

A preliminary review of the Megachilidae of Turkey Part IV. Megachilini and Lithurgini (Hymenoptera : Apoidea)

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Summary

This part of the study of the bees of the family Megachilidae of Turkey comprises the tribes Megachilini and Lithurgini. 92 species and subspecies of Megachilini and 4 species and subspecies of Lithurgini have been reported.

Some species are very common all over the country and good pollinators of sainfoin, *Onobrychis viciifolia*, alfalfa, *Medicago sativa*, and sunflower, *Helianthus annuus* which have large growing areas in the country.

Megachile alpicola Alfken, *M. deceptor*a Pérez, *M. melanogaster* Eversmann, *M. metatarsalis* Morawitz, *M. octosignata* Nylander, *M. villipes* Morawitz, and *Coelioxys emarginata* Förster are new for Turkey.

Introduction

In the fourth part of this study, the tribes Megachilini and Lithurgini are treated. The information related to the material, the symbols and other particulars were given in the parts I and II (Özbek and van der Zanden 1992a and 1992b).

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Results

In this study 92 species and subspecies of Megachilini are reported from Turkey, among them 6 *Creightonella*, 23 *Chalicodoma*, 39 *Megachile*, 19 *Coelioxys*, 1 *Liothyrapis*, 2 species and 2 subspecies of *Lithurgus* are recorded in the tribe Lithurgini, Following is the presentation in alphabetical order.

A. *Megachilini*

I. Genus *Creightonella* Cockerell, 1908

Cr. (Metamegachile) albisecta (Klug, 1804)

1 male, 19.6.1969, Mut (İçel) (Coll.Linsenmaier; Ebikon); 2 females, 2.7.1992, Menemen (İzmir); 1 female, 17.7.1986, 50 km east of Mut (C.E.); 2 females, 24.7.1985, Kuşadası (Aydın) (C.Z.); 1 female, 31.7.1978, Anamur (İçel), 10 m; 1 male, 9.7.1991, Termessos, Antalya, *Centaurea solstitialis*; 1 female, 13.7.1983, Erdemli (İçel); 2 females, 20.7.1977, Silifke, *Eryngium* sp.; 1 male, 22.7.1978, Silifke (İçel); 4 males, 4 females, 23.7.1977, Sinop, *C.iberica*, *Carduus* spp., *Cirsium* sp.

Cr. (Metamegachile) albisecta caucasica (Lepelletier, 1841)

1 female, 22.7.1986, Suvari Halil parage, Kaval (Hakkari), 2300 m (C.E.); 2 males, 19.8.1983, Iğdır (C.Z.); 1 male, 30.7.1978, Tatvan (Bitlis) *C.iberica*; 1 male, 1 female 30.7.1978, Muş *C.iberica*, *C.solstitialis*; 1 female, 2.7.1978, Narman (Erzurum) 1700 m, *C.solstitialis*; 1 male, 10.8.1992, Bayırköy, Üzümlü (Erzincan); 1 female, 15.8.1991, Taşlıköy, Olur (Erzurum) 1100 m; 1 female, 19.9.1978, Oltu (Erzurum) *Eryngium billardieri*, 1300 m; 8 female, 20.9.1977, Bağbaşı, Tortum (Erzurum) *Arctium lappa*, *Salvia* sp., *Trifolium pratense* (C.O.).

Cr. (Metamegachile) albisecta cyprica C5ckerell, 1931

1 female, 22.5.1969, Konya (C.Z.).

Cr. (Metamegachile) doriae (Magretti, 1890).

Literature cited : Ankara (Alfken, 1935)

Cr. (Metamegachile) rhodosiaca (Rebmann, 1972)

2 males, 1 female, 14.6.1985, Side (Antalya); 1 male, 9.7.1990, Alikayası Geçidi, Kahramanmaraş, 800 m; 1 male, 14.6.1986, Diyarbakır, 650 m; 1 female, 4.8.1985, Silifke (İçel), 400 m; 1 female, 12.8.1990, Adıyaman (C.Z.); 1 male, 30.7.1991, Erzincan, 1300 m; 2 females, 10.8.1992, Bayırbağ, Üzümlü (Erzincan), 1300 m, *Eryngium* sp. (C.O.).

Cr. (Metamegachile) heinrichi Tkalcu, 1979

Described from Urfa, is probably a subspecies of *Cr. rhodosiaca* (Rebm.)

II. Genus *Chalicodoma* Lepelletier, 1841

Ch. (*Allochalicodoma*) *albocristata* (Smith, 1853)

1 male, 2.7.1992, Menemen (İzmir); 1 male, 5.8.1990, Güngörmez, Erzurum, 2400 m, *Astragalus* sp. (C.O.); 2 females, 3.7.1985, Ağrı Dağı 1800 m; 1 female, 2.8.1971, Hattusas (Çorum), 1100 m; 2 females, 2.8.1985, Patnos (Ağrı), 1600 m; 1 female, 21.8.1983 Diyadin (C.Z.).

In Turkey the colour of the abdominal hairs varies strongly : From completely black to specimens with broad white hair-bands. Some fully black-haired : 4 females, 16-28.8.1971, Doğubeyazıt (Ağrı) 200 m (C.Z.).

Literature cited : Taurus Mts. (Benoist, 1934, as *Megachile vachali*) Ankara (Alfken, 1935, as *Ch.Cognatum*).

Ch. (s. str.) *albonotata* (Radoszkovsky, 1886)

1 male, 3.6.1964, Ürgüp (Nevşehir) (C.Z.).

Ch. (*Euchalicodoma*) *asiaticum* (Morawitz, 1875)

2 males, 20.5.1988, Eğridir (Isparta).

Literature cited : Mersin (Eriese, 1897).

Ch. (*Pseudomegachile*) *derasa* (Gerstaecker, 1869)

1 male, 25.5.1987, Adana *C.solstitialis*, 9 males; 1 female, 29.6.1992, Antalya, *Vitex agnus-castus*; 1 female, 22.6.1978, Silifke (İçel); 1 female, 10.7.1991, Saklıkent, Antalya 1700 m, *Cirsium* sp.; 6 females 14.8.1993 Serik (Antalya) (C.O.); 1 female, 2.7.1986 Pamukkale (Denizli) 1000 m; 1 male, 20.7.1966 Alanya (Antalya) (C.Z.).

Literature cited : Şelale, Köşeler (Antalya) (Stanek, 1968) Silifke (İçel) (Özbek, 1979).

Ch. (*Pseudomegachile*) *ericetorum* (Lepelletier, 1841)

A common species all over Turkey. It is active from June till the end of September, and pollinates *Onobrychis viciifolia* and *Medicago sativa*.

