

การอพยพของผึ้งหลวง *Apis dorsata* Fabr.

นายรัตนา บำรุงรักษา



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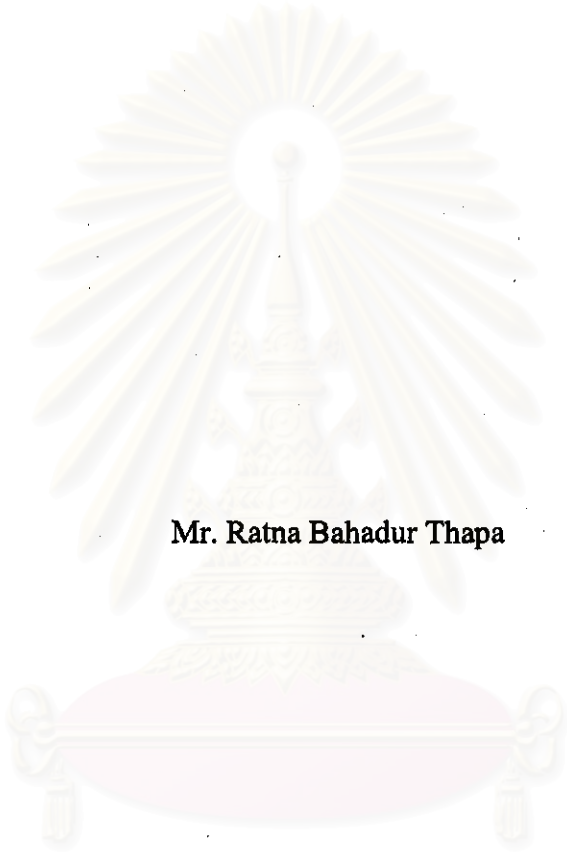
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**COLONY MIGRATION OF THE GIANT HONEYBEE,
Apis dorsata Fabr.**



Mr. Ratna Bahadur Thapa

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By: Ratna Bahadur Thapa


Program: Biological Sciences

Thesis advisor: Prof. Siriwat Wongsiri, Ph. D.

Thesis co-advisor: Prof. Pensri Tangkanasing, Ph. D.

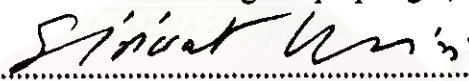
Thesis co-advisor: Senior Lect. Benjamin P. Oldroyd, Ph. D.

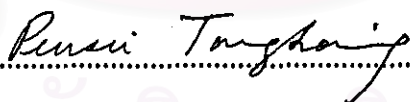
Accepted by the Graduate School, Chulalongkorn University in Partial
Fulfillment of the Requirements for the Doctoral Degree.



..... Dean of Graduate School
(Prof. Supawat Chutivongse, M. D.)


THESIS COMMITTEE

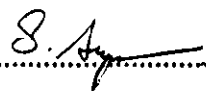

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(Prof. Siriwat Wongsiri, Ph. D.)


..... Thesis Co-advisor
(Prof. Pensri Tangkanasing, Ph. D.)


..... Thesis Co-advisor
(Senior Lect. Benjamin P. Oldroyd, Ph. D.)


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(Associate. Prof. Siriporn Sittipraneed, Ph. D.)


..... Member
(Assistant Prof. Sirinun Aemprapa, Ph. D.)

พิมพ์ต้นฉบับบทคัดย่อวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงฉบับเดียว

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การศึกษาพฤติกรรมการอพยพตามฤดูกาลของผึ้งหลวง, *Apis dorsata* F. บริเวณภาคเหนือของประเทศไทยในช่วงปี พ.ศ. 2538-2541 โดยการหาความสัมพันธ์ทางพันธุกรรมของผึ้งแต่ละรังโดยใช้ microsatellite 3 ตำแหน่ง (A_{14} , A_{28} และ B_{124}) ผลการวิเคราะห์นั้นแสดงว่าผึ้งที่อพยพกลับมายังรังเดิม ไม่มีความสัมพันธ์ทางพันธุกรรมหรือเป็นญาติกับผึ้งรุ่นเก่าเลย แสดงให้เห็นว่าผึ้งรุ่นที่อพยพไปหรือญาติของผึ้งนั้น ไม่น่าจะกลับมาสร้างรังในที่เดิมอีก

