

Lesser Spotted Eagle *Aquila pomarina* in Georgia

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The present report contains materials collected by the author in 1973-1991.

In the past, the Lesser Spotted Eagle was widely distributed throughout Georgia, in all regions mainly covered by forests and the flood-lands of larger rivers. From the literature it can be estimated that until the 1920s-30s the population of the Lesser Spotted Eagle in Georgia was perhaps several hundred pairs. Beginning with the 1930s, the level of human economic activities sharply increased. Particularly great transformations occurred in the landscape of the lowlands - Black Sea coast, shores of large lakes, flood-lands of the rivers. The Lesser Spotted Eagle population started to decline from the 1930s due to habitat loss and recreational pressure. As a result of these processes, in Western Georgia the Lesser Spotted Eagle disappeared from the forests of the lowlands (Kolkhida Lowland) and almost vanished in the catchment areas of some rivers. The population in Eastern Georgia has also declined since the 1940s, due to the reduction of habitat, especially the destruction of old forests. Persecution of birds of prey by man during 1940-1970 has had a negative impact as well. At present the species survives practically only in the eastern part of Georgia - in the flood-lands and forests of the rivers Kura, Iori, Alazani and Khrami. In these areas the population could be estimated at perhaps less than 80 pairs. Probably some 10-15 pairs inhabit other parts of Georgia.

Habitats.

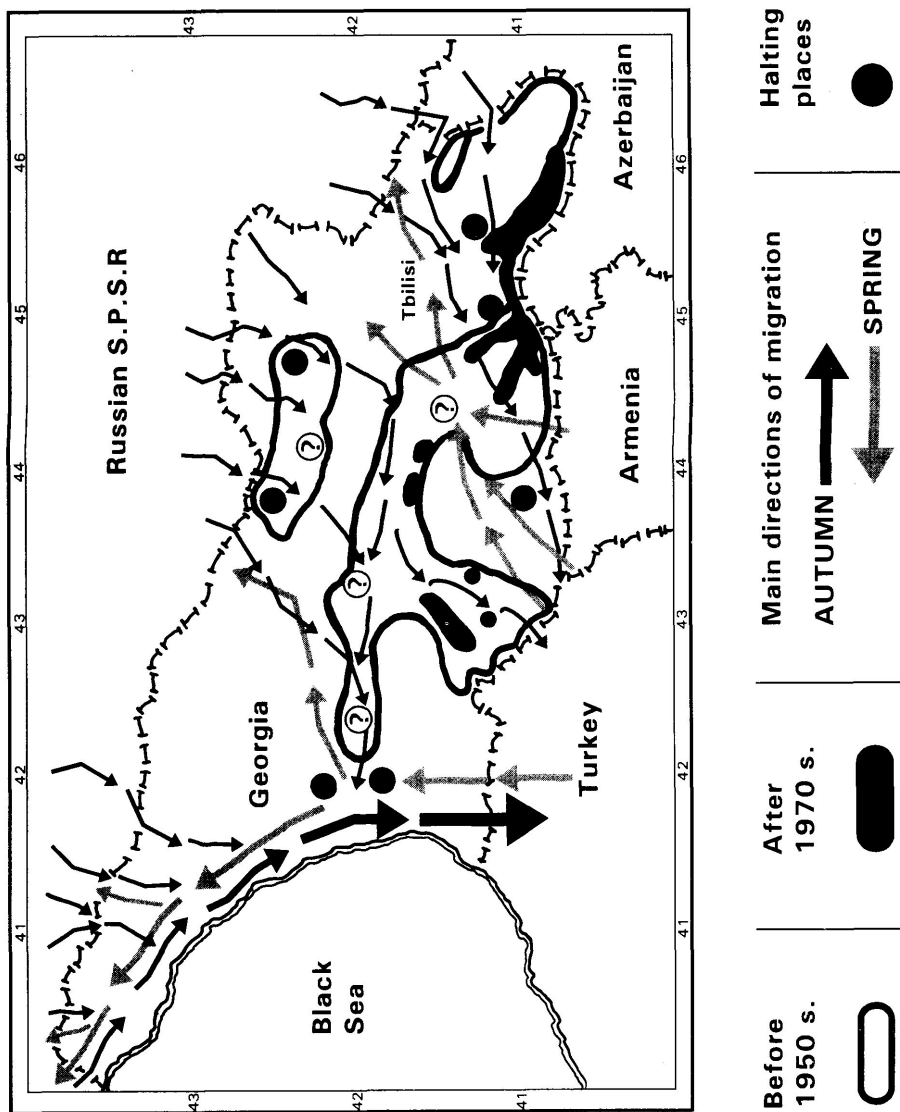
The vertical limit of the nesting habitat of this raptor in Georgia is 200-1,000m a.s.l. The eagles breed mainly in old dense forests in the flood-lands of large rivers and on the gentle slopes of low mountains.