Ch. (*Pseudomegachile*) *flavipes* (Spinola, 1838)

1 female, 6.8.1985 Birecik (Şanlıurfa), 400 m; 2 females, 9.8.1985, Diyarbakır, 650 m (C.Z.). 1 male, 18.7.1991, Taşburun, Iğdır; 2 females, 30.7.1991, Erzincan; 1 female, 31.7.1992, Şereflikoçhisar (Ankara); 1 female, 23.7.1990, Iğdır; 1 female, 16.9.1979, Erzurum, 1800 m, *O.viciifolia* (C.O.). 4 males, 3 females, 14.7.1986, Diyarbakır, 650 m; 1 male, 18.8.1991, Taşburun, Iğdır (C.Z.); 2 male, 12.7.1991, Taşlıköy, Olur (Erzurum); 1 male, 18.7.1990, Köprüköy (Erzurum), *C.solstitialis*; 3 males, 18.7.1991, Akyumak, Iğdır; 1 female, 25.7.1977, Pasinler (Erzurum), *O.viciifolia*; 2 males, 2 females, 30.7.1991, Erzincan; 1 male, 31.7.1992, Bayram-

paşa, Demirözü (Bayburt); 1 male, 10.8.1992, Bayırbağ, erzincan; 4 females, 3.9.1979, Erzurum, *O.viciifolia*; 3 females, 20.9.1977, Erzurum (C.O.).

Ch. (*Pseudomegachile*) *flavipes rubripes* (Morawitz, 1875)

1 male, 2 females, 19.7.1985, Burhaniye (Aydın); 1 male, 4 females, 26.7.1981 Pamukkale 1000 m; 1 male, 2.8.1985, Silifke (İçel), 250 m (C.Z.).

Ch. (*Pseudomegachile*) *foersteri* (Gerstaecker, 1869)

1 male, 17.6.1960, İskenderun (Coll.Schlaefle); 1 male, 5.6.1991 Adana; 1 female, 20.6.1978, University, Erzurum, 1850 m; 1 male, 13.7.1984, Pülümür (Tunceli), 2200 m, *Onopordum* sp.; 2 females, 15.6.1989 Çemişgezek (Tunceli); 3 females; 27.7.1978, Kokarsu (Bitlis), *Cirsium* sp.; 6 females, 29.7.1978, Çakırbey, Erciş (Van), *Centaurea glastifolia* 1 female, 30.7.1980, Dedek, Kemah (Erzincan); 1 female, 10.8.1992, Bayırbağı, Üzümlü (Erzincan) (C.O.).

Literature cited : Anatolia (Pasteels, 1966).

Ch. (*Pseudomegachile*) *foersteri albescens* (Friese, 1898)

Type locality : Taurus Mts.

1 male, 21.6.1985, Gölbaşı (Ankara); 1 male, 4.7.1981, Esen, Kemer (Antalya) 100 m; 1 female, 19.7.1967, Kuşadası (Aydın); 1 male 22.7.1971, Bazar Güllü, 1250 m (C.Z.); 12 males, 3 females, 30.6.1992, Millipark, Davutlar, İzmir, 5 m, *V.agnus-castus*; 1 male, 9 females, 4.7.1990, Çine (Aydın); 2 females 19.7.1991, Termessos, Antalya, *Caphalaria alpina*; 2 females, 31.7.1991, Şereflikoçhisar (Ankara) (C.O.)

Literature cited : Germencik (Aydın), Menemen (İzmir) (Stanek, 1968, Pamukkale (Denizli), Sultandağları, Kemer (Antalya) (van der Zanden, 1989).

Ch. (*Allochalicodoma*) *hungarica* Mocsary, 1877

A common species all over Turkey, from the costal region to the high mountainous areas of eastern Anatolia. It is active from May till the end of September.

Ch. (s.str.) *lebanotica* Mavromoustakis, 1957

1 female, 25.6.1985, Tanin Geçidi, 2500 m (C.Z); 1 male, 8.6.1992, Süngübayır, Olur (Erzurum); 2 females, 12.6.1978, Başaklı, Oltu (Erzurum); 6 females, 1.7.1991, Süngübayır, Olur; 2 females 10.7.1992, Çatak (Van), 1700 m; 1 female, 12.7.1992, Pehlivanlı Tortum (Erzurum); 4 females, 14.7.1984, Ovacık (Tunceli), *Cirsium* sp.; 2 females, 20.7.1979, Başaklı, Oltu; 1 female, 22.8.1992, Karakoçlar, Olur (C.O.).

Ch. (*Katamegachile*) *manicata* (Giraud, 1861)

1 female, 14.7.1990, Umudum Yaylası, Erzurum, 2200 m (C.O.).

Ch. (*Katamegachile*) *monstrifica* (Morawitz, 1877).

1 male, 25.5.1990, Taurus Mts., Seydişehir (Konya) 1500 m (C.Z.); 1 male, 4.6.1976, Erzurum, 1850 m; 1 female 22.6.1987, Çat (Erzurum), 2100 m; 1 male, 29.6.1983, Dumlu Dağı, Erzurum 2700 m; 1 female, 30.6.1991, Süngübayır, Olur (Erzurum); 1 female, 5.7.1989, Karagöbek, Erzurum, 2200 m, *Astragalus lagurus*; 1 female, 9.7.1992, Yayla, Şenkaya (Erzurum) 2400 m; 1 male, 9.7.1992, Dez vadisi, Hakkari, 1500 m; 1 female, 14.7.1990, Umudum yaylası, 2200 *Astragalus* sp.; 1 female, 18.7.1992, Çatak (Van), 2000 m; 1 female, 23.7.1992, Süngübayır, Olur; 1 female, 24.8.1988, Radar Yolu, Kargapazarı, Erzurum 2500 m, *Thymus fallax* (C.O.).

Literature cited : Taurus Mts (Renoist, 1934). I

Ch. (*Euchalicodoma*) *montenegrensis* (Dours, 1873)

1 male, 16. V. 1978, Kağızman (Iğdır); 1 male, 23. V. 1992, Erdemli (İçel) *Cirsium* sp.; 2 females, 18. VI. 1982, Yeşildere, Erzurum, 1750 m, *Cirsium* sp.; 1 female, 27. VI. 1992, Alpagut, Mihalgazi, (Eskişehir); 1 female, 30. VI. 1992, Millipark, Davutlar, (Aydın), 20 m, *V. agnus - castus*; 1 male, 27. VII. 1978, Ritlis, 2000 m; 1 male, 3. VIII. 1992, Akseki (Antalya), *C. solstitialis* (C. O.); 1 female, 6. VII. 1990, Tauros, Irmason Geçidi, 1550 m; 1 female 17. VII. 1986, Edremit (Balıkesir) (C. Z.).

