David Baracchi (August 2025)

Curriculum Vitae

**Personal information**

Date of birth: 01.07.1982

Nationality: Italian

**Professional addresses** *Associate Professor* (SSD BIOS03/A Zoology)

Dipartimento di Biologia, Università degli Studi di Firenze,

Via Madonna del Piano, 6, 50019 Sesto Fiorentino, Italy

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Research Unique Identifier: ORCID ID: <https://orcid.org/0000-0003-1308-0612>

**EDUCATION**

2012 PhD in **Ethology and Animal Ecology**, University of Florence

2007 Master’s Degree in **Behavioural Biology**, University of Florence. Honours summa cum laude

2005 Bachelor’s Degree in **Biological Sciences**, University of Florence. Honours summa cum laude

**FUNDING & RESEARCH AWARDS**

2023-2025 **National Funding Scheme PRIN-2022** (Role: Coordinator) **(€284.000)**

2023-2025 **National Geographic Explorer** (Role: Participant) **(€95.000)**

2021-2023 **Eva Crane Trust** (Role: Coordinator) **(€ 33,883)**

2018-2021 **Rita Levi Montalcini Fellowship** (Role: Coordinator) **(€214,173)**

2013-15 **Marie Curie Postdoctoral Fellowship** IEF **(€221,606)**

2009-12 **Doctoral Research Scholarship** awarded by the MIUR **(~€40,000)**

2008-12 Membership to SCI Award (Italian chemical society) according to B.Sc. and M.Sc merits

2008 Six months Post-graduate Grant. Department of Pharmacology: Mass Spectrometry Centre

***Awards: Conference Attendance Travel grants:***

By the Italian Committee for the IUSSI for travel and attendance at the XVII AISASP conference (Rome, Italy, 2017)

By the Italian Committee for the IUSSI for travel and attendance at the XVII IUSSI conference (Cairns, Australia, 2014)

By the Committee for the Società Italiana di Etologia (SIE) for travel and attendance at the V ECBB (Ferrara, Italy, 2010)

By the Italian Committee for the IUSSI for travel and attendance at the XVI IUSSI conference (Copenhagen, Denmark, 2010)

**RESEARCH EXPERIENCE**

I graduated in Biological Sciences in 2005 and specialized in Behavioral Biology in 2007. In 2012, I completed my PhD in Ecology and Animal Behaviour under the supervision of Prof. Stefano Turillazzi. My doctoral research focused on the proximate and ultimate factors influencing the behavioural ecology and immunity of insect societies. From 2013 to 2015, I worked as a Marie Curie Research Fellow at Queen Mary University of London (UK), where I investigated how secondary metabolites in nectars affect bumble bee foraging behaviour by enhancing memory for floral traits, and explored whether these compounds pharmacologically manipulate pollinators’ behaviour. During this time, I also expanded my research to include the cognitive capacities of bumble bees and the chemical and visual communication of social wasps (Polistinae and Stenogastrinae). Between 2015 and 2018, I served as a postdoctoral researcher at Université Toulouse III - Paul Sabatier and Université Paris 13. My research focused on how pheromones modulate experience-dependent behaviour in the bee and anta, using a combination of behavioural conditioning protocols and pharmacological methods. Currently, I am an Associate Professor at the University of Florence, where I teach Zoology, Forensic Zoology, and Ethology. I established and led the Insect Cognition Laboratory (CBE Lab), which studies the mechanisms and evolution of cognitive processes and adaptive behaviours in insects. My research also investigates how insects interact with biotic and abiotic factors such as pathogens, pesticides, and food source quality. The taxa I study include social bees (honey bees and bumble bees), ants, and social wasps (paper wasps, hornets, and hover wasps).

**PROFESSIONAL HISTORY**

2021- **Associate Professor** **(SSD BIOS-03/A, Zoology)** University of Florence.

2018-21 **Assistant Professor** **(RTDb)** University of Florence.

2015-18 **Post Doc** CNRS, Université Paul Sabatier III (France) Prof Martin Giurfa’s Lab

2015-18 **Post Doc** Université Paris13 (France) Prof Patrizia d’Ettorre’s Lab

2013-15 **Marie Curie Research Fellow** Queen Mary University of London (UK) Prof Lars Chittka’s Lab

2009-12 PhD in **Ethology and Animal Ecology,** University of Florence (Italy). Title: Social immunity in insect societies. Advisor: Prof Stefano Turillazzi

2009 Training on cognitive abilities of honeybees, Universität Würzburg (Germany) Prof Jürgen Tautz’s Lab

2008 **Research associate** at the **Mass Spectrometry Center** CISM, University of Florence (Italy)

2006-13 Seven **field research expeditions** in Malaysia. University Malaya. Prof Rosli Hashim’s Lab

2007 **Master’s degree,** University of Florence (Italy). Topic: Visual communication in *Polistes dominulq*

2005 **Bachelor’s degree,** University of Florence (Italy). Topic: Social organization of *Polistes dominula*

**PUBLICATION LIST**

Baracchi’s work has over 1930 citations, with an H-index of 27 in Google Scholar. In Scopus (ID 24279429000) his work has 1276 citations an H-index of 23.

***Published***

62. Baciadonna L, Rovegno E, Bigazzi G, **Baracchi D**. (2025). Assessing the limits of delay of gratification in bumble bees. *Scientific Reports*, *15*(1), 24363.

