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The Trichoptera fauna of North-western Turkey with the descriptions of a new species and of some previously unknown females (Philopotamidae, Sericostomatidae)

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Abstract. An updated list of the Trichoptera species of north-western Turkey is given, based on material collected after 1987. A sketch map of the distribution of the species is provided. *Wormaldia sukranæ* sp.n., the unknown females of *Oecetis monedula pinkeri* MALICKY, 1976 and *Schzopelex rhamnes* MALICKY, 1976 are described and illustrated.

Key Words. Trichoptera, faunistics, new species, *Wormaldia*, unknown females, north-western Turkey

Introduction

The first list of Trichoptera from north-western Turkey contained 100 species (SIPAHILER & MALICKY, 1987). Later, some new species were described and records were published (SIPAHILER, 1995; 1996; 1996a; 1996b; 1998; 2001), resulting in the number of the known species in the second checklist reaching 124 species/subspecies (SIPAHILER, 2005b). Soon after, new material was collected intensively from the region; and as a result, some new species and records were added to the fauna (SIPAHILER, 2003; 2005, 2005a; 2006). The updated list of Trichoptera given in the present study contains 154 species, belonging to 51 genera in 19 families.

Materials and Methods

The updated and revised list of Trichoptera of north-western Turkey is given based on material collected over 20 years, published and unpublished records. Unless otherwise stated, the material has been collected by the author and is deposited in her collection in Hacettepe University, Department of Biology Education. The sketch map is arranged according to the numbers of the localities; material collected from the same locality on different dates, or near a locality, is indicated by a letter in the list and not shown on the map.

***Wormaldia sukranæ* sp.n. (Philopotamidae)**

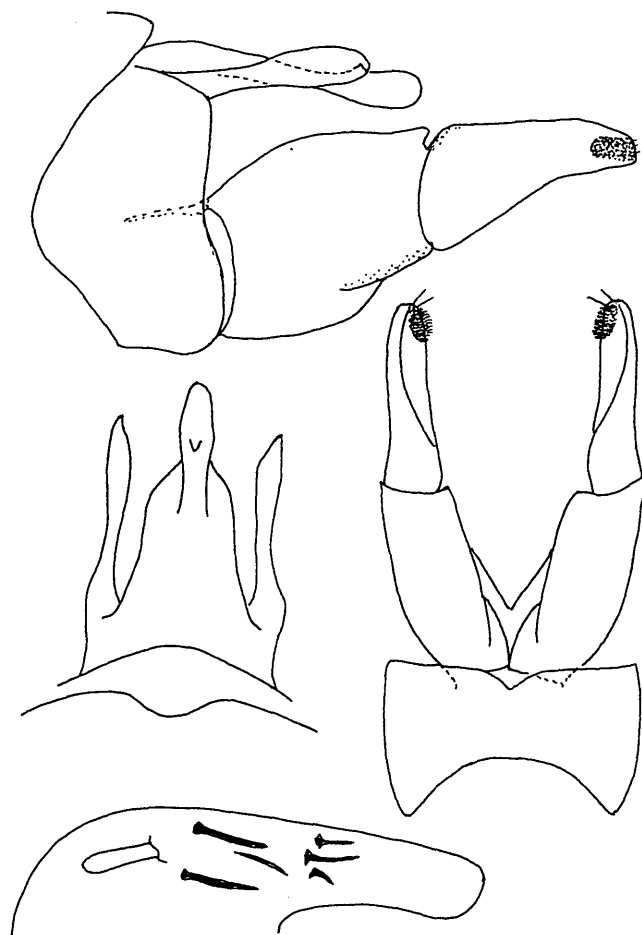
Material: Holotype ♂ and paratypes (1 ♂, 1 ♀): Turkey, Bolu, Aladağlar, Bepinarlar, 1350 m, 27.6.1999, (40° 34' N, 31° 43' E), leg. and coll. Sipahiler.

