

# **Bird fauna of the reservoirs situated on the Someșul Cald Valley**

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## ***Abstract***

This paper presents the results of the ornithological surveys performed on the reservoirs situated on the Someșul Cald Valley during the years 1977-1998. Due to the fact that these reservoirs freeze only partially during winters they become a proper wintering site for water birds. A total of 21 species were recorded on the lakes, including some common species, like *Anas platyrhynchos*, as well as some species rare in Transylvania and also in Romania, like *Phalacrocorax pygmaeus*, *Egretta alba*, *Aythya marila* and *Somateria mollissima*. Few passage birds occur during spring and autumn.

Keywords: bird fauna, reservoirs, Someșul Cald Valley

## ***Introduction***

The problem regarding the influence of reservoirs on bird fauna was brought into ornithologists' attention only during the last decades as a natural consequence of the appearance of many man-made basins on the map of Romania, created as water sources for industry and agriculture. In our country, the first concerns coincide with the creation of the first big reservoir (Bicaz Lake in the Eastern Carpathians in 1960). During the next years the ornithological research extended to other reservoirs in the Moldavian Bistrița Valley (Munteanu, 1960-1976) and later to those in Argeș basin and along the middle section of Olt and its tributaries (Mătieș, 1969-1974). After a long break a similar research began on the lakes on Siret and on reservoir Stâncă-atefănești on river Prut. Unfortunately, no one made similar researches, although till now about 100 reservoirs have been created in Romania. The only exceptions are the lakes on river Someșul Cald, whose waterfowl began to be studied in 1978, shortly after building of reservoirs.

The spreading of bird population on reservoirs is a very interesting biological phenomenon. It can very often be seen and it has usually three stages.

The first stage begins shortly after the establishment of the new reservoir and can last from a few months to a year. It is characterised by an occasional appearance of waterfowl, especially with migratory species on their seasonal movements. Consequently, for the birds it is the best when the reservoirs are situated on the migration routes.

After being “discovered” by the birds, the second stage begins in the evolution of the lake, namely the development of the bird fauna. This stage is longer, lasts about 2-6 years, and it can be seen as an evolving, irregular phenomenon. It can trace important differences from one year to another from the point of view of bird fauna. It is an uncertain period, when the population size varies on short intervals or when certain species occur and disappear very irregularly. During this period the reservoirs have no regular breeding species. The biggest number of birds can be registered during the passage periods and some species (resident or winter visitors) during winter as these reservoirs usually freeze only partially in the second half of the winter.

After some years, when the bird fauna is developed, begins the stage of stability when certain species appear periodically and in constant number. We can now draw a “calendar” of arrivals and departures and the population size is almost the same. Birds get used to settle on the lake either for some hours or days during passage, or for months during the cold season. Moreover some species begin to breed on these newly created lakes or on their shores in the aquatic vegetation. The almost constant situation does not exclude the occurrence of some unusual events such as rapid increases or decreases in population number, species rare for that geographical area can occur or certain species can be present in unusual periods.

Among the four reservoirs in Someșul Cald basin, the most densely populated with waterfowl is Gilău Lake, due to the fact that it lies the closest to the hilly area (more accessible for birds), and also because of the rich food supply. The process of silting and eutrophication is obvious in the western area, proved by the marsh vegetation. This place became the feeding area of mallards, while the opposite bank where the forest vegetation reaches the water is ideal for breeding.

The Someșul Cald Lake very often shelters waterfowl, which come from Gilău, while birds on the Tarnița Lake and Beliș Lake are very rare. Consequently, the following lines will refer only to the first two reservoirs mentioned, namely to Gilău and Someșul Cald.

### ***Results of Ornithological Surveys***

#### **Ord. Gaviiformes**

- |                       |  |
|-----------------------|--|
| <i>Gavia stellata</i> | Occasional: 19.11.1994 (1 individual).   |
| <i>Gavia arctica</i>  | Rare, 5 winter records (14.02.1977, 23.03.1977, 9.01.1988, 28.09.1994, 8.02.1995). |

#### **Ord. Podicipediformes**

- |                            |  |
|----------------------------|--|
| <i>Podiceps ruficollis</i> | Present constantly in small number (max. 15 individuals) during the cold season (X - III). Bred at Gilău in 1988 (2 families with chicks on 20.08.1988). |
| <i>Podiceps cristatus</i>  | Appears rarely, irregularly in different months, except IV-VII, each time 1-3 individuals.   |
| <i>Podiceps grisegena</i>  | Occasional, 23.03.1977 (2), 19.04.1988 (1 ind.)  |

### Ord. Pelecaniformes

- Phalacrocorax carbo* Occasional, in the cold season: 11.12.1993 (2 ind.), 11.03.1995 (1 ind.).
- Phalacrocorax pygmaeus* Occasional, during winter: 21.01.1994 (2 ind.), 19.12.1998 (3 ind.).

