



BIRDS OF TURKEY

TÜRKİYE KUŞLARI



11

Uludağ

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The birds of Uludağ

by Walter Jetz

Area and geographic position

The Uludağ massif is about 40 km x 20 km and situated 40 km inland of the Sea of Marmara. The town of Bursa lies at the western base of the mountain. Geographically the mountain belongs to the Marmara region, but in respect of its fauna and flora it represents the south-western edge of the Black Sea region (euxinic zone). It rises steeply from Bursa (200 m) to 2543 m, the highest peak of the Marmara region.

An area of 11,338 ha has been protected as national park under state ownership since 1961. It comprises mainly mountainous areas. Uludağ is the most famous winter resort of Turkey. There is an asphalt road from Bursa to sport facilities and hotels at 1900m, providing the only easy access to the alpine zone. Most of our knowledge on the fauna of Uludağ, especially of birds, is based on the area adjacent to this route (the north-western part of the massif).

The co-ordinates of the National Park are 40°04'N, 29°11'E.

General description of the area

As outlined above, Uludağ is an isolated mountain area in the Marmara region, the next high mountains lie many kilometres to the east. In respect of its geology and vegetation, it is part of the Northwest Anatolian Pontic mountain chain, although separated from them by the deep Sakarya valley. The present appearance of Uludağ has been influenced by tectonic movements and the effects of erosion and glacier activity during the last Ice Age (the Pleistocene snow-limit was at 2300 m). These resulted in interesting geomorphologic features, sheer rock faces, galleys and glacier traces on the rocks. The rock generally consists of granite and gneiss, covered with layers of metamorphosed schists and marbles (KETIN 1947, IUCN 1988), but there is also some rock strata from the Pre-Cambrium period (amphibolit, quartzphyllit). Uludağ lies on a WNW-SES axis bounded by the plain of Bursa and Inegöl in the north and by the river Nilüfer in the south and west.

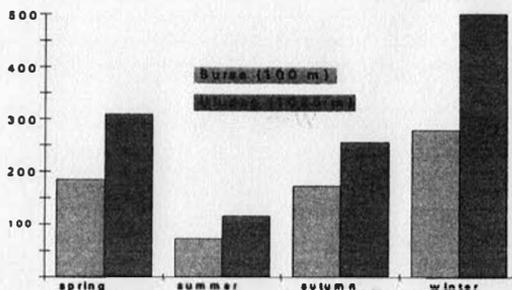


Fig. 1. Seasonal distribution of precipitation (In mm)

Due to its relative isolation, the massif receives high precipitation. It belongs to the euxinic climatic region which is characterised by high precipitation throughout the year combined with rather low average annual temperatures. At an elevation of 1025 m - in the Black Pine/Orient Beech zone - the annual mean temperature is 9.9°C. In January it is 1.1°C, in July/August 17.8°C. In comparison, at 1920 m the annual mean temperature is 4.3°C, whereas at Bursa (100 m) it is 14.4°C with mean temperatures of 5.2°C in January and 24.2°C in July/August.

Fig. 1 shows the seasonal distribution of precipitation. In the alpine region the annual precipitation is 1521 mm (at 1920 m, Uludağ village). This area is snow-covered for 150-170 days per year (mostly between November and May), up to 3,75 m high! At Bursa (100 m), however, mean yearly precipitation is only 709 mm, with only 10 days of snow. The number of sunny days is about 100 per year at both locations (all data: Bursa: 1929-1965, Uludağ village: 1939-1964; STATE METEOROLOGICAL SERVICE 1967).

Uludağ is a well-documented area in Turkey regarding geology and climate (for further details see references).

History

Bursa, the ancient Prusa, was founded in 186 BC. It is said that the place was already famous for the hot springs and for the abundance of water due to the countless streams coming from Uludağ (= "big mountain"). Bursa is still known as the "Green Bursa". At that time the mountain was called "Bythinic Olymp", one of the many mountains in the Aegean with the label "Olymp". Later the Romans more appropriately named it "Mysic Olymp", most of Bythina is situated further east. In

the Byzantine period Uludağ was a refuge for monks and after their expulsion by Muslims known as mountain of the monks, "Keshihdag". In the 14th century Bursa was conquered by the Ottomans and became their capital for half a century. Bursa is today a prosperous city subject to swift industrialisation (a thorough study concerning the effects of this development on demography and social structure in Bursa was published by STEWIG et al. 1980, 1986). Bursa currently has some 600,000 inhabitants.

Since the 1950s the mountain has been increasingly developed; a cable car was constructed from Bursa to Sarıalan in the alpine zone. The road from Bursa which was originally built by a wolfram mining company has subsequently been improved and adapted for tourism. This has facilitated massive exploitation of this formerly untouched area: ski-lifts, hotels and other facilities have been constructed at Sarıalan and Uludağ village (Oteller). Uludağ is now the most important winter sports centre in Turkey. In summer, the mountain is a popular destination for day or weekend visitors, mainly from Bursa and Istanbul.

Ornithological importance

Uludağ is unique in several respects. Biogeographically it represents the westernmost range, and a nearly isolated "island" of euxinic forests belonging to the Northwest Anatolian mountains. Krüper's Nuthatch and Red-fronted Serin reach their western limit of occurrence here. The rich variety of habitats occurring at different altitudes harbour a diversity of passerines rarely found in such a relatively small area. Taking the massif as a whole this zonation is disturbed by human land use only in a few locations (adjacent to the road and at the ski-centre).

The diversity of raptors is breathtaking: No fewer than 27 species have been recorded; 10 of which probably breed, including Lammergeier, Lanner Falcon and Goshawk. The area around the tree line harbours many interesting species, and just below this in the Ancient Fir forest, Tengmalm's Owl has been found, one of the few known sites in Turkey. The hotel village (1900 m) is home to another speciality: Pallid Swift, the only regular breeding site in Turkey.

Uludağ is an important breeding site for several threatened bird species. At least 92 species breed or probably breed, 67 species are rare visitors and migrants. 159 species have been recorded in total. 6 subspecies endemic to Turkey occur on Uludağ: Shorelark of race *kumertoevi*, Dunnock of race *euxina* (described from Uludağ by WATSON 1961), *brevirostris* Chiffchaff, *tephronotus* Long-tailed Tit, *zarudnyi* Rock Nuthatch and *paphlagoniaë* Bullfinch (see ROSELAAR 1995).

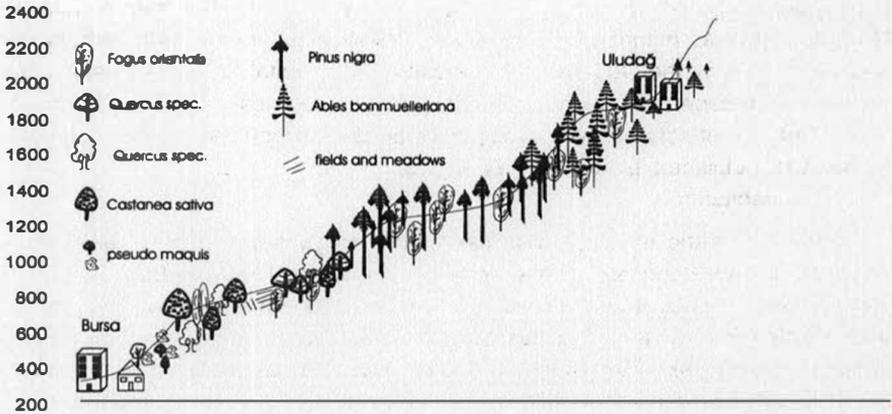


Fig. 2. Rough vegetation profile of Uludağ (NW part, next to the road). Altitude in metres.

Altitudinal zonation of vegetation and bird fauna

Uludağ is a good example of euxinic vegetation, which elsewhere extends along the Black Sea coast. The mountain has an apparent altitudinal zonation of vegetation depending on the specific climate. This zonation is very similar to that of central-euxinic forests, only Black Pine (*Pinus nigra*) seems to be better represented at lower altitudes due to drier summers and human influence. MAYER & AKSOY (1986) identified six main natural vegetation belts at Uludağ:

- ◆ 0 - 500 m: Mediterranean - euxinic pseudo maquis (*Quercus pubescens* - *Pistacia terebinthus*)
- ◆ 500 - 900 m: *Quercus petraea iberica* - *Castanea sativa* (Oak - Chestnut) forest (Castanetum)
- ◆ 900 - 1300 m: *Pinus nigra* (Black Pine) forest (Pinetum)
- ◆ 1300 - 1500 m: *Fagus orientalis* (Orient Beech) forest (Fagetum)
- ◆ 1500 - 2100 m: *Abies bornmuelleriana* - *Fagus orientalis* (Ancient Fir - Orient Beech) forest (Abietum)
- ◆ 2100 - 2300 m: *Vaccinium myrtillus* - *Juniperus nana* (Blueberry - Juniper) shrub

These vegetation belts are separated, textbook-like, and all these six major plant associations can be seen even by the inexperienced visitor, when driving from Bursa to the summit. The restriction of certain vegetation types to certain altitudes is mirrored by a very tight zonation of the avifauna. Along the road to the alpine region the observer is confronted with at least seven different bird communities. The rapid

change in bird communities in a short distance is one of the principal phenomena of the mountain. To give some idea of this, a short description of the vegetation zones as they appear along the road from Bursa to the summit, together with their avifauna is given here.

To demonstrate general quantitative relationships short standardised bird counts were made in mid-May 1993 next to the road from Bursa to the summit. Four observers spent 30 minutes in each major zone, two walking a line transect (no distance limit) along the road and two walking cross-country in other directions. All birds recorded were counted and registered. Thus a quantitative species list of birds probably breeding was given for each zone, although these are subject to different species-specific detectability, different day times, short time of survey period and different stage of breeding according to climatic circumstances differing by altitude.

200 - 500 m: Mediterranean scrub (Lauretum) (pseudo maquis)

Immediately after the last houses of Bursa and even below the forest there is a small vegetation belt with local peculiarities. It is a relict of the Mediterranean scrub that had been wide-spread in the postglacial period. The community is made up of Mediterranean and euxinic elements and can be classified as *Quercus petraea iberica* - *Pistacia terebinthus* scrub (MAYER & AKSOY 1986: 69). Typical elements are Judas tree (*Cercis siliquastrum*), Elder (*Sambucus nigra*), Downy Oak (*Quercus pubescens*), *Styrax officinalis*, Woodbine (*Lonicera etrusca*), Asparagus (*Asparagus aphyllus*) and Jasmine (*Jasminum fruticans*). Other dominant shrubs are e.g. Scrub Olive (*Olea europea*), Laurel (*Laurus nobilis*) and Carob Tree (*Ceratonia siliqua*). The vegetation height is mostly approx. 2-4 meters.

A bird count was made at the edge of the city, where scrub covers the steep slopes at the foot of Uludağ (Tab. 1). In some areas, especially near Bursa, uniform Black Pine plantations replace the natural vegetation. Therefore, another count was performed to show the poor species composition of such an area (Tab 2.).

500 - 900 m: Collin, Castaneum forests and cultural landscape

The next belt represents the transition from the warm Submediterranean to the more humid zones. It is called *Quercus petraea iberica* (Oak) - *Castanea sativa* (Sweet Chestnut) forest; additional constituents include Elm (*Ulmus* sp.), Walnut (*Juglans regia*), Oriental Plane (*Platanus orientalis*; on wet ground) and Hazelnut (*Corylus* sp.). Near the road this community is strongly influenced by human landuse. The lower slopes of Uludağ are used as grazing for goats and many small fields are scattered throughout the area. In this variety of microhabitats the highest bird diversity of the whole mountain is found.

Tab. 1. Birds in the pseudo maquis at 300 m a.s.l., just above Bursa. The standardised count was made on 22.5.93. Total number of species: 35.

