

Floral Records of Fourteen Species of Colletid, Anthophorid and Bombine Bees in Kôchi Plain, Shikoku, Japan (Hymenoptera: Apoidea)¹⁾

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Synopsis The present paper deals with floral record based on a wild bee survey in 1975 and 1976. Flowering plants visited by bees are recorded 53 species in 21 families in total.

INTRODUCTION

Up to this time, the author has made some reports on a wild bee survey in Kôchi plain. Those are the result of biofaunistic investigation made in order to obtain some basic information upon the faunal makeup, phenology and flower visiting habits, during the bee season from late February to late October in 1975 and 1976.

Namely, the 1st report is on ecological and systematic generalization of investigations (1978). The 2nd-4th reports are on flower-visiting habits on each wild bee species, especially the relation among the period of the flower-visiting bee activity, the number of flower-visiting bee individuals, species of flowering plants visited by bees, and the flowering period of each of those plant species. The 2nd report is made on megachilid bees (1979), the 3rd on andrenid bees (1980), the 4th on halictid bees (1981).

Continuously, flower-visiting habits of colletid, anthophorid and apid (restricted only to the subfamily Bombinae) bees are reported. In this paper as in the 4th report only floral record is reported, because data is not enough to discuss the relation between each bee species and each flowering plant species visited by bees. The discussion requires a steady further accumulation of data after this.

Then, this paper comes to the end of a series of reports on a wild bee survey in Kôchi plain.

METHOD

The explanation of investigating method and study area is omitted, as was already described in the 1st report (1978).

1) The wild bee survey in Kôchi, Japan - VI.

FLORAL RECORD

Data of specimens treated in this paper contain more or less those of irregular survey in addition to those of regular survey showed in the 1st report (1978). And as the taxonomy of wild bees inhabiting Shikoku is still not in a satisfactory state, some unnamed species in the genus *Nomada* are cited with Arabic code number. These specific numbers were adopted in my previous studies and will be used, fixed for each species, in the subsequent papers until the accurate names would be established.

Fourteen species of bees, represented by 422 individuals and belonging to 8 genera in 2 families and 1 subfamily, are recorded in total. And flowering plants visited by bees involve 53 species in 21 families in total.

Localities are indicated in abbreviation as follows. G: Godaisan Kôchi-shi, K: Kotohira-jinja Kôchi-shi, M: Monobe Nankoku-shi, O: Oko Nankoku-shi. As the author himself collected specimens, the names of the collector are all omitted. Scientific names of plant species principally depend on Ohwi's writings (1967a, b).

COLLETIDAE

1. *Colletes patellatus* PÉREZ 15♀♀, 25♂♂

i) Compositae

Kalimeris yomena KITAM.: 1. X. 1975, 3♀♀, 4♂♂, G; 6. X. 1976, 3♀♀, 1♂, O; 12. X. 1976, 1♀, 1♂, G; 22. X. 1975, 4♀♀, G; 27. X. 1976, 1♀, O; 29. X. 1976, 1♀, G.

Aster subulatus MICKX.: 19. IX. 1975, 10♂♂, G.

A. tataricus HOOK.: 19. IX. 1975, 4♂♂, M.

A. ageratoides TURCZ. var. *semiamplexicaulis* OHWI: 13. X. 1976, 4♂♂, M.

Lactuca indica LINN.: 1. X. 1975, 1♀, G.

Picris hieracioides LINN. var. *glabrescens* OHWI: 1. X. 1975, 1♀, G.

ii) Leguminosae

Lespedeza bicolor TURCZ.: 19. IX. 1975, 1♂, G.

2. *C. perforator* SMITH 4♀♀, 1♂

i) Compositae

Youngia denticulata KITAM.: 22. X. 1975, 3♀♀, 1♂, G.

Kalimeris yomena KITAM.: 6. X. 1976, 1♀, O.

ANTHOPHORIDAE

1. *Anthophora acervorum villosula* SMITH 7♀♀

i) Ericaceae

Rhododendron sp.: 6. V. 1976, 6♀♀, G.

ii) Caprifoliaceae

Weigela coraeensis THUNB.: 13. V. 1976, 1♀, K.

