

Study reveals clues to how humans became sociable

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(PhysOrg.com) -- Humans have evolved to become the most flexible of the primates and being able to live in lots of different social settings sets us apart from non-human primates, suggests research by University of Oxford and the University of Auckland.

A research paper, published in the journal *Nature*, has provided important new clues to how humans network and socialise today by exploring the [evolutionary history](#) of social groupings among primates. The study analysed patterns of [social groups](#) among living primates, as well as examining the ‘the root’ of the family tree, in 217 primate species. The researchers then used Bayesian data modelling to reconstruct the most likely explanation for how the grouping behaviour of primates evolved over 74 million years.

Their key finding is that the main step change in social behaviour occurred when primates switched from being mainly active at night to being more active during the day. Primates started out as solitary foragers as by night they could survive by moving quietly on their own in the dark. However, once they switched to daytime activity, they could be seen and were more vulnerable to attack by predators unless they could show strength in numbers. This research paper provides evidence to show that this switch in activity coincided with a significant change in social behaviour as primates started to ‘gang up’ for the first time. The researchers conclude that social bonding began as a way of adapting to a new threat.

The paper also suggests that primates went directly from being solitary foragers into large, mixed-sex groups where group members were loosely bound together. Members could come and go as needed, suggests the research, which is a behaviour still observed in some primates, like lemurs, today. The emergence of more stable groups of primates, in which individuals formed clusters that were smaller in size and maintained close social links, is likely to have developed much later says the paper.

These findings are significant as they throw into doubt previous theories about the evolution of primate social grouping patterns. Previous studies have suggested that complex primate social groups were composed of smaller units that stacked up rather like building blocks. Others have suggested that the bond between a mother and daughter later extended to include other related females, and it was this network of relationships that underpinned the social grouping patterns of mammals.

The data, studied by the research team, included a huge range of social grouping patterns: solitary individuals, family- bonds, pair-bonds, harems, multi-male and multi-female groups. The researchers discovered that the bonding behaviour of primates was strongly determined by their

ancestors, with closely related species having very similar social behaviour.

Once the transition from individual to group living took place – 52 million years ago in the ancestral line that gave rise to humans, and later in another branch of the primate family tree – no shift back to solitary behaviour ever occurred. Primate ancestors that subsequently began living in pairs did not switch back to group living, whereas those that began living in harems could transition back and forth with large groups. There was never a transition directly from pair to harem living or vice versa.

The researchers conclude that only humans have had the flexibility to live in a range of different, complicated social settings. Throughout history, humans have lived in monogamous and polygamous societies; in nuclear family and extended family groups. Beyond the home, they have socialised in different work settings, as well as being part of the complicated social structure of wider human society.

Lead author Dr Susanne Shultz, from the Institute of Cognitive and Evolutionary Anthropology at the University of Oxford, said: ‘There is an amazing flexibility in the way humans have managed to socialise, network and live together, both in groups and wider society. We have a huge variety of [social settings](#) to cope with, according to the different cultural practices and customs. This flexibility in the human lineage has not evolved to anything like this level in other primates. Our findings support previous studies that suggest that more brain power is needed for groups that have a more complicated social life.’

Co-author Kit Opie, also from the Institute of Cognitive and Evolutionary Anthropology, said: ‘These analyses allow us to look back in time to understand major step changes in social evolution amongst our closest relatives. We now understand why primate sociality is inherently

special, as bonded social groups are unusual in mammals, yet the norm in [primates](#).’

More information: Stepwise evolution of stable sociality in primates, www.nature.com/nature/journal/...ull/nature10601.html

Provided by Oxford University

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