Cuckoo	1	Whitethroat	4
Dunnock	1	Chiffchaff	4
Olivaceous Warbler	1	Jay	4
Subalpine Warbler	1	Chaffinch	4
Sardinian Warbler	1	Cirl Bunting	4
Blackcap	1	Collared Dove	5
Blue Tit	1	Great Tit	5
Starling	1	Jackdaw	5
Rock Bunting	1	Red-backed Shrike	6
Ortolan Bunting	1	Red-rumped Swallow	7
Robin	2	Nightingale	8
Stonechat	2	Swallow	10
Goldfinch	2	Hooded Crow	10
Linnet	2	Blackbird	11
Common Rosefinch	2	Common Swift (flocks)	16
Hawfinch	2	House Sparrow	28
Coal Tit	3	House Martin (flocks)	95
Lesser Whitethroat	4	sum	263

Tab. 2. Birds in a Black Pine plantation at 500 m a.s.l.. The standardised count was made on 22.5.93. Total number of species: 12.

Dunnock	1	Great Tit	4
Lesser Whitethroat	1	Robin	7
Hooded Crow	1	Blackbird	7
Blackcap	2	Coal Tit	7
Cirl Bunting	2	Chiffchaff	8
Wren	3	Chaffinch	12
		sum	58

Tab. 3. Birds in semi-open land at 750 m a.s.l.. The standardised count was made on 20.5.93. Total number of species: 30.

Wood Pigeon	1	Cuckoo	4
Mistle Thrush	1	Red-rumped Swallow	4
Nuthatch	1	Wren	4
Whitethroat	1	Blackcap	4
Greenfinch	1	Song Thrush	4
Corn Bunting	1	Great Tit	4
Hoopoe	2	Rock Bunting	4
Wryneck	2	Ortolan Bunting	4
Stonechat	2	Dunnock	5
Blue Tit	2	Robin	5
Red-backed Shrike	2	Jay	6
Cirl Bunting	2	Common Rosefinch	6
Nightingale	3	Blackbird	9
Coal Tit	3	Chiffchaff	11
Turtle Dove	4	Chaffinch	11
		sum	113

Tab. 4. Bird community of extensively-used agricultural land between 650 and 950 m a.s.l. (without visitors and migrants). Counts were made on 8 days in mid-May 1993. 52 resident species in 889 individuals were recorded (529 records). The table gives the relative abundance in %.

Dipper	<1	Duncock	1
Krüper's Nuthatch	<1	Wryneck	1
Wood Pigeon	<1	Mistle Thrush	2
Tawny Owl	<1	Song Thrush	2
M. Spotted Woodpecker	<1	Woodlark	2
Wheatear	<1	Jay	2
Short-toed Treecreeper	<1	Coal Tit	2
Woodchat Shrike	<1	Whitethroat	2
Hooded Crow	<1	Linnet	3
Sparrowhawk	<1	Stonechat	3
Collared Flycatcher	<1	Wren	3
Long-tailed Tit	<1	Cirl Bunting	3
Goldfinch	<1	Turtle Dove	3
Siskin	<1	Blackcap	3
Common Kestrel	1	Robin	3
Grey Wagtail	1	Rock Bunting	3
White Wagtail	1	Red-backed Shrike	3
Lesser Whitethroat	1	Cuckoo	4
Com Bunting	1	Hoopoe	4
Buzzard	1	Chaffinch	4
Green Woodpecker	1	Ortolan Bunting	4
Hawfinch	1	Nightingale	4
Whinchat	1	Great Tit	4
Greenfinch	1	Chiffchaff	5
Golden Oriole	1	Common Rosefinch	8
Blue Tit	1	Blackbird	9
		sum	100

For the next section, i.e. the extensive cultural landscape on the lower slopes between 650 and 950 m, a more detailed list can be given. While working on Common Rosefinch (*Carpodacus erythrinus*), four observers spent 8 days continuously in mid-May 1993, covering an area of about 3x2 km with an altitudinal amplitude of 300 m. A total of 65 species were recorded: 52 residents, 6 aerial hunters and feeding visitors and 7 migrants. Tab. 4 gives the relative abundance of resident species (number of birds of each species as a proportion of the total number of birds of all species, n = 889). Species - individual distribution is relatively even, with many rather scarce species and none especially dominant. This phenomenon reflects the diversity and variety of habitats of this section.

900-1300 m: Submontane, deciduous forest with Black Pine

This is a section of diverse, mainly deciduous forest. Beech (*Fagus orientalis*) and various deciduous oak species (*Quercus* sp.) are still accompanied by some

Tab. 5. Birds in deciduous forest with minor human influence at 850 m a.s.l. The standardised count was made on 23.5.93. Total number of species: 15.

Short-toed Treecreeper	1	Blue Tit	5
Red-rumped Swallow	2	Wren	8
Great Tit	2	Robin	8
Jay	2	Chiffchaff	8
Cuckoo	3	Blackcap	11
Blackbird	3	Coal Tit	12
Common Rosefinch	4	Chaffinch	15
Song Thrush	5	sum	89

Tab. 6. Birds of a Black Pine forest at 1150 m a.s.l. The standardised count was made on 23.5.93. Total number of species: 27.

Crag Martin	1	Goldcrest	3
Yellow Wagtail	1	Great Tit	3
Dunnock	1	Krüper's Nuthatch	3
Redstart	1	Short-toed Treecreeper	3
Firecrest	1	Greenfinch	3
Rock Bunting	1	Crossbill	3
Ortolan Bunting	1	Jay	4
Wood Pigeon	2	Common Rosefinch	5
Woodlark	2	Swallow	6
Robin	2	Blackbird	8
Song Thrush	2	Serin	16
Mistle Thrush	2	Coal Tit	21
Chiffchaff	2	Chaffinch	53
Turtle Dove	3	sum	153

Chestnuts (*Castanea sativa*, decreasing with altitude) and at higher altitudes *Pinus nigra* appears.

At this altitude, however, bird species composition close to the road is often highly influenced by forestry (e. g. some dense stands of pure Black Pine) and human cultivation (Tab. 5). Other areas consist principally of almost pure Black Pine forest and a small amount of semi-open, man-used land (small fields and pastures) at about 1150 m (Tab. 6).

1300 - 1500 m: Submontane, mainly coniferous forest

At 1300 m the first Ancient Firs (*Abies bornmuelleriana*) appear. At Uludağ the vegetation at this altitude is classified as *Fagus orientalis* forest, but locally, as for example along the road, due to lower rainfall on south-facing slopes and to dry granite-based soil, Black Pines are dominant. SCHIECHTL (1979) characterised for

Uludağ a *Genista lydia* (broom) - *Pinus nigra* community at this altitude. Some junipers (*Juniperus communis* ssp. *nana*) and aspens (*Populus tremula*) already give an indication of the next section. A fragment of a natural Black Pine-dominated forest at 1400 m with a clearing and a small village was surveyed (Tab. 7).

1500-2000 m: Montane, mainly coniferous forest

Above 1500 m Black Pine is replaced by Ancient Fir (*Abies bornmuelleriana*), as the most abundant tree, which is restricted to montane areas and with Oriental Beech (*Fagus orientalis*) the characteristic species just below the timber line. Beech is still common but decreases with altitude. The rocky ground of these forests is covered with juniper (*Juniperus communis* ssp. *nana*) whilst beard lichens (moss) give the forest a mystical atmosphere. Aspen (*Populus tremula*) provides some variety in this relatively uniform woodland. A forest at 1600 m with a proportion of Ancient Fir of 60% and some snow patches in between at this time of the year was surveyed (Tab. 8). Other characteristic but rather rare birds here are e.g. Black and Great Spotted Woodpecker.

Around 2000 m (1800 - 2100 m): Transition zone (tree line)

Here a count in the forest just above the treeline at 1800 m, next to Uludağ village. At this time of the year up to 60% of the ground was still covered by snow. Ancient Fir represents over 80% of the trees.

The treeline marks an absolute change in bird species composition, while some species occur only on the transition line itself. Towards the more open alpine scrub where there are only scattered trees some new species appear, especially confined to this more open habitat: Woodlark, Tree Pipit, Dunnock, Red-fronted Serin, Linnet, Bullfinch, Ring Ouzel. The two village in this area and the facilities around the wolfram mine provide special habitats, as artificial breeding rocks for Swift, Pallid Swift and House Martin and rubbish attracts some other birds such as Hooded Crow and Alpine Chough.

2000 - 2543 m: Alpine shrub and meadows, rocks

At 2100 m the forest gives way to low, approx. 0.5 m high shrub. Blueberry (*Vaccinium myrtillus*) and Juniper (*Juniperus communis* ssp. *nana*) are the major constituents of this shrub which becomes lying and more patchy with altitude. Four small lakes next to Uludağ Tepesi are approximately 250 m in diameter, but only of marginal ornithological importance.

Tab. 7. Birds of a Black Pine forest at 1400 m a.s.l. The standardised count was made on 23.5.93. Species number: 25.

Wood Pigeon	1	Cuckoo	3
Black Woodpecker	1	Krüper's Nuthatch	3
Grey Wagtail	1	Crossbill	3
Wren	1	Blackbird	4
Mistle Thrush	1	Goldcrest	4
Common Rosefinch	1	Great Tit	4
Turtle Dove	2	Robin	7
Dunnock	2	Firecrest	7
Short-toed Treecreeper	2	Hooded Crow	7
Red-backed Shrike	2	Song Thrush	10
Serin	2	Coal Tit	13
Greenfinch	2	Chaffinch	34
Bullfinch	2	sum	119

Tab. 8. Birds of an Ancient Fir forest at 1600 m a.s.l. The standardised count was made on 23.5.93. Species number: 15.

Short-toed Treecreeper	1	<i>Regulus spec.</i>	4
Jay	1	Bullfinch	5
Blackbird	2	Goldcrest	10
Crossbill	2	Robin	12
Dunnock	3	Coal Tit	22
Song Thrush	3	Chaffinch	22
Mistle Thrush	3	Wood Pigeon (flocks)	38
Firecrest	4	sum	132

Tab. 9. Birds of a patchy Ancient Fir forest at 1850 m a.s.l. The standardised count was made on 23.5.93. Species number: 16.

Wren	1	Dunnock	3
Redstart	1	Song Thrush	3
Short-toed Treecreeper	1	House Martin	4
Red-backed Shrike	1	Robin	5
Water Pipit	2	Blackbird	5
Mistle Thrush	2	Goldcrest	11
Firecrest	2	Coal Tit	20
Red-fronted Serin	2	Chaffinch	28
		sum	91

Tab. 10: Birds of alpine shrubs with scattered trees at 1950 m a.s.l.. The standardised count was made on 23.5.93. Species number: 12.

Common Kestrel	1	Mistle Thrush	3
Rock Thrush	1	Firecrest	3
Red-fronted Serin	1	Dunnock	4
Ring Ouzel	2	Chaffinch	6
Goldcrest	2	Coal Tit	10
Blackbird	3	Water Pipit	26
		sum	62

The count (Tab. 10) gives an impression of the main species in the alpine area. Snow cover was less than 10% in this area at the time. The characteristic birds of the alpine meadows are: Shore Lark, Water Pipit, Dunnock, Alpine Accentor, Black Redstart, Stonechat, Wheatear, Rock Thrush, and Blue Rock Thrush. Above about 2200 m the area becomes steeper in some sections and huge rocks and exposed ridges of hills determine the landscape. This wide region is (apart from few of the birds listed above) home for species such as Lammergeier, Griffon Vulture, Golden Eagle, Kestrel, Lanner, Raven and also Alpine Chough and Crag Martin.

