Birding Sites of the OSME Region 7— The Talish mountains region in Azerbaijan

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Situated in southeastern Azerbaijan between the Iranian border and the Caspian shore, the Talish mountains region of Azerbaijan offers a rich variety of habitats. Ranging from sea level to elevations of almost 2500 m asl over a distance of only *c*50 km, this region covers huge coastal wetlands, lowlands that are mainly agricultural, several types of forest, montane meadows, semi-deserts and steep, inaccessible, rocky cliffs (Figures 1 & 2). Such a diversity of landscapes harbours a large number (*c*170) of breeding bird species. Of special interest are Shikra *Accipiter badius*, White-throated Robin *Irania gutturalis*, Eurasian Crimson-winged Finch *Rhodopechys sanguineus*, Radde's Accentor *Prunella ocularis* and the endemic Caspian Tit *Poecile hyrcanus*.

CLIMATIC CONDITIONS

Climatically, the region can be divided into two very different parts. The eastern slopes of the Talish mountains down to the coastal lowlands are characterised by a warm and humid climate. The annual rainfall exceeds 1000 mm, peaking in February and October. The summers are warm and winters are mild, but with occasional sub-zero periods (Mammadov *et al* 2007, Mühr 2007).

However, the climate of the Zuvand upland (Figure 2) resembles that of the adjacent Iranian semi- desert, being much drier due to a rainshadow effect. The annual mean temperature of the Zuvand lies between 4–8°C. Winters are cold, the temperature dropping occasionally to below –20°C. The summer, June–October, is the dry season and the annual rainfall is only 200–400 mm. The best time to visit the Talish mountains region is mid May–July when heavy and long-lasting rain is scarce (Mammadov *et al* 2007, IRIMO 2010).

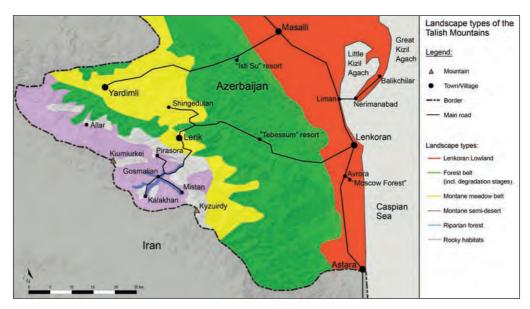


Figure 1. The Azerbaijan part of the Talish mountains and the main landscape types of the region (after Heiss 2010).

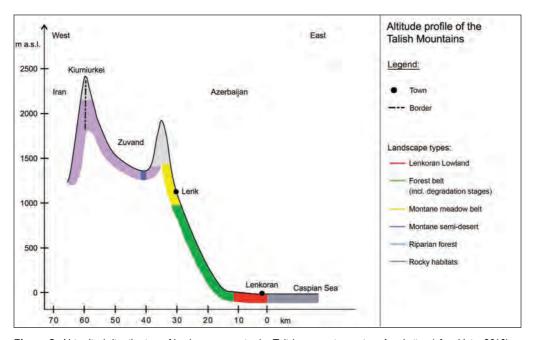


Figure 2. Altitudinal distribution of landscape types in the Talish mountains region, Azerbaijan (after Heiss 2010).

TRAVEL INFORMATION

As an international tourist you will normally reach Azerbaijan by air, arriving in Baku, the capital. It will take you about 4-5 hours to reach Masalli (Figure 1), a good base from which to explore the lowlands and the coast and where there is a variety of accommodation (Schmidt et al 2008). There are several resorts where sleeping accommodation comprises small huts adjacent to a restaurant. A reasonable option is the 'white complex' at the crossing southeast of Masalli (39.0213° N, 48.6971° E), just opposite the large Olympia sports centre. There are other hotels, mainly of this style, along the road to the locallyfamous hot sulphur springs of Masalli Isti Su (38.9723° N, 48.5543° E). From there you can also explore the lower forest belt and travel up the mountains to Yardimli, or even further.

