

# ANU Seminar

**EVOLUTION, ECOLOGY, & GENETICS**

**RESEARCH SCHOOL OF BIOLOGY**

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## The "Deep Homology" vs "Convergence" Debate and its Implications for the Planet of the Apes Fallacy



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We would like to know if there are universal features of biological evolution -- features that would evolve again if we could turn back time and play the tape of life again. Identifying such features in terrestrial biological evolution would give us our best guesses about the range of outcomes from extraterrestrial evolution.

Until his death in 2002, Stephen J. Gould parried with other paleontologists, notably Simon Conway-Morris, about what the fossil record could tell us about the outcome of such a thought experiment. If some feature of evolution is inevitable, one would expect it to have evolved multiple times independently on Earth. Conway-Morris has compiled an extensive list of features that have evolved "independently" and have been referred to as examples of "remarkable convergences". On the other hand, evo-devo biologists have suggested that many and possibly most examples of convergence are more correctly understood as examples of deep homology. The Planet of the Apes Hypothesis -- that human-like intelligence is a convergent feature of evolution-- is shown to be an alluring fallacy for reasons I will describe. This has far-reaching implications for our search for life in the universe.

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**Seminars are held in the Gould Wing Seminar Room, Building 116 Daley Rd, ANU  
ALL STAFF AND STUDENTS ARE WELCOME TO ATTEND**