

What hunter-gatherers can tell us about fundamental human social networks

July 21 2016



This photograph shows seafood gathering among Agata children. Credit: Rodolph Schlaepfer

Long before the advent of social media, human social networks were built around sharing a much more essential commodity: food. Now,

researchers reporting on the food sharing networks of two contemporary groups of hunter-gatherers in the Cell Press journal *Current Biology* on July 21 provide new insight into fundamental nature of human social organization.

The new work reveals surprising similarities between the Agta of the Philippines and Mbendjele of the Republic of Congo. In both places, individuals maintain a three-tiered social network that appears to buffer them against day-to-day shortfalls in foraging returns.

"Previous research has suggested that social networks across human cultures are structured in similar ways," says Mark Dyble (@DybleMark) of University College London. "Across societies, there appear to be similar limits on the number of social relationships individuals are able to maintain, and many societies are said to have a 'multilevel' structure. Our work on contemporary hunter-gatherer groups sheds light on how this distinctive [social structure](#) may have benefited humans in our hunting-and-gathering past."

While previous studies have identified similarities in social structure across hunter-gatherer populations, the researchers say that the new work is the first to explore how hunter-gatherers' distinctive, "multilevel" social organization structures social life and cooperation in important activities such as foraging and food sharing.



Food sharing among the BaYaka. Credit: Gul Deniz Salali

"No other apes share food to the extent that humans do," says Andrea Migliano (@andrea_migliano), principal investigator of the Leverhulme Trust-funded Hunter-Gatherers Resilience Project. "Hunter-gatherers' multi-level social structure exists in different groups, to help regulate these cooperative systems. Furthermore, multi-level social structures regulate social rules, friendship and kinship ties, and the spread of social norms, promoting a more efficient sharing and cooperation. Sharing is a crucial adaptation to hunter-gatherers' lifestyles, central to their resilience—and central to the evolution of mankind."

The Agta live in northeast Luzon, Philippines. Their primary source of

protein is fish, supplemented by inter-tidal foraging, hunting, honey collecting, and gathering of wild foods. The Mbendjele live in an area spanning northern Republic of Congo and southern Central African Republic, where they hunt for meat in the forest. Both groups also trade wild-caught meat or fish for cultivated foods, including rice and manioc.

Dyble, Migliano, and their colleagues collected data on food sharing by living with the two communities for many months, making observations on how often households shared food with each other. From this they constructed social networks of food sharing.

"Although we had an idea of how camps split into food sharing clusters 'on the ground,' we were able to test these using algorithms which are able to identify sub-communities within the nine camps we studied," Dyble explains.



Food processing among the BaYaka hunter-gathers. Credit: Gul Deniz Salali

Their analysis showed that food sharing is closely related to social organization. In both communities, individuals maintain a three-tiered social network. First is their immediate household, most often consisting of five or six individuals, second is a cluster of three to four closely related households who share food frequently, and third is the wider camp.

"Despite being from different continents and living in very different ecologies, both groups of hunter-gatherers had a strikingly similar [social organization](#)," Dyble says.

"Cooperation and especially food sharing are essential for survival in a hunting-and-gathering economy," Dyble says. "The proverb that 'it takes a village to raise a child' is certainly true for hunter-gatherers, who, without food sharing to mitigate the day-to-day shortfalls in foraging, could simply not survive."

Dyble says that they now intend to explore the structure of other types of social networks in the hunter-gatherer communities, such as cooperation in childcare, and their overlap with food sharing.

More information: *Current Biology*, Dyble et al.: "Networks of Food Sharing Reveal the Functional Significance of Multilevel Sociality in Two Hunter-Gatherer Groups" [www.cell.com/current-biology/f ... 0960-9822\(16\)30564-4](http://www.cell.com/current-biology/fulltext/S0960-9822(16)30564-4) , DOI: [10.1016/j.cub.2016.05.064](https://doi.org/10.1016/j.cub.2016.05.064)

Provided by Cell Press

Citation: What hunter-gatherers can tell us about fundamental human social networks (2016, July 21) retrieved 9 April 2024 from

<https://phys.org/news/2016-07-hunter-gatherers-fundamental-human-social-networks.html>

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