

Management of problem brown bears (*Ursus arctos*) in Croatia

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Abstract

Croatia holds a stable brown bear (*Ursus arctos* L.) population of around 1000 individuals, managed by the national Brown Bear Management Plan. Implementation of the Plan is regulated by National Bear Management Committee and Bear Emergency Team. The latter handles all situations with bear related problems. Due to opportunistic life style bears occasionally search for food from anthropogenic sources. Such feeding habits are often combined with loss of fear against humans, which is unacceptable and characterized as problematic behavior. If adverse conditioning (noise repellents and rubber bullets) used to scare problem animals don't work a permit for the removal of specific individual is issued. Appearance of orphan bears is another source of problem animals which requires special attention. The most important part of problem bear management is prevention, which includes public education campaigns about cohabitation with bears.

Key words: brown bear, *Ursus arctos*, management, problem animals, Croatia

Gospodarenje problematičnim smeđim medvjedima (*Ursus arctos*) u Hrvatskoj

Sažetak

Hrvatska ima stabilnu populaciju smeđeg medvjeda (*Ursus arctos* L.) od oko 1000 jedinki, kojima se gospodari temeljem Plana upravljanja smeđim medvjedom u Republici Hrvatskoj. U provođenju Plana upravljanja sudjeluju Nacionalno povjerenstva za izradu i provedbu Plana gospodarenja te Interventni tim za smeđeg medvjeda. Interventni tim je nadležan za sve problematične situacije povezane s medvjedima. Zbog oportunističkog načina prehrane medvjedi ponekad traže hranu iz ljudskih izvora. Takve prehrabene navike često su povezane s gubitkom straha od ljudi, što je neprihvatljivo i karakterizira se kao problematično ponašanje. Ukoliko se medvjeda ne uspije prestrašiti i odučiti od neprihvatljivog ponašanja pomoću zvučnih repelenata ili gumenih metaka i problematično ponašanje se nastavi, Povjerenstvo izdaje dozvolu za odstrjel te problematične jedinke. Mladunčad medvjeda koja ostane bez majke također je izvor problematičnog ponašanja medvjeda te zahtjeva posebnu pažnju. Najvažniji dio gospodarenja problematičnim medvjedima je prevencija, što uključuje javne edukativne kampanje o suživotu s medvjedima.

Gljučne riječi: smeđi medvjed, *Ursus arctos*, gospodarenje, problematične životinje, Hrvatska

Introduction

Croatia holds a stabile brown bear (*Ursus arctos L.*) population of around 1 000 individuals that inhabit an area of 12 372 km² (almost 22% of the land surface) (Huber et al., 2008a). Population has been steadily increasing since 1950`s, nowadays reaching its biological and social carrying capacity (Huber et al., 2008b).

Since 2005, bears in Croatia are managed according to Brown Bear Management Plan for the Republic of Croatia (Decak et al., 2005), which has been revised in 2008 (Huber et al., 2008a). Implementation of the Plan is supervised by the National Committee, consisting of 10 representatives of different interest groups (hunters, foresters, scientists, state institutions). Hunting quota and hunting season are regulated by yearly Action plans. For the period 2005 - 2008, yearly hunting quotas of 70 animals have not been reached. As population growth has been confirmed by genetic research (Huber et al., 2008a), in order to stabilize population size, hunting quota has been increased to 100 bears in 2009 and 2010. In the period 2005 - 2009 a total of 280 bears have been harvested as a part of regular hunting, and additional 136 animals died due to other causes (mainly traffic accidents, unknown cause and occasionally poaching).

An operational Bear emergency team exists in Croatia since 2005. The emergency team operates according to a protocol. In general, it tries to prevent the appearance of all bear related problems, react in any unusual situation corresponding to bears, and help monitor all bear related issues (Huber et al., 2008c). The team has 10 members, mostly wildlife professionals such as scientists, hunters or national park rangers. Their activity has proven to be essential for successful management, mostly in situations with problem bears.

Due to opportunistic life style, bears occasionally search for food from anthropogenic sources. That may be the crops in the fields, domestic animals, food storages or organic waste in various stages of disposal. Such feeding habits are often combined with loss of fear towards humans. Though it very rarely leads to aggression towards people, such behavior is unacceptable and is characterized as problematic (Huber et al., 2008b).

In parts of Croatia where bears are hunted, damage compensation is paid by hunting unit leaseholders, whereas in national parks and in areas with only accidental presence of bears, compensation is paid from the state budget. Data about human-bear conflicts in Croatia, gathered during the 5 - year period (2004 - 2008) show that human-bear conflicts were infrequent in Croatia and the property damage was not significant for a population of 1 000 bears (Sindicic et al., 2009). A total of 220 cases of bear damage have been reported in this period (average 44 per year), with total cost of approximately 42 000 \$ in terms of compensation. Consecutive series of attacks, which were concentrated in a shorter period, indicate that those attacks were caused by the same problem individuals, probably attracted by garbage. Bear attacks on humans have not been recorded in this period.

Material and methods

This paper presents the results of implementation of the Brown bear management Plan for the Republic of Croatia for the 5 - year period (from 2005 till the end of 2010). Data about problem bears has been gathered by the Committee in charge for the implementation of the Plan.