Altitudinal distribution patterns of birds

Tab. 11 gives an idea on the altitudinal distribution of the breeding birds of Uludağ. All data available were compiled and, when necessary and justifiable, in very few species extrapolated over the same habitats in other altitudinal categories (means they were partly estimated from the data). Several different types of altitudinal distribution patterns are distinguishable:

- ◆ only civilisation or maquis up to 500m
- ◆ semi-open landscape between 500m and 900m
- ◆ all the woody areas in all altitudes
- ◆ closed mountain forests between 1500m and timber line
- ◆ area around timber line
- ◆ open alpine region
- ◆ human civilisation at the foot as well as near the top
- ◆ artificially and naturally open or semi-open habitats below 1000 m and above 1900 m.

Tab. 11. Altitudinal distribution and abundance of breeding birds at Uludağ; altitudes correspond to the vegetation as described in this chapter. Categories of abundance (Abu): 1 = rare, 2 = frequent, 3 = abundant.

species	Abu	3-500	-700	-900	-1100	-1300	-1500	-1700	-1900	-2100	-2300	-2543
Lammergerger	1											
Griffon Vulture	1											
Goshawk	2											
Sparrowhawk	2											
Buzzard	1											
Golden Eagle	1											
Common Kestrel	2											
Lanner Falcon	1											
Peregrine	1											
Wood Pigeon	3											
Collared Dove	1											
Turtle Dove	2											
Cuckoo	2											
Little Owl	1											
Tawny Owl	1											
Common Swift	3											
Pallid Swift	1											
Roller	1											
Hoopoe	2											
Wryneck	2											
Green Woodpecker	2											
Black Woodpecker	2											
Gr. Spotted Woodpecker	2											
Syrian Woodpecker	1											
Mi. Spotted Woodpecker	2											
Lc. Spotted Woodpecker	1											
Shore Lark	3											
Woodlark	2											
Crag Martin	2											
Swallow	2											
Red-rumped Swa.	2											
House Martin	3											
Tree Pipit	2											
Water Pipit	3											
Grey Wagtail	2											
White Wagtail	2											
Dipper	1											
Wren	3											
Alpine Accentor	1											
Duncock	2											
Robin	3											
Nightingale	3											
Black Redstart	2											
Redstart	1											
Stonechat	2											
Wheatear	2											
Rock Thrush	2											
Blue Rock Thrush	1											

species	Abu	3-500	-700	-900	-1100	-1300	-1500	-1700	-1900	-2100	-2300	-2543
Ring Ouzel	2											
Blackbird	3											
Song Thrush	3											
Mistle Thrush	2											
Olivaceous Warbler	1											
Subalpine Warbler	1											
Sardinian Warbler	2											
Lesser Whitethroat	2											
Whitethroat	2											
Blackcap	3											
Chiffchaff	3											
Goldcrest	3											
Firecrest	3											
Red-breasted Flycatcher	1											
Sombre Tit	1											
Coal Tit	3											
Blue Tit	2											
Great Tit	4											
Krüper's Nuthatch	2											
Nuthatch	2											
Rock Nuthatch	1											
Short-toed Tree Creeper	2											
Golden Oriole	2											
Red-backed Shrike	3											
Jay	2											
Alpine Cough	2											
Jackdaw	2											
Hooded Crow	2											
Raven	3											
Starling	2											
House Sparrow	2											
Chaffinch	3											
Red-fronted Serin	2											
Serin	2											
Greenfinch	2											
Goldfinch	2											
Siskin	2											
Linnet	1											
Crossbill	2											
Scarlet Rosefinch	3											
Bullfinch	2											
Hawfinch	1											
Cirl Bunting	2											
Rock Bunting	2											
Ortolan Bunting	2											
Corn Bunting	3											

As already outlined above, the highly diverse landscape between 500 (300) and 900 m harbours the richest birdlife. Bird fauna in the deciduous forests is somewhat poorer, but still remarkably high in the primary coniferous forests. Reverse, abundance in forests, even when dominated by Ancient Firs, is seemingly higher.

Tab. 12. Species number and individuals at different altitudes in mid May 1993, yielded by the standardized, comparable counts (= see Tab. 1-3 and 5-10).

Altitude	Vegetation (see also above)	species	ind.
300m	maquis, houses	35	263
500m	pure Black Pine, planted	12	58
750m	semi-open	30	113
850m	deciduous forest (mainly oaks)	15	89
1150m	mainly Black Pine and fields	27	153
1400m	mainly Black Pine, village	25	119
1600m	mainly Ancient Fir, some Orient Beech	15	132
1850m	nearly only Ancient Fir, snow patches	16	91
1950m	alpine shrub, single Ancient Firs	12	62

The species - individuals distribution in the diverse semi-open lands is more uniform than in the forests, especially the rather monotonous ones (see above), where a few species (e.g. Chaffinch) are predominant. The treeline area together with the artificial habitat Uludağ village shows a first peak of bird diversity before giving way to the uniform open alpine region with only a few specialised species.

Major changes in species composition are conspicuous around 500 m (upper limit of maquis), around 900 m (upper limit of semi-open land) and around 1900 m (timber line).

Human activity and nature conservation

In 1961 6,062 ha of Uludağ were protected as national park. Subsequent revisions have expanded the park area to 27,300 ha. The boundaries of the national park lie between Bursa, Çekirge, Miziköy, Doğancı, Kızılkaya, Günderet, Karatslah Köyü, Günebudak, Dağdibi, Fevziye, Gence, Babasultan, Kozluviran and Aksu. The park facilities include marked pathways, boundary hedges and information sheets which are provided at the gate. There is overall control of land use preventing illegal timber extraction and grazing. The national park is state owned. Stricter land use controls in this highly sensitive area should be established. Disturbance is caused by mass ski tourism in winter takes and by visitors in summer. Other serious problems are the timber extraction at lower altitudes (only parts of Uludağ lie inside the national park boundaries) and overgrazing, especially by goats. The lower slopes up to 900 m (occasionally above) are extensively used for agriculture by the local inhabitants.

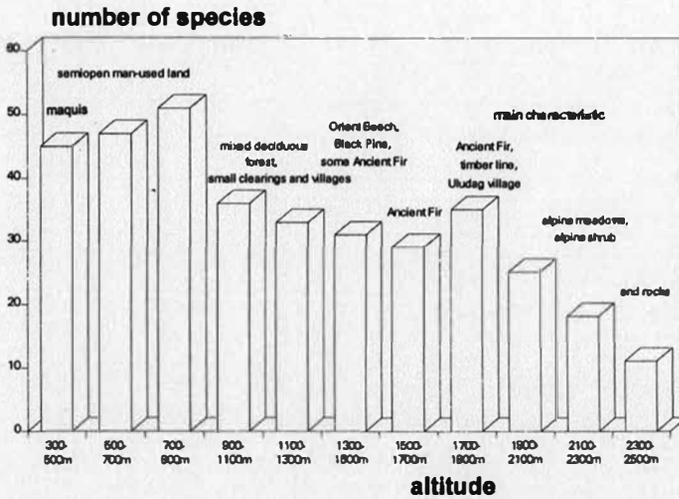


Fig. 3. Number of breeding species at different altitudes, according to Tab. 11 (distribution partly completed by estimation). Vegetation assumed as next to the road Bursa - Uludağ.

Fauna (excluding birds)

The large undisturbed forests of the mountain slopes are home to several large mammals; Roe Deer (*Capreolus capreolus*), Fox (*Vulpes vulpes*), Wild Boar (*Sus scrofa*, tracks seen at 1700 m on 17.9.93, Ff) and probably Badger (*Meles meles*). Brown Bear (*Ursus arctos*) and Wolf (*Canis lupus*) are said to occur. A small population of the Anatolian-Caucasian subspecies of Deer (*Cervus elaphus maral*) is kept in a fenced area at 1400 m and is scheduled for re-introduction. Persian Squirrels have been seen at Bursa and a dead mole (probably *Talpa caeca*) found at 1500 m (6.6.93, Bi). The bat *Nyctalus lasiopterus* has only been recorded in Turkey from Uludağ so far (ALBAYRAK, pers. comm. to C. BILGIN).

The Mountain Frog *Rana macronemis* Boulenger was first described from Uludağ in 1885 (terra typica) and lives in the cool, small streams on the summit of Uludağ (cf. BARAN 1969). A Green Toad (*Bufo viridis*) heard calling at 1600 m on 6.6.88 (GN) is so far the only amphibian recorded. Among reptiles, there are populations e.g. of *Lacerta viridis meridionalis* and *Lacerta anatolica anatolica*. The subspecies *Lacerta saxicola bithynica* is endemic to Uludağ. Snakes recorded on the mountain include *Vipera ammodytes*, *Eirænis coronella* and *Coronella austriaca* (BAŞOĞLU & BARAN 1980, EISELT & SCHMIDTLER).

A speciality of Uludağ is a relict population of the Apollo butterfly (*Pamassius apollo gaslini*) in the alpine scrub above 1800 m. This place is well-known to insect

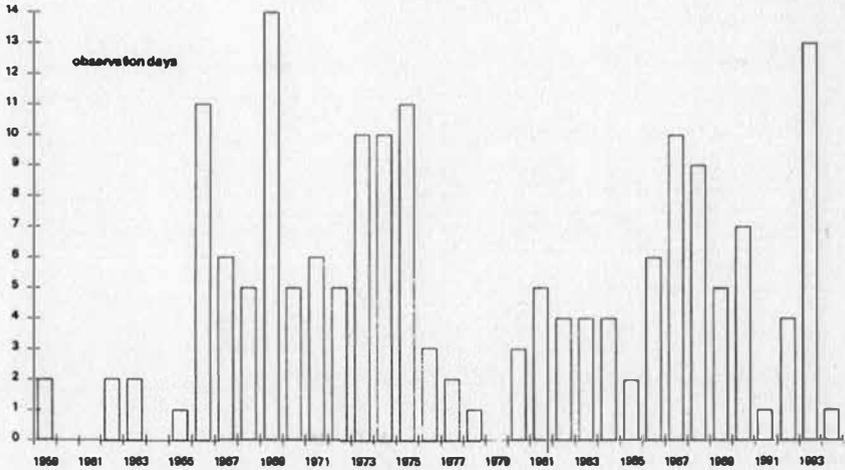


Fig. 4. Birdwatching activity at Uludağ 1959-1994, days with reported observations per year (n = 174).

collectors who collected hundreds in recent years and the population apparently has suffered a lot from that illegal practice. Without protection it may become extinct in the future.

Bird-watching activity

Uludağ is one of the most popular sites for birdwatching in Turkey. The history of observation activity at Uludağ strongly mirrors ornithological activity throughout Turkey itself. Due to its ease of access and geographical position close to İstanbul, a visit to Uludağ is part of most bird-watching trips to West-Turkey. Data from approx. 190 observation days are available.

In the 1930s German researchers collected several bird specimens at Uludağ (v. JORDANS & STEINBACHER 1948). Between 1965 and 1978 many British birdwatchers whose data have been published in the Bird Reports (BR) yielded an excellent observation density. Since then the number of records has declined and now consists mainly of short reports by organised bird-watching tours.

More than 80% of all visits to Uludağ have been day visits, a fact which certainly biases an accurate species list: species not so easy to detect and with short daily activity patterns are underrepresented. In addition to these constraints, virtually all observations were made from or next to the road from Bursa to Oteller or the

Wolfram Mine and some pathways around Kirazlı Yayla. Only a small number of observers circled the wide alpine meadows and rocky slopes beyond the mine. Virtually nobody has birded any of the far eastern part of the mountain. So one should bear in mind that the classification of abundance given in the species list is only applicable to this part of the mountain, and that the number of species is a minimum estimate. Hence this paper describes to the north-western part of the mountain rather than the avifauna for the whole Uludağ massif.

