Environmental factors influencing habitat exploitation by the polecats *Mustela putorius* in western France

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(With 6 figures in the text)

Variation in habitat use was studied by radiotracking 11 polecats *Mustela putorius* in two wetlands in western France. Habitat selection showed a clear seasonality. Marshes were the most exploited habitat in spring while woods were mainly used in the coldest months and meadows were frequented in summer and winter. An analysis of scats showed that diet correlated with habitat utilization. The proportions of bank voles *Clethrionomys glareolus*, and meadow voles *Microtus* sp. were, respectively, related to the use of woods and meadows, while amphibians (mainly *Rana dalmatina* and *Bufo bufo*) were associated with marshes. Availability of rodents, assessed monthly by trapline success, were also significantly correlated to their occurrences. In contrast, no correlations were found between larger prey, such as brown rats *Rattus norvegicus* and rabbits *Oryctolagus cuniculus*, and any habitats or their abundance in the field. The occurrences of these prey and of some minor resources, such as shrews and birds, were correlated most with meteorological factors. The exploitation of marshes and amphibians increased when small rodents declined. Therefore, in the polecats, habitat selection was mostly influenced by trophic factors. Dietary diversity was greater in spring when food resources decreased, suggesting that polecats were optimal foragers. The study has emphasized that the polecats is a generalist feeder.

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### Introduction

In many mustelids the size of an animal’s activity area depends mainly upon food distribution and abundance (Kruuk & Parish, 1982; Pulliainen, 1984; Kruuk & Macdonald, 1985; Kruuk, Wansink & Moorhouse, 1990). Space is not uniformly used and the activity of animals is
concentrated on certain restricted areas, whereas others seem to be deserted (Gerell, 1970; Erlinge, 1977; Zielinski, Spencer & Barrett, 1983; Pulliainen, 1984). Such selective utilization of space is usually considered as evidence of intensive feeding upon a single resource.

This spacing pattern has been shown in the polecat Mustela putorius Linnaeus 1758 (Nilsson, 1978; Herrenschmidt, 1982; Blandford, 1987; Weber, 1989a; Lodé, 1991a). Nevertheless, although good information is available on the diet of this mustelid (Chaigneau, 1947; Kratochvil, 1952; Danilov & Rusakov, 1969; Brugge, 1977; Ballarin et al., 1980; Blandford, 1987; Weber, 1989b; Lodé, 1990, 1991b; Roger, 1991; Sidorovich, 1992), the influence of food availability on habitat use has not yet been investigated and little is known about relationships between movements, feeding habits and prey abundance. Furthermore, the trophic status of the species remains unclear because the predator shows great variations in the composition of the diet, depending on the study area (see above). Based on its dietary eclecticism, the polecat has been portrayed either as a generalist carnivore (Erlinge et al., 1982, 1983; Libois, 1984; Erlinge, 1986; Blandford, 1987; Hanks, Hansson & Henttonen, 1991), or as a specialist anuran predator (Weber, 1989a; Jedrzejewski, Jedrzejewska & Szymura, 1989), or else as a specialist rabbit predator (Roger, 1991). Therefore, one might assume that environmental variables may have a deciding influence on the feeding ecology and habitat use in polecats.

The European polecat was formerly distributed throughout the Western Palearctic and was found in various habitats such as woodland, forest, farmland, marsh and riverbank (see Blandford, 1987). However, numerous studies have referred to the polecat's preference for wetlands and riverbanks (Chaigneau, 1947; Walton, 1968; Danilov & Rusakov, 1969; Jensen & Jensen, 1972; Saint-Girons, 1973; Waechter, 1979; Libois, 1984; Brzezinski, Jedrzejewski & Jedrzejewska, 1992).

In the present study, variations in habitat selection were assessed through the survey of 11 radiotracked polecats in a natural heterogeneous environment and the diet in relation to prey availability is reported. The relationships between diet variations, habitat choice, main meteorological variables and food resource availabilities are reported and a more accurate assessment of the relationships between polecats and their prey is made.

**Study area**

The study was performed on two wetlands and adjoining farmland in western France. The lake of Grand-Lieu (47°05N, 1°39W) is a naturally eutrophic lake of 60 km² which lies in a basin filled by recent alluvium. It is supplied by several rivers, the Acheneau, the Boulogne, the Tenu and the Ognon. The swampy grasslands are dominated by Scirpetum gradually invaded by reed beds and willows (Marion & Marion, 1975). The flooded marshes give way to wooded farmland and some woods mainly composed of oak, ash and chestnut. Meadows alternate with small vineyards and a few cereal fields. The lake of Grand-Lieu has been classified as a nature reserve since 1980.