การศึกษาพันธุกรรมของผึ้งที่ทำรังอยู่เป็นกลุ่มในบริเวณที่จุดเดียวกัน พบว่าประกอบด้วยกลุ่มของผึ้งที่มีความสัมพันธ์กันทางพันธุกรรมและไม่มีความสัมพันธ์กันทางพันธุกรรม โดยรังที่มีความสัมพันธ์ทางพันธุกรรมกันจะอยู่ห่างมากกว่ารังที่ไม่มีความสัมพันธ์ทางพันธุกรรมกัน (ห่าง 2-5 เมตร) ซึ่งแสดงให้เห็นว่าผึ้งที่แยกรังไปแล้ว จะย้ายไปไม่ไกลจากรังเดิมมากนัก ขณะที่ผึ้งรังที่ไม่มีความสัมพันธ์กันทางพันธุกรรมจะสร้างรังอยู่ใกล้กันมากกว่า เพื่อให้เกิด mutual defense และเพิ่มโอกาสของการผสมพันธุ์ระหว่างผึ้งรังที่มีพันธุกรรมต่างกันให้สูงขึ้น

การติดตามการอพยพตามฤดูกาลของผึ้งหลวง พบว่าเกิดขึ้นในฤดูหนาว (มกราคม) เมื่ออุณหภูมิของอากาศลดลงต่ำกว่า 10 องศาเซลเซียส ผึ้งหลวงจะเริ่มมีการอพยพ เนื่องจากผึ้งไม่สามารถควบคุมอุณหภูมิภายในรัง ให้มีอุณหภูมิที่เหมาะสมสำหรับตัวอ่อน (มากกว่า 35 องศาเซลเซียส) ได้ นอกจากนั้นเมื่อลมมีความเร็วมากกว่า 29 กิโลเมตรต่อชั่วโมง จะกระตุ้นให้มีการอพยพมากขึ้น ส่วนการล่าและตีรังเพื่อเก็บน้ำผึ้งโดยมนุษย์เป็นสาเหตุใหญ่ที่ทำให้มีการอพยพของผึ้งหลวง ขณะที่อิทธิพลของปรสิตผึ้งจะไม่มีผลต่อการอพยพเลย

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สาขาวิชาวิทยาศาสตร์ชีวภาพ.....
ปีการศึกษา 2541

ลายมือชื่อนิสิต
ลายมือชื่ออาจารย์ที่ปรึกษา
ลายมือชื่ออาจารย์ที่ปรึกษาร่วม

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KEY WORD: THE GIANT HONEYBEE / *A. dorsata* / MIGRATION / AGGREGATION / RELATEDNESS

RATNA BAHADUR THAPA: COLONY MIGRATION OF THE GIANT HONEYBEE, *Apis dorsata* Fabr.

THESIS ADVISOR: Prof. SIRIWAT WONGSIRI, Ph D. THESIS CO-ADVISORS: Prof. PENSRI TANGKANASING, Ph D. and SEN. Lect. BENJAMIN P. OLDROYD, Ph D. 102 pp. ISBN 974-331-025-8.

Migratory behavior of the giant honeybee, *Apis dorsata* F. was observed in northern Thailand from 1995-1998. Relatedness of colonies was determined using three microsatellite loci (A14, A88 and B124). The microsatellite results demonstrate that the colonies seasonally occupied the same nest site were not related. The results suggest that *A. dorsata* swarms probably do not return to their parental nest sites after migration.

The genetic results of aggregated colonies on a single support demonstrate that aggregated colonies were combination of related and unrelated colonies. However, related colonies were nested far away (>2.5 m) whereas and unrelated colonies nested closer. The results suggest that related swarms preferentially migrated a short distance whereas the unrelated swarms preferentially nested closer in order to provide mutual defense and to enhance outbreeding.

The migratory observations indicate that *A. dorsata* seasonally altered their nest site. In winter (January) when the ambient temperature dropped below 16°C, *A. dorsata* started to migrate due to unable to maintain their optimum brood nest temperature (>35°C). Wind speed (>29 km/h) also induced colony migration by dislodging their nests. Similarly predators caused all colony migration whereas parasite pressure seems negligible.

ภาควิชา.....ชีววิทยา.....

สาขาวิชา.....สัตวศาสตร์ชีวภาพ.....

ปีการศึกษา.2541.....

ลายมือชื่อนิสิต.....*Mape*.....

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ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....*Benjamin P. Oldroyd*.....

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Ratna B. Thapa
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