NAT. CROAT. | VOL. 17 | No 4 | 233–246 | ZAGREB | December 31, 2008

original scientific paper / izvorni znanstveni rad

CONFLICTS, CRISES AND CHALLENGES: WILD BOAR IN THE BERLIN CITY – A SOCIAL EMPIRICAL AND STATISTICAL SURVEY

YORK KOTULSKI* & ANDREAS KÖNIG

Wildlife Biology and Management Unit, Chair of Animal Ecology,
Technische Universität München, Am Hochanger 13, D-85354 Freising, Germany

Kotulski, Y. & König, A.: Conflicts, crises and challenges: wild boar in the Berlin City – a social empirical and statistical survey. Nat. Croat., Vol. 17, No. 4, 233–246, 2008, Zagreb.

Destroyed backyards, disturbed soccer stadiums and ravaged parks are just a few of problems wild boars cause in Berlin. Fear and feeding (9%) and an ambivalent public opinion about wild boars intensify the problem between humans and wild animals.

Only the people concerned are considered in the analysis. The differing stakeholders, their concerns, opinions and behaviour (pro 37%, contra 23% ambivalent 36%) as well sources of information for the public have been examined. The main sources of information about wild boars for the public are: the press (64%), friends (57%) and television (56%).

For this purpose, 485 questionnaires (return rate approximately 97%) collected at public events in Berlin City have been evaluated.

Keywords: Human dimension, urban wildlife, wildlife management, wild boar, ambivalent public opinion

Kotulski, Y. & König, A.: Sukobi, krize, izazovi: divlja svinja u gradu Berlinu – socijalno empirijsko i statističko istraživanje. Nat. Croat., Vol. 17, No. 4, 233–246, 2008, Zagreb.

Uništena dvorišta te poharani nogometni stadioni i parkovi samo su neki od problema koje divlje svinje uzrokuju u Berlinu. Strah i hranjenje (9%) i ambivalentno mišljenje javnosti o divljim svinjama samo pojačavaju problem između ljudi i divljih životinja.

U analizu su uključeni ljudi kojih se problem tiče. Ispitana su različita gledišta, zabrinutosti, mišljenja i ponašanje (za 37%, protiv 23%, ambivalentnih 36%), kao i izvor informacija ispitane publike. Glavni izvori informacija o divljim svinjama za javnost su: tisak (64%), prijatelji (57%) i televizija (56%).

U tu svrhu pregledano je 485 upitnika (odaziv oko 97%) prikupljenih na javnim događanjima u gradu Berlinu.

Ključne riječi: humanost, divlje životinje u gradu, upravljanje divljim životinjama, divlja svinja, ambivalentno mišljenje javnosti

* corresponding author's e-mail: york.kotulski@gmx.de, phone: +49 8161 71 4978, Fax: +49 8161 71 4615

INTRODUCTION

Destroyed parks and green belts next to roads, destroyed stadiums and backyards are instances of damage mainly caused by the wild boar in Berlin; in addition there are damaged fences, car accidents (653 wild boars were hit in the hunting season of 2004/2005), and injuries to people, raising conflicts between the citizens concerned and wild boar (EHLERT, 2004). Conflicts result in threats to the health and safety of people and companion animals (ADAMS et al., 2006). Another sector of conflicts is the different goals of residents towards this wildlife problem (CONOVER, 1997) and wildlife resources (ADAMS *et al.*, 2006).

In the past few years the wild boar population has clearly increased and is now invading urban areas. Direct contact with the animals often leads to anxiety or fear, increasing the demands for the reduction of the wild boar population (EHLERT, 2004).

The expansion of the human population, at the rate of 176 people a minute (FRANK, 2001), and the continuous expansion of the living space necessary for humans lead to the limitation of natural habitats. Numerous borders of habitats shared by humans and animals overlap, meaning that more and more wild animals are forced to seek their habitat in urban areas (RUTBERG, 1997). In case the habitats of wild animals necessarily overlap with those of humans (KRAUSMAN, 2002) and the differing interests of humans and wild animals create conflict situations. That means that conflicts between humans and wildlife have increased in parallel to urbanisation (ADAMS *et al.*, 2006).

RUTBERG (1997) showed that differing opinions can be a reason for such conflicts. On the one hand the animal activist thinks »let nature take its course« and on the other hand the deer haters call for the extermination of deer in their closest environment.