Antennae, palps, wings and legs brown; the length of the anterior wing of males 6.5-7 mm; of female 7 mm. Male genitalia (1-4): Segment 9 is rather narrow, broadly dilated on the sides; in lateral view, the preanal appendage is broad on the subdistal portion; the apical edge is rounded; in dorsal view, the apex is pointed and directed posteriorly; in dorsal view, the basal portion of segment 10 is broad, the dorsal projection is prominent and the distance to the distal end is rather long. In lateral view, the coxopodite of the inferior appendages is rather broad, dilating on the ventral edge; the harpago is very broad at the base, somewhat curved on the subdistal part, narrow distally; the apical edge is smooth. The aedeagus with a long cylindrical basal sclerite and six spines; two of which, located basally are longer than the others.

Wormaldia sukranæ sp.n. is related to *W. triangulifera* McLACHLAN, 1878 and *W. asterusia* MALICKY, 1972 (MALICKY, 2005) but differs from these species by the following features: both related species have a basal bunch of spines in the aedeagus, which is not found in *W. sukranæ* sp.n. In addition, the related

species also have two longer spines in the aedeagus and two smaller ones, which are tubercle-like in *W. triangulifera* and spine-like in *W. asterusia*, while *W. sukranæ* sp.n. possesses six separate spines. The shape of the harpago of the new species is rather broad on the basal portion and apical edge is smooth; in the related species it gradually narrows towards the rounded apex.

This new species is named in memory of the author's mother, Şükran Sipahiler (1920-2003).



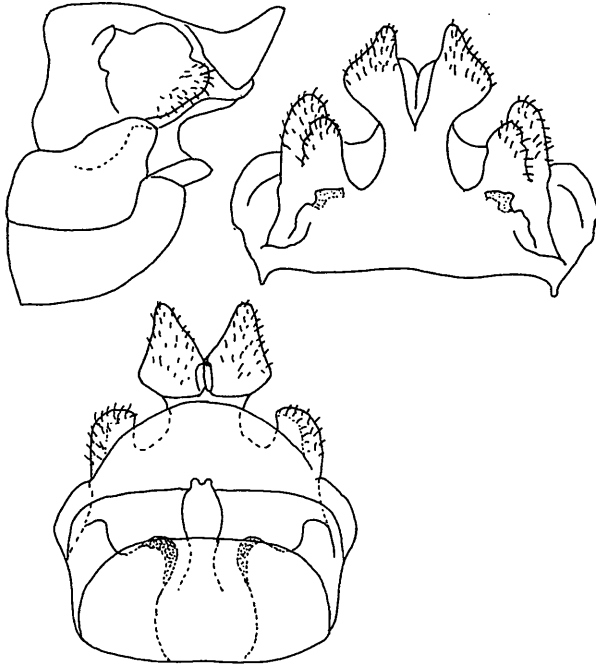
Wormaldia sukranæ sp.n. male genitalia: lateral; dorsal; ventral; aedeagus, lateral.

***Oecismus monedula pinkeri* MALICKY, 1976**

Material: Turkey, Ankara, Beypazarı, Karaşar, Eğriova, Aladağlar, 1550m, 9.7.1999 3 ♂♂, 1 ♀; same place, 10 km north, 9.7.1999, 2 ♂♂, 1 ♀, leg. and coll. Sipahiler.

Wings pale brown; length of the forewing is 11.5-12 mm. Female genitalia (Figs. 5-7): Lateral lobes of segment 10 are composed of two large and rounded lobes; the small projections located at the base of lateral lobes are sclerotized; in dorsal view, the apical edges are almost smooth, pointed on the sides.

The female of *Oecismus monedula pinkeri* differs from the nominate subspecies in the following features: In *O. monedula* Hagen, 1859, the inner portion of the side lobes is triangular and the basal projections are not found (MALICKY, 2005); in *O. m. pinkeri*, the side lobes are large, almost rounded; the basal projections of *O. m. pinkeri* are not found in the nominate subspecies.



***Oecismus monedula pinkeri* female genitalia: lateral; dorsal; ventral.**

***Schizopelex rhamnes* MALICKY, 1976**

Material: Turkey, Bolu, Seben direction, 27 km south of Bolu, Aladağlar, Beşpinarlar, 1350 m, 27.6.1999, 7 ♂♂, 5 ♀♀, leg. and coll. Sipahiler.

Female genitalia (Figs. 8-10): The side lobes of segment 10 are rather short and broad; the side margins are sinuate; as long as the median part of the segment, which is broad, bilobed apically; In ventral view, the vulvar scale is broad, narrowing toward the apex; the apex with two small lobes.

