

Long-legged Buzzard *Buteo rufinus rufinus* breeding distribution and abundance in Cyprus

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Abstract – This paper presents the 2005 population survey for the Long-Legged Buzzard in Cyprus. It gives information on occupied territories, and on aspects of the species' breeding biology. Censuses were carried out from January to March 2005. 34 pairs (occupied territories) were recorded, 79% of which were in the south-southwestern part of Cyprus. 22 confirmed nests were found, 3 of which were abandoned during incubation. On average, 2.3 ± 0.7 chicks / successful nest fledged from 14 closely monitored nests. Average distance from the nearest occupied nest site was 5.5 ± 2.7 km (N = 28 sites) whereas average nesting density was 1 pair/7.3 km² (19 pairs). Nesting period (from nest building to fledging) started during the last 2 weeks of February for the early nesters and ended around the 15th of June when the last chicks fledged. In the vicinity of 7 successful nesting sites we spotted 2 active Bonelli's Eagle eyries, closer than 1.5 km, and 5 Peregrine pairs nesting in neighboring cliffs. Garbage was commonly used as nesting material. Preliminary pellet and prey remain analysis showed that mainly rodents (mainly Black Rat) and, to a secondary degree, reptiles (Starred Agama and Persian Large Whip Snake) were the raptor's major preys. The Long-legged Buzzard in Cyprus shows increasing population trend. Poisoning, countryside housing development, road construction, disturbance at nest sites and shooting are limiting factors for the further expansion of the species.

INTRODUCTION

The Long-legged Buzzard *Buteo rufinus rufinus* is a scarce resident breeder in Cyprus even though it exists as a passage migrant as well. Until the early nineties it was regarded as a scarce and irregular winter visitor and scarce passage migrant (Flint and Stewart 1992). The first known nesting pair was found in 1992 nesting on a Calabrian Pine *Pinus brutia* (Kourtellarides 1998, Whaley and Dawes 2003), but the species was definitely overlooked. The species is relatively rare in European Union countries and is included in Annex I of the Birds Directive 79/409. It is found in SE Europe's dry steppes and its world population is declining due to habitat destruction by agriculture and subsequent reduction of its main prey, small mammals (Tucker and Heath 1994). According to BirdLife International's latest publication on European bird populations it is provisionally evaluated as Vulnerable (BirdLife International 2004). There is lack of information regarding the population status and breeding ecology of the species in Cyprus that is why the Game Fund has been working on its distribution and breeding aspects for the last six years. This paper discusses the population survey of 2005, giving information on occupied territories and other aspects of its breeding biology.

METHODS

Past information on breeding sites was used as much as possible. Potential breeding sites were also identified by personal inquiries to local people, and by vehicle trips along main and secondary roads in potentially suitable habitat. The initial field visits started by mid January in order to find all those areas that might be potential nest-sites and subsequently mark those on map (Gilbert *et al.* 1998). Potential nesting habitat included open river valleys with suitable nesting cliffs or smaller and isolated, steep river canyons in semi-arid, pastoral or cultivated land. Dense forests were excluded from the search because they are not suitable habitat and are known to be avoided by the species. All buzzard observations were mapped. The districts of Limassol and Pafos in the south-southwestern part of the island were searched more intensively due to the more potentially suitable habitat for the species and due to existing knowledge for the species' presence. The number of occupied territories and breeding pairs were recorded. Proof of occupancy of a territory (home range) was established by evidence of territoriality (either seeing 2 buzzards together, or witness display or aggression towards other birds) or by seeing birds carrying nest material. Evidence for a breeding pair was established if copulation, courtship behavior and finally incubation were witnessed

Table 1. Occupied territories, confirmed nests and fledglings by district during the 2005 population survey.

District	Occupied territories	Confirmed nests	Total number of fledglings*	Avg. no. of chicks/nest
Larnaca	5	4	8 (from 4 nests)	2.0
Limassol	14	8 ¹	11 (from 5 nests)	2.2
Pafos	13	9 ²	12 (from 4 nests)	3.0
Lefkossia	2	1	2 (from 1 nests)	2.0
TOTAL	34	22	33	2.3

¹One nest was abandoned.

