DIPARTIMENTO DI
SCIENZE DELLA VITA

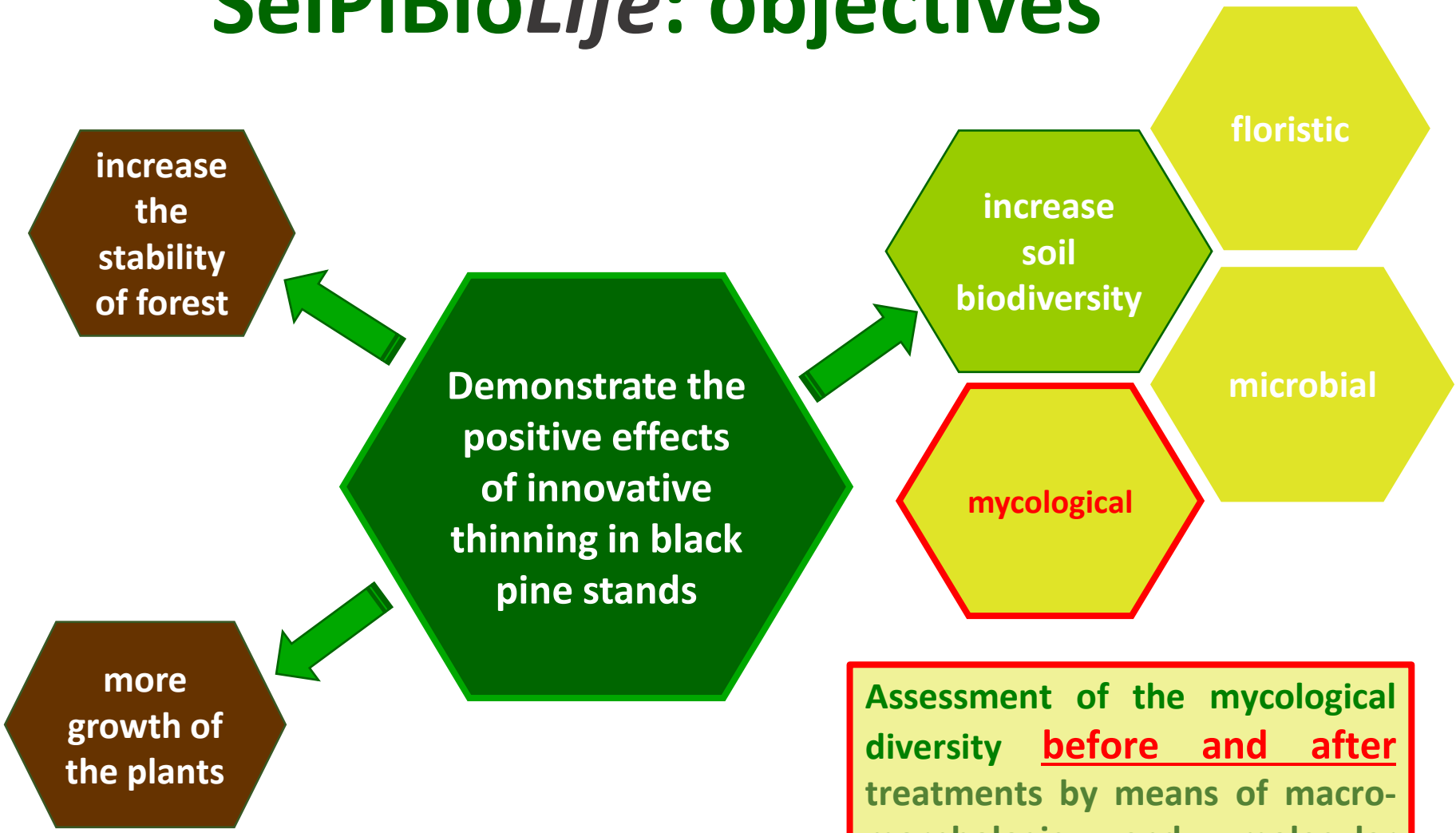
Effetti sulla biodiversità fungina

Elena Salerni

NUOVI APPROCCI PER LA GESTIONE SOSTENIBILE DEL PINO NERO:
biodiversità e mitigazione

MARTEDÌ 14 MAGGIO 2019 | 9.30 - 16.30
Firenze, Sala Giordano - Palazzo Medici-Riccardi

SelPiBio*Life*: objectives



Assessment of the mycological diversity before and after treatments by means of macro-morphologic and molecular techniques (Actions A5 e D4)

✓Methods

❖ **MACROFUNGI:** According to the method described in Arnolds (1981), mycocoenological observations before and after the silvicultural treatments were made to characterize the macrofungal community. In autumn, when climatic conditions are generally optimal for fungal fruiting in our areas, periodic excursions were organized and all epigeous fruit bodies were registered and counted in 54 plot (27 in Pratomagno area and 27 in Amiata area). Species identification was performed with the usual morphological techniques and employing general analytic keys and monographs. At each sampling for each species fresh and dry weight was also detected in order to have the fungal biomass.