61. da Silva RC, **Baracchi D**, Ricciardi G, Giurfa M, de Brito Sanchez MG. (2025). Seasonal and nutritional modulation of honeybee olfactory learning by the short neuropeptide F. Proceedings of the Royal Society B, Biological Sciences *292*(2051), 20250655.

60. Cappa F, Pasquini E, Ibraliu A, Muti G, Ferrante F, **Baracchi D**. (2025) Revealing antagonistic interactions in the adverse effects of polystyrene and polymethylmethacrylate microplastics in bumble bees. Proceedings of the Royal Society B, Biological Sciences. 292, 20250047

59. Pasquini E, Brouwer J, Di Rollo V, **Baracchi D**, Messina A, Frasnelli A. (2025) Central GABAergic neuromodulation of nocifensive behaviours in bumble bees. Iscience. 28, 112024

58. Barberis M, Calabrese D, **Baracchi D,** Bortolotti L, Di Cesare F, Ranalli R, Zavatta L, Nepi M, Galloni M, Bogo G. Nectar concentrations of biogenic amines affect bumble bee behaviour in a dose-dependent manner. *Oikos*.

57. De Fazi L, Cervo R, **Baracchi, D**, Bruschini C, Cappa F. (2025). Biopesticide Exposure Increases Aggression Without Impairing Nestmate Recognition in a Social Paper Wasp. *Environmental Toxicology*.

56. Cappa F, **Baracchi D** (2024) Bioinsecticides on honey bees: exposure, sublethal effects, and risk as-sessment paradigms. Current Opinion in Environmental Science & Health, 100569

55. Beydizada NI, Cannone F, Pekár S, **Baracchi D†**, De Agrò M†(2024) Habituation to visual stimuli is independent of boldness in a jumping spider. Animal Behaviour 213, 61-70 *† Equal contribution*

54. Di Noi A, Caliani I, D'Agostino A, Cai G, Romi M, Campani T, Ferrante F, **Baracchi D**, Casini S (2024) Assessing the effects of a commercial fungicide and an herbicide, alone and in combination, on *Apis mellifera*: Insights from biomarkers and cognitive analysis. Chemosphere 359, 142307

53. Ferrante F, Pasquini E, Cappa F, Bellocchio L, **Baracchi D** (2024) Unravelling the microplastic menace: Different polymers additively increase bee vulnerability. Environmental Pollution 352, 124087

52. Szymański S, Baracchi D, Dingle L, Bowman AS, Manfredini F (2024) Learning performance and GABAergic pathway link to deformed wing virus in the mushroom bodies of naturally infected honey bees. Journal of Experimental Biology, jeb. 246766

51. Pasquini E, Ferrante F, Passaponti L, Pavone FS, Costantini I, **Baracchi D** (2024). Microplastics reach the brain and interfere with honey bee cognition. Science of the Total Environment. 912, 169362

50. Cappa F, De Fazi, **Baracchi D**, Cervo R (2024). Adverse effects of the fungal biopesticide Beauveria bassiana on a predatory social wasp. Science of the Total Environment. 908- 168202

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49. Lucon-Xiccato T, Carere C, **Baracchi D** (2024). Intraspecific variation in invertebrate cognition: a review. Behavioral Ecology and Sociobiology. 78(1), 1.

48. Calderai G, Baggiani B, Bianchi S, Pierucci V, Foti M, Scibetta F, **Baracchi D** (2023). Nectar-borne GABA promotes flower fidelity in bumble bees. Entomologia Generalis. 43-4.

47. Di Paola M, Gori A, Stefanini I, Meriggi N, Renzi S, Nenciarini S, … **Baracchi D**, Cavalieri D (2023). Using wasps as a tool to restore a functioning vine grape mycobiota and preserve the mycobial “terroir”. Scientific Reports, 13(1), 16544.

46. Cappa F, Cervo R†, **Baracchi D**† (2022). Biopesticides and insect pollinators: detrimental effects, outdated guidelines, and future directions. Science of the Total Environment. 155714 In press. *† Equal contribution*

​45. Balzani P, Galeotti G, Scheggi S, Masoni A, Santini G, **Baracchi D** (2022). [Acute and chronic ingestion of polyethylene (PE) microplastics has no effects on honey bee health and cognition](https://scholar.google.fr/citations?view_op=view_citation&hl=en&user=1JRZ0d0AAAAJ&sortby=pubdate&citation_for_view=1JRZ0d0AAAAJ:ujxm2eEBZHIC). Environmental Pollution. 119318.

​44. Gandia KM, Cappa F, **Baracchi D**, Hauber ME, Beani L, Uy FMK (2022). Caste, sex, and parasitism influence brain plasticity in a social wasp. Frontiers in Ecology and Evolution. 28: 389.

43. Baciadonna L, Solvi C, Del Vecchio F, Pilenga C, **Baracchi D**, Bandoli F, Isaja V, Gamba M, Favaro L (2022). Vocal accommodation in penguins (Spheniscus demersus) as a result of social environment. Proceedings of the Royal Society B, 289(1978), 20220626.

42. **Baracchi D**, d'Ettorre P, Giurfa M (2021). Formic acid modulates latency and accuracy of nestmate recognition in carpenter ants. Journal of Experimental Biology. 224 (20): jeb242784

41. Finke V, **Baracchi D**, Giurfa M, Scheiner R, Avarguès-Weber A (2021). Evidence of cognitive specialization in an insect: proficiency is maintained across elemental and higher-order visual learning but not between sensory modalities in honey bees. Journal of Experimental Biology. jeb242470.