The marshes of Grande-Brière (47°25N, 2°15W) cover 67 km² out of a total of 400 km² belonging to the Brière Regional Nature Park. On the old crystalline rock, alluvial peat-bogs accumulated. Only one river, the Brivet, drains the marshes but numerous canals criss-cross them. A recent reduction of grazing and mowing has favoured the extension of reed beds and willows to the detriment of natural flooded grassland and its vegetation of Carex, Glyceria and Typha (Dupont, 1972). Marshes lie alongside wooded farmland with hedges of ash and oak, alternating with more wooded areas.

These wetlands are used by numerous species of waterfowl (Brosselin, 1973). The climate,
Fig. 1. Variations of main meteorological variables (mean temperature, photoperiod, precipitation and number of rainy days in the two study areas during the research period).

influenced by the nearness of the littoral, is mild and humid (Fig. 1) with a mean of three snowy days and 22 freezing days per year.

**Materials and methods**

From November 1988 through June 1992, movements of 11 wild polecats were recorded and their diet was studied by faecal analysis. The method was closely based on the one used by Cavallini & Lovari (1991) in the red fox.
Radiotracking survey

Wild polecats (6 males and 5 females) were live-trapped in wooden box-traps baited with dead white mice and were fitted with radiotransmitters (148 mHz). Table I indicates sex, age, survey period and number of active locations of each animal studied. The animals were located repeatedly by ground triangulation using a hand-held antenna (4 elements Yagi) and a portable receiver, in periods of 6 h per night with locations on each animal every 45 min for a total of 24 h per week. Most locations were recorded at night while polecats were active, but at least 3 observations during day-time were obtained 3 times a week (total = 9 h). Most of the animals were noisy when they foraged and were sometimes very easy to locate. Only fixes in which polecats were active were used in the analysis. The size of the animal's activity area was calculated by the minimum convex polygon method (Mohr, 1947). The percentage of occupied surface in each defined habitat was estimated on a monthly basis. The analysis was restricted to 3 main habitats which were the most used by polecats in western France (representing 99% of active fixes, Lodé, 1993), i.e. marshes (ditches, ponds, riverbanks, brooks and marshes), woods and meadows (often hedged by bushes and trees). Leevins' (1968) index, \( B = \frac{1}{\Sigma P_i^2} \), where \( P_i \) is a proportion of a frequentated habitat (as woods, meadows and marshes), was used to evaluate the monthly variation of habitat use. The Spearman rank correlation coefficient \( r_s \) was used to test correlations (Siegel, 1956). Differences between seasons (spring = March, April, May, \( n = 8 \); summer = June, July, August, \( n = 4 \); autumn = September, October, November, \( n = 6 \); winter = December, January, February, \( n = 9 \)) and between 2 study areas (Grand-Lieu, \( n = 17 \) months, Brière, \( n = 10 \)) were assessed by the \( \chi^2 \) test.

Diet analysis

Following the nocturnal path of each surveyed animal, a daily search for faeces was made the morning after. Because only fresh faeces were collected and only in the area frequented by each studied animal, the probability of confusion with another individual was extremely low. Faeces were dried, weighed and washed. Food remains were examined, according to standard techniques, and were identified by comparison with a collection and the atlas (Day, 1966; Chaline et al., 1974; Rage, 1974; Debrot et al., 1982). Some food items, very large prey often associated with maggots, suspected or revealed during radiotracking as carrion (Capreolus capreolus, Myocastor coypus, Felis catus, Tyto alba, Corvus corone) and some rare items such as Tinca tinca, Natrix natrix or Lepus capensis, formed together the category named 'others'. Earthworm chaetae, found in only 12 samples, were assumed to have originated from amphibians and shrews and were discarded. The diet results are given as relative frequency of occurrences. The trophic niche breadth was calculated using Leevins index \( B = \frac{1}{\Sigma P_i^2} \), where \( P_i \) was a percentage of a food category (as mammals, birds,

