

Studying effects of e-infrastructures for taxonomy

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Taxonomy and new uncertainties?

1. Does e-science change taxonomy?

Effect on output? collaboration, connections?

Scale? Focus? Quality? Costs? Research profile?



2. What's 'new' with e-science?

Different connections (ties) between experts?

Different types of collaboration

Different research foci?

Knowledge creation

3. To what extent can we approach these questions with use of data from the Web?

Taxonomy's move to the Web

Managing uncertainties

Taxonomy: "Identification and classification of all living and extinct organisms"

The Web because:

- ✓ Increase scale and speed
- ✓ Integrate data and expertise globally
- ✓ Increase access and dissemination

How?

- ✓ E-science and e-infrastructures



Scratchpads 2007-2012

Virtual communities of practice

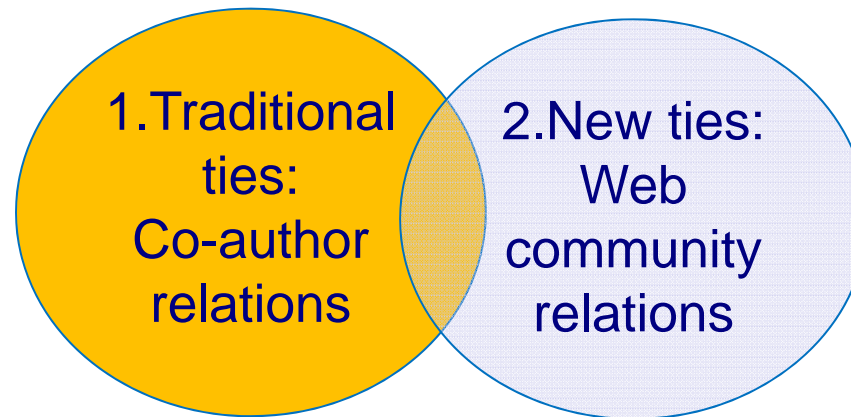
Sites 326
Users 6279
Pages 424,972



Social networks and social capital

“Scientists, like other professionals, bring more to work than skills and experience, they also bring the assets they can procure through their social networks e.i. social capital”

Gargiulo M, 2000



1. Traditional: co-author ties (2001-2010)

- ✓ Contributed knowledge to the same article
- ✓ Sharing an interest, expertise in the topic of the community

2. New: Scratchpad membership ties (2011)

- ✓ Registered to the same online community
- ✓ Sharing an interest, expertise in the topic of the community

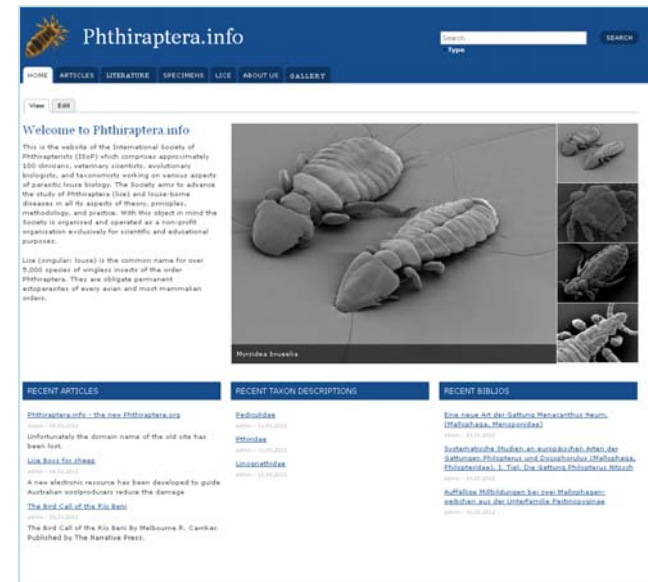


The Scratchpads effect?

1. To what extent Scratchpad membership connects people that are not connected as co-author?
 - ✓ Do Scratchpad members co-author together?
 - ✓ Do Scratchpad members share co-authors?
2. To what extent does Scratchpad membership, provide network conditions that are beneficial for the creation of new knowledge?

Case: Livingcreatures.info

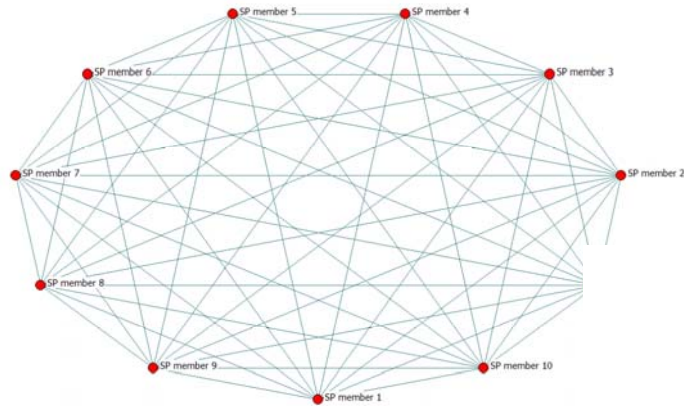
- 11 registered members
- Taxonomic experts in the same field
- 5 continents
- Since March 11