2. *Amegilla florea* (SMITH) 3♀♀

i) Liliaceae

Liparis auriculata BLUME: 19. IX. 1975, 2♀♀, G.

ii) Zingiberaceae

Costus speciosus SMITH: 19. IX. 1975, 1♀, G.

3. *Tetralonia nipponensis* PÉREZ 43♀♀, 135♂♂

i) Elaeagnaceae

Elaeagnus multiflora THUNB.: 25. III. 1976, 14♂♂, M; 8. IV. 1976, 3♀♀, 31♂♂, M; 10. IV. 1976, 9♀♀, 25♂♂, O.

ii) Cruciferae

Brassica chinensis LINN.: 22. III. 1976, 3♂♂, O.

B. campestris LINN.: 16. IV. 1976, 1♂, G.

B. oleracea LINN.: 28. IV. 1976, 8♀♀, 2♂♂, M.

Raphanus sativus LINN.: 10. IV. 1976, 3♀♀, 5♂♂, O.

iii) Ericaceae

Pieris japonica D. DON.: 23. III. 1976, 1♂, G.

Rhododendron sp.: 16. IV. 1976, 1♂, G; 28. IV. 1976, 9♀♀, 1♂, M; 6. V. 1976, 1♀, 8♂♂, G.

R. lateritium PLANCH.: 26. V. 1976, 1♀, O.

iv) Labiatae

Ajuga decumbens THUNB.: 25. III. 1976, 8♂♂, M; 8. IV. 1976, 4♂♂, M.

Lamium purpureum LINN.: 16. IV. 1976, 2♀♀, 5♂♂, G.

v) Rosaceae

Rubus microphyllus LINN.: 23. III. 1976, 10♂♂, G.

Prunus jamasakura SIEB.: 23. III. 1976, 1♂, G.

Cerasus trichorarpa (BUNGE) WALL.: 25. III. 1976, 2♂♂, M.

vi) Leguminosae

Vicia sepium LINN.: 10. IV. 1976, 1♀, O.

Wisteria floribunda DC.: 20. IV. 1976, 4♂♂, G.

Astragalus sinicus LINN.: 1. V. 1976, 1♀, O.

Caesalpinia japonica SIEB. et ZUCC.: 6. V. 1976, 1♀, 1♂, G.

vii) Violaceae

Viola grypoceras A. GRAY: 20. III. 1976, 3♂♂, M; 25. III. 1976, 2♂♂, M.

viii) Rutaceae

Citrus sp.: 9. IV. 1975, 1♀, M; 10. IV. 1975, 1♀, M.

ix) Compositae

Youngia japonica DC.: 16. IV. 1976, 2♂♂, G.

x) Geraniaceae

Geranium cinereum CAV.: 9. IV. 1975, 1♂, M.

xi) Meliaceae

Melia azedarach LINN.: 12. V. 1975, 1♀, M.

xii) Caprifoliaceae

Weigela coraeensis THUNB.: 13. V. 1976, 1♀, K.

4. *T. mitsukurii* COCKERELL 62♀♀, 42♂♂

i) Leguminosae

Lespedeza bicolor THUNB.: 19. IX. 1975, 11♀♀, 16♂♂, G; 22. IX. 1975, 7♀♀, 5♂♂, O;
1. X. 1975, 9♀♀, G; 6. X. 1976, 15♀♀, 5♂♂, O; 8. X. 1975, 8♀♀, O; 12. X. 1976,
8♀♀, 2♂♂, G; 22. X. 1975, 3♀♀, G.

L. crytobotrya MIQ.: 29. IX. 1976, 14♂♂, K.

ii) Compositae

Aster subulatus MICKX.: 19. IX. 1975, 1♀, G.

5. *Xylocopa appendiculata circumvolans* SMITH 37♀♀, 14♂♂

i) Leguminosae

Wisteria floribunda DC.: 20. IV. 1976, 1♀, 5♂♂, G; 25. IV. 1975, 1♂, M; 6. V. 1976,
1♂, G.

Vicia sepium LINN.: 28. IV. 1976, 1♀, M.

Caesalpinia japonica SIEB. et ZUCC.: 6. V. 1976, 1♀, 2♂♂, G.

Lespedeza bicolor TURCZ.: 23. VII. 1976, 2♀♀, G; 19. IX. 1975, 1♀, G.