| Table I |
|---|---|---|---|---|---|
| Sex | Age | Weight (g) | Survey period | Locations | Area |
| M1 | male | ad | 1380 | 16 XII 88–18 XII 88 | 73 | Gd-Lieu |
| M2 | male | sub | 1260 | 15 VII 89–06 X 89 | 224 | Gd-Lieu |
| M3 | male | ad | 1580 | 29 I 90–07 VI 90 | 235 | Gd-Lieu |
| M4 | male | ad | 1500 | 27 XII 90–06 IV 91 | 306 | Brière |
| M5 | male | ad | 1430 | 08 I 91–24 III 91 | 210 | Brière |
| M6 | male | ad | 1600 | 10 III 92–14 VI 92 | 224 | Brière |
| F1 | female | ad | 780 | 02 I 88–23 I 88 | 49 | Gd-Lieu |
| F2 | female | ad | 890 | 20 I 89–24 III 89 | 126 | Gd-Lieu |
| F3 | female | sub | 605 | 21 VII 89–29 IX 89 | 276 | Gd-Lieu |
| F4 | female | ad | 820 | 13 II 90–12 V 90 | 132 | Gd-Lieu |
| F5 | female | sub | 680 | 21 X 90–08 I 91 | 98 | Brière |
amphibians, invertebrates and others). Comparisons were made using 3 main food categories, mammals, amphibians and others which here included birds, invertebrates and the previous category ‘others’.

Resource availabilities

An estimate of food availabilities was periodically conducted through monthly indices of relative abundance. The changes of rodent populations were assessed by trap-line success. Wire-mesh traps, spaced every 3 m in straight lines were set during 3 consecutive nights. The device and the method are described by Saint-Girons & Fons (1986, 1987). In each study area, Grand-Lieu and Brière, trapping was conducted monthly in 2 representative stations for each type of habitat, i.e. meadows (one transect line and one line along a hedge), marshes (one transect line and one line alone ditches) and woods (one transect line and one line along a boundary) with 192 trap-nights (TN) per habitat (576 trap-nights per month, except in November 1988, January 1989, March 1989, n = 594, December 1988 and August 1989, n = 612, February 1989, n = 666, July 1989, n = 468). Only the capture of shrews (Sorex coronatus, S. minutus, Crocidura russula, C. suavolens), brown rats (Rattus norvegicus), bank voles (Clethrionomys glareolus) and meadow voles (Microtus arvalis and Microtus agrestis) were considered because they formed the major mammal prey of the polecat. Each live-trapped animal was marked and released. Because trapping did not exceed 3 consecutive nights, the possible effect of rodent immigration was considerably attenuated. The relative abundance (Ra) of rodents and shrews was expressed as the number of individuals (ni) captured per trap-night, Ra = ni/TN × 1000.

The relative abundance of rabbits was estimated by night countings in a run of 3 km during 2 nights monthly 1 hour after sunset, from July 1989 to June 1992. The results were expressed as the number of individuals seen per kilometre (Chapuis, 1979). The Spearman Rank correlation coefficient rs was calculated between the relative abundance and the percentage of each concerned food category in the diet. When no precision was given, the degree of freedom was d.f. = 15 in Grand-Lieu, and d.f. = 8 in Brière. Finally, a summary of the activity period of the main anuran species present in the polecat’s diet was made to give an idea of their accessibility. The periods of hibernation, breeding congregations, and when the juveniles left the water, were recorded for the main anuran species present in the polecat’s diet; Rana dalmatina, Rana ‘esculenta’ and Bufo bufo. Rana lessonae, R. ridibunda and their hybrid R. ‘esculenta’ have not been discriminated. Rana temporaria was rare in the study areas.

Results

Habitat use

The activity area averaged a monthly surface of 38·3 ha (S.D. ± 16·7, n = 6) for the males and 18·7 ha (S.D. ± 10·8, n = 5) for the females. The most exploited habitat was marshes (45·2% of the frequented surface). Meadows and woods, respectively, represented 30·3% and 24·5% of the habitat used (Fig. 2). Seasonal variations in habitat selection was clearly apparent ($\chi^2 = 61·18$, d.f. = 6, $P < 0·001$). An increase in the use of marshes was shown from winter (23%) to spring (80·5%). The meadows were mainly used in summer (40%) and in winter (41%). The woods were chiefly utilized in winter (36%) and in autumn (36%) while they only represented 4·1% in spring. Habitat selection did not differ between males and females ($\chi^2 = 2·59$, d.f. = 2, $P > 0·2$). On the other hand, a difference between the two study areas was apparent ($\chi^2 = 7·2$, d.f. = 2, $P < 0·03$). In both areas, marshes were exploited most (45%) but woods were most used in Brière (Brière = 32·2%, Grand-Lieu = 20%) while meadows were most frequented in Grand-Lieu (Grand-Lieu = 34·9%, Brière = 22·5%).