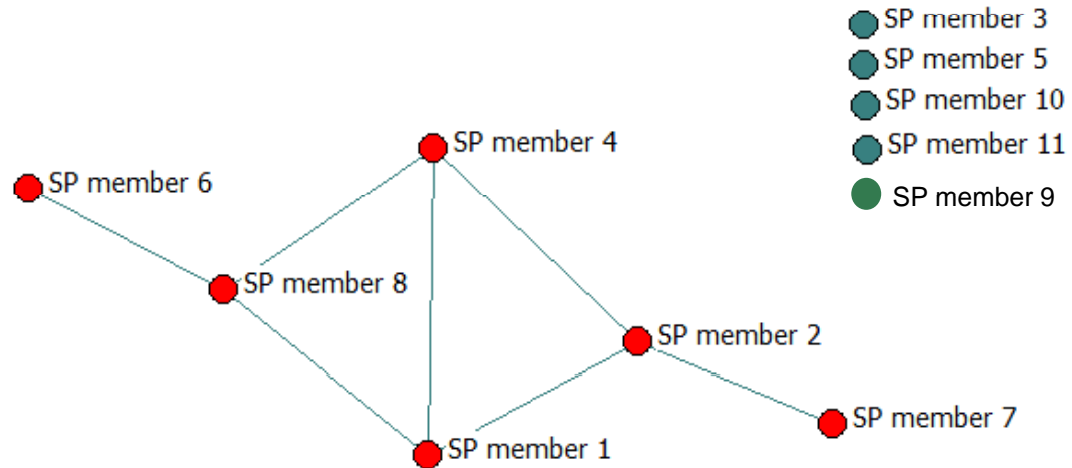
Picture is illustrative, this is not the site that we studied

Q1 Do Scratchpad members co-author together?

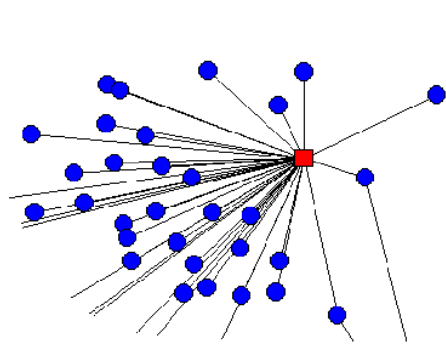
Scratchpad ties (11 members)



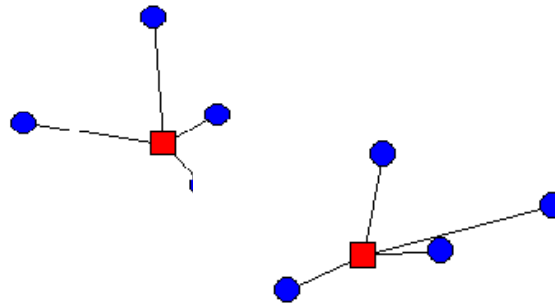
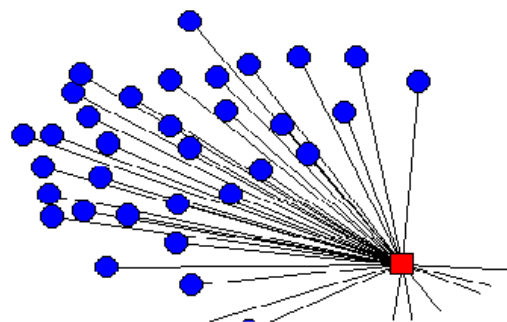
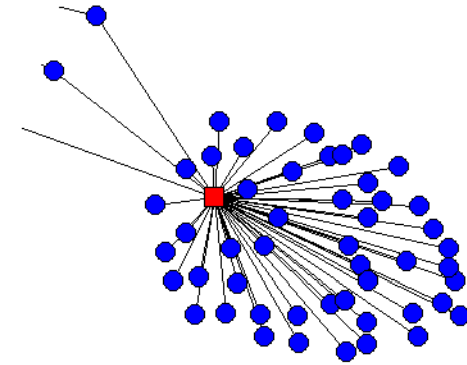
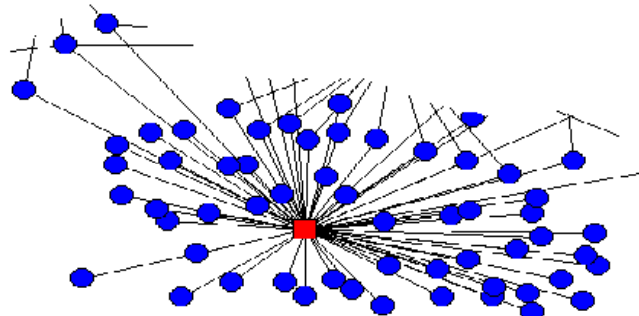
Co-author ties among Scratchpad members Livingcreatures.info (2001-2010)