40. Carlesso D, Smargiassi S, Pasquini E, Bertelli G, **Baracchi D** (2021) [Nectar non-protein amino acids (NPAAs) do not change nectar palatability but enhance learning and memory in honey bees](about:blank). Scientific Reports. 11 (1) 1-14.

39. Carlesso D, Smargiassi S, Sassoli L, Cappa F, Cervo R, **Baracchi D** (2020) Exposure to a biopesticide interferes with sucrose responsiveness and learning in honey bees. Scientific Reports. 10 (1) 1-12.

38. **Baracchi D**, Cabirol A, Devaud JM, Haase A, d'Ettorre P, Giurfa M (2020) Pheromone components affect motivation and induce persistent modulation of associative learning and memory in honey bees. Communications Biology. 3(1): 1-9.

37. **Baracchi D**, Baciadonna L (2019) Insect sentience and the rise of a new inclusive ethics. Animal Sentience5 (29), 18.

36. **Baracchi D** (2019) **Editorial**: Cognitive ecology of pollinators and the main determinants of foraging plasticity. Current Zoology 65 (4), 421-424.

35. Rossi N†, **Baracchi D**†, Giurfa M, d’Ettorre P (2019) Pheromone-induced Accuracy of nestmate recognition in Carpenter ants: simultaneous decrease in Type I and Type II errors. The American Naturalists. 193(2): 267-278. *† Equal contribution*

34. Avargues-Weber A, d’Amaro D, Metzler M, Finke V, **Baracchi D**, Dyer AG (2018) Does holistic processing require a large brain? Insights from honeybees and wasps in fine visual recognition tasks. Frontiers in Psychology. 9:1313.

33. **Baracchi D**, Rigosi E, de Brito Sanchez GM, Giurfa M (2018) Lateralization of sucrose responsiveness and non-associative learning in honeybees. Frontiers in Psychology 9:425.

32. Branconi R**†**, **Baracchi D**†, Turillazzi S, Cervo R. (2018) Testing the signal value of clypeal black patterning in the paper wasp *Polistes dominula.* Insectes Sociaux. 65 (1):161-196. *† Equal contribution*

31. **Baracchi D**, Vasas V, Jamshed Iqbal S, Alem S. (2017) Task difficulty and uncertainty affect social information use in foraging bumblebees. Behavioural Ecology. 29: 1-7.

30. Desmedt L, **Baracchi D**, Devaud JM, Giurfa M, d’Ettorre P. (2017) Aversive learning of odour-heat associations in ants. Journal of Experimental Biology. 220: 4661-4668.

29. **Baracchi D**, Devaud JM, d'Ettorre P, Giurfa M (2017) Pheromones modulate reward responsiveness and non-associative learning in honey bees. Scientific Reports. 7: 9875

28. **Baracchi D**, Lihoreau M, Giurfa M (2017) Do insects have emotions? Some insights from bumblebees. Frontiers in Behavioral Neuroscience 11: 157

27. **Baracchi D**, Marples A, Jenkins AJ, Leitch AR, Chittka L (2017) Nicotine in floral nectar pharmacologically influences bumblebee learning of floral features. Scientific Reports 7: 1951

26. **Baracchi D** (2017) The reproductive division of labour but not worker age affects spatial sorting within the nest in a paper wasp. Insectes Sociaux 1-7.

25. **Baracchi D**, Turillazzi S, Chittka L (2016) Facial patterns in a tropical social wasp correlate with colony membership. The Science of Nature 103: 80

24. **Baracchi D**, Brown MJF, Chittka L (2015) Behavioural evidence for self-medication in bumblebees? F1000Research 4: 73

23. **Baracchi D**, Petrocelli I, Chittka L, Ricciardi G, Turillazzi S (2015) Speed and accuracy in nestmate recognition: a hover wasp prioritises face recognition over colony odour cues to minimise intrusion by outsiders. Proceedings of the Royal Society B, Biological Sciences 282: 20142750

***Science Shot****: Wasps employ facial recognition to defend nests, February 3rd 2015*

22. Abu Bakar, **Baracchi D**, Turillazzi (2015) Reuse of old nests by the european paper wasp *Polistes dominula*. Redia

21. Turillazzi S, Matthews RW, Pradella D, Meucci F, **Baracchi D** (2014) Nest architecture and colony composition of communally nesting *Spilomena socialis* sp. n. (Hymenoptera, Crabronidae, Pemphredoninae) from peninsular Malaysia. Journal of Hymenoptera Research 41: 113-129

20. **Baracchi D**, Cini A (2014) A socio-spatial combined approach confirms a highly compartmentalized structure in honeybees. Ethology 120: 1167-1176

19. **Baracchi D**, Mazza G, Michelucci E, Pieraccini G, Turillazzi S, Moneti G (2013) Top-down sequencing of *Apis dorsata* apamin by MALDI-TOF MS and evidence of its inactivity against microorganisms. Toxicon 71: 105-112

18. **Baracchi D**, Petrocelli I, Cusseau G, Pizzocaro L, Teseo S, Turillazzi S (2013) Facial markings in the hover wasps: quality signals and familiar recognition cues in two species of Stenogastrinae. Animal Behaviour 85: 203-212

17. **Baracchi D**, Mazza G, Cini A, Petrocelli I, Hashim RB, Turillazzi S (2013) Social biology of *Parischnogaster striatula* (Hymenoptera, Stenogastrinae). Tropical Zoology 26: 105-119

16. Gramigni E, Calusi S, Gelli N, Giuntini L, Massi M, Delfino G, Chelazzi G, **Baracchi D**, Frizzi F, Santini G (2013) Ants as bioaccumulators of metals from soils: body content and tissue-specific distribution of metals in the ant *Crematogaster scutellaris*. European Journal of Soil Biology 58: 24-31.

