DIET OF THE POLECAT *MUSTELA PUTORZUS* L. IN RIVERINE HABITATS (NORTHERN ITALY)

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ABSTRACT – Food habits of the polecat *(Mustela putorius)* were studied by the analysis of 50 scats collected in riverine habitats of northern Italy from 1985 to 1988. Data were expressed as percent frequency of occurrcncc (F%) and relative percentage of frequency (Fr%). Rodents (Fr% = 48.4), mainly *Apodemus* sp. (Fr% = 25.0) and *Clethrionomys glareolus* (Fr% = 15.6), lagomorphs (Fr% = 23.4) and birds (Fr% = 12.5) wcrc the main components of the diet. Falconiformes, probably consumed as carrion, and Ralliformes wcrc recorded for the first time in the polecat diet in Europe. Fruit, amphibians and reptiles wcrc scarcely exploited by the polecat.

Key words: *Mustela putorius*, Diet, Riverine habitat, Northern Italy.

RIASSUNTO – *Dieta della puzzola* Mustela putorius *L.* in *ambiente fluviale (Italia settentrionale)* – La dieta della puzzola *(Mustela putorius)* è stata studiata attraverso l'analisi di 50 cscrcmenti raccolti in ambienti fluviali della pianura Padana nord occidentale nel periodo 1985-1988. I dati ottenuti sono stati espressi come percentuale di frequenza (F%) e come frequenza relativa percentuale (Fr%). I roditori (Fr% = 48,4), rappresentati principalmente da *Ayodenzus* **sp.** (Fr% = 25,0%) e *Clethrionomys glareolus* (Fr% = 15,6), i lagomorfi (Fr% = 23,4) e gli uccelli (Fr% = 12,5) costituivano le principali componenti della dieta. Viene segnalata per la prima volta in Europa la presenza nella dieta di questo mustelide di Ralliformes e di Falconiformes (l'unico reperto rinvenuto è stato presumibiimente consumato come carogna). Il consumo di frutta, anfibi e rettili è risultato molto modesto.

Parole chiave: *Mustela putorius*, Dicta, Ambiente fluviale, Italia settentrionale.

INTRODUCTION

The polecat *(Mustela putorius* Linnaeus, 1758) occurs in several different habitats such as woodland, farmland, river banks, sea cliffs, marsh and steppe (Blandford, 1987). Its feeding habits have been studied in wet habitats of central and northern Europe only during the last decade (Lodè, 1990a, 1990b, 1993 and 1994; Roger, 1991; Sidorovich, 1992; Jedrzejewski et al., 1993).

The biology of Italian polecats is still greatly unknown; this paper presents the first results on polecat diet by faecal analysis. The study has been conducted in riverine habitats of northern Italy, where heavy environmental changes due to agriculture, industry and human pressure have occurred.

STUDY AREA

Data were collected in valley areas of Ticino and Adda rivers and their tributaries (northern Italy), covering a total surface of about 10 km^2. Scattered deciduous woodland occurred along the river banks consisting mostly of *Salix alba, Alnus glutinosa, Frangula alnus*

and *Populus* spp. The study areas were characterized by a wide network of canals prevalently bordered by ***Robinia*** *pseudoacacia* woods with brushwood dominated by *Samhucus* ***nigra*** and *Cornus sanguinea.* Farmland was mainly a mosaic of crops (meadow, maize, wheat, barley, soya-bean and rice) and poplar plantations. Built-up areas were restricted to some little villages and dairy farms.

MATERIAL AND METHODS

A total of 50 scats of polecat was collected from 1985 to 1988 in livetraps and along transccts bordering the river banks. About 75% of faeces was found in winter/spring. Scats were analyzed following the standard procedure (Korscligeii, 1980). Prey items were identified by bones, hairs, feathers and skin remains according *to* Chaline et al. (1974), Pucek (1981), Teerink (1991), De Marinis and Agnelli (1993), Day (1966) and Rage (1974). Wherever possible, prey items were identified to species level. According to Prigioni & Tacchi (1991), the contribution of each prey items was expressed as: i) percent frequency of occurrence, F% = number of occurrences of each food item / total number of scats per 100, ii) relative percentage of frequency, Fr% = number of occurrences of each food / total number of occurrences per 100.

RESULTS AND DISCUSSION

Small mammals, lagomorphs and birds made the bulk of the polecat diet (Tab. 1). Rodents, mainly *Apodemus* sp. and *Clethrionomys glareolus*, and lagomorphs constituted respectively about the half (Fr% = 48.4) and a quarter (Fr% = 23.4) of the overall diet. Among lagomorphs, wild rabbits (*Oryctolagus cuniculus*) were mostly preyed on. This species is quite common in the study areas and represents a clumped food resource easily available and vulnerable. The polecat often explores its burrows. Birds (Fr% = 12.5) were mainly Passeriformes (Fr% = 7.8) and included also Falconiformes, probably consumed as carrion, and Ralliformes. These last food components are recorded for the first time in the polecat diet, since they are not cited in the recent list of polecat prey reported by Wolsan (1993).

The low consumption of amphibians is unexpected, since the polecat is considered as specialized predator on frogs and even toads inedible for most mammalian carnivores in wetlands of central and northern Europe (Jedrzeiewski et al., 1993; Lodè, 1990a, 1990b and 1993; Weber, 1989; Sidorovich, 1992). This result could depend on the low number of polecat scats examined. Nevertheless most scats were collected in winter and spring when, according to Jedrzejewski (1993) and Lodè (1990b), the highest consumption of amphibians was recorded in northern and central Europe.

It results in the present study that domestic animals were not exploited by polecats, probably because of the poor feeding resources around dairy farms scattered in the study area. According to Weber (1989) this food becomes usually important with the decreasing of the availability of wild feeding resources.

The polecat is commonly considered as a generalist predator with feeding habits almost completely carnivorous (Erlinge, 1986), using different food resources in relation to their dispersion, abundance and availability (Lodè, 1994).

Tab. 1 – Composition of the polecat diet expressed as percent frequency of occurrence (F%) and relative percentage of frequency (Fr%). N = number of prey items; total number of scats: 50; total number of prey items: 64.

PREY ITEMS	N	F%	Fr%
VEGETABLES	3	6	4.7
Vitis vinifera	2	4	3.1
Plant material	1	2	1.6
AMPHIBIANS	2	4	3.1
Rana sp.	2	4	3.1
REPTILES	2	4	3.1
Ophidia	2	4	3.1
BIRDS	8	16	12.5
Anseriformes	1	2	1.6
Falconiformes	1	2	1.6
Ralliformes	1	2	1.6
Passeriformes	5	10	7.8
MAMMALS	45	90	76.5
Rodents	31	62	48.4
Apodemus sp.	16	32	25.0
Clethrionomys glareolus	10	20	15.6
Rattus sp.	2	4	3.1
Muscardinus avellanarius	1	2	1.6
Muridae	2	4	3.1
Lagomorphs	15	30	23.4
Insectivores	3	6	4.7
Sorex sp.	2	4	3.1
Crocidura sp.	1	2	1.6

Our results appear to confirm this finding. For example, the consumption of *Apodemus* sp. and *Clethrionomys glareolus* seems to be related to their density. In the valley of Ticino river the former species reached density three times over than the latter (31.6 individuals/ha vs. 10.2 individuals/ha, Prigioni and Tacchi, 1991).

Despite of the small sample of polecat scats examined, this work provides useful information on a carnivore apparently declining in Italy (Vigna Taglianti, 1988; Pedrini et al., in this volume).

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