Birdwatching activity has been concentrated in the breeding season (May and June) and mid-September (see Fig. 4). There are very few records between mid-October and mid-March. The winter at Uludağ is harsh and no winter records exist. The extreme dates of migrants should be considered with care, given the actual distribution of observations presented in Fig. 5.

Hints for bird-watchers

One of the most attractive features of Uludağ for birdwatchers is its ease of access. Bursa is only 2 hours drive from Istanbul and with its various tourist facilities ideal as a starting point for an excursion to Uludağ. With private transport all the important habitats of the mountain can be visited on a day trip. If dependent on public transport or interested in obtaining a more thorough impression of the specific birdlife, a second day and best some camping equipment (and warm clothing!) for a night on the mountain are recommended.

There are two easy ways of approaching the summit from Bursa. One is the old cable car (teleferik, teferrüc) which has its base station at the southeast edge of Bursa, next to the university. The cable car goes to Sarıalan, a small village at about 1700 m. From there it is 2 hours walk (path number 1) to Uludağ Hotel village, the ski centre (Oteller, 1900 m). At halfway a trail (number 3) turns left leading to Çobankaya (1.5 hours from Sarıalan) where there is a camp site and a marvellous view to Bursa down the steep forested slopes.

The second method is via the asphalt road from the southern edge of Bursa, on which Dolmuş regularly go to Karabelen or Sarıalan, and many even to Oteller. This is the usual route to approach the alpine zone and nearly all observations from below 1800 m have been made next to the road, which enables birdwatchers to gain a good impression of all vegetation zones in a short time. The extensive semi-open bushland around 800 m and the mystic Ancient Fir woods above 1700 m are worth a longer stop. A footpath to Sarıalan begins at Kirazlı Yayla (2 hours) for those who wish to explore away from the road.

Acknowledgements

I would like to thank all those observers who provided their observations for the compilation of the species list. Without their help, this work would have been impossible. My thanks go to Alexander SCHEUERLEIN and Clement HEBER for valuable assistance with the fieldwork and especially to Heiner SCHÖPF who organised the Common Rosefinch project at Uludag in 1993 and helped originate this checklist. Special thanks are due Max KASPAREK for encouraging this work, organising much of the data and making valuable suggestions during its completion. I am also very grateful to Guy KIRWAN who corrected the English and provided data and Can BILGIN for various comments and assistance. Birgit OTT was very understanding during the first stages of compiling the paper, Dean HASHMI, Dieter SCHMIDL and Alexander SCHEUERLEIN read earlier drafts and made helpful comments.

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Abbreviations

ALN	=	T. & S. K. Andersen, S. A. Linderström, L. Nordhjerg
BBMS	=	Buhr, v.d. Burg, v. Meurs & R. Schenk
BG	=	Breek & Gelderblom
BGL	=	P. Bison, Gnodde & van der Laan
Bi	=	C. Bilgin
Br	=	C. Bräuning
Bz	=	E. Bezzel
CE	=	Carson & Ennis
Dav	=	Davidse
Dem	=	H. Demuth
Do	=	Dobbs
DT	=	L. J. Dijkzen & Tuinstra
DTe	=	A. J. Dijkzen & Tempelmans-Plat
Ff	=	H. J. Fünfstück
Ge	=	P. Geroudet
Gat	=	W. Gatter
GH	=	U. Glimmerveen & H. Hols
GN	=	G. Groh & Nickel
HB	=	Huber & Barbalat
Hea	=	P. Heathcote
Ho	=	P. Holzapfel
JAR	=	J. A. Raviands
Jas	=	K. Jaschke
Je	=	M. Jennings
Kay	=	C. Kaymas

Ki	=	P. King
Kie	=	Kieft
Kir	=	G. Kirwan
KK	=	M. Kasperek & A. Kiliç
Ko	=	N. Koch
Kö	=	C. König et al.
KT	=	Kervansaray Tours
Noe	=	A. Noeske
OB	=	B. Oberle
OK	=	B. Oberle, Köpke et al.
Pa	=	J. Pans (1974)
Pou	=	B. O. Poulsen
Rb	=	D. Robel
Schi	=	P. Schiermacher & Hansen
Schr	=	M. Schroth et al.
Schw	=	A. Schwab et al.
SOF	=	Sveriges Ornitologiska Förening
SSHJ	=	H. Schöpf, A. Scheuerlein, C. Heber, W. Jetz
Sta	=	C. Stange
SU	=	Schmidtke & Utschick (1980)
SZ	=	v. Scharenburg, v. d. Zande et al.
TRHP	=	N. Tucker, D. Ridgley, S. & G. Holt & J. Parker
Vad	=	Vader (1965)
Wol	=	Wollin et al.
ZP	=	P. Zach & K.-H. Pöllet
Zw	=	Zwaaneveld
•	=	breeding confirmed

Species list

Geronticus eremita (Bald Ibis, Kelaynak)

An immature was seen on north side of Uludağ on 22.8.95 by Hadoran SHIRIHAI (Birding World 8, 1995: 335). This is the only Turkish Bald Ibis record outside the Euphrates region and the bird may belong to the captive breeding population.

Ciconia nigra (Black Stork, Kara Leylek)

Rare passage migrant in spring (20.3.83, Noe). Two records in May (12. and 21.5.93, SSHJ) could indicate breeding in the region.

Ciconia ciconia (White Stork, Leylek)

Irregular migrant. Although Uludağ lies on the migration corridor between the Bosphorus and Syria, most birds avoid the mountain when migrating rather than cross it. 60 circling at lower altitudes on 14.9.82 (TRHP) is the only record.

Pernis apivorus (Honey Buzzard, Arı Şahini)

Common migrant at both seasons. Spring migration is apparently stronger than autumn migration. The largest group was 38 soaring southwestwards along the lower slopes (800 m) in three separate flocks on 11.5.93 (SSHJ). Five other records from spring (latest on 1.6.74, Pa) and two from autumn, 1 on 30.9.73 (BR) and 5 on 22.9.92 (Kir).

Milvus migrans (Black Kite, Kara Çaylak)

Once at the western foot of the mountain: a soaring bird at 300 m on 12.5.93 (SSHJ).

Gypaetus barbatus (Lammergeier, Sakallı Akbaba)

Breeding in small numbers (1-3 pairs), probably in the eastern summit region (above 2000 m). More than 30 records, from most years, of up to 6 individuals, of all age groups (up to 2 juveniles) between May and October. Ge saw 1 adult and 5 immatures simultaneously in mid-July 1963 and reports altogether some 7 birds.

Numbers do not seem to have changed significantly since the 1960s, though since 1980 never more than 3 per day have been seen. Uludağ is probably the most important breeding ground for this species in West Anatolia.

Neophron percnopterus (Egyptian Vulture, Mısır Akbabası)

Irregular visitor to the alpine region from March to early June in flocks of up to 20 (7 records).

Gyps fulvus (Griffon Vulture, Kızıl Akbaba)

Regularly seen in small numbers above 1800 m between early April and early October. An immature on 28.6.76 (Schi) may perhaps indicate breeding in area.

Aegypius monachus (Black Vulture, Kara Akbaba)

Rare visitor: 2 in mid-July 1963 (Ge) and 2 on 17.9.74 (Je) are the only records.

Circaetus gallicus (Short-toed Eagle, Yılan Kartalı)

Rare migrant in spring and autumn. Six records of single individuals (22.3.83, Noe; 21.4.74, Ko; 13.5.90, KT; 13.9.71, Do; 14.9.82, TRHP; 18.9.80, Ho).

Circus aeruginosus (Marsh Harrier, Saz Delicesi)

Migrant, recorded only in autumn: singles on six occasions and one record of three (at 2200 m, Ob); all in the second half of September, at various altitudes.

Circus macrourus (Pallid Harrier, Bozkır Delicesi)

A male migrating at 1900 m on 19.9.95 (Ff) is the only record.

Circus pygargus (Montagu's Harrier, Çayır Delicesi)

Scarce migrant: 2 flying southeast on 6.9.71 and 1 single on 29.9.73 (BR).

Accipiter gentilis (Goshawk, Çakırkuşu)

Presumably a scarce breeding bird above 800 m. Many records of 1-2 birds during the breeding season and in September.

Accipiter nisus (Sparrowhawk, Atmaca)

Regularly recorded throughout the year. Apparently breeding in semi-open land below 1300 m. On 5.10.86 1, probably on migration at 1900 m (KK).

Accipiter brevipes (Levant Sparrowhawk, Yaz Atmacası)

1 on 5.9.71 (BR), 1 on 1.6.74 (Pa) and 6 on 22.9.92 (Kir), at unknown altitude are the only records.

Buteo buteo (Buzzard, Şahin)

Common resident on the lower slopes, but also occurs in open areas up to 1500 m. Surprisingly no observations between June and August. At least 1 on 4 out of 8 days in semi-open land at 800 m in mid-May 1993 (SSHJ).

Buteo rufinus (Long-legged Buzzard, Kızıl Şahin)

Only three records: 1 at 800 m on 13.5.93 (SSHJ), 1 at 2100 m on 21.7.93 (Bi) and 6 on 21.9.91 (Rob).

Aquila pomarina (Lesser Spotted Eagle, Küçük Bağırğan Kartal)

Scarce migrant. 2 on 15.4.90 (Kö) and single migrants on 17.9.74 (Je) and 17.9.93 (immature at 2000 m, Ff). One on 4.7.84 (Noe) may suggest breeding.

Aquila heliaca (Imperial Eagle, Şah Kartal)

Scarce visitor. According to BR present during the 1967 breeding season. Only two other records, probably relating to migrants: 1 on 22.9.80 (Ko) and an immature on 24.4.89 (BR).

Aquila chrysaetos (Golden Eagle, Kaya Kartalı)

Breeds in small numbers in the alpine zone. Recorded around the western edge of the summit; maximum 2 individuals.

Hieraetus pennatus (Booted Eagle, Küçük Kartal)

Rare migrant and possible breeder. Regularly seen in the Uludağ area from May onwards between 1970-73 (BR). Since the mid-1970s only 1 in April (19.4.90, Schw) and five records in September (maximum 3).

Falco naumanni (Lesser Kestrel, Küçük Kerkenez)

A scarce migrant in autumn. 3 on 22.9.80 (Ko), 1 on 17.9.93 (Ff). Interestingly WILLIS (1971) saw 3 above the treeline in early July.

Falco tinnunculus (Common Kestrel, Kerkenez)

Common breeder in the semi-open land below 800 m and again above 1900 m. Present until late September at least.

Falco vespertinus (Red-footed Falcon, Aladoğan)

Scarce migrant. 30 at 1250 m on 8.-9.7.66 suggests possible breeding (BR). Otherwise 2 on 21.6.62 (Va), 2 between the timber line and summit in early July (WILLIS 1971), 1 on 22.9.92 (Kir) and 6 on 2.10.77 (SZ) at unknown altitude.

Falco subbuteo (Hobby, Delice Doğan)

The only breeding season observations are a pair hunting at unknown altitude on 20.6.59 (Vad) and 1 on 1.6.74 (Pa). Five other records, of up to 3 migrants, between late September and early October.

Falco eleonorae (Eleonora's Falcon, Kara Doğan)

Sarce summer visitor. A dark phase male was collected at Uludağ on 15.7.1934 (v. JORDANS & STEINBACHER 1948). Three observations on 6.-7.6.1988: 1 at 1700 m (dark morph), 1 at 1400 m (pale morph) and 4 at 500 m (GN). Inland records are not unusual, especially as Uludağ is close to the Sea of Marmara, from where a small breeding colony is known (KASPAREK & RISTOW 1986).

Falco biarmicus (Lanner, Bıyıklı Doğan)

Status uncertain, could perhaps breed. Two records in July 1966/67 have since been considered unacceptable (BR). WILLIS (1971) saw 3 above the timber line in July. Other records include 2 at the wolfram mine (2200 m) on 16.9.88 (Schr) and 1 near Oteller on 18.9.92 (Sta). Possibly an overlooked breeding species in the alpine zone. No descriptions are available.