Amphicarpaea edgeworthii BENTH.: 1. X. 1975, 1♀, G.

ii) Ericaceae

Rhododendron sp.: 28. IV. 1976, 9♀♀, 2♂♂, M.

iii) Caprifoliaceae

Viburnum awabuki K. KOCH: 15. VI. 1976, 2♀♀, O.

Weigela coraeensis THUNB.: 13. V. 1976, 1♀, 1♂, K.

iv) Saxifragaceae

Deutzia crenata SIEB. et ZUCC.: 26. V. 1976, 1♀, 1♂, O; 27. V. 1976, 1♀, G.

Hydrangea macrophylla SER.: 15. VI. 1976, 1♀, O.

v) Clethraceae

Clethra barbinervis SIEB. et ZUCC.: 9. VII. 1976, 3♀♀, O.

vi) Lauraceae

Machilus thunbergii SIEB. et ZUCC.: 16. VI. 1976, 2♀♀, G.

vii) Labiatae

Lamium purpureum LINN.: 16. VI. 1976, 2♀♀, G.

viii) Malvaceae

Althaea rosea CAV.: 23. VI. 1975, 1♀, M.

Hibiscus syriacus LINN.: 9. VII. 1976, 1♀, O.

ix) Liliaceae

Scilla scilloidea (LINDL.) DRUCE: 19. IX. 1975, 1♀, G.

Liparis auriculata BLUME: 19. IX. 1975, 1♀, G.

x) Compositae

Aster tataricus HOOK.: 19. IX. 1975, 1♀, G.

Youngia denticulata KITAM.: 22. X. 1975, 1♂, G.

xi) Simaroubaceae

Ailanthus altissima SWING.: 26. V. 1975, 1♀, M.

xii) Oleaceae

Ligustrum japonicum THUNB.: 2. VI. 1975, 1♀, O.

xiii) Rutaceae

Zanthoxylum ailanthoides SIEB. et ZUCC.: 1. VIII. 1975, 1♀, G.

6. *Triepeolus ventralis* (MEADE-WALDO) 3♂♂

i) Compositae

Picris hieracioides LINN. var. *glabrescens* OHWI: 1. V. 1975, 3♂♂, G.

7. *Nomada japonica* SMITH 22♀♀

i) Compositae

Taraxacum albidum DAHLST.: 8. IV. 1976, 4♀♀, M.

Erigeron philadelphicus LINN.: 7. V. 1975, 5♀♀, G.

E. annuus PERS.: 27. V. 1976, 1♀, G.

ii) Ericaceae

Rhododendron sp.: 6. V. 1976, 4♀♀, G.

iii) Buxaceae

Buxus microphylla SIEB. et ZUCC. var. *japonica* REHD. et WILS.: 13. V. 1976, 3♀♀, K.

iv) Caprifoliaceae

Abelia spathulata SIEB. et ZUCC.: 25. IV. 1975, 1♀, G.

Weigela coraeensis THUNB.: 13. V. 1976, 1♀, K.

v) Labiatae

Lamium purpureum LINN.: 16. IV. 1976, 1♀, G.

vi) Cruciferae

Brassica oleracea LINN.: 28. IV. 1976, 1♀, M.

vii) Rosaceae

Potentilla kleiniana WIGHT.: 1. V. 1976, 1♀, O.

8. *Nomada nipponica* SMITH 1♀, 1♂

i) Ericaceae

Rhododendron sp.: 6. V. 1976, 1♀, G.

ii) Rosaceae

Rubus microphyllus LINN.: 10. IV. 1976, 1♂, O.

9. *N. sp. 1* 4♀♀

i) Compositae

Taraxacum albidum DAHLST.: 8. IV. 1976, 4♀♀, M.

10. *N. sp. 2* 1♀

i) Rosaceae

Stephanandra incisa ZABEL: 1. V. 1976, 1♀, O.

11. *N. sp. 3* 1♀

i) Rosaceae

Rubus microphyllus LINN.: 12. III. 1976, 1♀, G.

BOMBINAE

1. *Bombus ardens* SMITH 1♀

i) Caprifoliaceae

Abelia spathulata SIEB. et ZUCC.: 23. IV. 1975, 1♀, G.

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