❖ **ECTOMICORRIZAE:** Soil cores of 30 cm in length and 6 cm in diameter were collected in 54 plot before and after the silvicultural treatments. Anatomical structures were examined and described according to Agerer (1991, 1987-2008). ECM tips of each morphotype were counted and morphotypes were molecularly identified using a direct PCR approach as described by Iotti and Zambonelli (2006).

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✓Where & when ….

PRATOMAGNO				
before	after			
2014	2015	2016	2017	2018
23/9/14	22/9/15	21/6/16	13/6/17	12/6/18
7/10/14	5/10/15	11/10/16	26/9/17	25/9/18
21/10/14	20/10/15	24-25/10/16	10/10/17	9/10/18
4/11/14	2/11/15	9/11/16	23/10/17	22/10/18
18/11/14	17/11/15	21/11/16	8/11/17	5/11/18
8/6/15			22/11/17	19/11/18
AMIATA				
before	after			
2014	2015	2016	2017	2018
1/10/14	28/9/15	20/6/16	20/6/17	11/6/18
15/10/14	12-13/10/15	3/10/16	2/10/17	3/10/18
27/10/14	26-28/10/15	17-19/10/16	16/10/17	15/10/18
11/11/14	09-10/11/15	31/10/16	31/10/17	29/10/18
24/11/14	23/11/15	14/11/16	16/11/17	12-13/10/18
10/6/15			27/11/17	05-06/12/18

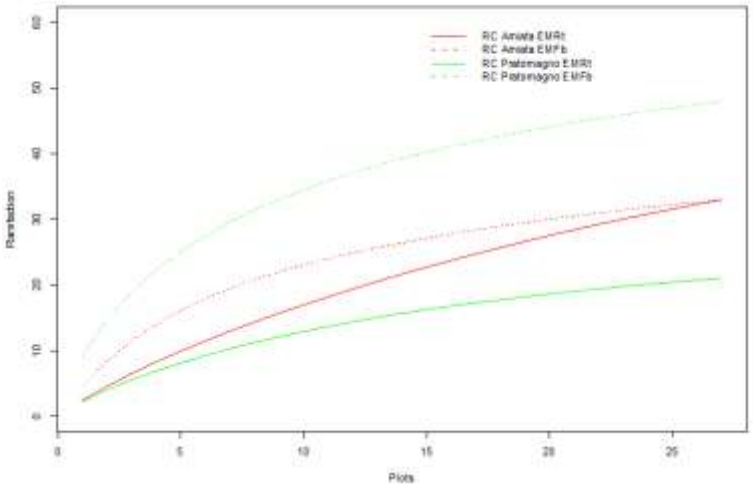
- Total days of sampling: **63**
- Total number of species: **391**
- Total number of fruitbodies: **52820**
- Total fresh weight: **240 kg**
- Total dry weight: **25 kg**

✓Results

Action A5 - Assessment of the mycological diversity **before** treatments by means of macro-morphologic and molecular techniques

Which criteria should be considered when appraising ectomycorrhizal communities for forest research?

	Total	Amiata	Pratomagno
Number of plot	54	27	27
EMFb richness	70	33	48
Number of EMFb	2527	1250	1277
EMRt richness	54	26	28
Number of EMRt	2946	1717	1229



PERMANOVA results on the whole presence/absence dataset
***P<0.001**

Source of variation	*df*	MS	F
Zone	1	30,797	8.5637*
Type	1	29,519	8.3906*
Plot	16	3596.2	1.4652*
Zone x Type	1	15,583	4.4296*
Plot x Type	16	3,518.1	1.4334*
Residual	72	2,454.4	
Total	107		

Results of PERMANOVA pairwise test for Amiata and Pratomagno Zones for each pair of levels of factor 'Type'