Table 1 gives an overview of the distribution of nest-sites. Hunting territories are clearings and open areas along the forest edge 0.3-1.5km from the nest sites..

Breeding biology

Transit spring migration of the Lesser Spotted Eagle is recorded from the last ten days in March to the first half of April (22.3 - 14.4). Peak of the spring migration has been observed in the first days of April. I have little information about the spring migration pattern; its main direction and resting places are shown on the map.

Figure 1. Area of Distribution of the Lesser Spotted Eagle in Georgia.



In my opinion, these dates refer mainly to migrating northern populations, because the birds arrive at their nesting habitats a bit later (see Table 2). The earliest occurrence of the eagle near its nest in Georgia has been recorded on March 31, 1979.

Table 1. Nest-site Selection of Lesser Spotted Eagle in Eastern Georgia.

<i>Tree Species</i>	<i>No of nests</i>	<i>Position in tree</i>			<i>Height (m) above ground</i>			
		Top	Crown	Branch	10-15	15-20	20-25	25>
Poplar	18 (82%)	1	15	2	2	12	3	1
Aspen	2 (9%)	-	2	-	2	-	-	-
Beech	1 (4.5%)	-	1	-	-	-	1	-
Hornbeam	1 (4.5%)	-	1	-	1	-	-	-
Total	22	1	19	2	5	12	4	1

Table 2. Phenological Data on Lesser Spotted Eagle in Georgia

<i>Appearance</i>	<i>Dates</i>
Spring migration (transit)	22.03-14.04
Arrival at nesting habitat	31.03-16.04
Egg-laying	12.04-28.04
Hatching	23.05-12.06
Fledging	7.07-1.08
Autumn migration	7.08-21.10

Egg-laying

Eggs are laid mostly in the second half of April (12.4-28.4). Out of 17 known clutches 15 (88.2%) had two eggs and two (11.8%) had one egg.

Average clutch size was 1.88. I had the possibility to gather data on the size and weight of the eggs in 13 nests (see Table 3).

Hatching

Hatching was studied for four nests.(23-26 May; 27 May-?; 2 June; ?-12 June).

Fledging

Fledging has been observed mainly in the middle of July in Eastern Georgia. The earliest fledging of a young has been registered on July 7, 1989, the latest on August 1, 1977. The young birds have sometimes been observed near the nesting area 1-2 weeks after fledging. It is more common for adults with young to move to the subalpine meadows (over 1,800m a.s.l.) after fledging. These areas are a better food resource and the eagles remain there until the autumn migration.

Table 3. Size (mm) and Weight (g) of Lesser Spotted Eagles' eggs in Eastern Georgia

	SIZE		WEIGHT	DATE
	Length	Width		
	65.5	51.0	-	11.05.1977
	63.0	48.3	-	11.05.1977
	70.0	51.2	89.4	15.05.1978
	63.2	49.5	85.0	15.05.1978
	63.0	50.1	84.8	18.05.1978
	59.1	47.0	66.7	18.05.1978
	69.0	54.5	-	12.05.1980
	61.5	49.0	-	12.05.1980
	62.3	52.0	-	17.05.1980
	60.0	49.0	-	17.05.1980
	66.3	50.8	86.1	11.05.1981
	64.5	52.5	-	17.05.1981
	61.7	48.3	-	17.05.1981
	61.4	49.3	81.0	23.05.1981
	57.5	46.0	64.3	23.05.1981
	67.0	49.8	85.6	21.05.1982
	60.8	46.3	66.5	21.05.1982
	64.0	47.5	71.0	6.05.1984
	62.5	50.5	84.2	12.05.1985
	62.1	50.0	81.8	12.05.1985
	64.5	50.3	86.0	28.04.1988
	61.2	48.0	78.1	28.04.1988
	61.5	49.8	-	8.05.1988
	56.5	46.0	-	8.05.1988
Min	56.5	46.0	64.3	
Max	70.0	54.5	89.4	
Average	62.8	49.0	79.3	

Breeding success

Main characteristics of the breeding success in Georgia are shown in Table 4. Data on the trophic relations have been investigated during the period of feeding the young. Material was collected from 14 nests during 1979-1988 in Eastern Georgia (see Table 5).