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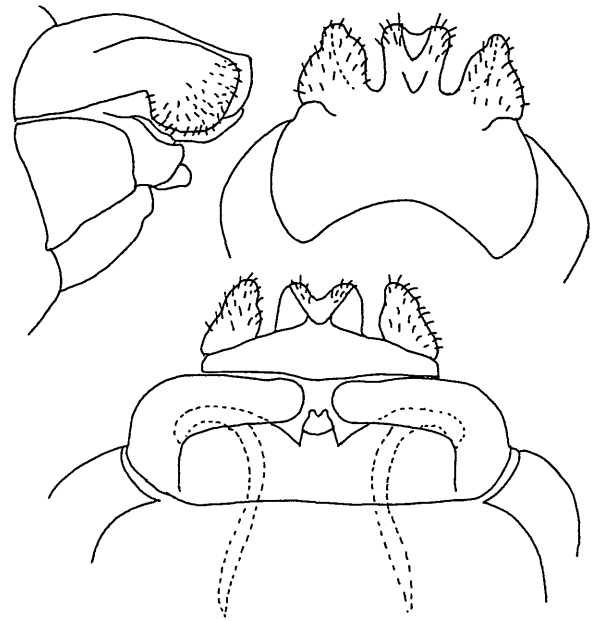
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***Schizopelex rhamnes* female genitalia: lateral; dorsal; ventral.**

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The lists of the localities and the species of Trichoptera in northwestern Turkey

Table 1: The list of the species found in north-western Turkey (The numbers and the letters show the localities in the table 2 and the figure 11)

Families/species	Distribution of the species in the region
Rhyacophilidae	
1. <i>R. armeniaca</i> GUERIN, 1843	2e
2. <i>R. clavalis</i> MARTYNOV, 1913	1d, 2e, 2g, 8b, 29
3. <i>R. fasciata fasciata</i> HAGEN, 1859	2e, 8a, 9b, 10, 13, 15
4. <i>R. nubila</i> ZETTERSTEDT, 1840	11, 25, 30, 39c
5. <i>R. osellai</i> MALICKY, 1981	4, 8b, 17, 48
6. <i>R. subovata</i> MARTYNOV, 1913	42
7. <i>R. tristis</i> PICTET, 1834	1c, 2d, 2e, 8b
8. <i>R. zwickorum</i> MALICKY, 1972	2e
Glossosomatidae	
9. <i>Agapetus altineri</i> SIPAHILER, 1989	12, 48a
10. <i>A. delicatulus</i> MCLACHLAN, 1884	30
11. <i>A. karabagi</i> CAKIN, 1983	(SIPAHILER & MALICKY, 1987)
12. <i>Synagapetus anaticus</i> CAKIN, 1983	2b, 2d, 8a, 8b, 9a, 28, 43a, 48a
13. <i>Glossosoma yigilca</i> SIPAHILER, 1996	4, 20, 39b
Ptilocolepidae	
14. <i>Ptilocolepus colchicus</i> MARTYNOV, 1923	8b
15. <i>P. dilatatus</i> MARTYNOV, 1913	2b, 4, 14b, 17, 18, 36b, 48a, 60
Hydroptiliidae	
6. <i>Allotrichia pallicornis</i> (EATON, 1873)	(SIPAHILER & MALICKY, 1987)
17. <i>Hydroptila abantica</i> SIPAHILER, 1996	1b
18. <i>H. angustata</i> MOSELY, 1939	22, 40
19. <i>H. armathai</i> SCHMID, 1959	4, 21, 24d
20. <i>H. atargatis</i> MALICKY, 1997	32, 33, 36c
21. <i>H. cornuta</i> MOSELY, 1922	24d, 25
22. <i>H. friedli</i> MALICKY, 1972	56
23. <i>H. forcipata</i> (EATON, 1873)	4, 24d, 25
24. <i>H. occulta</i> (EATON, 1873)	4, 24d
25. <i>H. oemerueneli</i> SIPAHILER, 2003	24d
26. <i>H. taurica</i> MARTYNOV, 1934	(SIPAHILER & MALICKY, 1987)
27. <i>H. tigurina</i> RIS, 1894	24c, 28, 32
28. <i>H. tineoides</i> DALMAN, 1819	24d
29. <i>H. varla</i> SIPAHILER, 1996	24d
30. <i>H. vichtaspa</i> SCHMID, 1959	48a
31. <i>Ithyrichtia</i> sp.	33
32. <i>Oxyethira delcourti</i> JACQUEMART, 1973	41
33. <i>O. falcata</i> MORTON, 1893	32, 61
34. <i>S. jacquemarti</i> MALICKY, 1977	8b
Philopotamidae	
35. <i>Philopotamus achemenus</i> SCHMID, 1959	1d, 1f, 2b, 2g, 8a, 8b, 48b, 59
36. <i>P. variegatus</i> (SCOPOLI, 1763)	1d, 2g, 4, 9b
37. <i>Wormaldia balcanica</i> KUMANSKI, 1979	1b, 1g, 2d, 2g, 6, 8a, 11
38. <i>W. khourmai</i> SCHMID, 1959	48a
39. <i>W. subnigra</i> MCLACHLAN, 1865	11, 24c, 24d, 32
40. <i>W. sukranae</i> sp.n.	14a, 14b
Hydropsychidae	
41. <i>Cheumatopsyche capitella</i> MARTYNOV, 1927	24d, 25, 32
42. <i>C. lepida</i> (PICTET, 1834)	28, 39b
43. <i>Diplectrona atra</i> MCLACHLAN, 1878	9, 16, 45, 47, 60
44. <i>Hydropsyche acuta</i> MARTYNOV, 1909	58
45. <i>H. bulbifera</i> MCLACHLAN, 1878	32, 34, 36b, 36c, 40, 49, 54
46. <i>H. contubernalis</i> MCLACHLAN, 1865	19, 32
47. <i>H. botosaneanui</i> MARINKOVIC, 1966	62