Literature cited: Taurus Mts. (friese, 1897, as *Megachile syraensis*), Antakya (van der, 1980).

Ch. (*Pseudomegachile*) *multispinosa* (Morawitz, 1875)

1 female, 29. VI. 1990, Pehlivanlı, Tortum (Erzurum); 1 female, 19. VII. 1971, Rahva (Bitlis), 1950 m (C.Z.); 2 females, 15. VII. 1982, Dedek, Kemah (Erzincan) (C. O.).

Ch. (S. str.) *nigrita* (Radoszkovsky, 1876)

Literature cited: Florya (İstanbul), Belemelik (Adana) (Fahringer, 1922).

Ch. (s. str.) *parietina nestorea* (Brullé, 1832)

Good pollinator of *Onobrychis viciifolia*. It also visits *Medicago sativa*, *O. cornuta*, *Trifolium repens*, *Vicia cracca*, *Melilotus alba*, *M. officinalis*, *Centaurea* spp. Common species all over the country.

Literature cited: Common species (Özbek, 1979).

Ch. (s. str.) *pyrenaica* (Lepelletier, 1842)

Literature cited: Bursa (Fahringer, 1922), Erciyas (Kohl, 1905)

Ch. (s. str.) *pyrenaica alpina*, Morawitz, 1872.

1 male, 8. VI. 1992, Süngübayır, Olur (Erzurum), 1900 m; 1 female, 14 VI. 1988, Başaklı, Oltu (Erzurum), 1600 m; 1 male, 30. VI. 1991, Süngübayır, Olur; 2

males, 1 female, 7. VII. 1991, Süngübayır, Olur; 1 female, 4. VII. 1991, Meydanlar, Tortum (Erzurum), 1600 m; female, 14. VI. 1990, Umudum Yaylası, Erzurum, 2200 m; 1 female, 5. VIII. 1990, Güngörmez, Erzurum, 2400 m, *Astragalus lagurus*.

Literature cited: Ankara (Alfken, 1935).

Ch. (s. str.) pyrenaica asiae Tkalcu, 1988

Type locality: Elazığ.

1 female, 20. V. 1988, Eğridir (Isparta) (C. Z.); 1 female, 7. VII. 1991, Süngübayır, Olur (C. O.).

Ch. (Allochalicodoma) roeweri Alfken, 1927

Literature cited: Ovacık (Tunceli) (van der Zanden, 1989).

Ch. (Pseudomegachile) sanguinipes (Morawitz, 1875)

1 female, 22. VI. 1969, Konya; 1 male, 6. VII. 1984, Gezbeli Geçidi Bakır Dağı, 1800 m (C. Z.).

Ch. (Pseudomegachile) saussurei (Radoszkovsky, 1874)

1 male, 10. V. 1989, Tokat; 1 female, 29. VI. 1990, Pehlivanlı, Tortum (Erzurum), 1200 m; 1 male, 30. VI. 1991, Süngübayır, Olur (Erzurum) 1700 m; 1 female, 2. VII. 1991, Termessos, Antalya, *C. solstitialis*; 1 male, 11. VII. 1992, Aydoğdu, Erzincan; 7 females, 7 males, 27. VII. 1978 Kokarsu, Bitlis, *Eryngium billardieri*; 1 female, 27. VII. 1976, Erzurum, *O. viciifolia*; 6 males, 5 females, 28. VII. 1978, Patnos (Ağrı), *Centaurea iberica*, *C. carduiformis*, *C. solstitialis*, *Astragalus lineatus*; 1 male, 28. VII. 1990, Kaleboğazi, Oltu (Erzurum); 1 male, 29. VII. 1978, Edremit (Balıkesir); 1 male, 8. VIII. 1989 Cat (Erzurum), 2100 m; 1 male, 1 female; 10. VIII. 1992, Bayırbağ, Üzümlü (Erzincan); 2 females, 28. VIII. 1977, Erzurum; 1 female, 20. IX. 1977, Erzurum *O. viciifolia* (C. O.); 2 females, 2. VII. 1987, Mardin, 1000 m; 1 male, 27. VII. 1978, Kokarsu, Bitlis; 1 male, 27. VII. 1985, Ezben, Bitlis; 1 male, 28. VII. 1978, Patnos (Ağrı) (C. Z.).

Literature cited: Başaklı, Oltu (Erzurum) (Özbek, 1979).

III. Genus *Megachile* Latreille, 1802

M. (Xanthosarus) analis Nylander, 1852

A common species in eastern Anatolia, but the population is not numerous. It is present in low land up to an altitude of 3000 meters. Good pollinator of *O. viciifolia*. It also visits *M. sativa*, *O. cornuta*, *Vicia cracca*, *Melilotus spp.* and *Astragalus spp.*

Literatur cited: Common species (Özbek, 1979)

M. (Xanthosarus) analis albida Friese, 1898

Literature cited: Erzurum (van der Zandan, 1989)

M. (s. str.) alpicola Alfken, 1924

2 females, 30. VI. 1991, Süngübayır, Olur (Erzurum); 3 females, 28. VII. 1992, Başaklı, Oltu (Erzurum) 1200 m (C. O.).

New for Turkey

M. (Eutricharaea) anatolica Rebmann, 1968

1 female, 2. VII. 1988, Alanya (Antalya); 1 female, 8. VII. 1966, Silifke (İçel); 1 male, 14. VII. 1986, Diyarbakır, 650 m; 1 female, 27. VII. 1986, Fethiye (Muğla), 50 m (C. Z.); 1 female, 12. VII. 1986, Harran (Şanlıurfa) 550 m; 1 female, 24. VII. 1985, Pamukkale (Denizli), 1000 m; 1 female, 27. VII. 1986, Ölüdeniz, Fethiye, (Muğla) 50 m; 4 females, 28. VII. 1985, Alanya (İçel); 2 females, 3. VIII. 1985, Silifke (İçel), 50 m; 1 female, 13. VIII. 1985 Genç (Bingöl), 1400 m (M. L.); 2. VII. 1992, Üniversite, Erzurum, 1850 m, *O. viciifolia*; 1 male, 9. VII. 1991, Termessos (Antalya), *M. officinalis*; 1 male 12. VII. 1985, Diyarbakır; 1 female, Üniversite, Erzurum, *O. viciifolia*; 1 female, 22. VIII. 1992, Karaköy, Samsun 50 m, *C iberica*; 1 female, 24. VIII. 1992, Pasinler (Erzurum); 2 females, 24. VIII. 1992, Üniversite, Erzurum; 1 female, 27. VIII. 1992, Pazaryolu (Erzurum); 1 female, 3. IX. 1987 Silifke; 8 males, 20 females, 20. IX. 1992, Üniversite Erzurum, *O. viciifolia* (C. O.).