### Ord. Ciconiiformes

- Egretta alba* Occasional: 26.11.1993 (2 ind.), 11.12.1993 (2 ind.).
- Ardea cinerea* Occasional, although it can be seen frequently on the rivers in the Transylvanian Plain. There are only 3 records: 4.09.1980, 28.07.1981, 11.12.1993 (1-6 ind.).
- Ciconia nigra* One record: 2 adults on 16-18.06.1998.

### Ord. Anseriformes

- Tadorna tadorna* Occasional: 26.11.1993 (1+1 ind.).
- Cygnus olor* Occasional, in the winter months (XI-II); it was recorded 5 times (2-12 individuals).
- Cygnus cygnus* 5 records: 14.01, 17.01 and 25.02.1996 (1 ind, probably the same), 10.03.1996 (1), 19.12.1998 (1 adult + 1 chick).
- Anas platyrhynchos* It is the most frequent species of the reservoirs, mainly as a winter visitor. Small groups of some tens of individuals arrive by the end of October and their number increase in November. Generally up to 2,000-2,500 individuals remain on these reservoirs during the winter months, most of them on Gilău. The maximum number of about 4,300 individuals was recorded during the winter 1995/1996. On the other hand, in *figure 1* it can be observed, that a small number of mallards was recorded during 1978-1987 and a slight increase happened in the following years when 2,000 individuals were recorded in the winter 1992/1993. Then, the total number varied between 2,000-4,000 individuals. Mallards from Gilău and Someșul Cald fly every evening regularly over Cluj and feed on river Someș, up-stream the town (Someșeni, Apahida, Jucu) and they return to the reservoirs early in the morning.
- Anas acuta* Occasional, in the cold season: 07.01.1993 (1), 26.11.1993 (1), 25.02.1996 (5), 02.02.1997 (5).
- Anas crecca* It is sometimes observed late autumn (X-XI – passage individuals) and constantly during January-February (10-65 individuals – winter visitors). The latest observation was made on 11.03.1995.
- Anas querquedula* Occasional during the spring passage: 07.03.1983 (7), 19.04.1988 (7), 23.03.1998 (12).

<i>Anas penelope</i>	Occasional during the cold season, from October till March (13 records, maximum 11 individuals).
<i>Anas strepera</i>	Occasional: 25.01.1990 (1 ind.).
<i>Netta rufina</i>	Occasional, during winter 1994/1995: 15.01, 08.02 and 16.02.1995 (1, possibly the same).
<i>Aythya ferina</i>	Appears more often especially in the second half of the winter (months I, II), usually in small groups (max. 12 ind. on 17.01.1996); two records in the second half of the summer (28.07.1981, 20.08.1983).
<i>Aythya nyroca</i>	Occasional: 04.04.1977 (7), 24.01.1996 (1 ind.).
<i>Aythya marila</i>	Occasional: 21.01.1994 (1), 17.01.1996 (1 pair).
<i>Aythya fuligula</i>	Although during passage it can be only occasionally seen on reservoirs (9 records between December and March), it is not rare on the rivers in the plain.
<i>Somateria mollissima</i>	Exceptional occurrence both in Romania and on the studied reservoirs: one immature male on Gilău on 14.01.1996.
<i>Bucephala clangula</i>	It is a constant species on the reservoirs, being present during winter months (XII-II, rarely until III), although in small number (max. 27 individuals on 17.01.1996).
<i>Mergus merganser</i>	Occasional with only six records: 31.12.1980 (2 females), 24.01.1996 (1), and four records in January-February 1997 (2-11 individuals).
<i>Mergus albellus</i>	Occasional, it was recorded on 25.11.1995 (12), 12.01.1997 (1 individual) and 20.01.1997 (1 female), 19.12.1998 (1 female).