Up to a certain degree people and wildlife coexist peacefully and many people enjoy the close vicinity of wildlife as long as some problems such as accidents (STOUT *et al.*, 1997) and damage to gardens and parks (DIAMOND, 1992), homes and livestock do not occur and do not reach unacceptable or intolerable levels (DECKER, 1991).

For this reason, and because of urban sprawl and suburban development, human-wildlife conflicts can be expected to grow (DECKER & GAVIN 1987).

In order to ascertain if such an intolerable level has already been reached, an analysis of the attitudes of urban and suburban dwellers should be used to create the basis of management concepts, as was done in the study of KÖNIG (2007).

In this case the goal is to reach those affected by reason of their place of residence. To create an effective instrument for the local government of Berlin City, it is necessary to analyse the people concerned instead of the people who are not even aware of the wild boar problem in Berlin. Therefore the analysis of the possible public opinions of people concerned and the points of interest which have to be clarified by the ministries should serve the civil service as tools for the basis of their decisions for communication and management planning. By discerning the problems and the group of persons affected, it is now possible to provide education and funnel appropriate information via the correct channels so that the Berlin pop-

ulation concerned should have an informed reaction towards the wild boar in their city.

This paper will serve to test out the following propositions:

1. One opinion prevalent among the people concerned is »Wild boars are a plague and should be shot«.

2. Another opinion of people concerned is: »Wild boars are a valuable feature and should be fed«.

Besides these two propositions, the sources of knowledge of the people concerned and the part of feeding citizens will also be examined.

The close connection and interactive relationship between animals and people as shown in GILES (1987) and the fact that people have a direct effect on resource management decisions is the reason that the sector of human dimensions has become a subdiscipline of wildlife management (DECKER *et al.*, 1989). Public opinion is a mirror of civic concerns. With a characterisation of citizen concerns, it is possible to get detailed background information (LAUBER & KNUTH, 2004). That is why the human aspect is an important part of wildlife management (KRAUSMAN, 2002) and the attitudes and opinions of stakeholders have to be considered in wildlife management concepts (ADAMS *et al.*, 2005, DECKER *et al.*, 2001, KRAUSMAN 2002).

It is thus important to intervene within the sector of human dimensions so as to reduce the potential for conflict in Berlin City.

Social empirical and statistical analyses in the form of a survey with questionnaires have been chosen to confirm or deny the aforementioned propositions. It is the aim of this study to reach people who are specifically affected by reason of their residence, not other inhabitants of Berlin who are not so impacted.

MATERIALS AND METHODS

Study Area

Berlin is one of the most wooded metropolises with 20 % of woodland area (1700 ha). There are many woodland and urban boundary areas within Berlin where many wild boar sightings and encounters are registered (also see Fig. 1). Even these natural areas and greenbelts often exacerbate the problem (DECKER & GAVIN, 1987).

Description of socially empirical methods:

The questionnaire itself was taken over by the Wildlife Biology and Management Unit, Chair of Animal Ecology, Technische Universität München. It was previously used there in order to collect data about the problems of foxes in Grünwald (KÖNIG, 2007).

For the purposes of the Berlin case the questionnaire was modified so as to deal with wild boar rather than foxes. The questionnaire had to serve as a quantity gauge (ATTESLANDER, 1991). The questions of the survey are divided into seven categories.

Alternative questions which can be answered with a simple yes/no (ATTESLANDER, 1991) and questions which can be ticked, which in theory represent the same

(a tick means »I agree«) are included in this »representative cross-section survey« (ATTESLANDER, 1991) through a standardised questionnaire. Besides these, there are 20 multiple choice questions in the form of a scale with four evaluation criteria supplied (ATTESLANDER, 1991) (in the categories »Attitude towards wild boar« and »Handling of wild boar in the city«).

The questions are all close-ended questions with one exception. The only open-ended question is in the category »Attitude towards wild boar«. This question should serve to reveal citizen concerns that the science staff may not have shared or recognized (LAUBER & KNUTH, 2004).

The questionnaire was distributed at various public events or nature fairs (Bat Fair, Open Day, Forest Fair »Berliner Holz«, and Ecological Fair/Autumn Fair) where the contact person could be approached personally.

