



STUDYING SOCIAL FORAGING GROUPS
AT WIKO
HARI SRIDHAR

Hari Sridhar obtained a B.Sc. in Zoology from Madras University in 2002, a M.Sc. in Wildlife Science from the Wildlife Institute of India in 2005 and a Ph.D. in Ecology from the Indian Institute of Science in 2014. For nearly ten years now, Hari has been studying social foraging groups of birds that contain individuals of multiple species. Earlier, he worked with the Nature Conservation Foundation on projects on rainforest restoration and human-wildlife conflict in southern India. Currently, Hari is a postdoctoral scholar at Indian Institute of Science. He is also involved in a project to conceptualise a Master's course in Conservation Practice and is also an editor of the magazine *Current Conservation*. – Address: Centre for Ecological Sciences, Indian Institute of Science, 560012 Bangalore, Karnataka, India. E-mail: harisridhar1982@gmail.com

It is 12:40 p.m. on a Monday afternoon in November 2013. Michael Hochberg walks into the Wiko restaurant, into a buzz of conversation and clinking cutlery. Only ten minutes into lunchtime and the restaurant is nearly full. Michael picks up a tray, serves himself some bread, salad and a risotto from the counter, chats briefly with Lena – the restaurant manager – and looks for a place to sit. Michael has to make a choice now. There are vacant seats at two tables, one to his left and the other to his right. At the table to Michael's right are seated two biologists (Michael is a biologist too). The table to his left is occupied by a historian, a novelist and a composer (this is beginning to sound like the beginning of a bad joke). Michael can't decide. He takes one hesitant step towards his right, changes his mind and moves towards his left, then changes his mind again and finally walks up to the biologists' table (I call this the *Wiko pirouette*, a dance move performed exclusively by

diners at Wiko restaurant). Behind him, Lena smiles to herself and makes a note on a pad ...*

For ten years now, I have been studying social foraging groups of birds. The groups I study are of an unusual kind – each containing individuals of more than one species (a mixed-species flock, in ecological parlance). Thought unusual, such groups are not uncommon. They are found all over the world, in all kinds of habitats – in fact, wherever there are birds such groups are likely to occur. Today we know, with a fair amount of certainty, that the main benefit that these groups afford is safety from predators. And the key to this safety is information. Group members inform each other – through warning or alarm calls – of the presence of a predator in the vicinity.

What interests me most about these groups is the choice of partners. How do birds decide whom to group with? More specifically, do birds choose partners that are similar to themselves (e.g. would a warbler choose another warbler?), or do they choose partners that are very different from themselves (e.g. would a warbler choose an ostrich instead?). The answer probably depends on the kind of information that the bird is looking for. If the bird is interested in supplementing its own information gathering, i.e. collecting information it can collect on its own, but in a more efficient way, then it should choose similar partners. On the other hand, if the bird is interested in complementing its own information gathering, i.e. collecting novel information that it cannot possibly collect on its own, then it is best served by dissimilar partners. Of course, there are costs, too, associated with either of these options. The more similar a partner is in ecology, the higher is the likelihood of competition. The more ecologically dissimilar a partner is, the more difficult it is to adjust and match activities. Ultimately, therefore, the decision on whom to group with is a complex interplay of these needs and costs.

Similar considerations underlie Michael's decision, too. Of course, in his case, unlike in the case of the birds, making the correct decision is not a matter of life and death! All that Michael stands to gain or lose is the opportunity to engage in meaningful and stimulating conversation. But the question whether to group with "ecologically similar" or "ecologically dissimilar" individuals is central here, too. Sitting at a table of biologists might provide Michael with the opportunity for in-depth, highly-nuanced discussions of topics in biology.

* The sequence of events involving Michael Hochberg is entirely made up, although there is no reason to believe that something like this didn't happen.