### Ord. Gruiformes

<i>Fulica atra</i>	Arrives on the reservoirs by the end of October (nevertheless there are 2 records from September); it was observed here until the beginning or middle of March. Generally can 40-60 coots be seen, but sometimes even 140-200 individuals were observed (21.01.1994, 30.01.1995, 16.02.1995). Its departure seems to be in close relation with weather conditions, or, to be more precise, with the defrost of rivers in the plain.
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### Ord. Charadriiformes

<i>Tringa erythropus</i>	Occasional, 18.06.1998 (1 ind.).
<i>Larus ridibundus</i>	Although during the last 6-7 winters the black-headed gull has been observed regularly and in big number on the river Someșul Mic at Cluj, it comes rarely, almost occasionally to Gilău-Someșul Cald reservoirs, and stays only for short periods (even less than an hour). The records come from winter months (XI-I) and only one from September. Varying number, 1-90 individuals.
<i>Chlidonias niger</i>	Occasional, during spring passage: 01.05.1993 (2), 14.05.1993 (2). Conclusions

Reservoirs of the river Someșul Cald constitute especially a roosting site for the waterfowl during winter. Up to now 31 bird species were observed, belonging to 7 orders. The data about their number, observations and frequency are presented in Table 1. The following species can constantly be seen here during the cold season: *Anas platyrhynchos* (by far with the biggest population), *Podiceps ruficollis*, *Aythya ferina*, *Fulica atra* (partial migrant in Romania), *Anas crecca* and *Bucephala clangula* (winter visitors in Romania).

Other species observed during winter are as follows:

a) Winter visitors in Romania: *Gavia arctica*, *Gavia stellata*, *Aythya marila*, *Aythya fuligula*, *Cygnus cygnus*, *Mergus merganser*, *Mergus albellus*;

b) Partial migratory species: *Phalacrocorax carbo*, *Phalacrocorax pygmaeus*, *Cygnus olor*, *Larus ridibundus*;

c) Breeding, mostly migratory species among which only a few individuals spend the winter locally in Romania: *Podiceps cristatus*, *Anas strepera*, *Netta rufina*, *Aythya nyroca*;

d) Passage migrants in Romania, rarely occur during winter: *Anas penelope*, *Anas acuta*.

In spring and autumn individuals of some species migrating on the lowlands of Transylvania reach occasionally the mountain reservoirs, such as *Podiceps grisegena*, *Anas penelope*, *Anas querquedula*, *Chlidonias niger*.

By the second half of summer individuals of species breeding in Transylvania appear occasionally, such as *Podiceps cristatus*, *Ardea cinerea*, *Aythya ferina*.

Finally, some species occurring very rarely in Transylvania have also been observed on the reservoirs on river Someș, either in winter or during migration periods. They are *Phalacrocorax carbo*, *Phalacrocorax pygmaeus* (already cited at point b), *Egretta alba*, *Tadorna tadorna*, *Netta rufina*, *Somateria mollissima*.

If the winter and during migration the bird fauna is very rich (21 species), while the breeding fauna is represented only by mallard (*Anas platyrhynchos*) and little grebe (*Tachybaptus ruficollis*), with a maximum of 2-3 pairs in both species.

Going upstream the Someșul Cald river, the deeper in the mountains the reservoirs are situated, the less populated with birds, and almost only during winter (when they do not freeze). The only constant species on the Someșul Cald reservoir during the cold season is mallard (about 150-2,000 individuals) and little grebe (sporadic, isolated individuals) while on the Tarnița and Beliș reservoirs mallard stops only occasionally, for short periods.

All these data prove (also for Someșul Cald valley) that the reservoirs situated in the Carpathian area attract waterfowl especially during their seasonal movements or during winter as long as they do not freeze. To a smaller degree they become roosting sites for wide distributed species as mallard.

On the other hand, none of the species mentioned above stop on the mountain rivers, such as Someșul Rece or Someșul Cald (upstream Tarnița reservoir), since because of their rapid flow they do not suit for waterfowl as roosting site and cannot offer enough trophic resources.

