

THE EUROPEAN POLECAT (*MUSTELA PUTORIUS* LINNAEUS, 1758) IN CROATIA – MANAGEMENT CONCERNS

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As in other European countries, there are some indications that the polecat population in the Republic of Croatia is declining. Gamekeepers rarely hunt polecats and if they do it is mainly at the request of landowners. Along with maltreatment, their poor cultural image, accidental poisoning and road traffic accidents can probably be marked as the main causes of the declining polecat population. In order to acquire firm data on the number of polecats, their behaviour and social organization, further studies are to be encouraged. Based on the results of these studies, a recovery plan should be arranged. This plan must include the creation of a positive image for polecats at all levels of society and the prevention of a further decline in the polecat population brought about by continuing inappropriate exposure of poisoned baits.

Key words: polecat, decline of population, Republic of Croatia, recovery plan

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Slično kao i u ostalim europskim državama, u Republici Hrvatskoj je uočeno smanjenje populacije običnog europskog tvora. Lovci su oduvijek rijetko lovili tvorove, uglavnom na zahtjev stočara. Prema tome, kao glavni uzroci nagoviještenog negativnog trenda u populaciji tvora, uz progon, označeni su loša slika u javnosti, slučajna otrovanja i prometne nezgode. U cilju stjecanja pouzdanih podataka o brojnosti tvorova, njihovom ponašanju i društvenoj organizaciji, nužna je provedba određenih populacijskih istraživanja. Na temelju takvih rezultata moguće je osmisliti plan za oporavak populacije. Takav plan svakako mora uključiti stvaranje pozitivne slike tvora u javnosti te zaštitu od otrovanja putem nepropisno izloženih mamaca.

Ključne riječi: obični tvor, pad brojnosti, Republika Hrvatska, plan oporavka

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INTRODUCTION

The European polecat (*Mustela putorius* L.) is an indigenous mammal and regular game species in Croatia (ČEOVIĆ, 1940; ĐULIĆ & MIRIĆ, 1967; DARABUŠ & JAKELIĆ, 1996; JANICKI, 2004), from the family of Mustelidae, genus *Mustela* and subgenus *Putorius*. It can reach up to 40 cm in length without its tail (15 cm) and can weigh up to 1.2 kg (DARABUŠ & JAKELIĆ, 1996). Polecats are mainly nocturnal, and feed upon small mammals, birds, eggs, frogs, and occasionally fish and hedgehogs (STUBBE, 1993; SIDOROVICH, 2000; JANICKI, 2004). Their social behaviour is similar to that of other mustelids. It is well known that with only few exceptions Mustelids, Ursids and Felids are the only mammals that display a really solitary life (GITTELMAN, 1989). In accordance with this, polecats form their own territory, and usually do not exploit areas already occupied by other polecats, showing even only indirect social interaction using scent marks (LODÉ *et al.*, 2003). The average activity area of a male polecat is 1.2 km², while females usually use smaller areas of some 0.4 km², as observed in Western France (LODÉ *et al.*, 2003). This corresponds to the data that the average distances travelled by males per night are 3.6 times greater than those of females (BAGHLI & VERHAGEN, 2004). Even though the average home range of polecats can be up to 181 ha, they usually use only 15% of this space (BAGHLI & VERHAGEN, 2004). Similarly to weasels (*Mustela nivalis*) and stone martens (*Martes foina*), polecats usually inhabit villages and live close to human property, especially in the winter season. This is the main reason for interaction with poultry and consequent persecution. On the other hand, if poultry is well protected from polecats during the night, polecats will mainly feed on small pests like rats and mice. Under such conditions the good side of coexistence with the polecat is visible.

THE STATUS OF POLECATS IN CROATIA

In past decades, polecats were considered pests that caused a great deal of damage to poultry and feathered game (ČEOVIĆ, 1940). In accordance with this, hunters and especially farmers persecuted polecats by several non-selective methods; even the current Hunting Act (ZAKON O LOVU, N.N. 10/94) describes the polecat as a non-protected species. However, the polecat's status has slightly changed now that hunters are trying to apply welfare measures and to manage wildlife more correctly. This resulted in the final provision that each game species is protected during pregnancy, and when it is caring for its offspring (ZAKON O LOVU, N.N. 10/94). Other mustelids in Croatia, with the exception of stone martens, are protected by the Hunting Act (ZAKON O LOVU, N.N. 10/94) or are no more listed as game species in Croatia (ermine and otter). Moreover, polecats are under the same legal status as the mongoose, which is not even a native species. The preservation of biodiversity and natural ecosystems in Croatia demands a change in the status of the polecat. This change should place the polecat on the same status as weasel, which is still listed as a game species, but is fully protected throughout the whole year. However, detailed planning of future status and recovery methods depends on population density research. The most efficient protection could be developed in accordance to

results obtained, meaning that in some places in Croatia the status of polecats may differ. In other words, in areas with endangered polecat populations, animals should be protected throughout the whole year, while the areas with a normal population density, the polecat could be protected by the hunting season. Good examples of this kind of status are the fat dormouse (*Glis glis*) and the wildcat (*Felis silvestris*), which can be seen in the Hunting Act (ZAKON O LOVU, N.N. 10/94).