The second road into the mountains, which you will have to take to get to the Zuvand upland, goes from Lenkoran to



Plate 1. The Tebessum resort, Talish mountains, Azerbaijan, offers excellent opportunities to search for typical forest species, April 2008. © *Michael Heiss*

Lerik. We recommend staying in the Tebessum resort (38.7404° N, 48.6115° E) on the left of the road, about 20 km past Lenkoran. Just beside the river, the huts are beautifully situated in natural forest (Plate 1). The restaurant offers good local food. Unfortunately there is

no hotel open in Lerik itself at present and so it is probably best to base yourself at Tebessum for exploratory trips. If you prefer to camp, you may also do this here.

Camping is the best option when visiting the Zuvand. This way, you have no need to traverse daily the long gravel road up from Lerik. There are two very suitable sites, each with a spring of cool and clean mountain water. The first is in the canyon on the left just before the only bridge (38.7105° N, 48.4250° E). The second is near Gosmalian in the riparian forest (38.6799° N, 48.3720° E, Plate 2). All you have to do is ask the friendly locals for the 'Zuvand Bulag' or take the road at the crossing (38.6874° N, 48.3762° E) into the floodplain.



Plate 2. Camping in the riparian forest is the recommended way to spend the night in the Zuvand—Gosmalian, Talish mountains, Azerbaijan, May 2008. © *Michael Heiss*

The main roads up to Lerik are asphalt and good, but a 4WD is essential for the entire Zuvand region. Cars can be rented in Baku, eg from Avis or SPC Motors. For the adventurous birder, the public transportation system might be a cheaper alternative. Buses to Lenkoran leave every morning from the main bus station in Baku. From Lenkoran you can go on to Lerik by bus or taxi. There it may be possible to rent a jeep with driver for some days. As the mountains border Iran, you must be careful not to upset the military. If you meet them, they are as a rule friendly and hospitable and might even offer you some tea and bread when you are completing any necessary documentation, such as registering with a hotel or at a camp site, but they may also ask you to leave the Zuvand area for whatever reason. You should avoid getting too close to the border, where soldiers are patrolling permanently. The village of Kalakhan hosts a military post and you should not go beyond the village. The Caspian shore is also under the control of the military and birding around the military post in Balikchilar is not recommended.

KIZIL AGACH

The huge bay of Kizil Agach is the largest wetland of Transcaucasia. It is easily accessible from the dam between Liman and Nerimanabad (38.8759° N, 48.8283° E, Figure 3). Just turn east in Liman (38.8820° N, 48.8057° E) and you will find the dam. At the roadside, good bird observation locations are the western end of Nerimanabad village (38.8673° N, 48.8345° E), the southernmost tip of the outer sand beach (38.8623° N, 48.8668° E) and the lagoons and sandbanks (38.8995° N, 48.9059° E) further north towards Balikchilar (Figure 3).

The area harbours immense numbers of waterbirds (Sultanov 2008), including all the European heron species, Pygmy Cormorant *Microcarbo pygmeus*, Purple Swamphen *Porphyrio porphyrio* and breeding colonies of



Figure 3. The southern part of Kizil Agach bay, Talish mountains region, Azerbaijan.



Plate 3. Whiskered Tern Chlidonias hybrida between Liman and Nerimanabad, May 2008. © Kai Gauger



Plate 4. In winter the coastal lagoons near Nerimanabad often harbour a wide variety of bird species in huge numbers, February 2010. © *Michael Heiss*

thousands of Whiskered *Chlidonias hybrida* (Plate 3) and White-winged Terns *C. leucopterus*. Among the passerines, Caspian Reed, *Acrocephalus* (*scirpaceus*) *fuscus*, Great Reed *A. arundinaceus*, Moustached *A. melanopogon* and Eastern Olivaceous *Iduna pallida* Warblers, Bearded Tit *Panurus biarmicus*, Penduline Tit *Remiz pendulinus* and Spanish Sparrow *Passer hispaniolensis* are common.

During migration, Dalmatian Pelicans *Pelecanus crispus* and many wader, tern, gull and duck species pause here in large numbers to rest and feed (Plate 4). Arctic Skuas *Stercorarius parasiticus* can appear along the beach, but the littoral habitats are superb for migrant Terek Sandpipers *Xenus cinereus* and other waders. Passerines rest in the *Tamarix* shrubs along the beach and Citrine Wagtails *Motacilla citreola* are common during migration. Scarce migrants or vagrants such as Daurian Shrike *Lanius isabellinus*, Desert Wheatear *Oenanthe deserti* and Buff-bellied Pipit *Anthus (rubescens) japonicus* have been recorded.