Falco cherrug (Saker, Uludoğan)

Very scarce visitor. One at unknown altitude on 20.8.75 (BR) and Rb reported one near the wolfram mine on 21.9.91.

Falco peregrinus (Peregrine, Doğan)

Probable breeder. Up to 4 birds in August 1973 (BR), one on 26.5.77, two on 13.5.78 (BEAMAN 1986) and 2 on rocks close to Kırazlı at 1600 m on 19.4.90 (Schw). In addition several observations of up to three in September and October.

Alectoris chukar (Chukar, Keklik)

Only three records, all in September: a flock of 15 on 12.9.75 (BR), 12 on 18.9.92 (Sta), both at unknown sites, and 40 on 16.9.94 (Ff) in the open alpine scrub at 2000 m.

Coturnix coturnix (Quail, Bildircin)

Possible breeder in the alpine meadows and scrubs; one calling on 18.6.67 and another observation during the breeding season in the 1970s (BR). No records since.

Phasianus colchicus (Pheasant, Sülün)

SCHWEIGER (1965) observed a female in oak maquis above Inkaya in 1958. No records since (see KASPAREK 1988).

Charadrius morinellus (Dotterel, Dağ Cılıbtı)

A flock of 3 on 16.9.75 (BR) is the only record. The altitude is unknown; presumably they were migrants in the alpine meadows.

Scolopax rusticola (Woodcock, Çulluk)

Rare, probably often overlooked migrant: one record of 1 on 7.4.85 (MARTINS 1989).

Columba livia (Rock Dove, Kaya Güvercini)

Recorded below 300 m.

Columba palumbus (Wood Pigeon, Tahtalı)

Common breeding bird in deciduous forests up to 1700 m. During migration flocks of up to several hundred recorded in both spring and autumn.

Streptopelia decaocto (Collared Dove, Kumru)

Breeds at the foot of Uludağ, in Bursa and many surrounding villages. Absent from Oteller (Uludag village).

Streptopelia turtur (Turtle Dove, Üveyik)

Common breeding bird in deciduous forests and semi-open land up to 1500 m.

Clamator glandarius (Great Spotted Cuckoo, Tepeli Guguk)

Very rare migrant: 2 on 15.4.90 (Kö) at unknown altitude is the only record.

Cuculus canorus (Cuckoo, Guguk Kuşu)

Common in semi-open land.

Bubo bubo (Eagle Owl, Puhu Kuşu)

Schr heard 1 at unknown altitude on 16.9.88. The species may breed, although there are no other records

Athene noctua (Little Owl, Baykuş)

Several records from the lower slopes of the mountain indicate probable breeding.

Strix aluco (Tawny Owl, Alaca Baykuş)

Uncommon breeding resident probably in all forest areas. Highest: one at 1850 m on 30.5.66 (BR).

Asio otus (Long-eared Owl, Kulaklı Baykuş)

Potential breeding bird, although there is only one record of 3 individuals on 16.9.69 (BR, AB) at unknown altitude.

Aegolius funereus (Tengmalm's Owl, Paçalı Baykuş)

MERTENS (1981) reported a singing male and another individual, presumably a pair on territory on 15.6.79. The locality was a clearing in Ancient Fir woodland interspersed with Black Pine, Poplar and Orient Beech at 1700 m. Uludağ is one of the four sites in Turkey, where Tengmalm's Owl has been recorded, though it may be widespread in the montane forests throughout northern Turkey (see KIRWAN 1995 for overview).

Caprimulgus europaeus (Nightjar, Çobanaldatan)

Scarce migrant with several records in September in the 1960s and 1970s up to 1400 m (BR).

Apus apus (Common Swift, Karasağan) •

Breeder at two localities: several colonies on the lower slopes by Bursa (< 500 m) and others at the hotels above 1900 m. The first record was in 1967 (BR); up to 200 birds have been seen breeding under the roofs of the hotels together with House Martin and Pallid Swift. Latest 5 on 21.9.91 (Rb).

Apus pallidus (Pallid Swift, Külrengi Sağan) •

Since 1967 25-40 have been regularly seen entering roofs together with Common Swift at Oteller (1850 m) and also at "station de Kirazli Yayla". The latter location probably refers to Sarialan (GEROUDET 1973). Maximum breeding season count is c. 50 on 29.5.1986 (MARTINS 1989).

Recorded in higher numbers after the breeding season, till October: Maximum 150 on 21.9.87 (SOF) and still 50 on 2.10.77 (SZ). In autumn birds were seen roosting under roofs.

Uludağ is the only regularly occupied breeding colony in Turkey currently known. The unusually high altitude is noteworthy.

Apus melba (Alpine Swift, Akkarınlı Sağan)

Status unclear. There are several records from the breeding season at unknown altitude. Higher numbers in autumn.

Merops apiaster (European Bee-eater, Arıkuşu)

Migrant in spring and autumn. Up to 5 in April/May, commoner in August and September, at altitudes of up to 1100 m. Peak numbers recorded in late September: at least 20 were reported on most dates, maximum 100 on 16.9.88 (Schr).

Coracias garrulus (Roller, Gökkuşgun)

Scarce migrant to agricultural areas at lower altitudes, perhaps occasionally breeding (3 records from May, June and September).

Upupa epops (Hoopoe, İbibik)

Breeds in semi-open land below 1400 m. One of the common species in the farmed land around 800 m. Single observation of one in early May at 1350 m (BR).

Jynx torquilla (Wryneck, Boyunçeviren)

Uncommon migrant that may breed. Observations of up to 2 calling individuals on 7 of 8 days in mid-May 1993 (latest on 23.5., SSHJ) and 1 on 24.5.90 (SOF) probably indicate breeding in agricultural land at 800 m, as the end of the migration period is thought to lie between 20th and 30th of May and the median on 15/16th of April (KASPAREK 1989). Surprisingly there are only a few additional records: present on 18.6.87 and on 24.5.90 (unknown altitude, BR).

Breeding at Uludağ would extend the known breeding range in Turkey westwards (KASPAREK 1989).

Picus viridis (Green Woodpecker, Yeşil Ağaçkakan)

Breeding resident. Uncommon, but widespread in deciduous forest at mid altitude. Recorded throughout the period March to November.

Dryocopus martius (Black Woodpecker, Kara Ağaçkakan)

Scarce breeding resident. Restricted to the closed, mainly coniferous forests between 1300 m and the tree line. Regularly 1 or 2 birds in May and June; also recorded in September.

Dendrocopos major (Great Spotted Woodpecker, Dağ Ağaçkakan) •

Uncommon resident. Breeding was confirmed in coniferous forests at 1400 m on 7.6.88 (GN). Several other records in summer until mid-September. Occasionally at low altitudes: 3 on 28.6.76 (Schi). Maximum 10 on 18.9.80 (Ho).

Dendrocopos syriacus (Syrian Woodpecker, Alaca Ağaçkakan) •

Breeding resident at low altitudes, with several records of confirmed nesting.

Dendrocopos medius (Middle Spotted Woodpecker, Albaşlı Ağaçkakan)

Apparently a breeding resident at lower altitudes, although there are only two records: one seen twice in semi-open land at 800 m in May 1993 (SSHJ) and one at unknown locality on 1.7.81 (Pou).

Dendrocopus minor (Lesser Spotted Woodpecker, Küçük Alaca Ağaçkakan)

Three breeding season records below 1200 m suggest nesting.

Calandrella brachydactyla (Short-toed Lark, Bozkır Toygarı)

Two above 2000 m on 21.9.87 (SOF) is the only record.

Melanocorypha calandra (Calandra Lark, Boğmaklı Toygar)

One observation of 6 on 2.10.77 (SZ) at an unknown locality in the "Uludağ area", was probably around the foot of the mountain and not "Uludağ" as defined here.

Eremophila alpestris (Shore Lark, Kulaklı Toygar) •

Common breeding bird in the open alpine shrub above the tree line, where it is a characteristic species together with Water Pipit and Wheatear. Regularly recorded from mid-March to early October with at least 10 to 20 singing individuals from May to July. On 18.5.93 two were counted on about 15 ha of typical alpine coverage at 1900 m (SSHJ). Breeding was confirmed by a nest with 4 broken eggs on 20.6.59 (Vad) and a pair with 4 young on 1.7.81 (Pou). In spring a flock of 50 on 17.4.92 and from August to October groups of up to 80, once c. 150 on 22./23.9.80 (Ko).

Lullula arborea (Woodlark, Orman Toygarı) •

Breeds in moderate numbers in the semi-open to open, farmed areas on the lower slopes as well as just above the timberline. Breeding confirmed on 17.5.69, when one was seen with nesting material at 1900 m (BR). Common until at least mid-September.

Alauda arvensis (Skylark, Tarlakuşu)

Very rare migrant: one on 16.9.88 (Schr) is the only record.

Riparia riparia (Sand Martin, Kum Kırlangıcı)

Scarce migrant in spring and autumn: 50 over the alpine meadows on 17.5.69 (BR) and three records of small flocks in mid-September.

Ptyonoprogne rupestris (Crag Martin, Kaya Kırlangıcı)

Regularly seen in moderate numbers from mid-May to early October. Usually above 1500 m, but also around 500 m. May breed in both zones. 15 at the summit of Uludağ at 2400 m on 21.9.90 (OK). Numbers are higher in autumn with a maximum of 40 on 24.9.87 (SOF). Latest 25 at 1500 m on 4.10.86 (KK).

Hirundo rustica (Swallow, Kirlangiç)

Breeds in settlements at low to mid altitudes. Maximum 300 on migration in September (22.9.80, Ko).

Hirundo daurica (Red-rumped Swallow, Kızıl Kirlangiç)

Breeding species confined to semi-open agricultural areas on the lower slopes, but in autumn once recorded at 1700 m (2 on 17.9.93, Ff). Latest two on 23.9.80 (Ko).

Delichon urbica (House Martin, Ev Kirlangiç) •

Breeds in two distinct areas: in the city of Bursa and other settlements on the lower slopes of the mountain, and in the alpine region. At Oteller, House Martins nest together with Swifts and Pallid Swifts under the eaves of the winter sport hotels and at even higher altitudes at the wolfram mine facilities (on 21.7.93 c. 100 individuals there, Bi). Maximum 150 around Uludağ hotel village on 18.5.93 (SSHJ).

Anthus trivialis (Tree Pipit, Ağaç İncirkuşu)

Breeding migrant. Although numbers are small, the Tree Pipit is a characteristic bird in the transition zone from alpine forest to open alpine scrub (1900 m). Earliest two on 17.4.92 (Gat) and latest one on 17.9.93 (Ff).

Anthus pratensis (Meadow Pipit, Çay İncirkuşu)

Regular migrant in small numbers (up to 5). Records in April/May and September. Three on 14.6.81 (GH) indicate over-summering.

Anthus cervinus (Red-throated Pipit, Kızılgardan İncirkuşu)

Two records in autumn: two on 22./23.9.80 (Ko) and one adult on 16.9.94 (Ff).

Anthus spinoletta (Water Pipit, Su İncirkuşu) •

Most common breeding species in open alpine scrub and meadows above 1900 m. Observations from late March to late October. During breeding season (May to July) maximum numbers of 50. A survey of about 15 ha with typical vegetation on 18.5.93 yielded 19 individuals (SSHJ). Already on 17.4.92 50 in the alpine region. In autumn considerable numbers reported (maximum 250, 5.9.71, BR).

Motacilla flava (Yellow Wagtail, Karabaş Kuyruksallayan)

Uncommon migrant in spring and autumn: two on 16.9.94 (Ff), one on 17.4.92 (Gat) and 20 on 22./23.9.80 (Ko).