The situation is similar with respect to numerous other mustelids that are nowadays regarded as declining or even as endangered species (otter, European mink, Black-footed ferret) and in need of urgent recovery plans (LODÉ *et al.*, 2001). Polecats are described as a species with a constantly declining population in some parts of Europe (BIRKS, 2000; SIDOROVICH, 2000; BAGHLI & VERHAGEN, 2003). Similar observations come from farmers and hunters in certain parts of Croatia (TROHAR, 1995). Nowadays, even though there are no data dealing with the question, it is obvious that interactions between humans/poultry and polecats in most parts of Croatia are minor. All we have mentioned above implies the need for the application of recovery methods, while it is still not too late.

MANAGEMENT OBJECTIVES

Cultural image

The first goal of a future management plan should be directed to changing the public image of the polecat. In contrast to otters and badgers, which evoke even »fanatical« emotions in humans, the polecat and other mustelids have a rather poor cultural image (BIRKS, 1993) and are usually seen negatively as pests. It is well known that this negative approach may seriously threaten recovery plans (BREITENMOSER, 1998). In Croatia, the negative attitude towards polecats obtains mostly among landowners and poultry-breeders, and is a part of an old-fashioned attitude. Possible changes should be brought about through published articles in popular magazines, through school education, greeting cards, etc. This process however should not encourage the development of the previously mentioned »fanatical« emotions, but rather an objective approach to the conservation of the polecat at all levels of society. Thus, the main goal of conservation management should be the creation of a positive image, which would not severely interfere with livestock production or game management. Such an image would enhance the efficiency of the recovery plan, because the most important factor for success in this project is to assure acceptance of polecats among people that are in constant touch with nature. A fine example of this kind of image in Croatia is the lynx (*Lynx lynx*), accepted among gamekeepers and farmers far more positively than the grey wolf (*Canis lupus*). In this case, illegal persecution of protected animals would be minimized.

Persecution

In the past, predator control management was an obligatory part of game husbandry. Actually, the former Hunting Act stimulated regular predator control, whose success was monitored through collected noses or tails of hunted predators.

The most frequently used tools for hunting polecats were traps and poisoning, while shooting was of minor significance. Traps were usually placed near burrows and on passages usually used by these predators. However, gamekeepers rarely hunted polecats due to the fact that they are not on the list of trophy game and their fur is of minor significance as it has a particular smell acquired from scent glands. If hunters decided to hunt polecats, it was mainly at the request of landowners. Nowadays, contrary to the former situation, only few hunting grounds carry out standard predator control, which mostly includes foxes. This situation is however opposite to that in some European countries, e.g. Great Britain, where 91 % of gamekeepers routinely trap polecats (BIRKS, 2000). According to all we have mentioned, we could conclude that persecution aimed directly at polecats is of minor significance nowadays in Croatia.

Accidental poisoning

Accidental poisoning is certainly one of the main causative agents for the decline in the polecat population in Croatia. Polecats may be poisoned directly, through the digestion of poisoned baits or indirectly through the consumption of poisoned rodents and other species. The second type of poisoning mentioned is usually known as secondary poisoning. Outside of Croatia, this type is marked as the main source of poisoning in mustelids (BIRKS, 1998; Mc DONALD *et al.*, 2001). Even though there is strong evidence of secondary poisoning in some countries, not all rodenticides are capable of this. In the Republic of Croatia the following products are registered as rodenticides: bromadiolon, brodifakum, difetialon, flokumafen, kumatetralil and klorfacinon (LUČIĆ, 2003). The effects of secondary poisoning have been proven for bromadiolon, brodifakum and difacinon (SREBOČAN, 1993). Since bromadiolon is among the most frequently used rodenticide in Croatia, secondary poisoning of polecats through consumption of rodents seems highly possible. However, there is a possibility of direct poisoning through the consumption of poisoned baits. This does not suggest the deliberate poisoning of polecats (which is forbidden by the Law), but of baits exposed to other species, mainly rodents. In this case, poisoning is a result of inappropriate bait exposure. Landowners in rural areas of Croatia usually use poultry intestines or sardines treated with poison as bait. Furthermore, such bait is usually placed inside farm buildings on only a sheet of paper. The possibility that such bait will be consumed by polecats as carnivores living close to human property is extremely high, especially during the winter period when polecats also behave like scavengers (DANILOV & RUSAKOV, 1969). To minimize the risk of poisoning in polecats, an adequate rodent control program must be applied. If there is a need to poison rodents in farmyards, bait should be exposed in a special box that prevents other species consuming them. Rodent poisoning campaigns in open ground are on the other hand very rare in Croatia. Anyway, proper bait exposure must be combined with carcass collection to prevent direct and secondary poisoning (Mc DONALD & HARRIS, 2000; NELSON *et al.*, 2002).