In winter there are masses of waterbirds but although most of the wetland is a state nature reserve and protected, shooting pressure is very high. In the villages of the region, Eurasian Coots *Fulica atra*, ducks and geese are sold in markets and along the main road to Lenkoran. This is especially relevant as Lesser White-fronted Geese *Anser erythropus*, White-headed Ducks *Oxyura leucocephala*, Ferruginous Ducks *Aythya nyroca* and Marbled Teal *Marmaronetta angustirostris* occur in serious numbers. Unfortunately, foreigners are not allowed to enter the actual 'protected area'. Even on the dam, which is an official road, associates of the 'sanctuary' try to hinder people counting or even watching birds. There is no doubt that they want to avoid the shooting being seen. Usually, there are several boats chasing the flocks of waterfowl from one end of the bay to the other.

LENKORAN LOWLAND

A southern strip of the wide Kura/Arax plain, the Lenkoran lowland stretches from the shore of the Caspian west to the foothills of the Talish mountains. From Celilabad in the north, it narrows steadily, reaching Masalli, Lenkoran and then Astara at the Iranian border. Formerly covered by subtropical broadleaf forest and impassable wetlands (Radde 1886), the Lenkoran lowland was cleared to eradicate prevalent malaria and to gain needed agricultural land (Patrikeev 2004). A widespread system of drainage channels is all that indicates the extent of the former large wetlands, whose existence can scarcely be gauged from the present-day fields, pastures and inhabited settlements (Plate 5).

Nevertheless, some oak forests remain to accommodate some remnants of the former bird community. Shikra *Accipiter badius* is the most sought-after bird species (Plate 6). It is distributed throughout the Lenkoran lowland, easily recognisable by its disyllabic "kee-



Plate 5. Fields, grazing and an afforested strip east of Masalli, Talish mountains region, Azerbaijan, June 2008. © *Kai Gauger*



Plate 6. Male Shikra Accipiter badius near its nest, Masalli, June 2010. © Kai Gauger

vick, kee-vick" calls (Heiss & Gauger 2009). Recently, this species has also been found much further north in Azerbaijan and also near Yerevan in Armenia (Ananian et al 2010), which suggests a more widespread breeding range than had been expected. Good places for finding Shikras in the Lenkoran lowland are, first, around the above mentioned 'white complex' at the main road crossing southeast of Masalli (39.0213° N, 48.6971° E), and second, the 90 ha 'Moscow forest' near Avrora (38.6430° N, 48.8238° E). This last remnant of the former lowland woodland is now part of the Hyrcan national park. Some forest-interior species like Eurasian Nuthatch Sitta europaea and Red-breasted Flycatcher Ficedula parva can be found only here, whereas other species such as Syrian Woodpecker Dendrocopos syriacus, Eurasian Golden Oriole Oriolus oriolus and Eurasian Hobby Falco subbuteo breed in other woodlands.



Plate 7. Blue-cheeked Bee-eater *Merops persicus* breeds only in the lowlands, Liman, May 2008. © *Michael Heiss*

Typical of the numerous breeding birds of the cultivated landscape, which in parts is densely settled, are Eurasian Hoopoe *Upupa epops*, Red-backed Shrike *Lanius collurio*, Penduline Tit, Black-headed Wagtail *Motacilla feldegg* and Corn Bunting *Emberiza calandra*. The colourful European Bee-eater *Merops apiaster* breeds in steep banks along rivers, whereas its greener counterpart Blue-cheeked Bee-eater *M. persicus* (Plate 7) digs its tunnel nests in more even ground, such as the colony in the railway embankment north of Liman (38.8935° N, 48.8012° E). North of Masalli, the landscape becomes drier, suitable for steppe and semi-desert species, such as Black Francolin *Francolinus francolinus*, Calandra Lark *Melanocorypha calandra*, Lesser Short-toed Lark *Calandrella rufescens*, Eastern Olivaceous Warbler, Ménétriés's Warbler *Sylvia mystacea*, Rufous-tailed Scrub Robin *Cercotrichas galactotes* and Black-headed Bunting *Emberiza melanocephala*.