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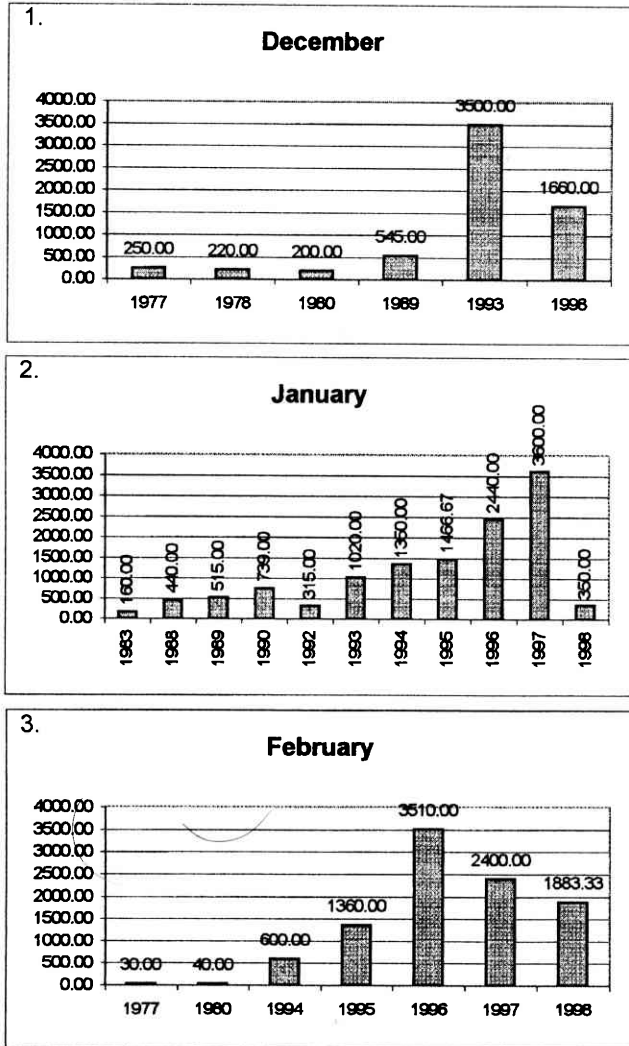
Romania

	No of recorded birds	% from the total	No of days of recording	Species frequency %
<i>Anas acuta</i>	12	0.01328%	4	5.26316%
<i>Anas crecca</i>	557	0.61623%	24	31.57895%
<i>Anas penelope</i>	73	0.08076%	13	17.10526%
<i>Anas platyrhynchos</i>	8668	95.88335%	72	94.73684%
<i>Anas querquedula</i>	26	0.02876%	3	3.94737%
<i>Anas strepera</i>	1	0.00111%	1	1.31579%
<i>Ardea cinerea</i>	13	0.01438%	5	6.57895%
<i>Aythya ferina</i>	93	0.10289%	21	27.63158%
<i>Aythya fuligula</i>	48	0.05310%	9	11.84211%
<i>Aythya marila</i>	3	0.00332%	2	2.63158%
<i>Aythya nyroca</i>	8	0.00885%	2	2.63158%
<i>Bucephala clangula</i>	128	0.14161%	24	31.57895%
<i>Chlidonias niger</i>	4	0.00443%	2	2.63158%
<i>Ciconia nigra</i>	2	0.00221%	1	1.31579%
<i>Cygnus cygnus</i>	6	0.00664%	5	6.57895%
<i>Cygnus olor</i>	30	0.03319%	5	6.57895%
<i>Egretta alba</i>	4	0.00443%	2	2.63158%
<i>Fulica atra</i>	2321	2.56779%	42	55.26316%
<i>Gavia arctica</i>	7	0.00774%	5	6.57895%
<i>Gavia stellata</i>	1	0.00111%	1	1.31579%
<i>Larus cachinnans</i>	1	0.00111%	1	1.31579%
<i>Larus ridibundus</i>	160	0.17701%	7	9.21053%
<i>Mergus albellus</i>	15	0.01659%	4	5.26316%
<i>Mergus mercanser</i>	24	0.02655%	6	7.89474%
<i>Netta rufina</i>	3	0.00332%	3	3.94737%
<i>Phalacrocorax carbo</i>	3	0.00332%	2	2.63158%
<i>Phalacrocorax pygmaeus</i>	5	0.00553%	2	2.63158%
<i>Podiceps cristatus</i>	15	0.01659%	8	10.52632%
<i>Podiceps grisegena</i>	3	0.00332%	2	2.63158%
<i>Podiceps ruficollis</i>	151	0.16706%	29	38.15789%
<i>Somateria mollissima</i>	1	0.00111%	1	1.31579%
<i>Tadorna tadorna</i>	2	0.00221%	1	1.31579%
<i>Tringa erythropus</i>	1	0.00111%	1	1.31579%
	90389			