Type	Amiata	Pratomagno
	t	*t*
EMRt, EMFb	2.1459**	2.8237*

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✓Results

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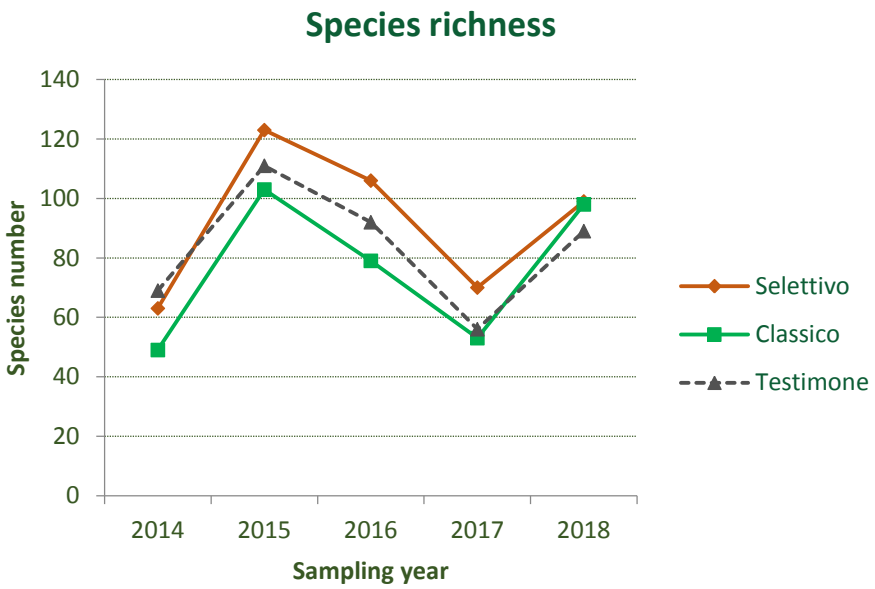
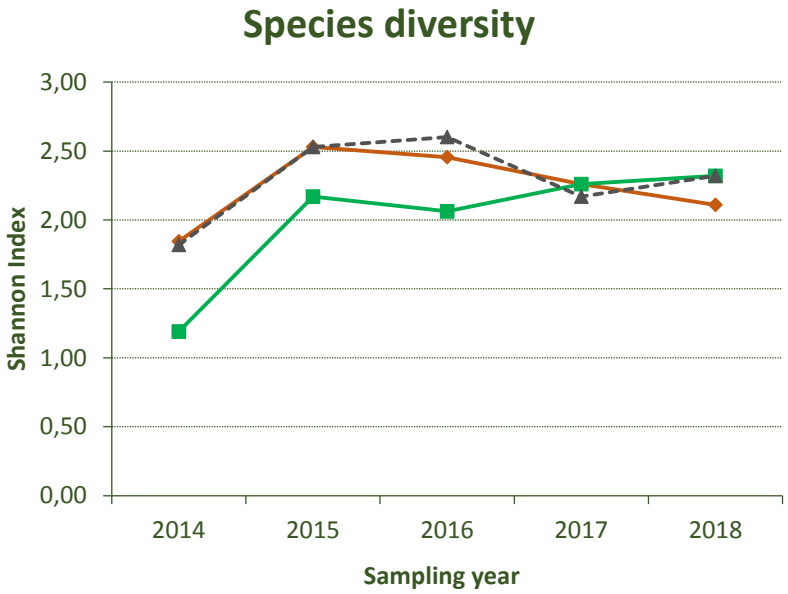
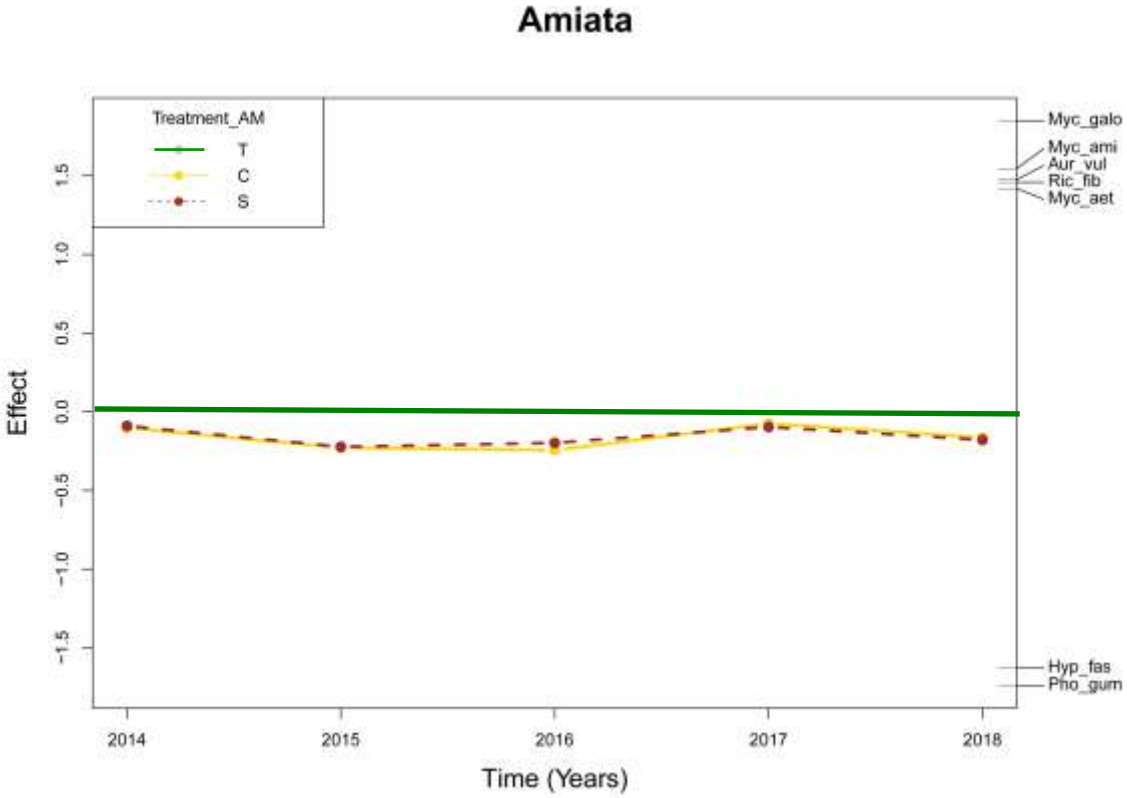
Vivo d'Orcia - Amiata