15. Dapporto L, **Baracchi D**, Benassai D, Capretti P, Roversi PF, Turillazzi S (2013) Major changes in the sex differences in cuticular chemical profiles of the western conifer seed bug (*Leptoglossus occidentalis*) after laboratory rearing. Journal of Insect Physiology 59: 738-744

14. Mancini V, Dapporto L, **Baracchi D**, Luchi N, Turillazzi S, Capretti P (2013) Phenotypic characterization of cryptic *Diplodia* species by MALDI‐TOF MS and the bias of mycelium age. Forest Pathology 43: 455-461

13. **Baracchi D**, Fadda A, Turillazzi S (2012) Evidence for antiseptic behaviour towards sick adult bees in honey bee colonies. Journal of Insect Physiology 58: 1589-1596

12. **Baracchi D**, Mazza G, Turillazzi S (2012) From individual to collective immunity: the role of the venom as antimicrobial agent in the Stenogastrinae wasp societies. Journal of Insect Physiology 58: 188-193

11. **Baracchi D**, Francese S, Turillazzi S (2011) Beyond the anti-predatory defence: honey bee venom function as a component of social immunity. Toxicon 58: 219-229

10. **Baracchi D**, Dapporto L, Turillazzi S (2011) Relevance of wing morphology in distinguishing and classifying genera and species of Stenogastrinae wasps. Contribution to Zoology 80: 191-199

9. Mazza G, Arizza V, **Baracchi D**, *et al.* (2011) Antimicrobial activity of the Red Palm Weevil *Rhynchophorus ferrugineus*. Bullettin of Insectology 64: 33-41

8. **Baracchi D**, Turillazzi S (2010) Differences in venom and cuticular peptides in individuals of *Apis mellifera* (Hymenoptera: Apidae) determined by MALDI-TOF MS. Journal of Insect Physiology 56: 366-375

7. **Baracchi D**, Zaccaroni M, Cervo R, Turillazzi S (2010) Home range analysis in the study of spatial organization on the comb in the paper wasp *Polistes dominulus*. Ethology 116: 579-587

6. **Baracchi D**, Cusseau G, Pradella D, Turillazzi S (2010) Defense reaction of *Apis mellifera ligustica* against the attacks of the European Hornet *Vespa crabro*. Ethology Ecology & Evolution 22: 281-294

5. **Baracchi D**, Dapporto L, Teseo S, Hashim R, Turillazzi S (2010) Medium molecular weight polar substances of the cuticle as tools in the study of the taxonomy, systematics and chemical ecology of tropical hover wasps (Hymenoptera: Stenogastrinae). Journal of Zoological Systematics and Evolutionary Research 48: 109-114

4. **Baracchi D**, Hashim R, Teseo S, Turillazzi S (2009) Basic social biology and nest architecture of *Liostenogaster topographica* (Hymenoptera Stenogastrinae). Tropical Zoology 22: 15-23

3. Dapporto L, Bruschini C, **Baracchi D**, Cini A, Gayubo S, González JA, Dennis RLH (2009) Phylogeography and counter-intuitive inferences in island biogeography: evidence from morphometric markers in the mobile butterfly *Maniola jurtina* (Linnaeus) (Lepidoptera, Nymphalidae). Biological Journal of the Linnean Society 98: 677-692

2. Turillazzi S, Fanelli D, Theodora P, Lambardi D, Ortolani I, Hashim R, **Baracchi D** (2008) Determinants of immature brood and nest recognition in a stenogastrine wasp. Ethology Ecology & Evolution 20: 17-33

1. **Baracchi D**, Turillazzi S, Cervo R (2007) Preliminary investigation on *Polistes dominulus* worker' spatial distribution on the nest in relation to immature brood position Redia XC: 139-142

***- Book chapters***

1. Cappa F, Colli M, **Baracchi D.** (2025). Pesticides and Their Impacts on Wild Bee Populations. In: Cilia, G., Ranalli, R., Zavatta, L., Flaminio, S. (eds) Hidden and Wild: An Integrated Study of European Wild Bees. Springer, Cham. <https://doi.org/10.1007/978-3-031-76742-5_12>

2. **Baracchi D**, Tragust S (2015) Venom as a component of external immune defense in social Hymenoptera. In: Evolution of Venomous Animals and Their Toxins. Gopalakrishnakone P, Malhotra A (eds). Springer ISBN 978-94-007-6727-0

3. **Baracchi D**, Turillazzi S, Felicioli A (2014) Le difese naturali della colonia di api contro le malattie. In: Patologia ed avversità dell’alveare. Carnapa E, Lodesani M (Eds). ISBN 978-88-470-5649-7. Springer Italia (English translation: Natural defences of honeybee colony against diseases)

***- F1000 Recommendations (commentary with DOI)***

9. Chittka L, **Baracchi D**: F1000Prime Recommendation of [Gibson WT et al., Curr Biol 2015, (25):1401-15]. In F1000Prime, 23Jul 2015; DOI: 10.3410/f.725503669.793508177.