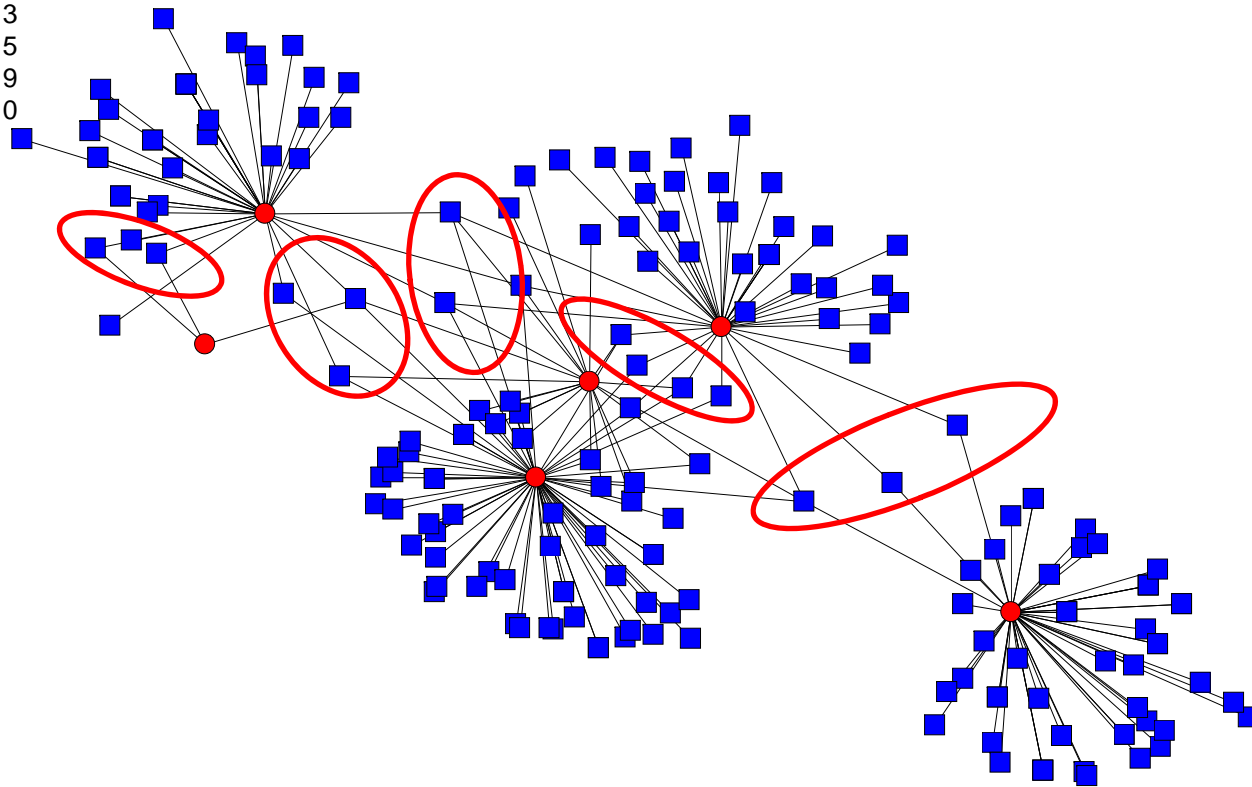
Q2 Do Scratchpad members share co-authors? *Stacking individual co-author networks*