M. (Neoeutricharaea) apicalis Spinola, 1808

This is one of the most common species of *Megachile* distributed throughout the whole country. Good pollinator of *Medicago sativa*, *O. viciifolia*, *Helianthus annuus*. It also visits *Medicago lapilina*, *Melilotus alba*, *M. officinalis*, *Vicia cracca*, *Astragalus* spp., *Thymus fallax*, *C. solstitialis*.

M. (Eutricharaea) atratula Rebmann, 1968

2 females, 14. VII. 1986, Diyarbakır, 650 m; 2 females, 13. VIII. 1985, Genç (Bingöl), 1400 m (M. L.).

M. (Neoeutricharaea) basilaris posti, Mavromoustakis, 1952

4 females, 1 male, 28. VI. 1987, Halfeti (Şanlıurfa), 400 m (C. Z.).

M. (Xanthosarus) boops Friese, 1921

Type locality: Amanus Mts.

M. (s. str.) centuncularis (Linnaeus, 1758)

1 female, 20. VI. 1991, Hopa (Artvin); 1 female, 12. VII. 1991, Taşlıköy, Olur (Erzurum) 1100 m; 1 female, 28. VII. 1992, Palandöken, Erzurum, 2200 m, *Thymus fallax*; 1 female, 22. VIII. 1991, Şenyurt, Erzurum, 2300 m, *Astragalus* sp.; 1 male, 25. VIII. 1977, Pasinler (Erzurum); 1 female, 29. VIII. 1992 Güzelyayla, Erzurum, 2100 m; 1 male 27. VIII. 1991 Ilgar geçidi, Posof (Ardahan) 2600 m, *Trifo-*

lium sp.; 1 female, 30. VIII. 1992, Şehitler Narman (Erzurum) 2000 m; 1 female, 18. IX. 1977, Oltu (Erzurum), 1400 m, *Trifolium pratense*; 1 female, 1 male, 16. IX. 1979, Erzurum, 1850 m, *O. viciifolia*; 1 female, 20. IX. 1922, Üniversite, Erzurum, 1850 m; 1 male, 1 female, 24. IX. 1984, Kozan, Ankara; 1 female, 15. IX. 1985, Balcalı, Adana; 1 female, 16. IX. 1979, Erzurum, 1850 m; (C. O.); 1 female, 6. VII. 1986, Maçka, Trabzon; 1 female, 24. VII. 1985, Kuşadası, Aydın, 50 m; 2 females, 1 male, 20. VIII. 1983, Kuşadası (C. Z.).

Literature cited: Hasankale (Erzurum) (Özbek, 1979).

M. (s. str.) *centuncularis parvula* Lepeletier, 1841

1 male, 24. IX. 1979, Muti bridge, Erzincan 1500 m; 1 female, 26. IX. 1979, Muti bridge, Erzincan, 1500 m (C. O.).

M. (*Xanthosarus*) *circumcincta* (Kirby, 1802)

1 male, 14. VI. 1990, Zigana Dağı, Gümüşhane, 1900 m; 1 male, 20. VI. 1986, Karaorgan, Sarıkamış (Kars), 1900 m; 1 female, 24. VII. 1986, Uludağ, Bursa, 1450 m (C. Z.); 1 female, 12. VII. 1984, Güzeldere passage, Başkale (Van) (C. E.); 1 male, 24. V. 1992, Nur mountain, Osmaniye (Adana); 6 males, 4. VIII. 1990, Cevizli, Erzincan; 1 male, 2. VII. 1983, Muğla (C. O.).

M. (*Xanthosarus*) *circumcincta* Ozbeki, Tkalcu 1977

Type locality: Erzurum

1 male, 25. VI. 1991, Turnalı, Şenkaya (Erzurum) (C. Z.), 1 female, 20. IV. 1975, Tortum (Erzurum) 1500 m; 1 female, 2. VI. 1981, Erzurum; 1 male, 7. VI. 1976, Erzurum; 1 male, 11. VI. 1974, Erzurum, *O. viciifolia* 1800 m; 1 female, 14. VI. 1974, Erzurum, *O. viciifolia*; 1 male, 1 female, 11. VI. 1974, Erzurum, 1850 m.; 1 female, 17. VI. 1975, Erzurum, *O. viciifolia*; 1 male, 1 female, 20. VI. 1974; Erzurum, *O. viciifolia*; females, 23. VI. 1974, Erzurum, *O. viciifolia*; 1 male, 25. VI. 1974, Erzurum; 2 males, 25. VI. 1991; Turnalı, Şenkaya (Erzurum); 1 male, 28. VI. 1990, Kopdağı, Bayburt, 2300 m; 2 females, 29. VI. 1974, Erzurum, *O. viciifolia*; 1 female, 1. VII. 1990, Palandöken, 2200 m, *Astragalus* sp.; 1 female, 2. VII. 1972, Erzurum, *O. viciifolia*; 4 males, 3. VII. 1992, Üniversite, Erzurum 1850 m, *O. viciifolia*; 8; males, 7 females, 8. VII. 1993, Üniversite, *O. viciifolia*, 1850 m; 1 female, 10. VII. 1970, Erzurum; 1 female, 14. VII. 1990, Umudum Yaylası, Erzurum, 2200 m; 2 males, 14. VII. 1992, Köşk Köyü, Erzurum, 2100 m, *Vicia cracca*; 2 females, 22. VII. 1990, Palandöken, Erzurum, 2400 m; 1 female, 23. VII. 1978, Serçeme, Erzurum, 1950 m, *Trifolium pratense*; 4 males, 1 female, 28. VII. 1976, Erzurum; 1 male, 29. VII. 1992, Üniversite, Erzurum, *M. sativa*; 1 female, 1. IX. 1978, Başaklı, Oltu, 1600 m, *A. lappa* (C. O.).

This records reveal that this species is a pollinator of *O. viciifolia*, and is common in the vicinity of Erzurum.

M. (Neoeutricharaea) communis Morawitz, 1875

Literature cited: Ankara (Alfken, 1935).

M. (Neoeutricharaea) deceptoria Pérez, 1890

1 female, 19. VII. 1985, Ören, Burhaniye (Balıkesir) (C.Z.)

New for Turkey !

M. (Neoeutricharaea) fertoni Pérez, 1896

2 females, 19. VII. 1967, Kuşadası (Aydın); 1 female, 23. VII. 1966, Alanya (Antalya) (C. Z.).