8. Chittka L, **Baracchi D**: F1000Prime Recommendation of [Szyszka P et al., Proc Natl Acad Sci USA2014, (47):16925-30]. In F1000Prime, 04 Mar 2015; DOI: 10.3410/f.725231800. 793504461.

7. Chittka L, **Baracchi D**: F1000Prime Recommendation of [Otti O et al., Trends Ecol Evol (Amst) 2014, 29(11):625-34]. In F1000Prime, 19 Dec 2014; DOI: 10.3410/f.719130149.793502500.

6. Chittka L, **Baracchi D**: F1000Prime Recommendation of [Sheehan MJ and Nachman MW, Nat Commun 2014, 5(4800)]. In F1000Prime, 31 Oct 2014; DOI: 10.3410/f.718877905.793501089.

5. Chittka L, **Baracchi D**: F1000Prime Recommendation of [Van Oystaeyen A et al., Science 2014, 343(6168):287-90]. In F1000Prime, 25 Apr 2014; DOI: 10.3410/f.718241916.793493967.

4. Chittka L, **Baracchi D**: F1000Prime Recommendation of [Fürst MA et al., Nature 2014, 506(7488):364 6]. In F1000Prime, 24 Feb 2014; DOI: 10.3410/f.718282911.793491217.

3. Chittka L, **Baracchi D**: F1000Prime Recommendation of [de Brito Sanchez M et al., Front Behav Neurosci 2014, 8:1-16]. In F1000Prime, 11 Feb 2014; DOI: 10.3410/f.718270012.793490643.

2. Chittka L, **Baracchi D**: F1000Prime Recommendation of [Johnson BR et al., Curr Biol 2013]. In F1000Prime, 25 Oct 2013; DOI: 10.3410/f.718133764.793485646.

1. Chittka L, **Baracchi D**: F1000Prime Recommendation of [Greggers U et al., Proc Biol Sci 2013, 280(1759):20130528]. In F1000Prime, 22 Jun 2013; DOI: 10.3410/f.717992980.793478441

***- Outreach Papers***

27. Ferrante F, **Baracchi D** (2024) Microplastiche: l'invisibile minaccia per le nostre api APINSIEME n°9

26. **Baracchi D**, Cappa F (2023) Biopesticidi? In crescita, ma effetti negativi sulle api APINSIEME n°9

25. **Baracchi D**, Ferrante F (2023) Microplastiche ambientali e salute dell'ape APINSIEME n°2

24. **Baracchi D**, Smargiassi S, Tufano L (2021) Api e biopesticidi permessi in agricoltura biologica APINSIEME n°1

23. **Baracchi D**, Tufano L (2020) L’ape, comunicazione chimica e plasticita’ comportamentale APINSIEME n°10

22. **Baracchi D**, Tufano L (2018) Ape, patogeni e nattari floreali: un sistema complesso APINSIEME n°1

21. Tufano L, **Baracchi D** (2016) Apicoltura e nomadismo: quali conseguenze per la salute dell’ape? APINSIEME n°8

20. Tufano L, **Baracchi D** (2016) I probiotici e prebiotici commerciali agiscono sul *Nosema ceranae*? APINSIEME n°1

19. Tufano L, **Baracchi D** (2015) Vitellogenina e senilità nell'ape e nell'alveare II APITALIA n°11

18. Tufano L, **Baracchi D** (2015) Vitellogenina e senilità nell'ape e nell'alveare I APITALIA n°10

17. **Baracchi D** (2015) Nettari floreali e automedicazione negli impollinatori APITALIA n°9

16. Tufano L, **Baracchi D** (2015) Il sistema immunitario dell’ape e dell’alveare II APITALIA n°6

15. Tufano L, **Baracchi D** (2015) Il sistema immunitario dell’ape e dell’alveare I APITALIA n°5

14. Tufano L, **Baracchi D** (2015) L’organizzazione socio-spaziale dell’alveare APITALIA n° 3

13. Savorelli G, Tufano L, **Baracchi D** (2014) Il capitale proteico dell’alveare APITALIA n°V7

12. Tufano L, Savorelli G, **Baracchi D** (2014) Disponibilità di polline nell’alveare APITALIA n°6

11. **Baracchi D**, Savorellli G (2014) Gli effetti di carenza di polline sull’alveare APITALIA n°4

10. Savorelli G, Tufano L, **Baracchi D** (2014) Immunità d’ape, patogeni e pascolo APITALIA n°1

9. **Baracchi D** (2013) La lotta tra api igieniste e la coppia varroa-virus delle ali deformi. L’APIS

8. **Baracchi D** (2013) Il veleno me lo metto addosso e sul favo! L’APIS

7. Savorelli G, **Baracchi D** (2013) Speciale: Peste americana e *Nosema ceranae* Apitalia On-line

6. **Baracchi D**, Savorelli G (2013) La situazione sanitaria delle api. APITALIA n° 6

5. Savorelli G, **Baracchi D** (2013) Il destino dell’ape ai giorni nostri. APITALIA n° 11

4. **Baracchi D,** Savorelli G (2013) Coevoluzione ospite-parassita ape-nosema. APITALIA n° 6

3. **Baracchi D** (2013) Anche le colonie di api hanno personalità. Apitalia On-line

2. **Baracchi D** (2013) L'immunità dell'alveare APITALIA n° 1

1. **Baracchi D** (2012) Quando il mondo delle api incontra quello dei calabroni. APITALIA n° 12

**CONFERENCES AND INVITED SEMINARS**

**Baracchi D,** (2026, forthcoming) **KEYNOTE INVITED SPEAKER**: IUSSI International, Freiburg, Germany. <https://iussi2026.org/2025/01/07/programme/>

**Baracchi D,** (2022) **KEYNOTE INVITED SPEAKER**: Neuroactive nectars and their effect on pollinator cognition. European Student Conference on Behaviour and Cognition ESCBC, Trento, Italy.