The events all took place in areas which are directly affected by wild boar or in areas adjacent to wild boar hotspots (Köpenick/Treptow, Zehlendorf/Steglitz, Spandau, Charlottenburg/Wilmersdorf, Reinickendorf). Almost all of the visitors of the events, and hence the participants in the poll, came from various areas (also see Fig. 1). The vast majority came from the areas where the most of the wild boars are found and where therefore the most problems occur.

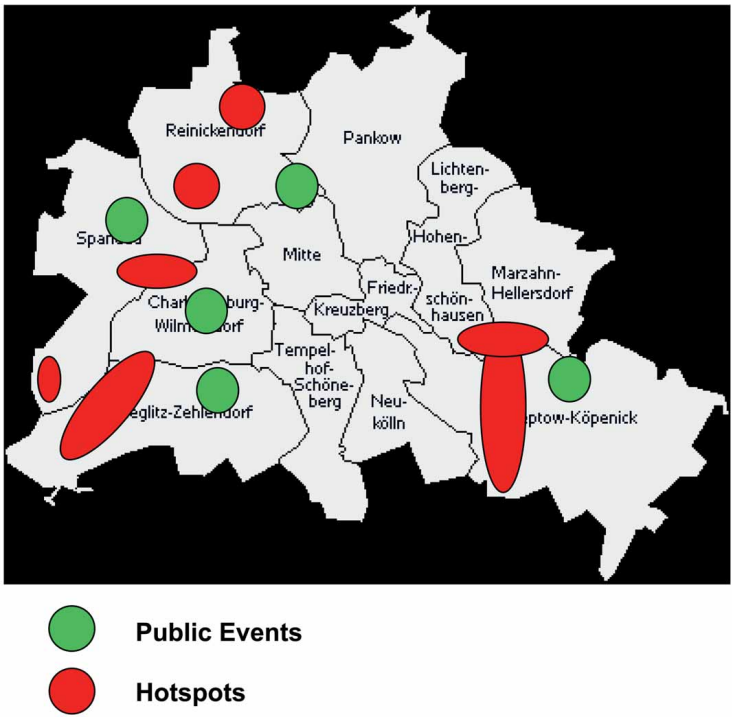

Fig. 1. Overview of Hotspot areas (wild boar occurrence) and public events (Survey area). Based on data from Mr. Derk Ehlert (Stadentwicklung Berlin)

The questionnaire (along with writing implements) was given to residents while they were taking a rest during one of the public events. Furthermore, face-to-face interviews were carried out, to ensure that the questionnaire reached the people concerned. The participants were not pre-selected but chosen at random. These factors resulted in a return quota of 97% of the questionnaires. Virtually none of the questioned people refused to fill out the survey. The 485 completed questionnaires gathered during these public events in the City of Berlin were evaluated and analysed.

Statistics

The basic accumulated data without the input mask and summary elements were copied into the SPSS.15 analysis programme and analysed. The results were calculated with chi^2 – tests, cross-classified tables, rate of recurrence table and correlations.

RESULTS

Contra Wild Boar: »Wild boar are a plague and should be reduced« (Frequency table analysis)

»Plague«

The results clearly confirm the first part of this proposition. The excess numbers of wild boars are considered by a 59 % majority ($p<0.001$) of the questioned participants in Berlin to be a plague. Just as many were of the opinion that wild boar have no business in the city. It is particularly clear that wild boars are considered a plague in this situation (compare Tab. 1 & Tab. 4).

»Shot«

The second part of this proposition, that »wild boar should be shot«, can be partially confirmed. The questioned participants in Berlin are pretty much split in their opinion concerning a radical reduction of the number of wild boar in the city (44%, $p>0.05$). This confirms the part of the thesis that this opinion clearly exists but does not stand for a majority. The analysis shows though, that the desired radical reduc-

Tab. 1. Wild boars are a plague and should be reduced

Contra Wild boars	**I agree %**
Wild boars are a plague	59
Wild boars should not be in the town	57
Wild boars should be massively reduced	44
Wild boars should be shot	26
Afraid of wild boar	41
Total N	485

Tab. 2. Wild boars are a valuable feature

Pro Wild boars	**I agree** %
Wild boars are not a disturbance	52
Wild boars should be tolerated	86
It is nice to see wild boars	77
Not afraid of wild boar	57
Wild boars should not be greatly reduced	50
Wild boars should be shot	67
Wild boar – a piece of nature in my backyard	16
Total N	485