The role of other poisons like PCBs has been stressed by many authors since polecats' diet consists to a large amount of aquatic prey, i.e. amphibians. However, there are no sufficient scientific records to support this thesis (ENGELHART *et al.*, 2001).

Other factors

Since polecats usually live close to human property there is a high risk of traffic accidents. WALTON (1970) regarded polecats as unusually vulnerable to road traffic accident mortality. The continuing growth in the volume of vehicles in Croatia and road extension may increase the cases of road traffic accidents in the future.

Hybridisation with other species can be a problem since ferrets are nowadays frequently kept as pets in Croatia. However, this problem is alleviated by the fact that these two species are in close relationship, as the ferret (*Mustela putorius furo*) is considered to be a domesticated type of European polecat (PILTTI *et al.*, 2004).

Even though the polecat poses special scent glands that usually protect them effectively from larger predators, sometimes they can also be victims of interspecies competition and persecution. The most frequently mentioned as a competitive species to the polecat, is the feral mink (*Mustela lutreola*), due to their physical and ecological similarities (BIRKS, 2000). As the feral mink does not exist in Croatia, polecats are mostly, in this case directly, endangered by stone martens and dogs without human control. The increasing population of stone martens threatens the polecat population, not only through direct persecution but also through nutritional competition. The competition for food may especially take place during winter, when both species feed mainly upon small mammals (BAGHLI *et al.*, 2002).

FINAL REMARKS

It is suggested that the polecats population is decreasing in many parts of Croatia (TROHAR, 1995), following the trends observed in some other European countries (BIRKS, 2000; SIDOROVICH, 2000; BAGHLI & VERHAGEN, 2003). The major impact on the polecat population in Croatia is most probably through accidental poisoning and persecution by landowners. The current status demands better understanding of polecats in order to achieve efficient protection. Presently we are facing a lack of knowledge of the polecat's current population status, as well as of its actual social organization, habits and habitat use. This lack of knowledge can be attributed to their nocturnal and secretive habits (POWELL, 1979). Most frequently, lack of knowledge is a cause of a non-objective approach and a negative attitude towards several species. In order to change this, behavioural, density and other research programs into the polecat population should be encouraged. These studies should, in addition to research into public opinion, also include more objective methods such as chemical immobilization (FOURNIER-CHAMBRILLON, 2003) and radio collaring of captured animals (KENWARD, 2001), or camera trapping method for detecting the European polecat and determining its distribution (GONZÁLEZ-ESTEBAN *et al.*, 2004). The results of these studies should be a base for the establishment of a proper recovery plan. This plan must include the inculcation of a positive image of polecats at all levels of society and the prevention of further inappropriate exposure of the polecat population to poisoned bait. Should the polecat become seriously endangered, special measures must be taken. Such measures could also draw on the latest achievements in reproduction science in domestic ferrets (LINDEBERG *et al.*, 2002; LINDEBERG & JÄRVINEN, 2003; PILTTI *et al.*, 2004).

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SAŽETAK

Europski obični tvor (*Mustela putorius*, Linnaeus 1785) u Hrvatskoj – smjernice gospodarenja

D. Konjević

Europski obični tvor je u Republici Hrvatskoj autohtona vrsta divljači, čiji se broj prema nekim indikacijama smanjuje u pojedinim područjima. Iako je dugi niz godina obični tvor karakteriziran kao štetočina, sami lovci su ga rijetko lovili. Razlozi za to leže prvenstveno u činjenici da tvor nije na popisu trofejno vrijedne divljači te da mu krzno posjeduje određeni neugodan miris uvjetovan prisutnošću mirisnih žlijezda. Ukoliko su se lovci i odlučili na hvatanje tvora to su obično činili na zahtjev zemljoposjednika ili znatno rjeđe u sustavu programa kontrole grabežljivaca. Razlozi za omraženost tvora među stočarima leže u čestim štetama koje je tvor znao činiti u uzgojima peradi. U takvom suzbijanju brojnosti tvorova korištene su često različite neselektivne metode poput klopki i trovanja. U razmatranju uzroka

vjerojatnog smanjenja brojnosti tvorove populacije osim progona možemo navesti slučajna otrovanja, prometne nezgode i svakako sve veći pritisak rastuće populacije kuna bjelica. Danas kad je brojnost populacije tvorova na pojedinim područjima znatno smanjena nužno je provesti pouzdana istraživanja brojnosti, ali i navika tvorova, posebice iz razloga što je život tvorova i dalje obuhvaćen čitavim nizom nepoznanica. Temeljem spoznaja prikupljenih takvim objektivnim metodama, a uz promjenu slike koju posjeduje tvor u javnosti, mogao bi se osmisliti prikladan i najučinkovitiji model zaštite i oporavka populacije tvora u Hrvatskoj.