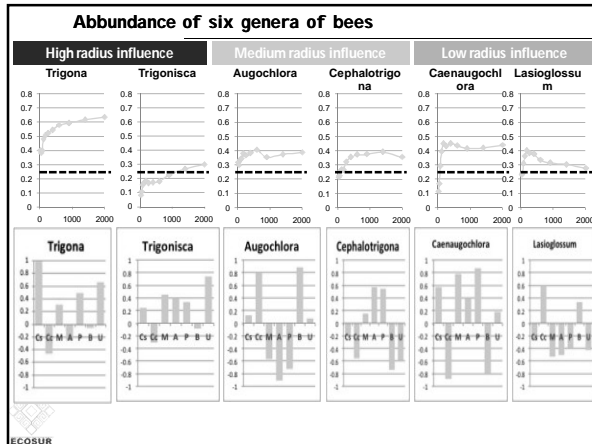
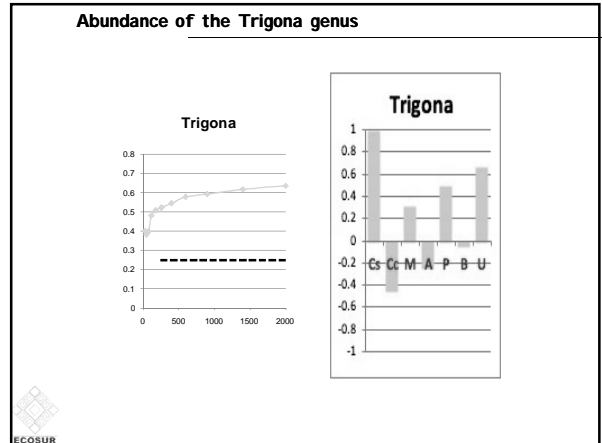
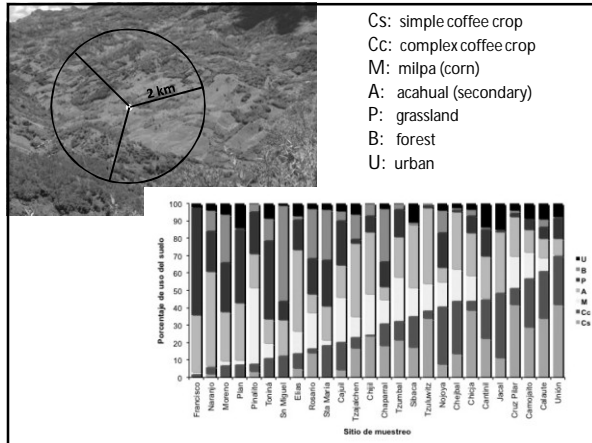
6. What about native bees ???

In Chiapas, certainly more than 400 species
 In Mexico, more than 1800 species
 In the world, more than 20000 species

How are they ???

MUTUAL

Mutualisms and bees in tropical landscapes: risks and rescue for biodiversity and crops



Conclusions

- Apis mellifera as an indicator of the health of wild bees and insects in general.
- Latin America as a model and reference for the impact of low-scale agriculture and beekeeping (along a matrix of contrasts).
- But practices are rapidly intensifying, increasing the risks for bee health.
- Geographic approach of bee health is necessary.




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