Literature cited: Dinar (Afyon) (Stanek, 1968).

M. (Neoeutricharaea) flabellipes Pérez, 1896

2 males, 17. VII. 1984, W. Topuzdağı Geçidi Ürgüp (Nevşehir) 1300 m (C. E.), 1 male, 25. VIII. 1991, İncirli, Aydın (C. Z.); 1 male, 9. VII. 1991, Yalova (Istanbul) (C. O.).

M. (s. str.) genalis tortumensis, Tkalcu, 1980

Type locality: Erzurum

1 female, 16. VII. 1976, Erzurum. *O. viciifolia*, 1850 m; 1 male, 20. IX. 1977, Bağbaşı, Tortum (Erzurum), *Trifolium pratense* (C. O.); 1 female, 13. VIII. 1991, Gölbaşı, Uzundere (C.Z.).

M. (Xanthosarus) giraudi erzurumensis Tkalcu, 1980

Type locality: Erzurum

1 female, 29. VI. 1974, Erzurum 1800 m 1 female 13. VI. 1992 Süngübayır, Olur (Erzurum) 1700 m; 2 males, 22. VII. 1992, Olur; 1 female, 24. VIII. 1992, Üniversite, Erzurum, 1800 m. *O. viciifolia* (C.O.); 1 female, 14. VI. 1964, Truva (Çanakkale); 1 male, 4. VII. 1990 Bey Dağları, Antalya, 1550 m (C.Z.); 1 male, 20. V. 1988, Eğridir (Isparta) (C.R.)

Literature cited: Praja (van der Zanden, 1989 as spp. *bicoloriventris* Mocs).

M. (Euricharaea) inexpectata, Rebman, 1968

Type locality: Mut (İçel)

1 male, 28. VI. 1987, Halfeti (Şanlıurfa), 400 m (C.Z.).

M. (Xanthosarus) lagopoda (Linnaeus, 1761)

Very common species all over the country, from the costal region to the mountainous areas up to altitudes of 3000-3500 meters. It flies from June till the end of

September. *Carduus* spp., *Cirsium* spp., *Onopordum* spp., *Centaurea* spp. and *Helianthus annuus* are the most preferred plants to visit.

Literature cited: Kuhsdjular (Fabringer, 1922), very common species (Özbek, 1979).

M. (Eutricharaea) leachella Curtis, 1828

1 male, 7. VI. 1972, Konya; 1 male, 30. VII. 1983, İzmit; 2 males 5. VIII. 1985, Side (Antalya); 2 males, 20. VIII. 1983, Fethiye (Muğla); 2 males, 30. VIII. 1983, Alanya (Antalya) (C.Z.); 1 male, 20. VII. 1984, Mucur, Hacıbektas (Nevşehir) (C.E.); 3 females, 13. VIII. 1985, Ürgüp (Nevşehir); 1 female, 21. VIII. 1983, Diyadin (Ağrı) (M.L.); 1 male, 20. VI. 1991, Şanlıurfa; 1 female, 30. VI. 1991, Erzurum; 1 male, 30. VI. 1992, Millipark, Davutlar (İzmir), *V. agnus-castus*; 2 males, 17. VIII. 1984, Ankara; 1 male, 27. VII. 1990, Ayvalı, Oltu (Erzurum); 2 females, 22. VII. 1978, Silifke (İçel); 1 female, 30. VII. 1991, Erzincan; 1 male, 5. VII. 1991, Malatya; 1 female, 3. VII. 1992, Akseki (Antalya), *C. solstitialis*; 1 male, 1. IX. 1978, Oltu; 4 males, 2. IX. 1987, Dereköy; Mut (İçel); 1 male, 8. IX. 1977, Erzurum; 1 male, 25. IX. 1979, Erzurum (C.O.).

Literature cited: Florya (İstanbul) (Fabringer, 1922), Erzurum (Özbek, 1979).

M. (Neoeutricharaea) melanogaster Eversmann, 1852

2 females, 25. VII. 1978, Tahir, Ağrı, 2200 m; 1 female, 28. VII. 1978, Patnos (Ağrı); 1 female, 16. VIII. 1979, Erzurum, 1850 m (C.O.).

New for Turkey!

M. (s. str.) melanopyga Costa, 1863

1 female, 23. V. 1992, Erdemli (İçel), 10 m, *Cirsium* sp; 1 female, 3. VII. 1972, Anamur (İçel) 15 m; 2 females, 9. VII. 1991, Termessos, Antalya; 1 male, 15. VII. 1992, Çınar, Yusufeli (Artvin), 900 m; 1 male, 15. VIII. 1992, Dez Vadisi, Hakkari 1700 m; 5 females, 2. VIII. 1992, Çamdüzü, Antalya, *C. solstitialis*, *V. agnus-castus*; 2 males, 4. VIII. 1992, Termessos, Antalya, *C. solstitialis*; 1 female, 29. VIII. 1980, Palandöken, Erzurum, 2200 m; *Astragalus* sp; 2 females, 20. IX. 1978, Bağbaşı, Tortum (Erzurum) 1100 m, *A. lappa* (C.O.).

M. (Xanthosarus) metatarsalis Morawitz, 1895

1 male, 1. VIII. 1991, Cevizli, Erzincan (C.O.).

New for Turkey!

M. (Neoeutricharcea) minutissima Radoszkovsky, 1876

1 male, 15. IX. 1984, Kozan (Adana) (C.O.)

M. (s. str.) octosignata Nylander, 1852

1 female, 25. VI. 1991, Turnalı, Şenkaya (Erzurum) 1800 m; 2 females, 31.

VIII. 1991, Sarıkamış (Kars), 2200 m, *Cirsium* sp. (C.O.).

New for Turkey!

M. (Neoeutricharaea) picicornis Morawitz, 1878

1 female, 11. VII. 1967, Samsun (I.T.Z.); 1 female, 7. VIII. 1985, İncekum, Alanya (Antalya), 50 m (C.Z.); 3 females, 28. VII. 1978, Çakırbey Erciş (Van), *Cephalaria alpina*, *Centaurea glastifolia*; 1 male, 29. VII. 1992, Üniversite, Erzurum, 1850 m, *O viciifolia*; 3 females, 30. VII. 1978, Muş, *C. iberica*, *Onopordum* sp.; 3 males, 12. VIII. 1992, Çamdüzü, Antalya *C. solstitialis*, *V. agnus-castus*; 4 males, 26. VIII. 1991, Köprüköy, Erzurum 1600 m, *C. solstitialis*. *T. repens* (C.O.).

Literature cited: Şelale, Aydın (Stanek, 1968).