48. *H. krassimiri* MALICKY, 2001 50
 49. *H. kebab* MALICKY, 1974 1b, 2b, 8, 60
 50. *H. lepnevae* BOTOSANEANU, 1967 25
 51. *H. mahrkusha* SCHMID, 1959 2b
 52. *H. martynovi* BOTOSANEANU, 1967 43a
 53. *H. incognita* PITSCH, 1993 32, 34, 37
 54. *H. instabilis* (CURTIS, 1834) 24d, 25, 39c, 53
 55. *H. pellucidula* (CURTIS, 1834) (SIPAHILER & MALICKY, 1987)
 56. *H. peristerica* BOTS. & MARINKOVIC, 1966 (SIPAHILER & MALICKY, 1987)
 57. *H. resslis* MALICKY, 1974 42
 58. *H. sappho* MALICKY 35, 36d
 59. *H. sciligra* MALICKY, 1977 (SIPAHILER & MALICKY, 1987)
 60. *H. sinopensis* SIPAHILER, 2004 61
 61. *H. valkanovi* KUMANSKI, 1974 (SIPAHILER & MALICKY, 1987)

Polycentropodidae

62. *Crynus trimaculatus* (CURTIS, 1834) 2b, 25, 32, 39b, 39c, 40
 63. *Holocentropus picicornis* (STEPHENS, 1836) (SIPAHILER & MALICKY, 1987)
 64. *Plectrocnemia brevis* MCLACHLAN, 1871 48a
 65. *P. latissima* MARTYNOV, 1913 2b, 2f, 9a, 9b
 66. *Polycentropus flavomaculatus* (PICTET, 1834) 2b, 2g, 6b, 17, 24c, 25, 30, 36b, 39c, 48a, 48b, 58, 61, 62
cf. syn. P. f. hebraeus BOTOSANEANU & GASITH, 1971
 67. *P. ierapetra septentrionalis* KUMANSKI, 1986 24d, 36c
 68. *P. cf. mazdacus* SCHMID, 1959 (SIPAHILER & MALICKY, 1987)

