

●Dr. Phan Due Thanh

<Profile>

Nationality: Viet Nam

Educational Background in Japan:

April 2001 - March 2004: Nara Women's University (Doctor course)

Major Field: Marine ecology

Present Institution / Status:

Hanoi National University of Education/ Lecturer

<Follow-up Research Fellowship>

Period: May 31, 2009 - August 28, 2009 (90 days)

Host University: Nara Women's University

研究課題 / Theme of Research: Male to male competition in the dotillid crabs living on tidal flat

研究概要 / Outline of Research: To understand how the male competition in the dotillid crabs existing in tidal flat occur, the operational sex ratio of mature *Ilyoplax pusilla* and the number of mature crabs engaging in surface activity were investigated for both sexes. The fighting frequency performed by mature males was also recorded to determine the proportion of fighting frequency per male. - In other hand, the relation between body weight and cheliped weight and between body weight and proportion of heavier cheliped in mature male *Ilyoplax pusilla* in comparing to these of *Pseudogelasimus loii* were investigated in order to examine whether the morphology and weight of cheliped are regarded as sexually selected characters in the dotillid species.

③研究成果 / Results of Research

Operational sex ratio: The operational sex ratio of active *Ilyoplax pusilla* performed a male bias (0.641-0.705) in all study periods, while the sex ratio of the collected crabs in late of July reaching 0.51 with confidence coefficient of 0.95 indicates unity.

Fighting frequency/ number of mature male crab: Proportion of fighting frequency performed by male crabs decreased from 0.619 in June late to 0.585 in July early and to 0.428 in late July.

Relation between body weight and cheliped weight and between body weight and proportion of heavier cheliped: The relation between body weight and cheliped weight in mature male *I. pusilla* differs from that of *P. loii* significantly ($n = 78$, $F = 130.128$, $P < 0.0001$, ANCOVA). The proportion of heavier cheliped relative to body weight for mature male *I. pusilla* did present a significant difference from that performed by *P. loii* ($n = 78$, $F = 1050.0$, $P < 0.0001$, ANCOVA). Although, both crab species are almost the same in body weight, *P. loii* has heavier cheliped than *I. pusilla* has.

今後の計画 / Further Research Plan

To determine whether and how male competition occurs in *Pseudogelasimus loii*, I would like to investigate the operational sex ratio, number of active crabs, proportion of fighting frequency fighting and real sex ratio of *P. loii*.

● Research Advisor: Professor WADA Keiji

①研究課題 / Theme of Research

干潟に生息するコメツキガニ科カニ類の雄間競争

②研究概要 / Outline of Research

ベトナム中部の汽水域に固有の希少カニ類*Pseudogelasimus loii*がもっている特異な雄の特徴、巨大はさみ脚の進化を推定するため、本種に近縁で、雄のはさみ脚が左右相称のカニ、チゴガニにおいて、繁殖期の成熟個体の実効性比、雄同士の闘争行動の頻度を野外調査から評価し、これを*P. loii*のそれと比較対比させる。併せて、雄のはさみ脚の体重に占める割合とはさみ脚の重さの左右比をチゴガニで求め、これも*P. loii*のそれと比較対比させる。

③研究成果 / Results of Research

チゴガニの繁殖期における実効性比が得られ、それは雄に片寄るが、生息している集団全体の性比とは有意には変わらないことが示された。雄間の闘争頻度も繁殖期を通じて、単位時間あたり、雄1個体当たりの数値として求めることができた。雄のはさみ脚の重量が体重に占める割合は、*P. pseudogelasimus loii*より、チゴガニのほうが明らかに小さいことが示され、さらにはさみ脚の重量の左右比も、チゴガニは1:1であるのに対して、*P. loii*はほぼ9:1という際立った不相称性を示すことが明らかとなった。

④今後の計画 / Further Research Plan

チゴガニの実効性比、雄間の闘争行動頻度が明らかになったことより、同じデータを*Pseudogelasimus loii*で求めて比較する必要がある。ベトナムに帰国後、本種について、日本で行ったのと同じ調査を、*P. loii*において実施する予定である。さらに*P. loii*の配偶行動の様式がまだ不明であるが、その情報は、実効性比に影響するので、是非配偶行動の現地での観察も計画したい。また、はさみ脚の重量比についても、*P. loii*のデータを増やす必要があり、計画したい。