**Baracchi D,** (2022) **INVITED SPEAKER:** Pheromones as neuromodulators of experience-depending behaviour in insects. International Congress of Neuroethology ICN, Lisbon, Portugal.

**Baracchi D,** (2022) **INVITED SPEAKER:** Nectar chemistry, pollinators, and foraging behaviour. Frontiers in Bee Behaviour & Ecology Seminars, Online

**Baracchi D,** (2019) **INVITED SPEAKER:** Pheromones as modulators of experience-dependent behaviours in insects. IST Conference series, Wien, Austria

**Baracchi D,** (2018) **INVITED SPEAKER:** Aminergic underpinnings of pheromonal modulation of olfactory learning and memory formation in honeybees. XI ECE, Naples Italy.

**Baracchi D**, Devaud JM, d’Ettorre P, Giurfa M (2017) Oral Communication: Pheromones modulate associative learning and memory via biogenic amines in an insect. AISASP, Roma, Italy

**Baracchi D**, Devaud JM, d’Ettorre P, Giurfa M (2017) Poster: Pheromones modulate associative learning and memory via biogenic amines in an insect. GRC- Gordon Research Conference, Les Diablerets, Switzerland

**Baracchi D**, Devaud JM, d’Ettorre P, Giurfa M (2016) Poster: Appetitive and aversive pheromones induce opposed modulation of appetitive sucrose responsiveness and learning and memory performances on honey bees. ICN, Montevideo, Uruguay

**Baracchi D**, d’Ettorre P, Devaud JM, Giurfa M (2015) Oral Communication: Appetitive and aversive pheromones modulate sucrose response thresholds in honey bees. GDR, Paris, France

**Baracchi D**, Petrocelli I, Chittka L, Ricciardi G, Turillazzi S (2015) **INVITED SPEAKER**: Speed and accuracy in nestmate recognition: a hover wasp prioritises face recognition over colony odour cues to minimise intrusion by outsiders. SFECA, Strasbourg, France

**Baracchi D**, Brown MJF, Chittka L (2014) **INVITED SPEAKER**: Infected bumblebees self-medicate by increasing the ingestion of nectar toxins. EURBEE, Murcia, Spain

**Baracchi D**, Brown MJF, Chittka L (2014) Oral Communication: Pharmacophagy: self-medication in bumblebees. IUSSI, Cairns, Australia

**Baracchi D**, Di Prisco G, Gentili V, Pennacchio F, Turillazzi S (2014) Poster: Honeybees’ physiological and behavioural immunity deficit induced by DWV. IUSSI, Cairns, Australia

**Baracchi D**, Petrocelli D, Chittka L, Ricciardi G, S. Turillazzi S (2014) Poster: Speed and accuracy in wasp nestmate recognition: vision and olfaction. IUSSI, Cairns, Australia

Turillazzi S, Pradella D, Meucci F, **Baracchi D** (2014) Poster: Nest architecture and colony composition of a Malaysian sphecid wasp. IUSSI, Cairns, Australia

**Baracchi D**, Brown MJF, Chittka L (2014) Oral Communication: a bitter drug: nectar alkaloids and a self-medication case in bumblebees. CNIE, Orosei, Italy

**Baracchi D**, Di Prisco G, Gentili V, Pennacchio F, Turillazzi S (2014) Poster: Prophylactic and therapeutic behaviour of *Apis mellifera* against pathogens. CNIE, Orosei, Italy

**Baracchi D**, (2014) Poster: Network and spatial organization as emergent properties in colonies of *Polistes dominula*. CNIE, Orosei, Italy

**Baracchi D**, Cini A (2014) Poster: Spatial use and social structure in *Apis mellifera*: an integrated approach discloses a high compartmentalization. CNIE, Orosei, Italy

**Baracchi D**, Chittka L (2014) Poster: Inter-individual and inter-colony differences in bumblebee responses to novel stimuli and predation threat. ASAB Easter Conference. Sheffield, UK

**Baracchi D**, Petrocelli I, Ricciardi G, Turillazzi S (2013) Poster: Nestmate recognition in Stenogastrinae wasps: visual and chemical information are not integrated in a multimodal sensory cue. ASAB Winter Conference. London, UK

**Baracchi D**, Cini A (2013) Poster: The contribution of network and spatial analysis in understanding how disease pressure and ergonomic requirements have moulded evolution of insect societies. EVOLUZIONE (SIBE) Trento, Italy

**Baracchi D**, Mazza G, Turillazzi S (2013) Poster: The role of the nest in the evolution of collective defence against pathogens in social insects. EVOLUZIONE (SIBE) Trento, Italy