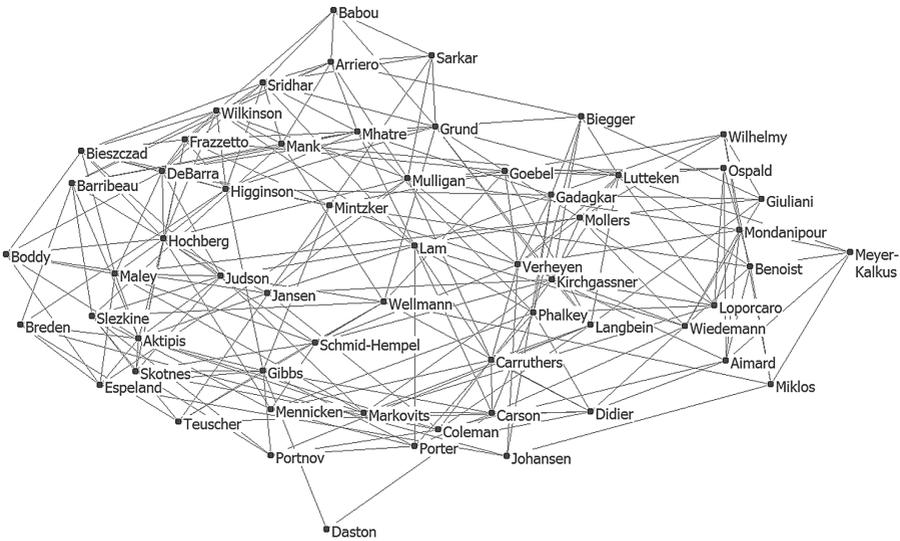
He shares with his fellow biologists a common language, a common technical understanding, which helps them get rapidly to the core of any topic being discussed. However, like in the case of birds, here too there is the chance of competition. We all know how guarded and secretive we can be in the presence of someone we perceive to be a competitor for the same ideas! Sharing a table with Fellows from other disciplines, on the other hand, provides opportunities to gain (and give) new knowledge, new approaches to truth-seeking, new ways of thinking about old problems. But the challenge here is to first overcome age-old barriers to communication and of background knowledge that exist between different academic disciplines; it is like a warbler trying to match its activity with an ostrich.

Information on how Fellows group at the restaurant is also of practical value to Wiko. Wiko aims to provide an “intellectually heterogeneous atmosphere”, to create “a productive friction that leads Fellows to reconsider their approaches, and may lead to unexpected innovation”. Wiko believes that “critical self-examination is possible only within a framework of wide intellectual variety”. The meals at the restaurant are really the only times when such “productive friction” is possible, when Fellows spend extended periods of time talking to each other. At all other times, the Fellows work more or less independently. Therefore, information on how Fellows group in the restaurant might help Wiko assess how the Fellows are using the “intellectually heterogeneous atmosphere” it provides.

I decided to make this my secret project at Wiko. I must admit that I started this in a moment of desperation, for want of distraction, more than anything else. I had come to Wiko to work on three projects; 40 days into my fellowship, none of them seemed to be going anywhere. My attempt to understand “the common underlying conditions under which organisms group with other species rather than their own” was failing because there seemed to be no common underlying conditions (or at least, none that I could make out). I wanted to write a story about bird flocks, but I started to feel that I liked the idea of *being* a writer more than writing. My third project was turning out to be suicidal. I decided to “critically re-assess my published papers”, to pretend that they were unpublished manuscripts and I was the reviewer. I wanted to see if I still stood by all that I had said in my papers. I wanted to use this to make a case for journals allowing authors to annotate their published papers. Unfortunately for me, my first attempt at this, with one of my papers, turned out to be more successful than I hoped (if you know what I mean)!

It was out of this mood of despair and frustration that the Wiko restaurant social foraging group project was born. I remember a day in late October 2013, when I was seated at a table with three other biologists, trying, unsuccessfully, to calculate, in my head, the

probability of four biologists being at the same table just by chance. It was then that I was struck by the parallels between the bird groups I had studied earlier and the diner groups I was part of now. I thought it would be fun to study these diner groups, if only to take my mind off my real projects for a while. The first thing I did was to ask Lena if she would help me collect data. She agreed immediately on the condition that she would be first author on any paper that came out of it. “I know this order of authors is very important to you scientists” is what I remember her saying and laughing. Between October 26, 2013 and March 10, 2014 (my fellowship ended on March 11), during 55 lunches and Thursday dinners, Lena and I (occasionally helped by Vera and other restaurant staff) recorded the composition of diners at each table. From this we pulled out only those pairs of diners who sat together more often than expected by chance. Using these significantly associated pairs, we built a social network. Here is a sneak peek:



A network of associations of Wiko Fellows, Permanent Fellows and staff during meals in the Wiko restaurant. Links indicate that the two nodes shared tables during meals more often than expected by chance. Only pairs of diners who were present together during meals (not necessarily at the same table) greater than 5 times were considered for the network. All partners and family members were left out of the network since their choice of tables is unlikely to be independent of the Fellows. Thanks to Ferenc Jordán for help in building this network using the software UCINET.

I am not going to describe the statistical properties of this network here. That will require a full article elsewhere (with Lena as first author). All I will do here is make a few observations, based solely on a visual inspection:

1. There is reason for Wiko to be happy: the network is characterised by a high-level of homogeneity – no substructuring, no cliques, no overly prominent nodes. What this means is that there was good mixing among the diners at the restaurant.
2. There does seem to have been a tendency, although not very strong, for the biologists to hang out together (Aktipis, Arriero, Barribeau, Bieszczad, Boddy, Breden, De Barra, Frazzetto, Higginson, Hochberg, Jansen, Judson, Maley, Mank, Mhatre, Sridhar and Wilkinson are all clustered on the left side of the graph and have a high density of links among them).
3. I have presented the data as a static network, as one snapshot. But it might be more appropriate to think of this as a dynamic network. In particular, it will be interesting to see whether the network changes systematically from the beginning to the end of the academic year. One might expect that associations between Fellows will become stronger the more time they spend together.

Building this Wiko restaurant network was meant to be a fun exercise, a way to take my mind off my failing projects, an anchor to make me feel productive every day. But the process of collecting this data, observing patterns in association and thinking about what these patterns might mean, has also forced me to think more carefully about the bird groups and question my earlier interpretations. As scientists, we have a tendency to focus on what is easily measurable, easily quantifiable, easily available. What we cannot measure, cannot quantify, cannot access, we tend to ignore. In the Wiko restaurant network, I characterised each node – each Fellow – by a series of measurable labels:

Jocelyn Benoist: Male, 46 years, philosopher, born in France, lives in France.

Cheikh Anta Babou: Male, 56 years, historian, born in Senegal, lives in USA

Kasia Maria Bieszczad: Female, 31 years, biologist, born in Poland, lives in USA

When I do analyse this network statistically, my explanations of the associations will all be in terms of these labels. But I know, already, that these labels, though very important, are inadequate. They tell only part of the story. And I know this only because I was a part of the network under study, i.e. I was both the researcher and a subject of the research. After many wonderful meals and conversations in the Wiko restaurant over the six months of my fellowship, I can tell what, for me at least, made for good mealtime

company: an ability to tell a good joke or story, an ability to laugh at oneself, friendliness, informality, a willingness to discuss sport and novels, a willingness to listen, patience, talkativeness and, above all, familiarity. This is my list. Every one of the 50-odd regular diners in the restaurant would have similar lists of their own. Maybe the birds in the groups I have studied for the last 10 years had similar inconvenient criteria as well, which I was never aware of!

Therefore, one shouldn't really be surprised, when one hears about what Michael Hochberg discussed with his fellow biologists at lunch on that Monday afternoon in November 2013. A diner who wishes to remain unnamed, who was seated at a nearby table, claims he heard the words "truffle farming" mentioned eight times. An eavesdropping passer-by insists she heard an Anna Calvi song being hummed. Another Fellow, who joined Michael's table briefly was party to a discussion on the techniques of hand table tennis. Not even one biological term was heard mentioned at Michael's table that day.

The opportunity to spend time at Wiko could not have come at a better time for me. Coming to the Wiko immediately after my Ph.D. gave me the breathing space required to take stock and plan ahead. While in Berlin, I also had the chance to discuss my work and the possibility of a post-doc with Jens Krause and Max Wolf of the Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Berlin. I can't thank Wiko, its wonderful staff and the Fellows enough for the time I spent in Berlin.