M. (s. str.) pilicrus Morawitz, 1877

1 female, 19. VII. 1990, Karaçuha, Horasan (Erzurum); 1 female, 22. VII. 1992, Olur (Erzurum) 1200 m; 1 female, 13. VIII. 1991, Gölbaşı, Uzundere (Erzurum), 1100 m, *Salvia* sp (C.O.).

M. (Eutricharaea) pilidens Alfken, 1924

1 female, 3. VII. 1984, Sivrihisar Geçidi, Aksaray, 1600 m; 1 female, 1 male, 17. VIII. 1984, Topuzdağı Geçidi, Ürgüp (Nevşehir), 1300 m (C. E.); 1 female, 15. VII. 1984, Anadolu Kavağı (İstanbul); 4 females, 28. VII. 1985, Alanya (Antalya) 50 m; 1 female, 9. VIII. 1985, Ören, Burhaniye (Eskişehir); 1 male, 15. VII. 1984, Üsküdar (İstanbul); 1 male, 19. VIII. 1983, Iğdır; 1 male, 1 female, 20. VIII. 1985, Armutlu (İzmir) (C. Z.); 2 females, 22. VI. 1978, Silifke (İçel) 50 m; 1 female, 3. VII. 1978, Anamur (İçel); 1 female, 6. VII. 1990, Tunalı, Şenkaya (Erzurum); 1 female, 12. VII. 1979, Oltu (Erzurum) 1300 m, *M. sativa*; 1 female, 18. VII. 1982. *O. viciifolia*; 1 female, 28. VII. 1978, Kuzgunkıran, Van, 1800 m, *C. solstitialis*; 1 female, 29. VII. 1978, Edremit (Van); 1 female, 28. VIII. 1977, Erzurum, 1850 m, *M. sativa*; 1 male, 8. IX. 1977, Erzurum *O. viciifolia*; 2 females, 12. IX. 1976, Erzurum, 1850 m, *viciifolia*; 2 females, 14. IX. 1978, Oltu, 1300 m, *C. solstitialis*, *A. lappa*; 2 females, 17. IX. 1978, Işhan, Yusufeli (Artvin), 1000 m, *Cirsium* sp.; 2 females, 20. IX. 1977, Erzurum, 1850 m, *O. viciifolia* (C. O.).

Literature cited: Başaklı, Oltu, Erzurum (Özbek, 1979).

M. (s. str.) pyrenaea ardahanensis Tkalcu, 1980

Type locality: Ardahan

1 female, 10. VIII. 1976, Ardahan (C. O.)

M. (Neoeutricharaea) rotundata Fabricius, 1787

This is the most common species of *Megachile* distributed throughout the country from the sea level up to the altitude of 3000 meters. Important pollinator of *M.*

sativa and *O. viciifolia*. Other plants it visits: *M. lupulina*, *M. papillosa*, *M. varia*, *Melilotus alba*, *M. officinalis*, *Coronilla orientalis*, *C. varia*, *Hedysarum elegans*, *H. hedysaroides*, *Lotus corniculatus*, *O. cornuta*, *T. repens*, *V. cracca*, *A. aureus*, *A. christianus*, *A. lineatus*, *A. pinoterum*, *Thymus falax*, *Salvia sclarea*, *A. lappa*, *C. iberica*, *Cirsium* spp., *V. agnus - castus* and *R. caesius*.

M. (Neoeutricharaea) rubrimana Morawitz, 1984

1 male, 10. VII. 1967, Samsun; 1 male, 26. VII. 1983, Edirne; 1 male, 2. VIII. 1986, Pamukkale (Denizli) 1000 m (C. Z.).

M. (Neoeutricharaea) sexmaculata thracia Tkalcu, 1979

1 female, 8. VII. 1974, Erzurum; 1 female, 26. VII. 1971, Karahan Geçidi, 1900 m, Anchusa (C. Z.); 1 male, 12. VII. 1992, Demirözü (Bayburt) 1750 m, *O. viciifolia*; 1 male, 18. VII. 1992, Başaklı, Oltu (Erzurum), 1700 m, *S. scarea*; 1 female, 26. VII. 1974, Erzurum 1850 m, *O. viciifolia*; 1 female 29. VIII. 1978, Çayırbey, Erciş (Van), *C. glastifolia*; 1 female, 1. VIII. 1979, Erzurum 1850 m, *M. sativa*; 1 male, 13. VIII. 1992, Pasinler (Erzurum) 1700 m; 1 male, 19. VIII. 1992, Tokat, 1500 m; 1 female, 28. VIII. 1977, Erzurum, 1850 m; 1 male, 30. VIII. 1992, Süngübayır, Olur (Erzurum), 1900 m (C. O.).

Literature cited: Erzurum (Tkalcu, 1979).

M. (Neoeutricharaea) terminata Morawitz, 1875

1 male, 12. VII. 1986, Harran, Şanlıurfa, 550 m (C. Z.).

M. (s. str.) versicolor Smith, 1844

1 female, 5. VII. 1991, Ahırcık Ilıca (Erzurum), 2200 m; 1 female, 24. VIII. 1993, Meydanlar Tortum; 1 female, 31. VIII. 1991, Sarıkamış (Kars), 2000 m, *Cirsium* sp.; 1 female, 11. IX. 1991, Çukurhisar (Eskişehir); 1 male, 12. IX. 1991, Başaklı, Oltu (Erzurum), 1650 m, *Trifolium repense* (C. O.).

M. (Neoeutricharaea) villipes Morawitz, 1875

3 females, 2. VII. 1992, Çamdüzü, Antalya, *C. solstitialis*; 1 female, 28. VII. 1978, Çakırbey, Erciş (Van) *Cirsium* sp.; 3 females, 30. VII. 1978, Muş, *C. iberica* (C. O.).

New for Turkey!

M. (Xanthosarus) willughbiella (Kirby, 1802)

1 female, 27. VII. 1986, Palandöken, Erzurum, 2300 m (C. Z.); 1 male, 15. VII. 1919, Harput, Elazığ (C. Ithaca); 1 male, 13. VI. 1992, Oltu (Erzurum); 3 males, 3 females, (25. VI. 1991, Turnalı, Şenkaya (Erzurum), 1700 m; 1 male, 1. VI. 1992, Üzümlü (Erzincan) 1400 m; 1 female, 6. VII. 1990, Turnalı, Şenkaya; 3 males, 14. VII. 1984, Karaoğlan, Ovacık (Tunceli), *C. arvense*; 1 male, 15. VII. 1989, Oltu, 1300

m, *C. solstitialis*; 1 females, 25. VII. 1990, Kozan (Ankara), 800 m; 2 females, 28. VII. 1992, Başaklı Oltu, 1700 m, *O. viciifolia*; 1 female, 1. VIII. 1977, Başaklı, Oltu, 1650, *M. sativa*; 1 male, 1 female, Erzurum, 16. IX. 1979, 1850 m, *O. viciifolia* (C. O.).