Results and discussion

Problem bears are defined in Brown Bear Management Plan for the Republic of Croatia as bears that repeatedly cause damage, search for food from human sources, approach human settlements, and have lost fear of humans. If such an animal appears, the Protocol of the Bear emergency team requires neutralization of primary factors that attract such behavior, for example garbage as a source of food. Members of the Emergency team (or local hunting organization instructed by the Emergency team) are obliged to try to stop the problem behavior by using methods of adverse conditioning. Noise repellents and rubber bullets are used to attempt to scare the animal away. If the bear continues to exhibit problem behavior, Committee issues a permit for the removal of such individual. The animal is shot by a hunter from the local hunting organization. In case that animal has to be shot outside the hunting area, police attendance is required. Problem animal can not be sold for trophy hunting in order to avoid killing of non-problem animal with eventually larger trophy value. In the period 2005 to 2009 a total of 7 brown bears have been shot as problem animals.

Appearance of orphan bear cubs is another category of problem behavior which requires special attention. Bear cubs sometimes get separated from their mothers because they wander away, due to natural hazards like floods, or the mothers get killed. Orphan cubs have difficulties in surviving on their own; the younger they are, the chance for survival is lower. While searching for food orphan cubs sometimes meet people, which may start feeding cubs or even take them home. Bear cubs easily get imprinted (even one meal from human hand can be enough), so once they get used to getting food from humans their survival in the nature is impossible. Usually, when Committee finds out for orphan cubs kept by people, it is too late to return them to the nature. Croatia has limited capacities for life-time keeping of this kind of animals, and only recently a sanctuary for orphan bear cubs in Kuterevo has been legalized. During the last five years, in total 13 orphan cubs that were unable to survive in the nature were placed in Kuterevo, but not all of them have survived until today (Huber, pers. com). Due to ethical reasons and possible negative public reactions, euthanasia has not been considered yet as a tool for solving an orphan cub problem.

As a typical example, in 2010, a case of an orphan bear cub in Gorski kotar has attracted much of a public and media attention, representing an example how media pressure can facilitate administration to do their job in issuing necessary permits. A game warden found an orphan cub and saved its life by artificial (bottle) feeding, but inevitably changed its behavior to total dependence of humans. When the location of the cub was revealed by the media, and masses of people started to approach and feed the cub, it was finally placed in a sanctuary.

The most important part of problem bear management is prevention. This includes education of public and wildlife professionals about techniques for safe cohabitation with bears. Public educational campaigns focus both on inhabitants of bear habitat, and occasional visitors such as hikers. Education on damage prevention methods is very important to keep damage at minimal levels. Also, implementation of the Management plan includes donations of electric fences for protection of bee hives, sheep flocks or orchards. Additional activities have been focused on illegal garbage dumps and garbage which is accessible to bears, producing problematic behavior. Special bear proof garbage cans have been designed and donated to institutions at critical locations. Also, local authorities have been urged to include the issue of the bear presence in their garbage management practice.

Conclusions

Management of an increasing brown bear population in a human dominated landscape is a challenge, and Croatia sets an example of a well managed bear population. Population size is controlled with hunting quotas, and over 1000 animals cause minimal damage to human property. The appearance of problem bears is controlled by a series of activities, and in the case of total failure, this bears are shot applying the special permit system.

References

- Dečak, Đ., Frković A., Grubešić M., Huber Đ., Iviček B., Kulić B., Sertić D., Štahan Ž., (2005). Plan gospodarenja smeđim medvjedom u Republici Hrvatskoj. Ministarstvo poljoprivrede šumarstva i vodnog gospodarstva, Uprava za lovstvo; Ministarstvo kulture, Uprava za zaštitu prirode, Zagreb.
- Huber, Đ., Jakšić Z., Frković A., Štahan Ž., Kusak J., Majnarić D., Grubešić M., Kulić B., Sindičić M., Majić Skrbinišek A., Lay V., Ljuština M., Zec D., Laginja R., Francetić I. (2008a). Plan gospodarenja smeđim medvjedom u Republici Hrvatskoj. Ministarstvo regionalnog razvoja, šumarstva i vodnog gospodarstva, Zagreb.
- Huber Đ., Kusak J., Majić Skrbinišek A., Majnarić D., Sindičić M. (2008b). A multidimensional approach to managing the European Brown bear in Croatia. *Ursus* 19(1):22-32.
- Huber Đ., Kusak J., Sindičić M., Gomerčić T. (2008c). Bear Emergency Team in Croatia. Proceedings of International Symposium "Of bears, wolves and men: European initiatives for coexistence and development", Luchon, France.
- Sindičić, M., Huber, Đ., Gomerčić, T., Jakšić, Z., Mertens, A., Majić Skrbinišek, A., Slavica A. (2010). Brown bear damages in Croatia during the 5-year period 2004 - 2008. Program, Abstract and Information 19th International Conference on Bear Research and Management (Levan Butkhuzi, ed.). Tbilisi, Georgia, 16-22.5.2010. pp 93-93.

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