✓Results

We performed a first explorative analysis showing the departure of treatment plots from the control plots using the **Principle Response Curve** (PRC) technique. Whereas other ordinations result in a difficult-to-interpret diagram, PRC related methods are able to show changes in community composition in a diagram that is easy to read. The PRC is used to show **changes in species assemblages over time, contrasting several treatments with a control.**



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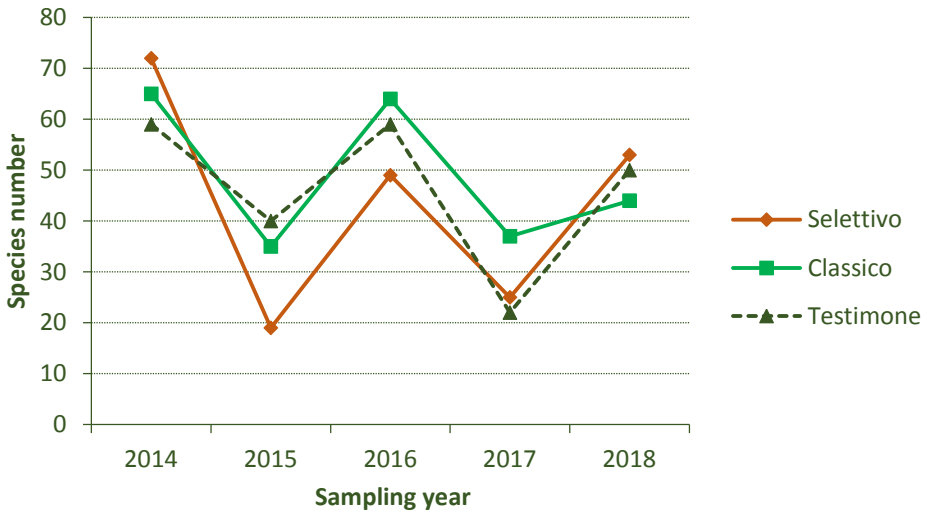
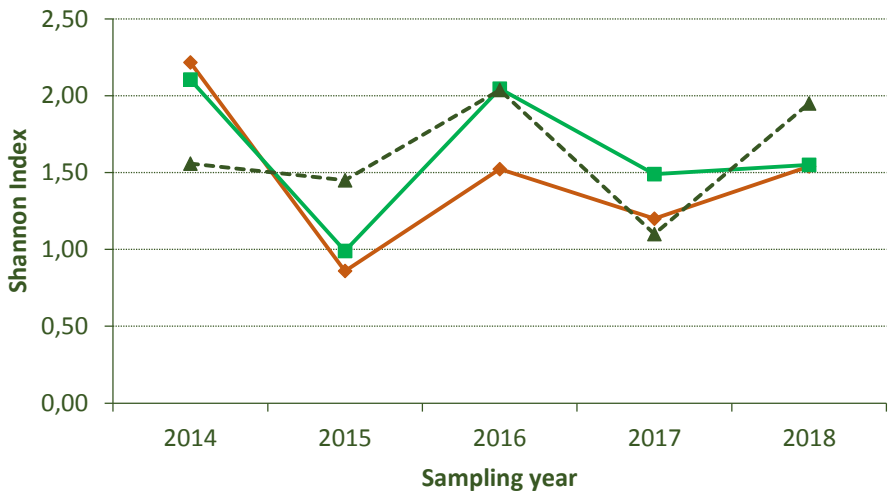
Pratomagno