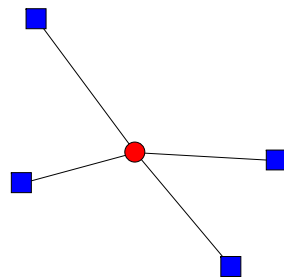
SP member1



- SP 3
- SP 5
- SP 9
- SP 10



SP member 11

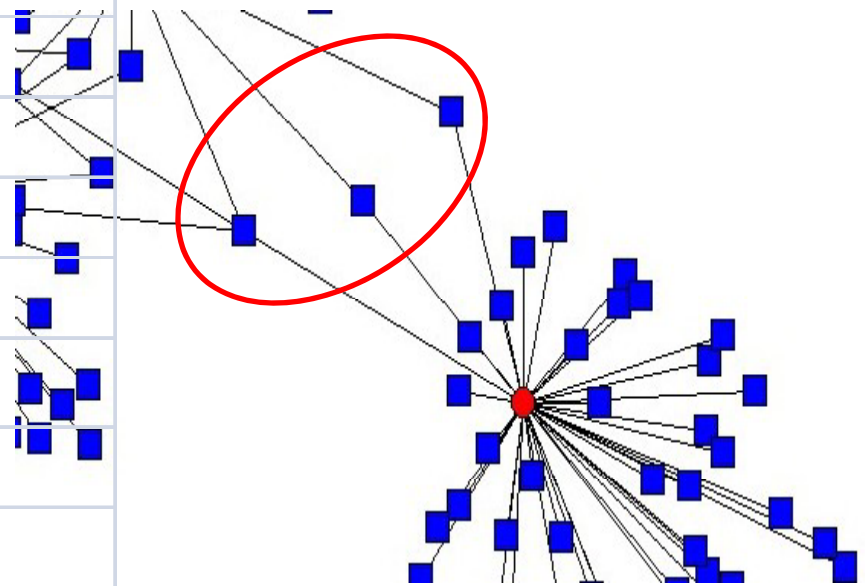


Scratchpad (SP) members and their co-author relations between 2001-2010 *

*Incomplete network for 1 Scratchpad based on data of the Web of Science & Google Scholar



	Co-author overlap
Scratchpad member 1	3
Scratchpad member 2	3
Scratchpad member 3	0
Scratchpad member 4	3
Scratchpad member 5	0
Scratchpad member 6	1
Scratchpad member 7	1
Scratchpad member 8	3
Scratchpad member 9	0
Scratchpad member 10	0
Scratchpad member 11	1





Conclusions

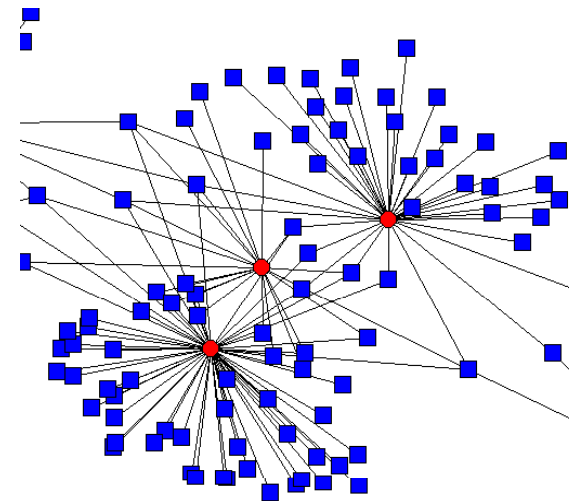
- The Scratchpad Livingcreatures.info does create links between researchers that did not exist in the ‘traditional’ co-author network.
- The number of redundant connections that are brought in by the members co-authors is much lower than their contribution to bringing in new co-authors and enable condition for knowledge creation.
- But...from this data we cannot be sure they didn't know each other through a different network

....what's next? I

To what extent do “cognitive networks” of Scratchpad members overlap? Do Scratchpads link different cognitive networks, or are they embedded in existing cognitive networks?

- Do SP members publish in the same /similar journals?
- Do the co-authors of SP members publish in the same / similar journals?

	SPMember1	SPMember2	SPMember3	
Journal1	0	1	0	
Journal2	1	1	0	
Journal3	0	0	0	
Journal4	1	0	0	
Journal5	1	0	0	
Journal6	0	1	1	
Journal7	0	1	1	
Journal8	0	0	1	
Journal9	0	0	1	





...what next II? Impact of SPs over time

To what extent SP members become part of each others cognitive networks?

- Can we identify a (cor)relation between SP membership and publication and citation behaviour over time?
 - > Publication behaviour: new co-author relations with co-SP members
 - > Publication behaviour: new journals
 - > Citation behaviour: referring to different literatures



So what?

....to learn more about the relation between social capital and knowledge production on the Web and so reduce uncertainty about effects of e-infrastructures for taxonomy

Understanding the structure of the knowledge environment of SP members will help us to:

- a) understand what cognitive themes are represented in SPs
- b) and who/ or what cognitive themes sit together
- c) Know more about the type of structure of a SP

✓ Homogeneous cognitive structure in a SP indicates a high level of specialisation in one SP community and a long term perspective (stability).
High redundancy of co-author ties?

✓ Heterogeneous cognitive structure in a SP may indicate an interdisciplinary or a project orientation. Supports the development of 'wild' ideas but has short sustainability...?



Further information: Duin D, van den Besselaar P (2011) Studying the effects of virtual biodiversity research infrastructures.
In: Smith V, Penev L (Eds) e-Infrastructures for data publishing in biodiversity science. ZooKeys 150: 193–210.



Acknowledgments

ViBRANT –<http://vbrant.eu>

Scratchpads –<http://scratchpads.eu/>

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