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Beetle evolution down to size of genitals

By Richard Alleyne
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Intense competition between the lovers and fighters of the beetle world is the reason behind their astonishing rate of evolution and the diversity among their populations, a new study claims.

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Beetles have more species than any other plant or animal group on Earth, swarming all over the world in a dazzling array of shapes, colours and sizes from gargantuan Goliath beetles to ladybirds.

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Now scientists have discovered their secret is down to competition between beetles with huge horns - fighters - and huge reproductive organs - lovers.

It is so competitive that it allows them to evolve in different varieties within a few years rather than Millenia.

Dr Armin Moczek, an evolutionary biologist at Indiana University, studied four populations of one species of male dung horned beetles in Australia, Italy and the US.

He discovered that organs developing within the pupa must compete for a limited supply of nutrients. So if one organ grows bigger, another is stunted. Thus, males with large

horns tend to have smaller genitals, and vice versa.

Strong male beetles use their horns to fight for females, but weaker males prefer to sneak off to mate while competitors are fighting.

Which strategy works best depends on the size of the population. In those with more females, fighting is most successful, and big-horned beetles win most mates.

But when there are not enough females, fighting is often fruitless, so evolution favours beetles with smaller horns but cunning tactics.

The evolution leads to a growing divide between lovers and fighters and because beetles with genitals of different sizes cannot mate, they split into different species - sometimes twice a century.

Dr Moczek said: "It's unprecedented that fifty years would be long enough to generate variation normally only found in species which have been separated for millions of years."

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