Literature cited: Başaklı, Oltu (Erzurum) (Özbek, 1979).

It was observed that *M. willughbiella* uses the leaves of *Rosa* spp. in construction of the nests.

III. Genus *Coelioxys* Latreille, 1809

Species of this genus are nest parasites or inquilines which usually select species of the genus *Megachile* as their hosts.

C. acanthura (Illiger, 1806)

Literature cited: Ceylanpınar (Şanlıurfa), Ilgaz (Çankırı) (Warncke, 1992).

C. afra Lepeletier, 1841

1 female, 2. VII. 1992, Menemen (İzmir), *Thymus* sp.; 2 males, 9. VIII. 1990, Erzincan 1200 m; 1 female, 7. IX. 1976, Erzurum; 5 males, 20. IX. 1992, Üniversite, Erzurum 1850 m, *O. viciifolia* (C. O.).

Literature cited: Anatolia (Friese, 1895), many locations in Warncke (1992).

C. argentea Lepeletier, 1841

1 male, 1 female, 30. VI. 1992, Davutlar, İzmir, 10 m *V. agnuscastus*; 1 male, 2. VII. 1992, Menemen (İzmir) (C. O.).

Literature cited: Osmaniye (Adana), Ilgaz (Çankırı), Esendere Hakkari (Warncke, 1992).

C. artemix Schwarz, 1991

2 females, 2. VII. 1987, Mardin, 1000 m (Paratypes) (C. Z.).

C. aurolimbata Förster, 1853

1 male, 1. VII. 1992, Üniversite, Erzurum, 1850; 1 male, 6. VII. 1991, Orman Fidanlığı, Horasan (Erzurum), 1750 m, *Cirsium* sp.; 1 female, 7. VII. 1991, Süngübayır, Olur (Erzurum); 1 female; 30. VII. 1973, Erzurum, 1850 m, *O. viciifolia* (C. O.).

Literature cited: Anatolia (Friese, 1895), Keşan (Edime), Bursa (Warncke, 1992).

C. aurolimbata orientalis Warncke, 1992

Type locality: Aydın, Konya.

C. brevis Eversmann, 1852

2 females, 28. VI. 1977, Halfeti (Şanlıurfa), 400 m (C. Z.); 1 female, 30. VII.

1991, Erzincan, 1300 m; 1 male, 30. VII. 1992, Başaklı, Oltu (Erzurum), 1200 m; 1 female, 17. IX. 1976, Erzurum, 1850 m, *O. viciifolia*; 1 female, 26. IX. 1970, Muti Köprüsü, Erzincan, 1400 m (C. O.).

Literature cited: Many locations in Warncke (1992).

C. conoidea (Illinger, 1806)

1 male, 24. VI. 1989, Karakurt (Kars), 1700 m; 1 male, 25. VI. 1977, Sinop, *Cirsium* sp. 100 m; 2 males, 30. VIII. 1992 and 12. IX. 1981 Başaklı Oltu, 1650 m (C. O.).

Literature cited: Uludağ, Bursa, Akşehir (Konya), Ereğli, Vargös, Hakkari (Warncke, 1992).

C. echinata Förster 1853

Literature cited: Bursa (Eriese, 1895), Ankara, Akşehir (Konya), Nemrut dağı (Bitlis), Akdamar, Van (Warncke, 1992).

C. elongata, Lepeletier, 1841

1 female, 5. VII. 1992 Kaledibi, Tortum (Erzurum), 1400 m; 1 female, 14. VIII. 1984, Gözeler, Ovacık (Tunceli), *Cirsium* sp. (C. O.).

Literature cited: Bursa (Friese, 1895)

C. emarginata Förster, 1853

1 female, 16. IX. 1979, Erzurum, 1850 m (O. C.).

New for Turkey!

C. haemorrhoea Förster, 1853

1 male, 30. VI. 1952, Millipark, Davutlar (İzmir), *V. agnus - castus*; 1 male, 2. VII. 1992, Menemen (İzmir), *Thymus* sp.; 1 male, 10. VIII. 1992 Bayırbağı, (Üzümlü) (Erzincan), 1400 m; 1 male, 5. IX. 1990, Turnalı, Şenkaya (Erzurum) 1750 m (C. O.).

Literature cited: Many locations in Warncke (1992)

C. inermis (Kirby, 1802)

Literature cited: Eskişehir (Fahringer, 1922), Truva (Çanakkale), Uludere, Vargös (Hakkari) (Warncke, 1992).

C. mandibularis Nylander, 1848

1 male, 13. VI. 1992, Oltu 1300 m; 1 male, 9. VII. 1992, Şenkaya, 2400 m; 1 male 11. VIII. 1992, Dutçu, Erzurum, 2000 m; 1 male, 22. VII. 1991, Şenyurt, Erzurum, 2300 m (C. O.).

Literature cited: Kop Dağı Erzurum, Erciyes Dağı, Kayseri (Warncke, 1992).

C. obtusa Pérez, 1884

1 male, 15. VIII. 1985, Ahlat (Bitlis), 1750 m (C. Z.).

C. quadridentata (Linneaus, 1761)

1 male, 1 female, 20. VI. 1974, Erzurum, 1850 m, *O. viciifolia*; 1 male, 1 female, 29. VI. 1974, Erzurum; 1 female, 15. VIII. 1978, Palandöken, Erzurum, 2200 m. (C. O.).

Literature cited: Akşehir (Konya), Abant (Bolu), Erzurum (Warncke, 1992).

C. rufescens Lepeletier, 1825

1 male, 25. VI. 1971, Oltu (Erzurum); 1 male, 30. VI. 1992, Davutlar, İzmir, *V. agnus - castus*; 1 female, 30. VI. 1991, Olur (Erzurum); 1 male, 4. VII. 1972, Ardahan 2000 m; 1 female, 13. VII. 1989, Tokat; 1 male, 18. VII. 1970, Erzurum, *O. viciifolia*; 3 males, 17. VII. 1972, Başaklı, Oltu 1750 m; 1 female, 19. VII. 1991, Kağızman (Iğdır); 1 female, 28. VII. 1990, Kaleboğazı, Oltu; 1 female, 26. VIII. 1991, Köprüköy (Erzurum), 1750 m, *C. solstitialis*; 1 female, 12. VIII. 1991, Süngübayır, Olur; 3 females, 13. VIII. 1977, Başaklı, Oltu; 1 female, 31. VIII. 1977, Erzurum (C. O.).

