

Color of passion: Orange underbellies of female lizards signal fertility

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Australian lizards are attracted to females with the brightest orange patches – but preferably not too large – on their underbelly, according to research published in the open-access journal *Frontiers in Ecology and Evolution*.

Lake Eyre dragon lizards, *Ctenophorus maculosus*, are found exclusively in salt deserts in southern Australia, where they feed on dead insects blown onto the salt crust. When females become fertile they develop bright orange patches on their normally pale underbelly and change their behavior towards males: instead of "waving them away" with their forelegs or fleeing, they let the males court them with showy behavior like push-ups and head bobs.

Dr. Devi Stuart-Fox and Jennifer Goode, both of the Zoology Department at the University of Melbourne, Australia, attempted to determine what was more important in driving courtship: the female's color or the behavior that accompanies different reproductive statuses.

Females at different reproductive stages – fertile, pregnant, or non-receptive – were decorated with paints closely matched to the natural colors of the female lizard. The paints were used to either cover up natural orange patches or apply fake ones. As natural lizard color reflects ultraviolet (UV) light, the researchers used specialized UV-reflecting paints to accurately mimic female coloration. The painted females were then allowed to interact with males and the behavior of both sexes was observed.

Males targeted the orange painted females more frequently than white ones, regardless of the females' actual reproductive state. They were most attracted to females with small, bright orange patches and tended to avoid those with larger, paler ones. It is thought that bright color is attractive as it indicates peak female fertility. Pregnant females retain their coloration until laying and very large orange spots suggest the female is swollen with eggs and no longer interested in mating.

But male behavior was more strongly determined by the female's reproductive status. Males also mated more frequently with fertile females than pregnant ones or those outside of the breeding cycle. This is consistent with female behavioral acceptance of courting and mating during this stage. Frustrated males often behaved aggressively – with chases and bites – towards pregnant females.

If males persist with sexually aggressive behavior, pregnant [females](#) have a final ace up their sleeves – they flip over onto their backs and display their orange patterning. This position prevents copulation and the bright orange color displayed is believed to have the added benefit of confusing and warding off predatory birds who might catch sight of the vulnerable female lizard.

More information: *Frontiers in Ecology and Evolution* [DOI: 10.3389/fevo.2014.00002](#)

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