The habitat use niche varied from $B = 1·04$ in March 1991 to $B = 2·59$ in October 1989 in
Grand-Lieu, and from $B = 1.09$ in November 1990 to $B = 2.73$ in February 1991 in Brière. The index $B$ was inversely correlated with the use of marshes ($r_s = -0.628$, $P < 0.01$) and positively with wood ($r_s = 0.634$, $P < 0.01$) in Grand-Lieu, but was not in Brière. The habitat use niche reached a mean of $B = 2.121$ in winter (mean $B = 2.015$, $n = 6$, in Grand-Lieu, $B = 2.333$, $n = 3$, in Brière) while the index averaged $B = 1.512$ in spring (Grand-Lieu, $B = 1.334$, $n = 4$; Brière, $B = 1.689$, $n = 4$), $B = 1.931$ in summer (Grand-Lieu, $B = 1.850$, $n = 3$; Brière, $B = 2.174$, $n = 1$), $B = 1.895$ in autumn (Grand-Lieu, $B = 2.025$, $n = 4$; Brière, $B = 1.636$, $n = 2$).

**Diet composition**

Mammals, chiefly rodents (bank voles, meadow voles and brown rats) formed the bulk of the diet with 72.3% (Fig. 3). Amphibians, mainly terrestrial anurans (*Rana dalmatina* and *Bufo bufo*), constituted an important food category with 21.1%. Birds (2.9%), invertebrates (2.6%) and others (1.1%) were of minor importance. No differences between the exploitation of mammals and amphibians by female and male polecats was apparent ($\chi^2 = 0.96$, $d.f. = 2$, $P > 0.3$). In the same way, there were no differences between the diets in Grand-Lieu and in Brière ($\chi^2 = 2.78$, $d.f. = 2$, $P > 0.2$).

Dietary changes clearly showed a seasonality ($\chi^2 = 20.48$, $d.f. = 6$, $P < 0.02$). The consumption of mammal prey increased from spring to winter while the proportion of amphibians decreased from spring to winter. The trophic niche breadth varied from $B = 1$ (January, November and December 1988, and January 1989) to $B = 2.62$ (November 1989) in Grand-Lieu, and from $B = 1.13$ (January 1991) to $B = 2.41$ (June 1992) in Brière. The index reached a mean of $B = 2.085$ in spring (Grand-Lieu, $B = 2.97$, $n = 4$; Brière, $B = 2.072$, $n = 4$) but decreased in summer $B = 1.855$ (Grand-Lieu, $B = 1.670$, $n = 3$; Brière, $B = 2.41$, $n = 1$), in autumn $B = 1.185$ (Grand-Lieu, $B = 1.640$, $n = 4$; Brière, $B = 1.775$, $n = 2$), with the lowest mean value in winter $B = 1.192$ (Grand-Lieu, $B = 1.138$, $n = 6$; Brière, $B = 1.300$, $n = 3$). The index $B$ correlated well with the proportion of amphibians in the diet (Grand-Lieu, $r_s = 0.767$, $P < 0.001$; Brière, $r_s = 0.830$, $P < 0.005$) and negatively correlated with the proportion of mammals (Grand-Lieu, $r_s = -0.968$, $P < 0.001$; Brière, $r_s = -0.976$, $P < 0.001$).
Fig. 3. Variations of occurrences of food categories in the polecat diet, western France. (Jan. n prey = 20; Nov. = 20; Dec. = 22; Jan. = 21; Feb. = 38; Mar. = 42; Jul. = 31; Aug. = 36; Sept. = 39; Oct. = 47; Nov. = 26; Jan. = 18; Feb. = 42; Mar. = 60; Apr. = 57; May = 37; Jun. = 17; Oct. = 15; Nov. = 32; Dec. = 48; Jan. = 63; Feb. = 53; Mar. = 43; Mar. = 26; Apr. = 25; May = 30; Jun. = 20).