**Baracchi D**, Pizzocaro L, Nurul A, Turillazzi S (2013) Oral Communication: intra or inter specific variability? Wing morphology and chemical epicuticular compounds reveal a cryptic species of Stenogastrinae (Hymenoptera: Vespidae). EVOLUZIONE (SIBE) Trento, Italy

**Baracchi D**, Cini A (2012) Oral Communication: High socio-spatial compartmentalization supports the organizational immunity hypothesis in honeybees. IUSSI, Montecatini, Italy

**Baracchi D**, Mazza G, Polsinelli M, Turillazzi S (2012) Poster: Antiseptic homes: the role of the nest in social immunity systems. IUSSI, Montecatini, Italy

**Baracchi D**, Petrocelli I, Cusseau G, Pizzocaro L, Turillazzi S (2012) Poster: Visual Cues as quality signals in *Liostenogaster vechti* (Hymenoptera, Stenogastrionae). IUSSI, Montecatini, Italy

Inghilesi AF, Baldacci C, **Baracchi D**, Cini A, Mattioli S, Mazza G, Pepiciello I, Cervo R (2012). Oral Communication: Sexual networks in the red palm weevil (*Rhynchophorus ferrugineus*) SIE, Viterbo, Italy

Mazza G, Asaro NV, **Baracchi D**, Calori F, Cini A, Longo S, Pizzocaro L, Cervo R (2011) Poster: A network of sex and “aggressions” in the invasive weevil *Rhynchophorus ferrugineus*. 1st Annual Meeting of the PhD Network “Insect Science”, Firenze, Italy

Fadda A, **Baracchi D**, Pennacchio F, Turilazzi S (2011) Poster: Change of the 'Acceptance threshold" in honeybees experimentally infected with the deformed wings virus. CNIE, Genova, Italy

**Baracchi D** (2011) Talk: Temporal spatial poliethism in *Polistes dominulus* workers. 1st AISASP STUDENT MEETING, Bologna, Italy

Mazza G, **Baracchi D**, Francardi V, Frandi A, Gherardi F, Longo S, Manachini B, Perito P, Turillazzi S, Cervo R (2010) Poster: Antimicrobial activity of *Rhynchophorus ferrugineus*. NEOBIOTA, Copenhagen, Denmark

**Baracchi D**, Turillazzi S (2010) Poster: Spatial organization of workers of *Polistes dominulus* on the nest is not regulated by age. IUSSI, Copenaghen, Denmark

Cappa F, **Baracchi D**, Cusseau G, Turillazzi S, Cervo R (2010) Poster: Preliminary work on host preferences of *Varroa destructor* under critical honeybee colony conditions. IUSSI, Copenhagen, Denmark

**Baracchi D**, Turillazzi S, Beani L (2010) Poster: When a parasite affects the spatial behaviour of *Polistes dominulus*: first data on mushroom bodies by MALDI-TOF Mass Spectrometry. ECBB, Ferrara, Italy

**Baracchi D**, Turillazzi S (2010) Poster: Spatial organization of workers of *Polistes dominulus* on the nest is not regulated by age. ECBB, Ferrara, Italy

Cappa F, **Baracchi D**, Cusseau G, Turillazzi S, Cervo R (2010) Poster: Studio sulle preferenze di *Varroa destructor* nella scelta dell’ospite, *Apis mellifera*, in condizioni sperimentali di alto parassitismo. AISASP, Reggio Calabria, Italy

**Baracchi D** (2010) Oral Communication: Il contributo della morfometria geometrica nella comprensione della tassonomia e sistematica delle vespe Stenogastrinae. AISASP, Reggio Calabria, Italy

**Baracchi D**, Dapporto L, Teseo L, Turillazzi S (2009) Poster: I composti polari presenti sull'epicuticola come mezzo d'indagine per la tassonomia, la sistematica e l'ecologia chimica delle vespe Stenogastrinae. CNIE, Ancona, Italy

Dapporto L, **Baracchi D**, Roversi P, Turillazzi S (2009) Poster: Composti polari e apolari dell'epicuticola di *Leptoglossus occidentalis*. CNIE, Ancona, Italy

Cervo R, **Baracchi D**, Ortolani I, Zechini L, Dapporto L, Beani L, Turillazzi S (2008) Oral Communication: Contribution in oral communication: Visual communication in of paper wasp *Polistes dominulus* (Hymenoptera Vespidae). SIE, Cosenza, Italy

**Baracchi D**, Turillazzi S, Cervo R (2007) Oral Communication: Analisi preliminare della posizione sul nido di operaie di colonie di *Polistes dominulus*. AISASP,Olbia, Italy

**Baracchi D**, Turillazzi S, Cervo R (2006) Poster: Individual visual recognition in *Polistes dominulus* wasp. SIE, Erice, Italy

**FORMATIVE ACTIVITIES**

2014: Analytical Software Workshop at the University of Greenwich (Introduction to social network analysis with UCINET).