FOREST BELT

The deciduous broadleaf forest of the Talish mountains (the Hyrcanian or Caspian forest), stretches from sea-level up to 1800 m asl, but due to logging and cultivation the treeline nowadays is mostly well below the natural limit (Scharnweber *et al* 2007), but some natural areas remain (Plate 8). The number of tree species is very high, including many endemic or tertiary relict species like Persian Locust Tree *Gleditsia caspica*, Persian Ironwood *Parrotia persica*, Chestnut-leaved Oak *Quercus castaneifolia*, Hyrcanian Boxwood *Buxus hyrcana* and Caucasian Persimmon (Date-plum) *Diospyros lotus*.

Currently, the forest outside the Hyrcan national park is under threat from overexploitation (Plate 9), because, after the collapse of the Soviet Union, the only way the locals could earn money was through selling logs, coppiced stems and fuel wood and grazing livestock in the woodlands. Forest degradation then followed on a dramatic scale (Noack & Hidayatov 2007). However, one of the best ways to examine a natural part of the forest is to enter it just behind the Tebessum resort. In the tourism centre of the Hyrcan national park, in Hyrcan village (38.6792° N, 48. 8057° E), you might ask for guiding services into protected areas.

The breeding bird community of this forest, except for a few specialities like Green Warbler *Phylloscopus nitidus* and Semicollared Flycatcher *Ficedula semitorquata* (Plate 10), is similar to that of European forests, common species being Tawny Owl *Strix aluco*, tits, Icterine Warbler *Hippolais icterina*, Coal Tit *Periparus ater*, Eurasian Blackcap *Sylvia atricapilla*, Eurasian Blackbird

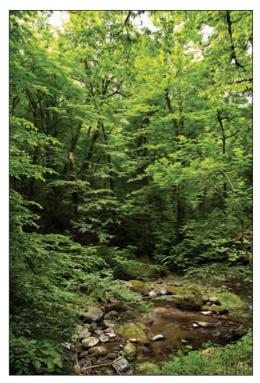


Plate 8. A small creek in a natural part of the Hyrcanian forest, Talish mountains, Azerbaijan, April 2008. © *Kai Gauger*



Plate 9. Open park-like forest affected by silvopasture and intensive forestry, Tengivan, Talish mountains, Azerbaijan, April 2008. © *Kai Gauger*

Turdus merula and Common Chaffinch Fringilla coelebs. In the more natural parts of the forest, Black Stork Ciconia nigra, Lesser Spotted Eagle Aquila pomarina, Black Woodpecker Dryocopos martius, Great Spotted Woodpecker Dendrocopos major (Plate 11), Red-breasted Flycatcher, Eurasian Treecreeper Certhia familiaris and Bullfinch Pyrrhula pyrrhula occur. The shrubby or park-like areas of heavy degradation provide breeding habitats preferred by species like Eurasian Wryneck Jynx torquilla, European Turtle Dove Streptopelia turtur, European Nightjar Caprimulgus europaeus, Woodlark Lullula arborea and Eastern Nightingale Luscinia (megarhynchos) golzii.



Plate 10. Male Semi-collared Flycatcher Ficedula semitorquata, Masalli Isti Su, May 2007. © Kai Gauger



Plate 11. Great Spotted Woodpecker Dendrocopos major of the Talish subspecies poelzami, Yardimli, May 2007. © Kai Gauger

A species that has become more and more enigmatic to birders who visit the Talish mountains is one that prefers such degraded forest, Caspian Tit *Poecile hyrcanus*. This species, formerly regarded as a subspecies of Sombre Tit *P. lugubris*, according to older literature was quite abundant in some locations comprising shrubby woodlands scattered with a few old dead tree trunks (Loskot 1978). Nowadays, Caspian Tit has been seen but rarely in recent times, in the Lerik and Yardimli region, although much of the Talish region has not been surveyed, even casually. Visiting birdwatchers could play a vital role in helping to establish the status of this south Caspian endemic in Azerbaijan.