Psychomyiidae

69. *Lype phaeorpa* (STEPHENS, 1836) 2g, 4
 70. *L. reducta* (HAGEN, 1868) (SIPAHILER & MALICKY, 1987)
 71. *Psychomyia dadayensis* SIPAHILER, 2006 24d, 28, 30, 32, 38, 61
 72. *P. mengensis* SIPAHILER, 2006 4, 5, 19, 20, 21, (SIPAHILER & MALICKY, 1987: Gerede çayı, İsmetpaşa: as *P. pusilla*)
 73. *P. pusilla* (FABRICIUS, 1781) 11, 32, 36b, 37b, 39c
 74. *Tinodes popovi* KUMANSKI, 1975 28, 29
 75. *T. polifurculatus* BOTOSANEANU, 1956 9a
 76. *T. rauschi* MALICKY, 1975 48a
 77. *T. unidentatus* KLAPALEK, 1894 (SIPAHILER & MALICKY, 1987)
 78. *T. yuecelaskini* SIPAHILER, 1995 18

Ecnomidae

79. *Ecnomus tenellus* (RAMBUR, 1842) 1b

Phryganeidae

80. *Agrypnia pagetana* CURTIS, 1835 1a
 81. *A. varia* (FABRICIUS, 1793) 1i
 82. *Phryganea ochrida* MALICKY, 1975 1a

Brachycentridae (2 species)

83. *M. bifoliatum* MARTYNOV, 1925 4, 56
 84. *M. mencilis* SIPAHILER, 1995 18 (SIPAHILER & MALICKY, 1987; SIPAHILER, 1995)

Limnephilidae

85. *Drusus bayburtii* CAKIN, 1983 43a
 86. *D. demirsoyi* CAKIN, 1983 1a, 1d, 1h
 87. *D. hackeri* MALICKY, 1986 5b, 8a, 15
 88. *D. muchei ilgazensis* SIPAHILER, 1996 43c
 89. *Glyphotaelius pellucidus* (RETZIUS, 1783) 1a, 2d, 2g
 90. *Grammotaulius nigropunctatus* (RETZIUS, 1783) 1a, 8b
 91. *Limnephilus affinis* CURTIS, 1834 48b
 92. *L. auricula* CURTIS, 1834 60
 93. *L. binonatus* CURTIS 1834 (SIPAHILER & MALICKY, 1987)
 94. *L. bipunctatus* CURTIS, 1834 10, 51, 60
 95. *L. flavicornis* (FABRICIUS, 1787) 1h, 2g
 96. *L. hirsutus* (PICTET, 1834) 48b
 97. *L. extricatus* MCLACHLAN 1865 48b, 51
 98. *L. lunatus* CURTIS, 1834 2c, 2g, 30
 99. *L. microdentatus* MARTYNOV, 1913 1h

