TALES OF THE SOUTH PACIFIC : UNRAVELLING EVOLUTIONARY PATTERNS IN POLYNESIAN WEEVILS

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Island chains represent ideal systems for studying evolutionary processes. The genus *Rhyncogonus* (Entiminae:Curculionidae) occurs exclusively on isolated island chains in the Pacific. All but one of the 127 described *Rhyncogonus* species are single island endemics, though multiple species often occur on any one island. A molecular phylogenetic analysis of representative species of this genus found in French Polynesia is presented here, using data from both mitochondrial and molecular markers. While this remains a preliminary study, inferences about the patterns of colonization and modes of diversification within this group can be made. As predicted from ecological factors, species found within archipelagos are monophyletic, and species from neighboring islands are sister groups. The high levels of divergence between specimens from different archipelagos (>15% divergent in all cases) imply that the genus has a long history in the Pacific, an idea supported by the observation that multiple species have been described from the oldest islands in the Hawaiian and Marquesan chains. Host-plant preference is plotted on the phylogeny and the possible role that the evolution of this trait may have played as a factor driving lineage splitting in this genus is discussed. While further work is needed to better test all of these ideas, this system shows great promise as a means of elucidating many important evolutionary questions.