Table 4. Indices of Effectiveness in Lesser Spotted Eagles Breeding in Georgia 1982-1988

	1982	1983	1984	1985	1986	1987	1988
Checked territories	7	9	10	10	10	14	14
Occupied territories (with pairs)	7	8	8	9	8	11	12
Territories with eggs	7	6	7	7	7	11	11
No of successful nestings	6	3	5	6	6	9	8
No of unsuccessful nestings	1	0	2	1	1	2	3
Percentage of successful nestings	85.7	50.0	71.4	85.7	85.7	81.8	72.7
No of young capable of flying	8	5	7	7	9	14	12
No of young capable of flying per successful nesting	1.33	1.66	1.4	1.16	1.5	15.6	1.5
No of young capable of flying per occupied territory	1.14	0.63	0.88	0.78	1.13	1.27	1.00
No of young capable of flying per established nesting	1.14	0.83	1.00	1.00	1.29	1.27	1.09
Territories with no activity	0	1	1	1	0	1	1
No data	0	0	1	0	2	2	1

Table 5. Identified Prey of Lesser Spotted Eagle in Eastern Georgia. Material collected from 14 nests in the period of feeding the young (1979-1988).

<i>SPECIES</i>	<i>No</i>	<i>%</i>
House Mouse (<i>Mus musculus</i>)	6	1.42
Wood Mouse (<i>Apodemus sylvaticus</i>)	49	11.56
Mice spp.	7	1.65
Ground Vole (<i>Arvicola terrestris</i>)	16	3.77
Common Vole (<i>Microtus arvalis</i>)	9	2.12
Social Vole (<i>Microtus socialis</i>)	5	1.18
Voles (<i>Microtus</i>) spp.	17	4.01
Rodent spp.	14	3.3
Total mammals	123	29.01
Pheasant chick (<i>Phasianus colchicus</i>)	6	1.42
Blackbird (<i>Turdus merula</i>)	2	0.47
Jay (<i>Garrulus glandarius</i>)	6	1.42
Magpie (<i>Pica pica</i>)	4	0.94
Hooded Crow (<i>Corvus corone</i>) (young)	7	1.65
Passeriformes spp.	12	2.83
Total birds	37	8.73
Five-streaked Lizard (<i>Lacerta strigata</i>)	15	3.54
Three-lined Lizard (<i>Lacerta trilineata</i>)	2	0.47
Lizard spp.	43	10.14
Grass Snake (<i>Natrix natrix</i>)	26	6.13
Diced Snake (<i>Natrix tessellata</i>)	11	2.59
Snake spp.	9	2.12
Total reptiles	106	25.00
Green toad (<i>Bufo viridis</i>)	12	2.83
Toad, spp.	7	1.65
Common Tree Frog (<i>Hyla arborea</i>)	10	2.36
Marsh Frog (<i>Rana ridibunda</i>)	94	22.17
Frog spp.	24	5.16
Total amphibians	147	34.67
Insect (large) spp.	11	2.59
TOTAL	424	100.00

Autumn migration

Earliest migrating birds have been observed on the Black Sea coast at the beginning of August, the earliest record being August 7. The main migration takes place in September; the last birds leaving mid-October, the latest record being October 21.

The main migration route to Western Georgia lies through the central Caucasus range coming from the north. According to visual observations, some birds have also been recorded flying along the coast of the Black Sea. In my opinion, Lesser and Greater Spotted Eagles can be distinguished from each other only with great difficulty during intensive mass migration, and my flight identification records apply to both species. Their autumn migration pattern is characterized in Table 6.

Table 6. Autumn Migration Pattern of Lesser and Greater Spotted Eagles in Georgia

<i>Region</i>	<i>Obs. dates and no of days</i>	<i>No of birds</i>	<i>Max per day</i>	<i>Average per day</i>	<i>Percentage of total</i>
Adjaria, Kobuleti R. Cholokiestuary	20.10-7.11.75(14)	3	2(20.10)	0.14	0.13
Adjaria, Kobuleti near Chakvi	26.88-5.10.87(19)	147	18(22.9)	7.74	1.58
Lake Paliastomi	6.8-18.8.82(11)	5	4(17.8)	0.45	1.79
Abkhzia, near Sukhumi	7.8-4.9.84(22)	22	5(3.9)	1.00	1.62
Adjaria, near Batumi	3.09-30.9.85(21)	135	11(18.9)	6.43	0.62
Kolkhida Lowland River Rioni	15.9-26.9.88(10)	61	11(19.9)	6.1	0.81
Adjaria, Chel- vachauri, Gonio	7.9-22.9.90(12)	101	8(16.9)	8.4	0.95
Adjaria, near Batumi	3.10-26.10.91(21)17		8(6.10)	0.81	0.24

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