Resource availabilities

Results of trap-lines showed that bank voles were almost exclusively found in woods whereas meadow voles were only caught in meadows, and, to a minor extent, in marshes (Table II). Brown rats were trapped near ditches and ponds, in marshes. A small number of shrews were present in woods and were almost absent in other habitats. Relative abundance of bank voles increased from spring to autumn (Fig. 4). Abundance of brown rats showed a similar increase from spring to autumn. Abundance of meadow voles declined in spring and increased from summer to winter.

### Table II

*Availability of mammal prey as revealed by trap-line success (mean Relative abundance, RA)*

<table>
<thead>
<tr>
<th>Ra</th>
<th>Grand-Lieu</th>
<th>Brière</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>marsh</td>
<td>wood</td>
<td>meadow</td>
</tr>
<tr>
<td>Shrews</td>
<td>0.9</td>
<td>9.4</td>
<td>1.8</td>
</tr>
<tr>
<td>Brown rats</td>
<td>31.8</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Bank voles</td>
<td>—</td>
<td>78.2</td>
<td>29.7</td>
</tr>
<tr>
<td>Meadow voles</td>
<td>6.1</td>
<td>—</td>
<td>12.4</td>
</tr>
<tr>
<td>TN</td>
<td>3300</td>
<td>3300</td>
<td>3300</td>
</tr>
</tbody>
</table>
FIG. 4. Availability of main prey resources, expressed in individuals per trap-nights for rodents and shrews, and in individuals per km during night censuses for rabbits.
Fig. 5. Variations of mammal occurrences in the polecat diet, western France.
Shrews did not show clear variations but only a few individuals \((n = 22)\) were caught. Night censuses showed that the availability of rabbits was greatest in summer and in autumn.

**Dietary variations and correlations**

Figure 5 shows the dietary variations of mammal prey. Meadow voles were present in the diet throughout the year and were significantly correlated neither with photoperiod nor mean temperature and precipitation. On the other hand, the dietary proportion of meadow voles correlated well with the use of meadows (Grand-Lieu, \(r_s = 0.589, P < 0.02;\) Brière, \(r_s = 0.782, P < 0.02\)) and with their availability (Grand-Lieu, \(r_s = 0.529, P < 0.05;\) Brière, \(r_s = 0.806, P < 0.01\)).

Bank voles were regularly eaten throughout the year and related neither to photoperiod (except Brière, \(r_s = -0.677, P < 0.05\)) nor temperature and precipitation. Their proportion in the diet was, however, correlated with the use of woods (Grand-Lieu, \(r_s = 0.654, P < 0.01;\) Brière, \(r_s = 0.754, P < 0.02\)), inversely correlated with the use of marshes (Grand-Lieu, \(r_s = -0.627, P < 0.01;\) Brière, \(r_s = -0.742, P < 0.05\)) and was associated with their availability (Grand-Lieu, \(r_s = 0.595, P < 0.01;\) Brière, \(r_s = 0.887, P < 0.002\)).

The high correlation between the occurrence of brown rats and the photoperiod (Grand-Lieu, \(r_s = -0.641, P < 0.01;\) Brière, \(r_s = -0.863, P < 0.005\)), mean temperature (Grand-Lieu, \(r_s = -0.655, P < 0.01;\) Brière, \(r_s = -0.782, P < 0.02\)) and precipitation (Grand-Lieu, \(r_s = 0.667, P < 0.005;\) Brière, \(r_s = 0.444, \text{NS}\)) revealed that rats represented an important resource during the coldest months. No correlations were noted between the proportion of brown rats in the diet and any habitat or with their abundance.

Shrews were related to the photoperiod (Grand-Lieu, \(r_s = -0.562, P < 0.05;\) Brière, \(r_s = -0.877, P < 0.005\)) and temperature (Brière only, \(r_s = -0.730, P < 0.05\)) and appeared to be an occasional resource, mainly eaten in the cold months. They correlated with meadows in Grand-Lieu (\(r_s = 0.605, P < 0.02\)) but woods (\(r_s = 0.826, P < 0.01\)) and marshes (\(r_s = -0.887, P < 0.002\)) in Brière, and with their abundance (Grand-Lieu, \(r_s = 0.530, P < 0.05;\) Brière, \(r_s = 0.700, P < 0.05\)).