Literature cited: Anatolia (Friese, 1895)

C. rufescens anatolica Warncke, 1992

Type locality: Varagös, Hakkari.

C. rufocaudata Smith, 1854

1 female, 10. VII. 1991, Taşburun, Iğdır; 1 male, 13. VIII. 1987, Sivas, 1650 m (C. O.).

IV. Genus *Liothyrapis* Cockerell, 1911

L. decipiens (Spinola, 1838)

2 males, 29. VI. 1992, Antalya, *V. agnus - castus*; 1 male 30. VI. 1992 Millipark, Davutlar (İzmir) (C. O.).

Literature cited: Amanus Mts (Fahringer und Friese, 1921), Osmaniye (Adana), Beyşehir (Konya), Pamukkale (Denizli), Kağızman (Iğdır) (Warncke, 1992).

B. Lithudgini

IV. Genus *Lithurgus* Latreille, 1825

L. chrysurus Fonscoulombe, 1825

Common all over the country, but nowhere many specimens.

Literature cited: Erciyas (Kohl, 1905), Erzurum, Tortum, Oltu (Özbek, 1979).

L. cornutus fuscipennis Lepeletier, 1841

Common mostly in the western part of the country.

L. cornutus maximus Radoszkovsky, 1872

Common in eastern Anatolia.

L. tibialis Morawitz, 1875

1 male, 6. VII. 1986, Erdemli (İçel); 8 males, 12. VI. 1986, Harran (Şanlıurfa) 550 m; 8 males, 14. VI. 1986, Diyarbakır 650 m; 1 male, 1 female, 20. VII. 1977, Diyarbakır (C. Z.); 1 male, 18. VI. 1991, Taşburun, Iğdır; 1 male, 8. VIII. 1990, Adıyaman; 2 males 2. IX. 1974, Side (Antalya) (C. O.).

It was observed that all species of *Lithurgus* visit *Centaurea* spp., *Carduus* spp., *Cirsium* spp., *Onopordum* spp. and *Arctium* spp. *L. chrysurus* and *L. cornutus maximus* were recorded on *O. viciifolia* too.

Discussion

Studies conducted on the bees of the family Megachilidae of Turkey comprise 4 parts. In these serial studies 370 species and subspecies of megachilid bees have been recorded including 42 *Anthocopa*, 36 *Hoplitis*, 1 *Metallinella*, 56 *Osmia*, 11 *Protosmia*, 22 *Chelostoma*, 2 *Chelostomopsis*, 1 *Hofferia*, 8 *Heriades*, 2 *Pseudoheriades*, 31 *Anthidium*, 9 *Anthidiellum*, 4 *Archanthidium*, 9 *Icteranthidium*, 1 *Trachusa*, 9 *Stelis*, 9 *Dioxys*, 6 *Creightonella*, 23 *Chalicodoma*, 39 *Megachile*, 19, *Coelioxys*, 1 *Liothyrapis* and 4 *Lithurgus*. If we compare this number with that recorded from other countries it reveals that the bee fauna of Turkey is quite rich. For instance, van der Zanden (1988) listed the presence of 443 species and subspecies of Osmiini in the Palearctic Region, here in Turkey this number is 157. Besides that we still have some undescribed specimens.

Most of the species are quite common, some are wide spread all over the country and are pollinators of some cultivated plants such as *Medicago sativa*, *Onobrychis viciifolia* and *Helianthus annuus*, as well as wild plants. In general it can be concluded that the megachilid bees are important elements of the ecosystem of the nature in Turkey.

In these studies many field trips have been conducted by the senior author in various localities in the country since 1970. Some negative influences were observed on bees. Since then, the populations of most of the bee species are under threat. One of basic prerequisites for wild bees to develop is the availability of suitable nesting sites and flowering plants. Nest sites and plant sources have diminished considerably in most parts of the country. This is due to a higher intensity of soil cultivation, loss of healthy vegetation scattered throughout the landscape, the use of pesticides in agriculture that kill bees directly, herbicides that cause severe reduction in bee forage plants on both cultivated and wild lands. An undesired effect on wild bees may also result from the application of commercial fertilizers and the pollution of soil and water used for drinking

and for nest construction. Another big problem in Turkey, particularly in Eastern Anatolia are the grazing hazards for plants and wild bees. Unfortunately there is not any systematic grazing management in grasslands, so overgrazing occurs and as a result, vegetation and bees are destroyed. We want to stress that if this undestirable situation continues destruction of most of the habitats will increase very rapidly and some of the endangered bee species may become extinct in a short time.

Turkey has another problem that affects wild life. It is the burning of stubble after harvesting. This causes destruction of all the green plants and insects in the field and surroundings. Forestfire is also very common in Turkey. There fore wooded areas are decreasing day by day.

Bees are also adversely affected by excess urbanization and suburbanization. This is very obvious in costal regions of the country.

As a consequence, we want to emphasize that in most part of Turkey wild bees are under threat, because of overgrazing, burning of stubble and decreasing wooded areas due to forest fires, the use of chemicals in agriculture and in general environmental pollution.

Özet

Türkiye'nin Megachilidae türleri IV: Megachilini ve Lithurgini (Hymenoptera: Apoidea)

Megachilidae familyasına bağlı arı türlerini tesbite yönelik çalışmaların bu bölümde Megachilini ve Lithurgini tribüsleri ele alınmıştır. Birinci tribüste 6 *Creightonella*, 23 *Chalicodoma*, 39 *Megachile*, 19 *Coelioxys* ve 1 *Liothyrapis*; ikincisinde ise sadece 4 *Lithurgus* tür ve alttürü tesbit edilmiştir.

Birçok türler ülkenin hemen her tarafında yaygın olarak bulunmuşlardır. Bunlar önemli kültür bitkilerinden yabancı tozlaşmaya gereksinim gösteren yonca, korunga ve ayçiçeğinin tozlaşmasında etkili olmaktadır.

Megachile alpicola Alfken, *M. deceptor* Pérez, *M. melanogaster* Eversmann, *M. metatarsalis* Morawitz, *M. octosignata* Nylander, *M. villipes* Morawitz ve *Coelioxys emarginata* Förster Türkiye faunası için yeni kayıttır.

Correction

The authors would like to apologise for the following errors in the previous parts of these serial publications. These should be corrected as indicated below.

Part I

Page 13	cyanoxantha Pérez
14	east - palearctic (not western)
17	idalia (Mavromoustakis)
22	sybarita Smith

Part II

Page 130	east - palearctic (not western)
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Part III

Page 200	laticeps (Morawits)
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