²Two nests were abandoned.

*The number of chicks was calculated from 14 confirmed nests only. For the remaining confirmed nests, chick number could not be calculated mainly because of nest inaccessibility.

(Hardey *et al.* 2006). In case an active nest was spotted (presence of eggs, incubating female or young), several regular follow-up checks were carried out with a spotting scope from a safe distance in order to record the beginning of the nesting period (incubation, hatching, care of young and fledging). Finally, at the end of the nesting season, pellets and prey remains were collected in order to describe the food habits of the species.

RESULTS

Overall, 34 pairs holding territories were observed, 79% of which were in the districts of Limassol and Pafos. Twenty-two confirmed nests were found, 3 of which were abandoned during incubation. Thirty-three chicks fledged from 14 successful nests where frequent observations have been possible. On the average, 2.3 ± 0.7 chicks / successful nest fledged (Tab. 1). Seven successful pairs fledged 3 young, 5 fledged 2 young and 2 fledged 1 young (Fig. 1). Average distance from nearest occupied nest site for 28 known nesting sites was 5.5 ± 2.7 km (Range 2.1 km - 13.6 km) (Fig. 2). Average nesting density for 19 pairs was 7.3 km² (Range 1 pair / 4.9 km² - 1 pair / 9.8 km²).

Nest building started during the last two weeks of February-1st week of March. Copulation was observed twice, once on the 23rd of February, the second on the 7th of March. Incubation period started during the first two weeks of March for the early pairs - and at the beginning of April for late nesters. Hatching period took place between the 15th of April and the first week of May. The first chicks fledged during the last week of May and were seen sitting on neighboring cliffs or trees close to the nesting site. The latest chicks left the nest around the 15th of June. Nesting sites ranged from low elevation steep earth banks (minimum nest elevation was 43 m a.s.l.), mid elevation rocky

canyons, to high elevation stone cliffs (maximum nest elevation was 1150 m a.s.l.). Average nest altitude was 433 ± 253 m a.s.l. (N = 33 sites). Only one successful nest was built on a tree, a large Cypress tree *Cupressus sempervirens* on a steep mountain northern slope. Most nests were built on cliff ledges or steep earth banks. Some nests were built in shallow cliff caves. Most nests were lined with fresh pine twigs whereas plastic bags and other garbage were used as nesting material as well. Trees (*Quercus infectoria*, *Olea europea*, *Arbutus adrachne*) and / or shrubs (*Pistacia terebinthus*, *Capparis spinosa*) grown on nesting cliffs were often used as part of the nesting structure. Several pairs had a number of maintained or old nests in their territory, up to six in some cases, spaced several meters along the cliff face, indicating their presence in the area for several years. Two nesting sites were observed on cliffs closer than 500 m from a village. In the area of two successful nesting sites we spotted two active Bonelli's Eagle *Aquila fasciata* eyries, closer than 1.5 km from the buzzard nesting cliffs, whereas in the area of five buzzard nesting sites we observed five respective breeding pairs of Peregrine Falcon *Falco peregrinus*, a scarce resident.

Some preliminary food habits analysis from pellets and food remains taken from the nesting sites and neighboring perches shows the Black Rat *Rattus rattus* as the primary prey species and the Starred Agama *Laudakia stellio* to be the second most frequent prey species. Snakes are also important, especially the Persian Large Whip Snake *Coluber jugularis*, whereas birds appear in relatively small quantities in the diet.

