Workshop SNAAS (Social Network Analysis in Animal Societies)



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## Cooperation and conflicts inside wasps social networks

Cooperation and conflicts are the two sides of the same coin: sociality. Highly social animals such as social insects provide great opportunities to explore the presence and determinants of cooperative and conflict dynamics inside structured groups of tightly interacting individuals. In this talk I will use social wasps of the genus Polistes as model organisms to depict how the social network approach helps in uncovering the interplay between complex social organization and the presence of helping or selfish behaviours in paper wasps. In particular, I will examine a recently discovered case of helping that occur in the species Polistes dominula outside the colonial context. At the end of the summer, future foundresses left their colonies and cluster together in large aggregates (dozens of females). Despite being considered for long time in a non social phase, wasps do indeed socially interact regularly in these clusters. The most marked phenomenon is that two behavioural phenotypes can be observed: some wasps forage outside the cluster and provide clustermates with food once back (helpers) while the large majority of wasps stay in cluster and ask and receive food (non helpers). Who are these helpers and why do they help once the colonial phase is ended? Do they manage to identify kin inside the promiscuous context of the clusters in order to maximize the indirect fitness benefit of their help? In the talk I will show how social network analysis helped me to uncover the possible evolutionary origin of this unexpected phenomenon.

**Author:** Dr CINI, Alessandro (Laboratoire Ecologie & Evolution UMR 7625, 7 quai St Bernard, Batiment A 7eme etage, Case 237,75 252 Paris Cedex 05, France)

**Orateur:** Dr CINI, Alessandro (Laboratoire Ecologie & Evolution UMR 7625, 7 quai St Bernard, Batiment A 7eme etage, Case 237,75 252 Paris Cedex 05, France)