Motacilla cinerea (Grey Wagtail, Dağ Kuyruksallayan)

Scarce breeding bird in semi-open land up to the tree line. Latest one on 12.11.89 at 500 m (JAR).

Motacilla alba (White Wagtail, Ak Kuyruksallayan)

Breeding resident in semi-open habitats, but also above the treeline. Less reliant on the presence of water than Grey Wagtail. 20 on passage on 17.4.92 (Gat).

Cinclus cinclus (Dipper, Derekuşu)

Presumably breeds, although there is only one breeding season record: 1 at a small stream below the road at 800 m on 14.5.93 (SSHJ). Four other records from autumn at unknown altitudes.

Troglodytes troglodytes (Wren, Çitkuşu)

Common breeding resident in forest and semi-open country, from the foot of the mountain to the treeline. Most common in deciduous forests and forest edges at about 800 m.

Prunella collaris (Alpine Accentor, Büyük Dağ Bülbülü) •

Uncommon breeding bird in the alpine meadows and scrub above 1900 m. Recorded from May to September, with at least 3 pairs singing and displaying during breeding season. Maximum 30 on 27.8.70 (BR). Breeding confirmed on 28.6.76, when a bird was seen building a nest near the summit (Schi).

Prunella modularis (Dunnock, Çit Serçesi)

Common breeder throughout all forests, from the lower slopes to the tree line and also in the alpine scrub where it is less common but still regular. Latest one at 1900 m on 5.10.86 (KK).

Erithacus rubecela (Robin, Kızılgerdan)

Abundant breeding species. Together with Chaffinch and Coal Tit, the Robin was the most often recorded bird during breeding season 1993 with seemingly no preference for certain altitudes and/or forest types. Found from the foot of Uludağ to the timberline, apparently commonest in semi-open deciduous forest at 900 m and in Ancient Fir forest at 1600 m.

Luscinia luscinia (Thrush Nightingale, Benekli Bülbül)

One in the "Uludağ area" from 5.-7.9.1986 (MARTINS 1989) is the only record.

Luscinia megarhynchos (Nightingale, Bülbül)

One of the most common breeding birds in the semi-open, partly farmed land on the lower slopes of the mountain. No records at higher altitudes.

Phoenicurus ochruros (Black Redstart, Dağ Kızılkuyruğu) •

A characteristic bird of the alpine scrub interspersed with rocks above 1800 m as well as around the ski hotels which serve as artificial habitats. Recorded between early May and early October. Fledged young seen from early July to August, e.g. an adult feeding young at 2200 m and a pair carrying food at c. 2000 m on 21.7.93 (Bi). On 14.9.82 and on 21.9.87 2 birds of the eastern nominate subspecies *P. o. ochruros* were observed (TRHP, SOF).

Phoenicurus phoenicurus (Redstart, Kızılkuyruk)

Several observations of singing males in May and June indicate probable breeding: on the edge of Black Pine forests at about 1100 m, in semi-open land at lower altitudes and in Ancient Fir woods at 1800 m. Up to 5 during autumn migration in September.

Saxicola rubetra (Whinchat, Çayır Taşkuşu)

Common migrant, occasionally recorded singing until end of May. Up to 20 on autumn passage (22./23.9.80, Ko).

Saxicola torquata (Stonechat, Taşkuşu) •

Common breeder in open to semi-open bush and grassland. At Uludağ confined to three separate areas: alpine shrubs above 1800 m, cultivated land below 1100 m and Mediterranean scrub below 500 m. The beginning of the breeding season seems to differ from the bottom to the top of the mountain by about one month: at 800 m, two were seen building a nest on 17.4.92 (Gat) and two nests with small young were found in mid-May 93 (when there is still much snow in the alpine region). Above the tree line, the first fully-fledged young were seen late June. Adults feeding fledged young still on 12.8.63 (Bz) and 18.8.77 (SU).

It is unknown whether birds from the lower slopes move up to the alpine shrub after the breeding season. In the alpine zone, latest in late-September.

The population at Uludağ belongs to the Central European subspecies, *rubicola*, conclusively proved by sequencing mitochondrial DNA (P. HEIDRICH, pers. com.).

Oenanthe oenanthe (Wheatear, Kuyrukkakan)

Common breeder. Like the Stonechat found in open land on the lower slopes as well as in the alpine scrub up to 2400 m. Confined to low vegetation interspersed

with rocks. Breeding seems to be late: three fledged young were seen on 12.8.63 (Bz).

In spring, maximum 20 on 17.4.92 (Gat), in autumn 25 (some of them singing) on 22./23.9.80 (Ko).

Oenanthe hispanica (Black-eared Wheatear, Karakulaklı Kuyrukkakan)

Scarce visitor, perhaps breeding in small numbers. Recorded as follows: a male on 19.4.90 by Kirazlı Yayla at 1600 m (Schw), present on 17.5.69 at 2200 m (BR) and on 2.6.74 at unknown altitude (Pa), as well as 18 on 1.7.81 (Pou) and 1 on 22.9.92 (Kir).

Oenanthe isabellina (Isabelline Wheatear, Boz Kuyrukkakan)

Occasional visitor. 3 migrants on alpine meadows on 17.9.93 (Ff) is the only record.

Monticola saxatilis (Rock Thrush, Kaya Ardıcı)

A regular but not common breeder in the rocky areas in the alpine scrub above 1900 m. At least 5 pairs have been recorded. Once heard imitating Rosefinch. In autumn up to 20 (16.9.94, Ff). Latest on 22./23.9.80 (Ko).

Monticola solitarius (Blue Rock Thrush, Gökçe Kaya Ardıcı)

Probably breeds. Several records of small numbers in the alpine region between April and October. Also found at small rocky outcrops at 1600 m (two males and a female east of Kirazlı on 19.4.90, Schw).

Turdus torquatus alpestris (Ring Ouzel, Dağ Ardıcı)

Uncommon breeder around the timberline. Migrants recorded in autumn at lower altitudes. The subspecies is *alpestris*; *amicorum* being known in Turkey only from the east.

Turdus merula (Blackbird, Karatavuk)

Abundant resident in virtually all types of bushland and forests, from the Mediterranean scrub at the base, to the timberline, where it overlaps with the Ring Ouzel. In semi-open agricultural land around 800 m it was the most frequently seen bird in mid-May 1993, constituting 6% of all observations (n = 530) and 9% of all birds seen (n = 891, see list). Winter distribution unknown.

Turdus phillomelos (Song Thrush, Öter Ardiç) •

Common breeder. Distribution probably similar to Blackbird, but apparently confined to more enclosed forest below the treeline. Breeding was confirmed by an adult feeding newly fledged young on 6.6.93 (Bi).

Turdus viscivorus (Mistle Thrush, Ökse Ardıcı)

Uncommon breeder. Regular in small numbers during the breeding season, from about 1000 m to the timberline and apparently also in the semi-open agricultural land at 800 m. Recorded from late March until early October. Maximum 65, during autumn migration, on 21. and 24.9.87 (SOF).

Hippolais pallida (Olivaceous Warbler, Ak Mukallit)

Breeding migrant. Occurs in the Mediterranean scrub around 350 m.

Hippolais icterina (Icterine Warbler, Sarı Mukallit)

Rare passage migrant. Two on 11.9.83 (MARTINS 1989) is the only record.

Sylvia cantillans (Subalpine Warbler, Bıyıklı Ötleğen)

Breeding migrant. Occurs in the Mediterranean scrub around 350 m.

Sylvia melanocephala (Sardinian Warbler, Maskeli Ötleğen)

Common breeder in the Mediterranean scrub below 500 m.

Sylvia curruca (Lesser Whitethroat, Küçük Akgerdan)

Breeds in semi-open bushland below 900 m. Latest 1 at 1700 m on 17.9.93 (Ff). Not recorded in the alpine zone.

Sylvia communis (Whitethroat, Akgerdan)

Breeding in the semi-open bushland below 900 m. Distribution similar to Lesser Whitethroat, but apparently more common in the bushland around 800 m. A female at 1850 m on 21.7.93 (Bi).

Sylvia borin (Garden Warbler, Bahçe Ötleğeni)

Scarce spring and autumn migrant at low altitudes. 3 singing on 31.5.66 (BR) may indicate breeding. Breeding status in Turkey remains insufficiently known (KASPAREK 1992).

Sylvia atricapilla (Blackcap, Karabaşlı Ötleğen)

Breeding migrant up to 900 m. The Blackcap is one of the most common species in the semi-open land around 800 m. Uludağ is an outpost of the distribution in Anatolia (KASPAREK 1990).

Phylloscopus bonelli (Bonelli's Warbler, Boz Söğüt Bülbülü)

Apparently breeds. SCHWEIGER (1965) heard and observed the species several times above Çekirgeköy in May (1958, 1961 and 1964) and June (1959 and 1964).

Davidse saw one on 24.7.89 at unknown altitude. Otherwise only recorded during autumn migration: one each on 19.9.77 and on 2.9.79 (BEAMAN 1986).

Phylloscopus sibilatrix (Wood Warbler, Orman Söğüt Bülbülü)

Scarce migrant in spring and autumn. Two on 7.5.79, one on 16.9.78 (BEAMAN 1986) and several on 22./23.9.80 (Ko) are the only records.

Phylloscopus collybita (Chiffchaff, Söğüt Bülbülü)

Abundant breeding species in all types of forest and semi-open land at 800 m where it was found to be one of the three predominant species. Around the tree line, recorded singing from mid-May, but in 1992 when snow was still lying at mid altitudes none were recorded above 1500 m. Common autumn migrant with up to several hundreds per day. Rb reported one of the eastern race *fulvescens* on 21.9.91 near Teleferik.

The breeding population belongs to the subspecies *brevirostris*, first described by STRICKLAND (1836) who collected a specimen at Uludağ. *Brevirostris* was said to be endemic to this area. Despite discussion of the validity of this subspecies it was recently confirmed by DNA sequencing (HELBIG et al. 1996). Phenologically it is only slightly different from the nominate form, although the call is unique to *brevirostris* and the easterly subspecies *caucasicus*. Genetically *brevirostris* was found to be very close to *caucasicus*, sharing nearly identical DNA sequences. The differentiation between *brevirostris* and *caucasicus* is rather questionable. They were both revealed to be more closely related to the eastern form *abietinus* form rather than to nominate *collybita*.

Phylloscopus trochilus (Willow Warbler, Göçmen Söğüt Bülbülü)

Regular migrant, particularly between mid August and late September: more than 500 recorded on several occasions and Do estimated some 10,000 (!) on 28.8.71. The peak of autumn migration at Uludağ appears to be around late-August and early September.

Regulus regulus (Goldcrest, Çalığışu)

Common breeding bird confined to the coniferous forest, principally above 1200 m. In mid-May 1992 30 individuals were counted adjacent to selected stretches of the road between Bursa and Uludağ. Also found in coniferous forest plantations at lower altitudes. In autumn flocks of up to 30. Winter status unknown.

Regulus ignicapillus (Firecrest, Sürmeli Çalığışu)

Breeding species. During the breeding season found in slightly smaller numbers than the previous species, but more confined to deciduous forest at lower altitudes. In mid-May 1992 18 individuals were counted on the (only partly surveyed)

altitudinal gradient along and next to the road from Bursa to Uludag village. Winter status unknown.

Muscicapa striata (Spotted Flycatcher, Benekli Sinekkapan)

May breed below 800 m. SCHWEIGER (1965) found the species during the breeding season at Inkaya and from there to the timber line. Regular migrant; up to 50 have been recorded in autumn, mainly in mid-September. Latest one at 1500 m on 4.10.86.