MONTANE MEADOW BELT

Above the forest belt, montane meadows and agriculture form an open landscape dominated by gentle slopes, eg around Lerik, Shingedulan and Yardimli at altitudes ranging from 700 to 1200 m asl. Structured, established forests are rare, but patchy woodland and shrub occur on steep slopes and along field edges and roads (Plate 12). Common Quail Coturnix coturnix, Eurasian Skylark Alauda arvensis, Northern Wheatear Oenanthe oenanthe, Black-headed (Plate 13) and Corn Buntings are regular occupants of the meadows, and with luck, one might encounter Grey Partridge Perdix perdix or Corncrake



Plate 12. Flower-rich montane hay meadow near Shingedulan, Talish mountains, Azerbaijan, May 2008. © *Michael Heiss*



Plate 13. Black-headed Buntings Emberiza melanocephala are a common sight in the hay meadows, Shingedulan, May 2008. © Michael Heiss

Crex crex. In bushes and shrubs Red-backed and Lesser Grey Shrikes *Lanius minor* are common. The open landscape allows a good arc of view for observations of raptors such as Short-toed Snake Eagle *Circaetus gallicus*, Lesser Spotted Eagle, Booted Eagle *Aquila pennata*

and the local Buzzard *Buteo buteo menetriesii* that breeds in the adjacent forest belt or smaller forest remnants and hunts in the meadows.

MONTANE SEMI-DESERT

Behind a steep mountain ridge a montane semi-desert landscape has developed southwest of Lerik, called the Zuvand. It includes the villages of Gosmalian, Mistan, Kalakhan, Pirasora, Orand and Allar (Figure 4). Thorny cushion-forming tragacanthic vegetation thinly covers the gentle slopes of this montane semi-desert. Tree growth is inhibited by low annual precipitation and the long summer drought. Cultivation is marginal and abandoned fields can be found at several sites (Plate 14).

As might be expected, the bird community of this landscape is less diverse but contains characteristically common and perhaps unexpected species such as Woodlark Lullula arborea, Horned Lark Eremophila alpestris, Isabelline Wheatear Oenanthe isabellina and Tawny Pipit Anthus campestris. Bimaculated Larks Melanocorypha bimaculata occur mainly on abandoned fields on older terraces (Plate 15). Pale Rockfinch Carpospiza brachydactyla is probably an irruptive breeder, in line with its characteristic semi-nomadic behaviour, for it occurs irregularly (Plate 16).



Plate 15. Bimaculated Lark Melanocorypha bimaculata north of Gosmalian, May 2007. © Kai Gauger



Figure 4. The Zuvand region showing its main villages, Talish mountains, Azerbaijan.



Plate 14. Sparse vegetation in the hills and river oases in the valley, Kalakhan, Zuvand, Talish mountains, Azerbaijan, June 2008. © *Kai Gauger*



Plate 16. Pale Rockfinch Carpospiza brachydactyla, Gosmalian, May 2010. © Michael Heiss

ROCKY HABITATS

At higher altitudes, 1400–2500 m asl, there are some impressive rock formations comprising inaccessible cliffs and rocky terrain. Generally common and widespread rock-dependent bird species are Chukar Alectoris chukar, Alpine Swift Tachymarptis melba, Eurasian Crag Martin Ptyonoprogne rupestris, Common House Martin Delichon urbicum, the semirufus subspecies of Western Black Redstart Phoenicurus ochrurus, Finsch's Wheatear Oenanthe finschii, Western Rock Nuthatch Sitta neumayer, Rock Sparrow Petronia petronia, Red-fronted Serin Serinus pusillus and Rock Bunting Emberiza cia.