DISCUSSION

This is the first comprehensive population study for the Long-legged Buzzard in Cyprus and shows that the species

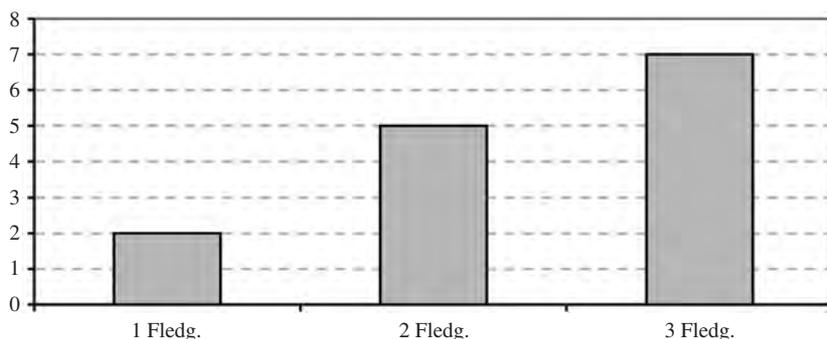


Figure 1. Number of fledged nestlings per successful nest. N = 14 nests.

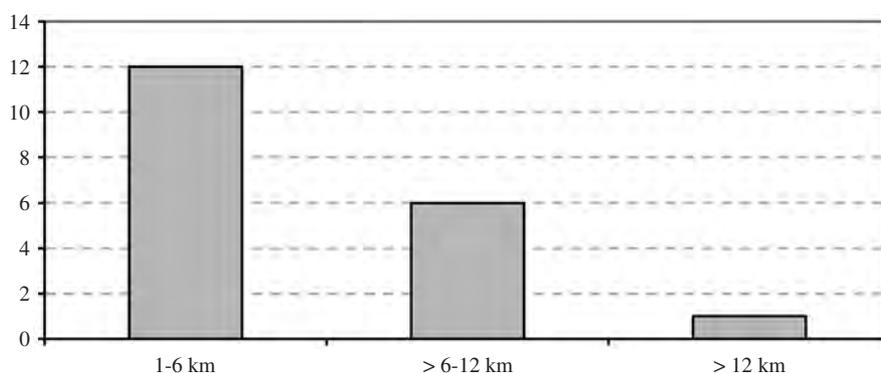


Figure 2. Average distance from nearest occupied nest site. N = 28 known nesting sites.

is in a good population status and has increasing trends. This is shown mainly by the new nests found each year and also by the relatively high number of fledged chicks per nest. The nesting densities recorded compare to similar-sized large *Buteo* species such as the Ferruginous *Buteo regalis* and Red-tailed hawks *Buteo jamaicensis* (Newton 1979). Spacing of breeding pairs in the case of Cyprus seems to be limited primarily by the availability of quality nesting-sites away from human disturbance (and possibly, secondarily, by prey abundance). Even though the species nests in some areas relatively close to human habitations, house development in the countryside and road construction fragment their habitat. The sole tree nest recorded confirms the species' strong preference for cliffs or steep slopes (Cramp 1987). The trees / shrubs used on steep cliffs as part of the nest structure provided shade and cover to hatchlings and made the nest less conspicuous. No nests were found in the extensive, coastal cliffs along the island's southern coastline. This otherwise good nesting habitat (as neighboring areas provide good hunting opportunities for the buzzards), occupied by large breeding colonies of Eleonora's Falcon *Falco eleonora*, was

avoided. This was probably due to the falcon's well-known interspecific aggression at the colony site (Walter 1979), even though the falcon's late breeding season does not coincide with the buzzard's one.

Garbage (plastic material, ropes) is documented for the first time as part of the species nesting material, something that is common i.e. for Black Kites *Milvus migrans* and Ospreys *Pandion haliaetus* (Newton 2000).

Poisoning remains the principal mortality factor of direct human persecution. The two fatalities we had out of of nine radio-tagged birds since 2002 were due to poisoning in late winter, when shepherds in areas of high red fox *Vulpes vulpes* densities poison goat carcasses to protect their livestock. Disturbance at nest sites remain a serious limiting factor for the species expansion: two of the deserted nests were probably abandoned during incubation because of birdwatchers' disturbance. Shooting has declined in importance compared to the past but it still remains a problem. Despite of these negative factors, the actual picture of the species situation in Cyprus shows on overall positive breeding success, trend and population status.

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