Table 1. Quantitative data of bird species recorded on reservoirs

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
<i>Gavia arctica</i>	x	x x	x						x			
<i>Gavia stellata</i>											x	
<i>Podiceps ruficollis</i>									x x x			
<i>Podiceps cristatus</i>	x	x	x					x	x		x	
<i>Podiceps grisegena</i>			x	x								
<i>Phalacrocorax carbo</i>			x									x
<i>Phalacrocorax pygmaeus</i>	x											x
<i>Egretta alba</i>											x	
<i>Ardea cinerea</i>							x					x
<i>Cygnus olor</i>	x	x	x								x	x
<i>Cygnus cygnus</i>	x	x	x								x	x
<i>Tadorna tadorna</i>											x	
<i>Anas penelope</i>		x x	x x							x x		
<i>Anas strepera</i>	x	x										
<i>Anas crecca</i>									x x			
<i>Anas platyrhynchos</i>				x x x	x x x	x	x	x x x	x x x			
<i>Anas acuta</i>	x	x	x								x	
<i>Anas querquedula</i>			x	x								
<i>Nettion rufina</i>	x	x x										
<i>Aythya ferina</i>							x	x		x	x	x
<i>Aythya nyroca</i>	x	x	x	x								
<i>Aythya fuligula</i>	x	x	x									x
<i>Aythya marila</i>	x	x										
<i>Somateria mollissima</i>	x											
<i>Bucephala clangula</i>												
<i>Mergus albellus</i>	x x										x	x
<i>Mergus merganser</i>	x								x x	x x		
<i>Fulica atra</i>			x x x									
<i>Chlidonias niger</i>				x x								
<i>Larus ridibundus</i>	x								x		x x	x
<i>Ciconia nigra</i>						x						
<i>Tringa erythropus</i>						x						

Table 2. Periods of bird presence on reservoirs



Figures 1,2,3. Average numbers of mallards (*Anas platyrhynchos*) observed in winter months.



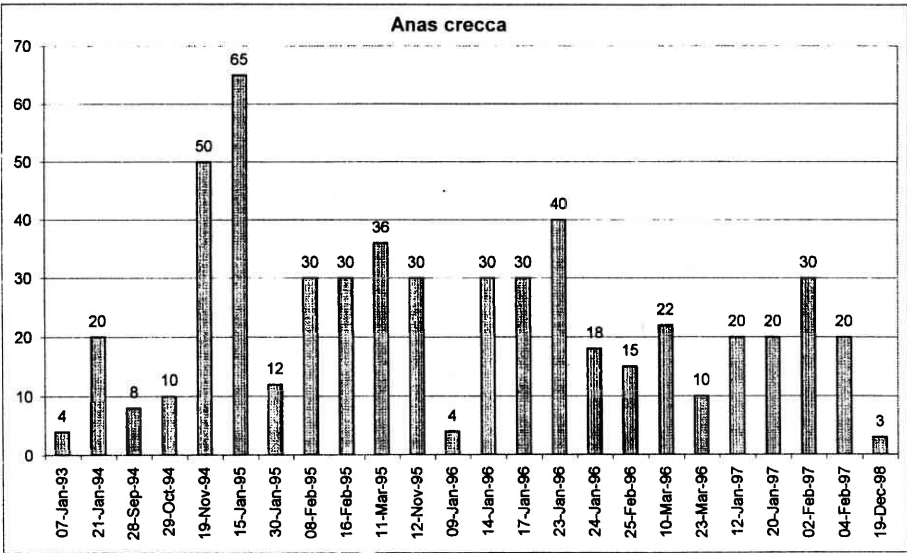


Figure 4. Results of daily counts of Teal (*Anas crecca*)