Ficedula parva (Red-breasted Flycatcher, Küçük Sinekkapan)

Uncommon migrant and possibly a scarce breeding bird: GN heard a singing male in the Black Pine - Ancient Fir forest at 1400 m on 6.-7.6.88. Although this is the only breeding season record, it could indicate nesting. Four September records from autumn migration: some on 19.9.77, one on 15.9.79 (BEAMAN 1986), two on 16.9.94 (Ff) and one on 21.9.90 (Br).

Ficedula albicollis (Collared Flycatcher, Yakalı Sinekkapan)

Several records of migrants in spring (23.4.65, Wol) and autumn (several records in mid-September). A juvenile was collected near Sogukpinar during the breeding season (10.6.34, v. JORDANS & STEINBACHER 1948), indicating local breeding. Some records may refer to Semi-Collared Flycatcher.

Ficedula semitorquata (Semi-Collared Flycatcher, Alaca Sinekkapan)

A male on 14.9.79 (BEAMAN 1986) and one on 22.9.92 (Kir) are the only records. The observation of 7 Semi-Collared Flycatchers on 20.8.75 may also refer to Collared Flycatcher (BR). See also Collared Flycatcher.

Ficedula hypoleuca (Pied Flycatcher, Kara Sinekkapan)

Rare migrant at both seasons. 1 on 23.4.65 (Wol), 2 on 16.9.94 and 1 on 17.9.93 (Ff) are the only records.

Aegithalos caudatus (Long-tailed Tit, Uzun Kuyruklu Baştankara)

Rare visitor in spring and autumn (mid-September to early October) apparently without breeding.

Parus palustris (Marsh Tit, Söğüt Baştankarası)

One on 16.9.78 (BEAMAN 1986) is the only record.

Parus lugubris (Sombre Tit, Anadolu Baştankarası)

Single records in April, June and July at lower altitudes indicate breeding in small numbers. In autumn twice seen in September and October.

Parus ater (Coal Tit, Çam Baştankarası) •

Common resident, mainly confined to pine, but found in all forests along the road from Bursa to the summit. In mid May 1992 123 were counted along selected stretches of the road. Together with Chaffinch it is the most frequent forest species above 900 m. In autumn hundreds have been noted. Winter distribution unknown.

Parus caeruleus (Blue Tit, Gök Baştankara)

Uncommon breeder, apparently only below 1000 m, usually in semi-open woodland. Range extends up to the treeline in autumn.

Parus major (Great Tit, Büyük Baştankara) •

Abundant resident at low to mid altitudes. Recorded in small numbers almost to the tree line. In autumn congregations of up to 100 (Do).

Sitta krueperi (Krüper's Nuthatch, Küçük Sivacıküşu) •

Breeds in moderate numbers (up to 8 recorded on one day in the breeding season). Krüper's Nuthatch inhabits closed forests with coniferous trees from 900 m to the timber line, where it is sometimes seen even on solitary trees in the krummholz. Found in all months from April to October. VIELLIARD (1968) saw 15 on 28.1967. Breeding confirmed by an active nest on 27.5.76 (Kie).

Sitta europaea (Nuthatch, Sivacıküşu)

A few breeding season records from the open woodland below 900 m.

Sitta neumayer (Rock Nuthatch, Kaya Sivacıküşu) •

Uncommon breeding bird in rocky areas above 1000 m, where Ko found a nest on 21.4.74. Another pair with a nest was found at 1600 m next to Kirazli. Few other breeding season records, and just two, of several individuals, at higher altitudes.

Certhia familiaris (Trecreeper, Orman Tırmaşıküşu)

Status uncertain. One on 7.5.79 (BEAMAN 1986) may indicate breeding. Several records of single birds in September and October and November.

Certhia brachydactyla (Short-toed Trecreeper, Bahçe Tırmaşıküşu)

Regular breeding resident in coniferous and mixed forests from 800 m to the timberline. Recorded between early April (10 on 12.4.92, Gat) and late September.

Oriolus oriolus (Golden Oriole, Sanasma)

Migrant breeder. A few pairs nest in semi-open areas with Poplar Trees at 800 m. Breeds in oaks up to 1100 m according to SCHWEIGER (1965).

Lanius collurio (Red-backed Shrike, Örümcekkuşu)

Common migrant which apparently breeds in semi-open bushland and Mediterranean scrub below 900 m. In mid-May 1993 a strong migration was recorded, in possible breeding habitat as well at very high altitudes: On 11.5. 18 around 400 m (Mediterranean scrub), 2 at 800 m (bushland), 25, together with 2 Lesser Grey Shrikes, on about 1 ha at a forest clearing at 1400 m (where there was still 50% snow coverage), 5 next to the road through the forest up to and 10 even around Uludag village at 1800 m (SSHJ). None present above 800 m 7 days later. Three records from autumn migration with a maximum 10 on 16.9.94 (Ff).

Lanius minor (Lesser Shrike, Kara Alınlı Örümcekkuşu)

Very rare spring migrant. 2, with several Red-backed Shrikes, at a forest clearing at 1400 m on 11.5.93 (SSHJ).

Lanius senator (Woodchat Shrike, Kızılbaşlı Örümcekkuşu)

Scarce migrant. Two records (probably the same individual) on 12.-13.5.1993 (SSHJ).

Lanius nubicus (Masked Shrike, Maskeli Örümcekkuşu)

Occasional migrant. 4 between Sogukpınar and Orhaneli on 14.6.81 (GH) is the only record.

Garrulus glandarius (Jay, Alakarga)

Breeds at almost all altitudes. In mid-May 1993 20 along parts of the road in the whole altitudinal range almost up to the timberline. In autumn concentrations of up to 40 (18.1.80, Ho) and 3 at 1900 m on 5.10.86 (KK).

Pica pica (Magpie, Saksığan)

Four records, probably all from the lower slopes: 17.4.92 (Gat), 28.6.82 (Ki), 18.9.92 (Sta) and 22./23.9.80 (Ko).

Pyrrhocorax pyrrhocorax (Chough, Kızılgagalı Dağ Kargası)

The summit of Uludag is possibly the most western locality in Turkey; maximum >50 on 21.6.59 (Vad). SCHWEIGER (1965) called it "more or less frequent" in the years 1959-1965. However there are no records since 1973.

Pyrrhocorax graculus (Alpine Chough, Sarıgagalı Dağ Kargası)

Bred in the alpine region in the past, principally above 2200 m. VADER found them common in mid-June 1959, later up to 10 were seen during the breeding season (1969, BR) and once 70, in September 1968 (BR). Astonishingly there are only two

autumn records since 1973: a few near the summit on 21.9.90 (OK) and 2 on 21.9.90 (Br).

Corvus monedula (Jackdaw, Küçük Karga)

Several records of up to 10 at low altitudes especially in autumn. In mid-May 1993 some close to Bursa at 350 m (SSHJ). In Bursa, 4,500-5,000 coming into roost in park opposite stadium on 20.9.92 (Kir).

Corvus corone cornix (Hooded Crow, Leş Kargası)

Up to 50 regularly recorded around Uludağ village at 1900 m and near Bursa. Recorded between March and October.

Corvus corax (Raven, Kuzgun)

Regularly recorded in the alpine region above the tree line, occasionally in large numbers. Flocks of over 20 seen in all months from March to October, with maxima of 108 on 18.5.69 and 150 on 16.8.75 (BR).

Sturnus vulgaris (Starling, Sığırcık)

Breeding bird at the foot of the mountain near Bursa.

Passer domesticus (House Sparrow, Serçe)

Common at the foot of the mountain near Bursa. No records from Uludağ hotel village (1900 m).

Passer hispaniolensis (Spanish Sparrow, Söğüt Serçesi)

Migrant in spring: two at 1700 m on 19.4.90 (Schw) is the only record.

Fringilla coelebs (Chaffinch, İspinoz)

Abundant breeder in all forest types to the treeline. Next to parts of the road from Bursa to Uludağ hotel village at 1900 m (see "Altitudinal Zonation") 214 individuals were counted in mid-May 1993, of which 140 were singing males. The highest breeding density is reached in the Black Pine - Ancient Fir forest around 1100-1400 m. From July on flocks of up to 50 occur, especially at higher altitudes.

Fringilla montifringilla (Brambling, Dağ İspinozu)

Three spring observations: one at 1000 m on 30.3.72 (BR), common on 1.4.78 (BEAMAN 1986) and at least 20 on 3.4.90 (Jas).

***Serinus pusillus* (Red-fronted Serin, Kara Kanarya) •**

Common breeder around the timber line and in alpine scrub. Despite many visits by birdwatchers in previous years, the first sighting was several birds including a pair by Ge on 15.7.63 at 2000 m (KUMERLOEVE 1966). This was 580 km northwest of the known breeding population in the Taurus. As it is unlikely that the species had been overlooked in previous years, the Red-fronted Serin seems to have spread west since the 1940s/1950s. Uludağ is the most westerly (and isolated) outpost for this species.

Red-fronted Serins are easy to find, even next to the hotel village. From July onwards they tend to gather to large flocks, sometimes associating with other Fringillidae. More than 20 in autumn quite frequently. Maximum of 160 in the summit area on 6.9.71 (BR), probably consisting of local breeding birds. Earliest: 10 on 17.4.92 (Gat).

***Serinus serinus* (Serin, Kanarya)**

Common breeder, frequently found in coniferous woods from 900 m to the timberline. Above 1600 m apparently in smaller numbers. Prior to and after the breeding season in flocks: once 20 on 17.4.92 (Gat) and 50 on 22.9.80 (Ko).

***Carduelis chloris* (Greenfinch, Florya)**

Uncommon breeding bird from semi-open bushland at 800 m to the tree line. In autumn only in small numbers of up to 10.

***Carduelis carduelis* (Goldfinch, Saka)**

Uncommon breeding bird in open bushland below 900 m. Two at 1900 m on 18.5.93 were probably non-breeding birds. In autumn occasionally in larger flocks.

***Carduelis spinus* (Siskin, İskete)**

A few breed from 800 m upwards; probably often overlooked. From July onwards flocks can be observed: 60 on 9.7.66 (BR), about 100 from 15.-24.9.78 (BEAMAN 1986), c. 100 on 25.9.92 (Zw) and 150 on 12.11.89 (BR). Once seen together with Serin in the alpine scrub.

***Carduelis cannabina* (Linnet, Keten Kuşu) •**

Breeding resident in the alpine region. Breeding confirmed by a male feeding two young on 21.7.93 around 1900 m (Bi). In autumn also forms small flocks on the lower slopes.

Loxia recurvirostra (Crossbill, Çaprazgaga)

Common, but irregular, in coniferous wood from 800 m to the tree line, from early May until late September. Flocks of 10 to 40 constitute half the records.

Carpodacus erythrinus kubanensis (Common Rosefinch, Alamecek) •

Migrant breeder. Uludağ seems to have been colonised in the 1940s or 1950s. KOSSWIG (between 1954 and 1956) first reported the species' occurrence. Later KUMERLOEVE found singing males around the timberline (25.6.1962), as did GEROUDET in July 1963 (KUMERLOEVE 1962). In 1966 6 singing males were reported (BR) at unknown altitude and PANS (1974) found them breeding around 2000 m on 31.5.74. SCHENK counted 20 at Uludağ on 28.5.86.

In May 1993, the species was found to be common: males were singing from 400 m to forest clearings at 1400 m, but were especially abundant in the semi-open, partly agriculturally-used bushland between 700 m and 900 m. In an area of about 2 x 3 km more than 15 singing males were counted: the Common Rosefinch has become one of the dominant species in this habitat. In mid-May 1993 Rosefinches could not be found around the tree line as reported in previous years and this area seems to be less frequently inhabited than reported previously.