100. *L. nigriceps* (ZETTERSTEDT, 1840) 1h
 101. *L. ponticus* MCLACHLAN, 1898 1a, 1f, 2h, 14a, 43b, 47, 48b
 102. *L. rhombicus* (LINNAEUS, 1758) 1a, 1b, 1h, 1i, 2h, 11, 14a, 48b, 51
 103. *L. sparsus* CURTIS, 1834 14c, 48b
 104. *L. subcentralis* BRAUER, 1857 1h
 105. *L. vittatus* (FABRICIUS, 1798) 46, 51, 57
 106. *Mesophylax impunctatus aduncus* (NAVAS, 1923) (SIPAHILER & MALICKY, 1987, as *M. aspersus*; see MALICKY,
 107. *Micropterna caesareica* SCHMID, 1959 1a
 108. *M. coiffaiti* DECAMPS, 1962 1a
 109. *M. hatatitla* MALICKY, 1985 (SIPAHILER & MALICKY, 1987)
 110. *M. nycterobia* MCLACHLAN, 1875 1a, 14c,
 111. *M. sequax* MCLACHLAN, 1875 1a, 2g, 8b, 9b, 14a, 48b
 112. *M. taurica* MARTYNOV 1917 (SIPAHILER & MALICKY, 1987)
 113. *Stenophylax meridiorientalis* MALICKY, 1980 1a
 114. *Stenophylax permistus* MCLACHLAN, 1895 (SIPAHILER & MALICKY, 1987)
 115. *Halesus digitatus* (SCHRANK, 1781) 2c, 2g, 11
 116. *Potamophylax cingulatus* (STEPHENS, 1837) 1a, 2g
 117. *P. latipennis* (CURTIS, 1834) 17, 48b
 118. *P. nigricornis* (PICTET 1834) 1a
 119. *Chaetopteryx nalanae* SIPAHILER, 1996 1h, 2c, 2h, 2g
 120. *Psilopteryx turcicus* CAKIN, 1983 (SIPAHILER & MALICKY, 1987)
 121. *P. t. aladagensis* SIPAHILER, 2005 13
- Goeridae**
122. *Goera pilosa* (FABRICIUS, 1775) (SIPAHILER & MALICKY, 1987)
 123. *L. musaca* MALICKY 1972 14b, 15, 16, 18a, 27, 44, 60
- Uenoidae**
124. *Thremma anomalum* MCLACHLAN, 1876 2c, 8b, 9b, 17, 42
- Lepidostomatidae**
125. *Dinarthrum iranicum* SCHMID, 1959 1f, 2h, 10, 15, 42a, 43a, 8a, 9a, 48a, 56a, 60
 126. *D. longiplicatum* MARTYNOV, 1913 (SIPAHILER & MALICKY, 1987)
 127. *Lepidostoma hirtum* (FABRICIUS, 1775) 2c, 18a, 52, 59b
- Leptoceridae**
128. *Adicella altandroconia* BOTOSANEANU & NOVAK, 1965 48a, 48b, 52, 53, 55
 129. *A. filicornis* (PICTET, 1834) 8b,
 130. *A. syriaca* ULMER, 1907 5, 28, 39b, 39c, 53
 131. *Athripsodes iltschi* MALICKY, 1987 (SIPAHILER & MALICKY, 1987)
 132. *A. albifrons* LINNAEUS, 1758 35
 133. *A. longispinosus* (MARTYNOV, 1909) 39c, 54
 134. *Ceraclea aurea* (PICTET, 1834) (SIPAHILER & MALICKY, 1987)
 135. *C. senilis* (BURMEISTER, 1839) 1a, 1g,
 136. *L. interruptus* (FABRICIUS, 1775) (SIPAHILER & MALICKY, 1987)
 137. *Mystacides azurea* (LINNAEUS, 1761) 1b, 1d, 32, 37, 41, 36c, 20
 138. *Oecetis brignolii* MALICKY, 1981 (SIPAHILER & MALICKY, 1987)
 139. *O. furva* (RAMBUR, 1842) (SIPAHILER & MALICKY, 1987)
 140. *O. notata* RAMBUR, 1842 32
 141. *Setodes bulgaricus* KUMANSKI, 1976 24d, 32
 142. *Ylodes kawraiskii* (MARTYNOV, 1909) (SIPAHILER & MALICKY, 1987)
- Sericostomatidae**
143. *Oecismus monedula pinkeri* MALICKY, 1976 14a, 48a
 144. *Sericostoma grusiense* MARTYNOV, 1913 (SIPAHILER & MALICKY, 1987)
 145. *Schzopelex anatolica* SCHMID, 1964 1a, 1b, 1d, 1f, 6
 146. *S. rhamnes* MALICKY, 1976 2g, 2h, 9a, 9b, 14a, 14d
- Beraeidae**
147. *Beraea tschundra* MALICKY, 1977 4
 148. *B. walteri* MALICKY, 1975 1b, 1d, 1e, 1g, 1f, 14a, 18a, 45, 47, 58, 61, 63
 149. *Beraeamyia devrekensis* SIPAHILER, 2005 21
 150. *Beraeodes minutus* (LINNAEUS, 1761) (SIPAHILER & MALICKY, 1987)
 151. *Ernodes abanticus* SIPAHILER, 1983 1b, 1c, 2b, 9a, 18a
 152. *E. dirgenensis* SIPAHILER, 1998 2b