The occurrence of rabbits did not show clear correlations. It only correlated with mean temperature (\(r_s = 0.658, P < 0.01\)) and precipitation (\(r_s = -0.637, P < 0.01\)) in Grand-Lieu and abundance in Brière (\(r_s = 0.733, P < 0.05\)).

Although birds formed a minor food component, their occurrence in the diet was associated with photoperiod (\(r_s = 0.614, P < 0.02\)) and mean temperature (\(r_s = 0.523, P < 0.05\)), and negatively correlated with precipitation (\(r_s = -0.666, P < 0.005\)) in Grand-Lieu but not in Brière.

The amphibian frequency in the diet considerably increased in spring and a close relationship was shown between their occurrence and the use of marshes (Grand-Lieu, \(r_s = 0.784, P < 0.001;\) Brière, \(r_s = 0.927, P < 0.001\)) and photoperiod (Grand-Lieu, \(r_s = 0.542, P < 0.05;\) Brière, \(r_s = 0.802, P < 0.05\)), whereas their occurrence was inversely correlated with woods (Grand-Lieu, \(r_s = -0.518, P < 0.05;\) Brière, \(r_s = -0.903, P < 0.001\)) and meadows in Grand-Lieu, \((r_s = -0.635, P < 0.01)\). A synchrony between the dietary proportion of amphibians and anuran breeding congregations was noticed (Fig. 6).

**Discussion**

In western France, the use of space by polecats showed a clear seasonality. Marshes were exploited in spring while meadows were used in summer and winter, and woods were mainly
frequented in autumn and in winter. Wetlands, ponds and the banks of watercourses are known to be used by the polecat (Kratochvil, 1952; Walton, 1968; Danilov & Rusakov, 1969; Jensen & Jensen, 1972; Blandford, 1987; Lodé, 1988; Weber, 1989a; Brzezinski et al., 1992), as well as wooded areas (Santos-Reis, 1983; Jędrzejewski et al., 1989; Weber, 1989a). Here, the habitat selection was clearly correlated with seasonal dietary variations. Thus, the occurrence of amphibians, bank voles and meadow voles were, respectively, related to the use of marshes, woods and meadows. The utilization of different habitats was associated with prey distribution and the availabilities of small prey were directly correlated with their occurrences in the diet. In contrast, the dietary proportions of larger prey, such as rabbits and rats, were independent of their field abundance but were related to meteorological factors and mostly eaten in the coldest months. Furthermore, a synchrony between anuran breeding congregations and the predominance of amphibians in the diet was noticed. Therefore, the exploitation of different habitats was directly influenced by trophic factors. Severe climatic conditions may also play a role in habitat choice in the coldest areas, such as in Swiss mountains (Weber, 1989c), but in these marginal habitats, the resource dispersion greatly affected the ability to build up a territory (Weber, 1989a).

The increase of trophic niche breadth in spring showed that the diversity of the diet was dependent on dietary occurrence of amphibians. According to the optimal foraging hypothesis (Krebs, 1978), diet was more diversified when the availability of the main food resources (i.e. rodents) declined. Thus, the polecat behaved as a generalist feeder which shifted to another resource, increasing its diet diversity, in response to the decrease of food availability. Food
specializations reported by Weber (1989a) and Roger (1991) could rather be adjustments to local overabundance in food resources. The great variation of the polecat's diet from one area to another (Ballarin et al., 1980) also supports the concept of opportunism in feeding strategy.

The habitat use niche was restricted in spring, while the trophic niche increased owing to the exploitation of marshes and amphibians. This opposite trend stressed the deciding role of habitat selection by the polecat when food resources declined. The successive utilization of different habitats disclosed the importance of the heterogeneity of available habitat for the polecat.

In fact, several concomitant elements allow specification of the feeding strategy of the European polecat. Evidence of correlations between dietary occurrences of small rodents and their availability, sudden predominance of amphibians in the diet in conjunction with the decline of rodent abundance in the field and with anuran breeding congregations, and the simultaneous increased use of marshes, suggested that habitat choice and prey selection has an adaptive significance and emphasized the special opportunism of this mustelid.

**Summary**

Habitat selection and dietary pattern showed a clear seasonality in the polecat and were correlated with small rodent availability, while larger prey was related to meteorological factors. Dietary occurrence of amphibians was associated with the use of marshes and a synchrony appeared between the variation in the diet and anuran breeding congregations. Therefore, in the polecat, the exploitation of different habitats was highly influenced by trophic factors.

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