

Regional Specific Relationships Of Species in The Genus *Favia*

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The genus *Favia* as conventionally defined, is globally one of the most important reef-building corals, although it is now recognized that Pacific and Atlantic members of the genus are not closely related. Pacific "*Favia*" have not been well studied, despite their diversity. One important obstacle is the difficulty of species identification due to the high intra-specific morphological variation and probably hybridization. In this study, to define the species boundaries, evaluate the possibility of hybridization, and examine regional differences and connectivity, we analyzed *Favia* through the subtropical to the temperate region in Japan using molecular techniques. Most species we analyzed were genetically distinct from one another and regional differences within species were not observed. However a few species including *F. speciosa* and *F. palida*, were genetically indistinguishable. Therefore, we treated them as the *F. speciosa* complex and investigated their reproductive biology (spawning time and possibility of hybridization in laboratory crosses) in both subtropical and temperate regions. The crossing experiments revealed the existence of two to three groups with incomplete reproductive isolation in each region. Moreover, species forming these groups were likely different in each region although species identification is difficult due to the non-typical morphological characters. Also these crossing groups strongly reflected the differences in spawning times. Thus, the situation of some *Favia* species is quite complicated, with the possibility of regionally specific complexes of partially isolated taxa and cryptic species.