Species richness



Species diversity



✓Results

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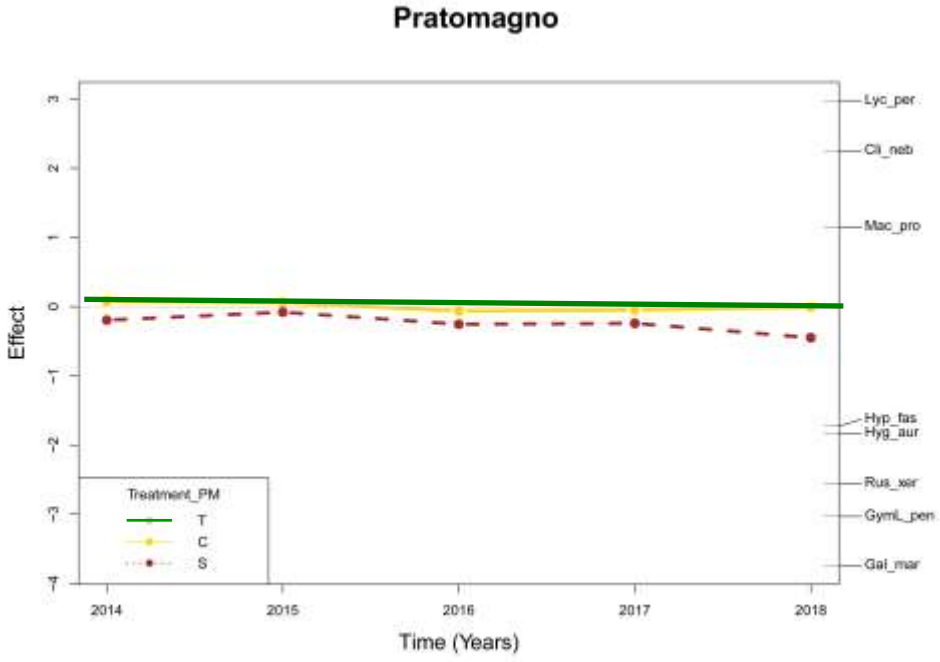

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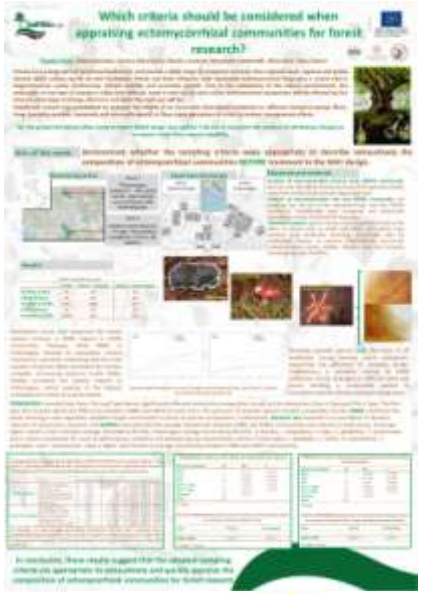
SelPiBio*Life*: selvicoltura innovativa per accrescere la biodiversità dei suoli in popolamenti artificiali di pino nero

Elena Salerni, C. Perini, E. Bianchetto, S. Bruschini, I. De Meo, S. Mocali, P. Montini, S. Samaden & P. Cantiani

Biodiversità in un rimboschimento di *Pinus nigra*

Il potenziale ecologico ed economico dei macromiceti



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The economic potential of mushrooms in an artificial *Pinus nigra* forest

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journal homepage: www.elsevier.com/locate/scitotenv

Teamwork makes the dream work: Disentangling cross-taxon congruence across soil biota in black pine plantations

Debora Barbato [a,e], Claudia Perini [a], Stefano Mocali [b], Giovanni Bacaro [c], Enrico Tordoni [c], Simona Maccherini [d], Maurizio Marchi [e], Paolo Cantiani [a], Isabella De Meo [b], Elisa Bianchetto [b], Silvia Landi [a], Silvia Bruschini [f], Gianni Bettini [g], Lorenzo Gardin [h], Elena Salerni [a]

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