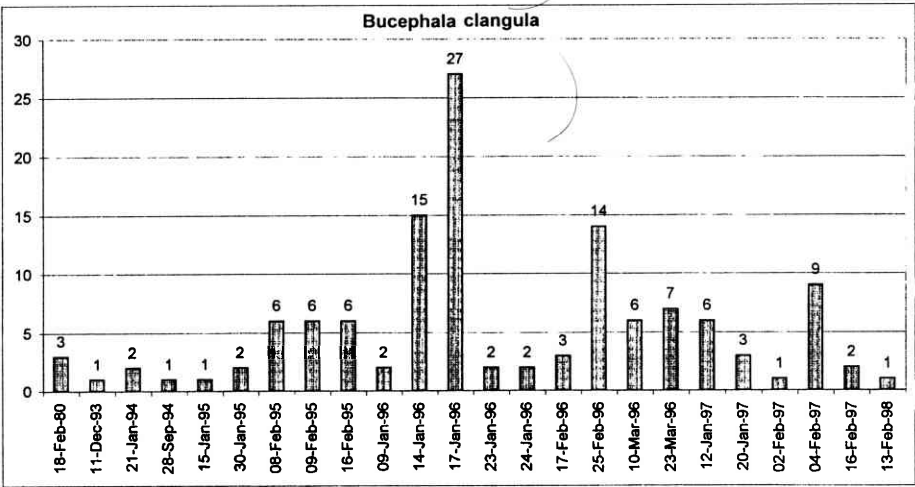


Figure 5. Results of daily counts of Goldeneye (*Bucephala clangula*)

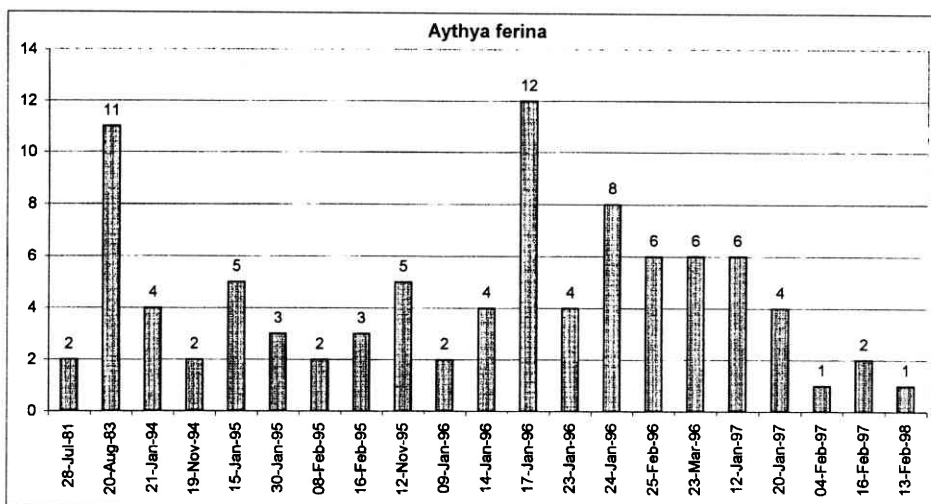


Figure 6. Results of daily counts of Pochard (*Aythya ferina*)

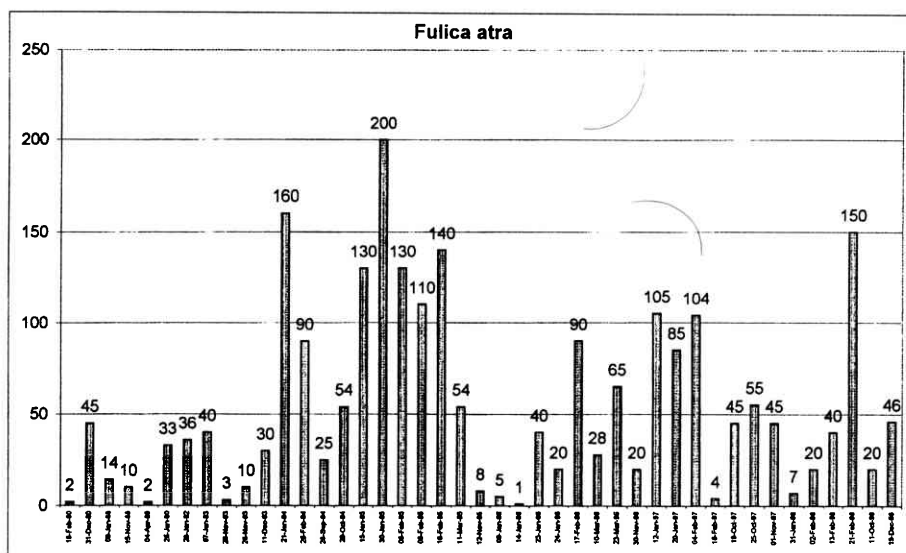


Figure 7. Results of daily counts of Coot (*Fulica atra*)