The Common Rosefinch has apparently spread from West Anatolia (subspecies *kubanensis*) showing the species' strong westwards expansion in Turkey. Bioacoustic, biometrical and mitochondrial DNA investigations showed that Uludağ apparently represents a bridgehead for immigration to Europe. South German birds are similar to *kubanensis* birds from Uludağ. Scattered populations in the Balkans suggest interbreeding between *kubanensis* and the nominate subspecies *erythrinus*, probably further east (HELB et al. 1995). In this study (1993) many males were colour-banded and the author would be very grateful for reports of any sightings.

Earliest on 11.5.93 (SSHJ), latest a male on 21.7.93 at the treeline (Bil).

Pyrrhula pyrrhula (Bullfinch, Şakrakuşu)

Breeding resident in small numbers, but often overlooked. Inhabits coniferous forests above 900 m. Occasionally flocks of several dozen in the alpine region from July onwards, sometimes together with other Fringillidae. Many records in September.

Coccothraustes coccothraustes (Hawfinch, Kocabaş)

Status unclear, may breed. Only observed during the breeding season on three occasions (early April and mid-May around 1300 m), but possibly overlooked. Two on 1.9.79, two on 15.9.79, about eight on 20.9.81 (Beaman 1986) and one on 18.9.92 (Sta). Three near Bursa on 25.7.89 (Dav).

Emberiza citrinella (Yellowhammer, San Kirazkuşu)

One on 7.4.85 (MARTINS 1989) is the only record.

Emberiza cirlus (Cirl Bunting, Halkalı Kirazkuşu)

Common breeder in semi-open country below 900 m.

Emberiza cia (Rock Bunting, Kaya Kirazkuşu) •

Common breeder in semi-open areas below 1200 m, as well more rarely in the open rocky alpine region.

Emberiza hortulana (Ortolan Bunting, Kirazkuşu)

Common breeding bird. Singing males and pairs occur frequently in the agricultural areas below 1200 m, apparently down to the Mediterranean maquis.

Emberiza melanocephala (Black headed Bunting, Karabaş Kirazkuşu)

A flock of 30 probably on passage next to Doğancı (400 m) on 12.5.93. Possibly resident in the lowlands.

Miliaria calandra (Corn Bunting, Tarla Kirazkuşu)

Common breeder in agricultural areas around 800 m.

Özet (Turkish summary)

Uludağ, Marmara Denizi' nin yaklaşık 20 km. doğusunda 40 km. uzunluğunda 20 km. eninde oldukça izole bir dağ masifidir. 2543 m. yüksekliğiyle Marmara Bölgesi'nin en yüksek dağdır. Uludağ'ın, çok yakında yer alan Bursa şehriyle birlikte antik çağdan bu yana çok yönlü bir tarihcesi vardır.

Bugün ise Uludağ ünlü bir kış sporları merkezi ve dinlenme bölgesidir. Ayrıca volfram madeni çıkarılmaktadır. 11338 ha. alan milli park olarak koruma altına alınmıştır. Bölgenin yeniden kullanılması, teleferik ve Uludağ'a kadar ulaşan (1950 metredeki kış sporları merkezine kadar) yol yapımı bölgeye ulaşımı kolaylaştırmış, buna bağlı olarak dağın iyice araştırılmasına yol açmıştır. Aşağıda aktarılan sayılar, dağın iyi bilinen batı bölgesinden toplanmıştır.

Bölgenin iklimi aşağı bölgelerde akdeniz iklimi, daha yukarılarda ise çok net şekilde karadeniz ikliminin etkisindedir. Yağış oranı yüksektir, alpin bölge yılın yaklaşık 170 günü karla kaplıdır.

Uludağ'ın bitki örtüsü merkez karadeniz ormanlarına çok yakın bir görüntü oluşturmaktadır. 1300 metreye kadar olan bölümde bitki örtüsünde insan etkisi oldukça belirgindir. Bitki örtüsünün bölgelere ayrılışı (MAYER & AKSOY 1986) şöyledir:

- 200–500 m. Maki ve yerleşim alanları.
- 500–900 m. Yanaçık, dağlık alan. Bölgenin karakteristik türü *Castanea sativa* (Kestane).
- 900–1300 m. Yaprakdöken ormanlar, giderek yükseklerde *Pinus nigra* (Karaçam).
- 1300–1500 m. *Pinus nigra* ile birlikte iğne yapraklı ormanlar, yükseklerde *Abies bommüllerina* (Kökner).
- 1500–2000 m. Dağlık bölge, iğne yapraklı ormanlar, *Abies bommüllerina* (Kökner) oldukça yaygın.
- 2000 m. Geçiş bölgesi, ağaç sınırı, *Abies bommüllerina* giderek seyrekleşiyor.
- 2000–2543 m. Alpin çayırlar, cüce fundalıklar, kayalık.

Buna bağlı olarak çok karakteristik bir avifauna gözlenmektedir. 1993 Mayıs ortasından itibaren yol boyunca yapılan gözlemlerde kuluçka kuşları sayılmıştır. Sonuçlar 1-3 ve 5-10 numaralı tablolarda gösterilmiştir. Bunlar dışında Uludağ'ın yüzyıl başından beri ornitologlarca sık sık ziyareti nedeniyle bölge iyi tanınmaktadır. 174 in üzerinde gözlem günü değerlendirmeye alınmıştır. Bunların mevsimsel dağılışı mart ve kasım ayları arasındadır.

Toplam 159 kuş türü gözlenmiştir. Bunlardan 92'si kesin yada büyük olasılıkla kuluçka kuşları, 65 tür bölgede nadir yada çok nadir gözlenen misafir yada göç kuşlarıdır. Uludağ, *Gypaetus barbatus* (Sakallı Akbaba, 1-3 kuluçka çifti), *Sitta krueperi* (Küçük Sivacıküşü), *Serinus pusillus* (Kara Kanarya) ve *Carpodacus erythrinus* (Al İspinoz) türlerinin dağılışı bölgesi açısından önemlidir. Çam ormanları bölgesi *Aegolis funereus* (Paçalı Baykuş)'un Türkiye'de nadir tanınan dağılışı alanlarından biridir. Bölgedeki diğer ilginç türlerden diğeri Oteller Köyü çivannındaki *Apus pallidus* (Külrenge Sağan) kolonisidir. Bölgenin yırtıcı kuşları açısından zengin oluşu ilginçtir. Toplam 27 tür saptanmıştır. Bunlardan 10 tanesi bölgede kuluçkaya yatmaktadır.

Yukarıda bahsedilen sayıların yardımıyla yüksekliğe bağlı olarak türlerin tek tek dağılışı 1–12 tabloda gösterilmiştir. Tür sayısı insan etkisinin fazla olduğu yarı açık alanda (900 m.) en yüksektir. Buna karşılık kanşık ormanlarda 30'un üstünde kuluçkaya yatan türü

banndırmaktadır. Dağlık bölge ve *Abies bommüllerina* ormanında sayısı daha azdır. Alpin bölgede ise sadece çok az sayıda tür kuluçkaya yatmaktadır.

Bölge tüm bitki örtüsü tipleri ve buna bağlı kuş toplulukları yolun yardımıyla kolayca gözlenebilmektedir. Oteller Köyü'ne gidişte yolda sık sık ara vermek mutlaka gereklidir. Alpin kuş faunasına ise bir çok patika aracılığıyla kolayca girilebilmektedir.

Uludağ'da uzun süren izolasyon bazı sürüngen ve kelebek türlerinin alt türlerinin oluşmasına neden olmuştur. Sadece bu bile bölgenin korunmasına yetmektedir. Bunun yanında Uludağ sadece bir çok özel kuş türü dışında, bitki örtüsünün sıralanmasına göre dağılan bir çok kuş topluluğu açısından önemli bir ornitolojik değere sahiptir. Bölgenin kış turizmine açılması, özellikle hassas alpin bölgede kayak merkezinin giderek genişletilmesi yörenin doğal dengesi için tehlike oluşturmaktadır.

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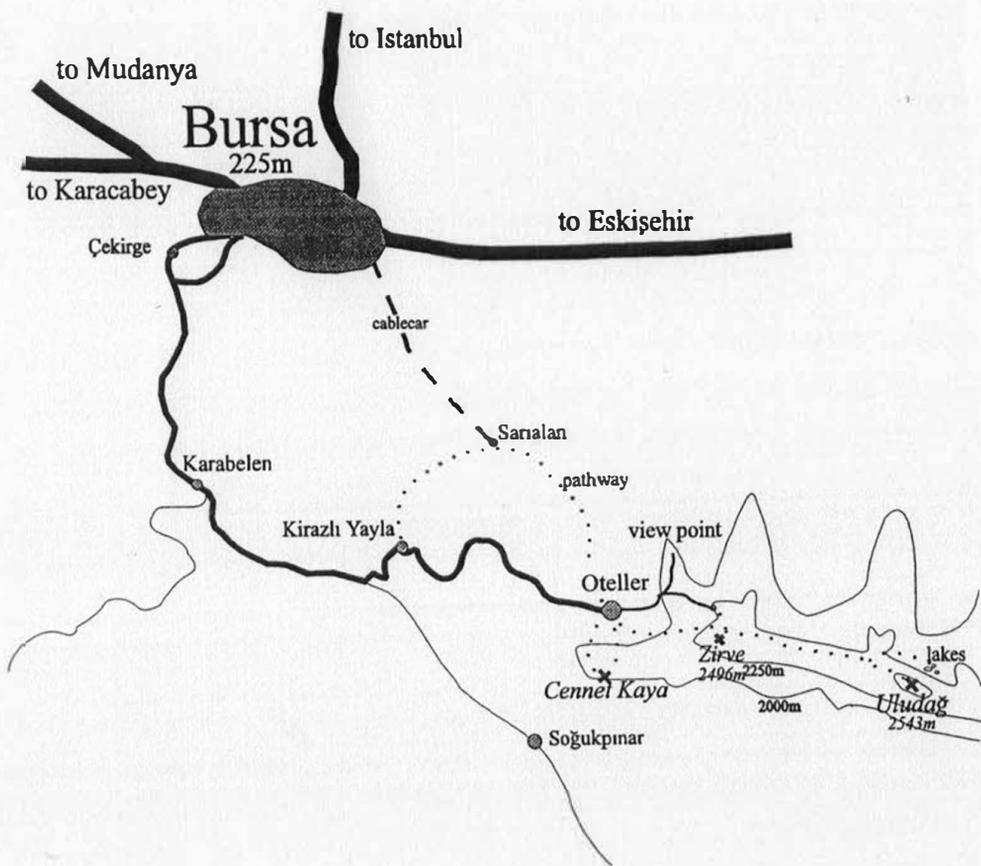
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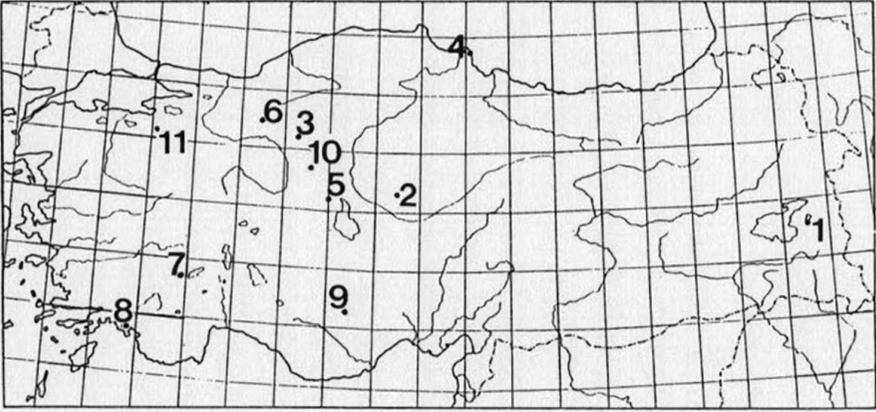
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