Restricted to cliffs and rocky slopes of lower altitudes (1400–1900 m asl) in an altogether more humid environment, Blue Rock Thrush *Monticola solitarius* occurs regularly in the Lerik canyon (38.7201° N, 48.4249° E, Plate 17). This is the only known (and recently-discovered) place at present for Caspian Snowcock *Tetraogallus caspius* in the Talish region. The mountain ridge east of the canyon offers the best chance of seeing this species, but it is very wary, and given the vast unexplored areas of suitable habitat, especially along remote ridges close to the Iranian border, it could well be much



Plate 17. The view up the Lerik canyon, scattered with bushes and rocky terrain, Talish mountains, Azerbaijan, June 2010. © Kai Gauger



Plate 18. The rock exposures east of Mistan, Talish mountains, Azerbaijan, are habitat for many interesting species and comprise the only place in the region where Radde's Accentor *Prunella ocularis* has been found, May 2008. © *Kai Gauger*

more widespread than assumed. The Lerik canyon holds breeding Steppe Buzzard *Buteo b. vulpinus*, Long-legged Buzzard *B. rufinus*, Golden Eagle *Aquila chrysaetos* and Eurasian Eagle Owl *Bubo bubo*.

The contrasting rocky habitats of higher altitudes (1900–2500 m asl, Plate 18) in the Zuvand region are much drier, scattered with sparse vegetation and such bushes as Hawthorn *Crataegus* sp, Almond *Amygdalus dulcis*, Juniper *Juniperus* sp and Snowball Bush (Guelder Rose) *Viburnum opulus*. The highest rock habitats are around Mistan (38.6452° N, 48.4480° E) and Pirasora (38.7283° N, 48.3526° E) villages. Pirasora can be reached by turning north up the hills at 38.6897° N, 48.3815° E. In Pirasora take the small road at 38.7160° N, 48.3793° E to the left and follow this road until you reach the rocks. For Mistan take the crossing at 38.6874° N, 48.3762° E. Follow the road directly through the riparian forest. Afterwards you will pass an almond plantation and reach Gosmalian. In the village, turn to the left at 38.6694° N, 48.3767° E and follow the road up the valley.

Typical birds of the rocky habitats at these higher altitudes are Eastern Black-eared Wheatear *Oenanthe* (hispanica) melanoleuca, Rufous-tailed Rock Thrush Monticola saxatilis, Ring Ouzel Turdus torquata, Caspian Stonechat Saxicola maurus variegatus, Barred Warbler Sylvia nisoria and White-throated Robin Irania gutturalis (Plate 19). With a bit of luck, one might also find Eurasian Crimson-winged Finch Rhodopechys sanguineus (Plate 20). An exceptional ornithological highlight would be a documented sighting of Radde's Accentor Prunella ocularis, the type specimen of which was shot by Gustav Radde in 1880



Plate 19. Male White-throated Robin *Irania gutturalis*, Mistan, May 2008. © *Kai Gauger*



Plate 20. Crimson-winged Finch *Rhodopechys sanguineus*, Mistan, May 2010. © *Michael Heiss*

on nearby Kyzuirdy mountain (Radde 1886). Despite being found at several locations in Transcaucasia subsequently, it was not recorded in the Talish mountains again until Dr Hartmut Müller rediscovered this species in May 2008 on a rocky cliff northeast of Mistan, where it was seen several times, but not in more recent years (Heiss 2010).

RIPARIAN FOREST OF THE ZUVAND REGION

Punctuating the barren montane semi-desert along small streams are narrow extended strips of open park-like riparian forest of willow *Salix* sp and poplar *Populus* sp. The streams have formed floodplains 1200–1800 m asl with their greatest extent around the



Plate 21. Lush green meadows in the floodplains near Gosmalian, Talish mountains, Azerbaijan, May 2007. © Kai Gauger



Plate 22. Syrian Woodpecker *Dendrocopos syriacus* is a common breeder in the riparian forest, May 2008. © *Kai Gauger*



Plate 23. In 2008, Trumpeter Finches *Bucanetes githagineus* were seen for the first time in Zuvand and occurred at several sites. They were not seen in subsequent years. Pirasora, June 2008. © *Kai Gauger*

villages of Gosmalian, Kalakhan and on the way to Mistan. The inhabitants of the villages along the rivers created a complex irrigation system to water their lush and flower-rich meadows, fields and gardens. The large terraces used as orchards or almond plantations were built centuries ago. In the manner of oases, this habitat type attracts particular bird species to breed.