Helicopsychidae

- 153.
- Helicopsyche bacescui*
- ORGHIDAN & BOTOSANEANU, 1953 39a, 47, 57

Calamoceratidae

- 154.
- Calamoceras illiesi*
- MALICKY & KUMANSKI, 1974 1a, 39b, 52

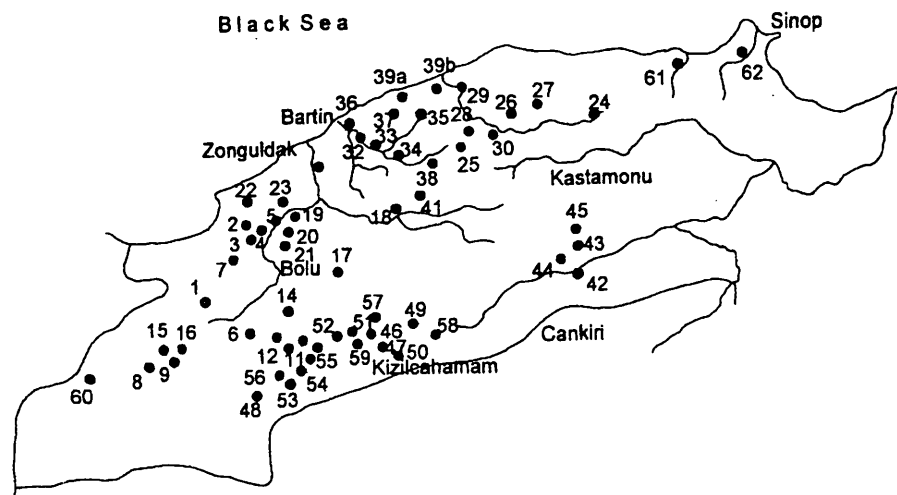


Table 2: List of the localities in northwestern Turkey

No	Provinces	Localities
1.	BOLU	a)- Abant, 1400m, 23.6.1995 (light); b)- 24.6.1995; c)-21.6.1997; d)-26.6.1999; e)- Abant, Bulanık Yaylası, 1400 m, f)- Abant, Bulanık Yaylası, 26.6.1999; g)- Abant, Samat yaylası, 26.6.1999; h)- Abant, Samat Yaylası, 7.10.1995; i): Abant gölü, 12.8.2001 (light)
2.		a)- Yedigöller, 780 m, 11.10.1986; b)- 21.6.1997, (light), c)- 7-8.11.1993; d)- 7.7.1995; e)-21.6.1997 (light); f)- 10.10.1999; g)- 9-10.6.2005 (light)
3.		Yedigöller, 20 km south, Karadere, 21.10.1986
4.		Yedigöller, 7 km south, Karadere, 10.6.2005
5.		Yedigöller, Dirgine direction, 15 km south, 10.6.2005
6.		Gölcük, 27.6.1999
7.		a)-Yığılca, direction to Aksu, 21. km, 24.5.1994; b)-11. km, 24.5.1994;
8.		a)- Mudurnu, Akyokuş Kavağı köyü, Sülüklügöl deresi, 1000 m, 26.6.1994; b)- 1200 m, 25.6.1995
9.		a)-Mudurnu, Karamurat Gölü, 650 m, 25.6.1994; b)- 26.6.1994 (light)
10.		Mengen, Yenice direction, 25. km, 1100 m, 11.10.1997
11.		Aladağlar, Demirciler Yaylası, direction Kartalkaya, 1250 m, 23.9.1995
12.		Aladağlar, Demirciler Yaylası, 7.10.1995; Gölet, 1250 m, 15.10.1995
13.		Aladağlar, Kartalkaya 31.10.2004
14.		a)- Aladağlar, Beşpınarlar,27.6.1999; b)- 21.7.1999; c)-31.10.2004; d)-7.7.2000
15.		Göynük, Çubuk gölü direction, 5.km, 750 m, 21.5.2006
16.		Göynük, Sünnet gölü, 750 m, 21.5.2006
17.		Yeniçağa, Dörtdivan, Çelikören direction, 1700 m, 3.9.2006
18.	ZONGULDAK	a)-Safranbolu, 5 km west, Mencilis deresi, 13.6.1993; b)- 28-29.8.1993
19.		Devrek, 4 km west, Karasu, 23.9.2003
20.		Devrek, 17 km west, Karasu II, 23.9.2003
21.		20 km west, Karasu II, 23.9.2003
22.		Devrek, direction to Ereğli, 20 km south, Kocasu river,14.7.2002
23.		Devrek, Devrek çayı, 220 m, 18.4.2004