2009: International PhD course "From Solitary to Superorganism: The Evolution of Insect Societies (organizers: Prof Stefano Turillazzi, Prof. Patrizia d’Ettorre, Dr Daniel Kronauer)

2009: Beekeeping Course. Apiary management and honeybees' diseases (organized by ARPAT Firenze)

2008: XIII Mass Spectrometry Course for PhD students (organized by the Italian Chemical Society)

**TEACHING EXPERIENCE**

2023- present: teaching MULTIDISCIPLINARY FIELD ACTIVITIES ([B015441),](https://www.unifi.it/index.php?module=ofform2&mode=1&cmd=3&AA=2018&afId=495463)

2018- present: teaching [ZOOLOGY](https://www.unifi.it/index.php?module=ofform2&mode=1&cmd=3&AA=2018&afId=509004)[(B016083), FORENSIC ZOOLOGY](https://www.unifi.it/index.php?module=ofform2&mode=1&cmd=3&AA=2018&afId=495463) (B028105), ETHOLOGY (B232).

2015-18 Supervised three Bachelor students’ 3rd year research project at Université Paul Sabatier, Toulouse III

2014 Involvement in the Art Neuro project: the project is exploring the world of neuroscience through the visual arts. [http://artneuro.co.uk/projects/freya-david/]

2013 Supervised five Bachelor students’ 3rd year research project at Queen Mary University of London.

2012: Teaching assistant at University of Florence. Experimental Biology Laboratory: Zoology lessons to1st year students and Molecular Biology lessons to 3rd year students

2012 Teaching activity as "ambassador" in primary and high school classes. (Open-Lab Projects for science knowledge dissemination)

2009-12 Invited Lecturer at the University of Florence for the "Animal communication" and the "Entomology" course.

2008-12: Supervised Six Bachelor students’ 3rd year research project and four Master Students’ 2nd year research project at University of Florence.

2009-12 I led expeditions to Malaysia and have trained several students in field research on tropical bees and wasps.

**REVIEWING ACTIVITIES**

2025- **Section Editor** in **The Journal of Basic and Applied Zoology**

2021- **Associate Editor** in Cognition, **Frontiers in Psychology**

2021- **Review Editor** in Chemical Ecology, **Frontiers in Ecology and Evolution**

2021- **Review Editor** in Bee Physiology, **Frontiers in Bee Science**

2020- **Review Editor** in Insect Neurobiology, **Frontiers in Insect Science**

2019-20 **Guest Editor** for a special issue in **Current Zoology** [https://academic.oup.com/cz/pages/foraging pollinators](https://academic.oup.com/cz/pages/foraging_pollinators)

2019- **Topic Editor** for **Insects** <https://www.mdpi.com/journal/insects/topic_editors>

2019- **Editorial Board Member** of **Diversity** <https://www.mdpi.com/journal/diversity>

***Reviewer for* > 40 International Journals**:

Agriculture, Animal Behaviour, Animal Cognition, Animals, Animal Welfare, Apidologie, Arthropod-Plant Interactions, Behavioral Ecology, Behavioral Ecology and Sociobiology, Behavioural Processes, BioMed Research International, Biologia, BMC Ecology, Biological Journal of the Linnean Society, Chemoecology, Contribution to Zoology, Current Zoology, Ethology, Ethology Ecology & Evolution, FEMS Microbiology Letters, Frontiers in Behavioral Neuroscience, Frontiers in Ecology and Evolution, F1000Research, Insects, IScience, Journal of Animal Ecology, Journal of Comparative Physiology A, Journal of Chemical Ecology, Journal of Experimental Biology, Journal of Insect Behaviour, Journal of Insect Physiology, Journal of Neuroscience Research, Laterality, Molecular Ecology, Nature Chemical Biology, Nature Cell Biology, Naturwissenschaften, Neotropical Entomology, PLOSONE, PeerJ, Proceedings of the Royal Society B Biological Sciences, Royal Society Open Science, Scientific Reports, Trends in Cognitive Sciences, Toxicon, Tropical Zoology, ZooKeys.

* **Member of Evaluation Committees of 6 PhD thesis**(Italy, France)
* **Expert Evaluator for** BBRSC fellowship (UK) and the NCN (Poland) and **Tropimundo Erasmus Mundus (Italy)**
* **Member of Evaluation Committees for** recruitment of 1 Research Fellow (RTDa), 1 Senior Research Fellows (RTDb), and 1 fixed term Lecturer at UNIFI and 2 Senior Research Fellows (RTDb) at University of Trento and the Tuscia University

**INSTITUTIONAL RESPONSIBILITIES**

2018- Supervised ~40 Bachelor/Master students UNIFI

2015-18 Supervised 3 Bachelor students at Université Paul Sabatier, Toulouse, France

2013-14 Supervised five Bachelor students at Queen Mary University of London, UK

2018- present Member of **REPRISE** (MIUR, Italy)

2021- present Member of the **faculty committee** at UNIFI

2018- present Member of **Joint committee** (CPDS) and “Didactic commission” (CP) at UNIFI

2013-2015 **Associate Faculty member of F1000Prime** (Faculty of 1000)

2025- **Member of the Doctoral Board in Evolutionary Biology and Ecology, University of Florence and University of Ferrara**

***Organizing Committee***

Member of the Organizing Committee for the National Congress of IUSSI (AISASP 2019) Florence

Member of the Organizing Committee for the National Congress of Ethology (SIE 2019) Florence

***Professional affiliations:***

2019: Member of **UFAW**: Universities Federations for Animal Welfare

2019-: Member of **SIE**: Italian Society of Ethology **SIE**

2016-18: Member of **ISN**: International Society for Neuroethology

2007-: Member of **IUSSI**: International Union for the Study of Social Insects

Webmaster of the IUSSI Italian Section website. <https://socialinsectitaly2.wixsite.com/aisasp>