Common where there are taller trees (Plate 21) are Syrian Woodpecker *Dendrocopos syriacus* (Plate 22), Green Woodpecker *Picus viridis*, Eurasian Scops Owl *Otus scops*, Eurasian Hoopoe *Upupa epops* and Eurasian Golden Oriole. Common Kestrel *Falco tinnunculus* and Eurasian Hobby breed in old corvid nests. As in the montane meadow belt, the shrubs and bushes are full of Red-backed and Lesser Grey Shrikes, but Common Whitethroat *Sylvia communis* and Eastern Nightingale are also present. During the migration periods, in spring and autumn, many different species have been recorded here. Among them are flycatchers, many species of warblers, finches, buntings and also regular Little Bitterns *Ixobrychus minutus*.

IN CONCLUSION

Birding in the Talish mountains region offers much more than attractive species. Here, you will always have the feeling that in the next minute or so behind the next rock something new and different might appear. During our work over the last few years we were able to update the status of several species not seen for decades or even a century. We have also found breeding species not expected in the region. However, after several trips to the Talish mountains, there are many species that are still known only from the literature (Radde 1886, Patrikeev 2004), that we have not recorded so far. Amongst these are Wallcreeper *Tichodroma muraria*, Little Swift *Apus affinis*, White-throated Kingfisher *Halcyon smyrnensis* or some mysterious large reed warblers during the winter at Kizil Agach. Also still unclear is the status of Trumpeter Finch *Bucanetes githagineus* (Plate

23), Grey-necked Bunting *Emberiza buchanani* and Upcher's Warbler *Hippolais languida*, all of which are at the boundaries of their distribution here. They have been seen only irregularly. We want to share our enthusiasm about the region and the excitement of finding something new with other birdwatchers. We hope that more and more people will visit this hotspot of biodiversity at the very edge of the Western Palaearctic.

REFERENCES

- Ananian, V, K Aghabayan, S Tumanyan, G Janoyan & K Bildstein. 2010. Shikra *Accipiter badius* breeding in Armenia. *Sandgrouse* 32: 151–155.
- Heiss, M. 2010. The breeding bird communities of the Talish mountains (Azerbaijan) and their response to forest degradation. Unpublished diploma thesis. Ernst-Moritz-Arndt-University, Greifswald.
- Heiss, M & K Gauger. 2009. The rediscovery of breeding Shikras *Accipiter badius* in the Western Palaearctic. *Sandgrouse* 32: 134–137.
- Islamic Republic of Iran Meteorological Organization (IRIMO). 2010. Climatic Statistics. www.irimo.ir/. Accessed 15April 2010
- Loskot, VM. 1978. [The Hyrcanian Tit, Parus hyrcanus Sarudny et Loundon]. Proceedings of the Zoological Institute of the Russian Academy of Science USSR. 76: 46–60. [In Russian]
- Mammadov, GS, MP Babaev, ZR Movsumov, CM Ceferova & VH Hesenov. 2007. Torpaq Atlasi [Soil Atlas]. Baki Kartografiya Fabriki. [In Azeri and Russian]
- Mühr, B. 2007. Das Klima in Lenkoran. www.klimadiagramme.de/Asien/lenkoran.html. Accessed 15 April 2010
- Noack, F & A Hidayatov. 2007. The Economics of Forest Depletion in Southern Azerbaijan. Archiv für Naturschutz und Landschaftsforschung 46(2): 109–131.
- Patrikeev, M. 2004. The Birds of Azerbaijan. Pensoft, Sofia/Moscow.
- Radde, G. 1886. Reisen an der persisch-russischen Grenze -Talysch und seine Bewohner. FA Brockhaus, Leipzig.
- Scharnweber, T, M Rietschel & M Manthey. 2007. Degradation stages of the Hyrcanian forests in southern Azerbaijan. *Archiv für Naturschutz und Landschaftsforschung* 46(2): 133–156.
- Schmidt, S, K Gauger & N Agayeva. 2008. Birdwatching in Azerbaijan a guide to Nature and Landscape. Michael Succow Foundation, Greifswald, Germany.
- Sultanov, E. 2008. Recent Waterbird Counts in Gyzylagach, the Azerbaijan Republic's Most Important Ramsar Site, with Comments on Conservation. *Podoces* 3(1/2): 31–38.

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