24.	KASTAMONU	a)- Pınarbaşı, Varla mahallesi, Muratpaşa Köyü, Devrekani deresi, 350 m, 2.8.1993; b)- 20.5.1994 ; c)- 15.7.1994; d)-16.7.1994 (light); e)- 25.7.1994
25.		Pınarbaşı, Nalbantoğlu Mahallesi, 21-22.6.1996
26.		Pınarbaşı, Küre direction, 14. km, 1200 m, 2.6.2002
27.		Pınarbaşı, Küre direction, 28. km, 1050 m, 2.6.2002
28.		Azdavay- Cide direction, 14. km, 700 m, 21.6.1996
29.		Azdavay, Cide direction, 25. km, 1000m, 21.6.1996
30.		Azdavay, Daday direction, 6. km, 900 m, Karaburun deresi, 21.6.1996
31.		Pınarbaşı, Cide direction, 1000 m, 21.6.1996
32.	BARTIN	Bartın, Potbaşı mevki, Gökırmak, (light), 12.7.2003
33.		Bartın, Yenikişla Deresi, 100 m, 11.7.2003
34.		Bartın, Kozcağız, Bakioğlu Köyü, 50 m, 13.7.2003
35.		Ulukaya, 750 m, Ulus çayı, 13.7.2003
36.		a)- Bartın Amasra direction, Karadere 150m, 13.7.2003; b)- 13.4.2004; c)- 20.6.2004 (light); d)- 15.10.2004 (light)
37.		Arıt çayı, 23.9.2003
38.		Boğazköy, 23.9.2003
39.		a)-Kurucaşile, Ponça, 28.11.2003; b)- Bartın, Cide yolu, Hisar, Aydoğmuş, 12.6.2006; c)-Kurucaşile, Ziyaret Köyü, 100 m, 12.6.2006
40.		Bartın, Çaycuma yolu, Ecekler köyü, 24.6.04
41.		Bartın, Karabük il sınırı, Tayyip köyü, 200 m, 25.9.2003
42.	ÇANKIRI	Ilgaz, 1.6.1986 ; a)-Kurtçimeni, 11.7.95 leg. Beskov
43.		a)- Ilgaz Dağı, Küçük Hacet tepesi, 1500 m, 14.7.1994; b)- 1800 m, 13.7.1994 ; c) 1950 m, 14.7.1994
44.		Ilgaz, Kırkpınar, 1300 m, 7.7.2002
45.		Ilgaz Dağı, Çatören, 1200 m, 5.6.2002
46.	ANKARA	Gerede, Ankara direction, Dorukkaya, 1550 m, 7.7.2000
47.		Çamlıdere, Ecevit yaylası, 5.6.2004
48.		a)- Beypazarı, Karaşar, Eğriova, 10 km north, 1550m, 9.7.1999; b)- 27.8.2005 (light)
49.		Kızılcahamam, Güvem, Sey hamamı, 6.10.2003;
50.		Kızılcahamam, Kızılcaköy, 8.6.1996, leg. Beskov;
51.		Kızılcahamam, Akyarma, 1200 m, 14.6.2000
52.		Kızılcahamam, Akyarma, Ünlü Yaylası, 22.7.2005
53.		Beypazarı, 10 km to Kırıbsıcık, 21.7.1999
54.		Kırıbsıcık, Bolu direction, 40. km, 1370 m, 21.7.1999
55.		Kırıbsıcık, Bolu direction, 45. km, 1000m, 21.7.1999
56.		Beypazarı, Kırıbsıcık, Sofular köyü, Cuma deresi, 950 m, 21.7.1999; a)-16.6.1996, 1550 m
57.		Akyarma, Avşarlar Yaylası, 1350 m, 22.7.2005
58.		Kızılcahamam Işık Dağı, Sofular deresi, 1550 m, 16.6.1996
59.		a)- Kızılcahamam, Gerede direction, Akyurt, 1300 m, 19.5.1996; Aktaş, 22.7.2005
60.	SAKARYA	Taraklı, Mahdumlar köyü, Gürleyik deresi, 19.5.2006
61.	SINOP	Ayancık, 10 km west, 3.6.2002
62.		Erfelek, 400 m, 3.6.2002
63.		Kastamonu il sınırı, Çatalzeytin, 3.6.2002