Tab. 3. Number of feeding / not feeding participants

Feeding	**I agree** %
I feed pets in my backyard	14
I feed wildlife in my backyard	32
I feed wild boars	9
People should not feed wild boars	*88*
Total N	485

Tab. 4. Significance – overview

Variables in the Equation	**Standard deviation**	**Df**	**Significance**
Plague	.483	1	P<0.001
Not in town	.490	1	P<0.001
Reduce	.500	1	P>0,05
Shoot	.449	1	P<0.001
Do not disturb	.497	1	P<0,05
Tolerate	.302	1	P<0.001
Nice to see	.392	1	P<0.001
Feed pets	.357	1	P<0.001
Feed game	.471	1	P<0.001
Do not feed wild boars	.286	1	P<0.001
Fear (afraid about wild boar)	.493	1	P<0.001
Wild boar – a piece of nature in my backyard	.952	3	P<0.001

tion does not necessarily imply »shooting«, rather, non-lethal methods. 74% of the participants do not want to have the direct responsibility for the death (p<0,001) of the animals being shot (compare Tab. 1 & Tab. 4).

Pro Wild Boar: »Wild boars are a valuable feature and should be fed« (Frequency table analysis)

»A valuable feature«

That wild boar do not cause any conflicts cannot be confirmed unanimously. Only half of the participants were of this opinion ($p>0.05$). At this point the general public opinion is divided. On the other hand 86% of the participants are of the opinion that the wild boar should be tolerated. A larger portion of the participants (77%) enjoy sightings of wild boar and confirm that they feel that the wild boars are a valuable feature (compare Tab. 2 & Tab. 4).

»Feeding«

A majority of the questioned people are against feeding wildlife, but despite this, 9% of the questioned people, a proportion that should not be underestimated, want to feed the animals. The actual percentage of people that do feed animals can be confirmed: 9 % feed the animals and 88 % do not. 14% of the participants feed their pets in their backyard and 32% feed wildlife. Therefore this is another food supply for the wild boar (compare Tab. 3).

Ambivalent Public Opinion (Cross table analysis)

»Wild boars are a plague and should be reduced« and »Wild boars are a valuable feature and should be fed«

A significant ($p<0.05$) part of the participants (33%) consider a certain amount of wild boar a plague but do not see wild boar as a disturbance. Even more Berlin participants do not want wild boar in town but at the same time they feel that wild boar are not a disturbance (47%). The same attitude can be seen in relation to a radical reduction of wild boar. On the other hand the same people enjoy seeing them and do not regard them as a disturbance (more than 40%, almost highly significant). The most noteworthy example of the ambivalent attitude of the Berlin participants is the opinion that wild boars have no business in the city and at the same time they enjoy seeing them (52%). The most ambivalent and radical attitude is that 12% of the citizens do not think that wild boar are a disturbance, but want them to be shot ($p<0.001$), (compare Tab. 5).

»The regain of the ecological balance vs. population number of wild boar«

On this topic, too, public opinion is divided, 42% ($p<0.001$), between the citizens that think that humans have to restore the ecological balance in relation to the wild boar in Berlin, but at the same time they do not want the wild boar to be shot. 28% ($p<0.001$) do not even want their reduction (lethal or non-lethal).

The most significant example of the extremely ambivalent attitude and opinion of the Berlin public is the fact that 26% ($p<0.05$) say that wild boars have a right to live but they claim at the same time that they should be shot. (Compare Tab. 5)

Tab. 5. Ambivalent attitude

Question A »Yes-No« / Question B »Yes-No«	Total N	Pro %	Contra %	Ambivalent %	Significance
Plague / not a disturbance[1]	439	23	31	33	P<0,05
Not in town / not a disturbance	446	25	29	47	P<0,05
Not in town / nice to see	441	35	13	52	P<0,05
Reduce / not a disturbance	430	34	26	40	P<0.001
Reduce / nice to see	447	46	11	43	P<0,05
Shoot / not a disturbance[1]	428	44	16	12	P<0.001
Restore ecological balance / shoot	433	30	28	42	P<0.001
Restore ecological balance / reduce	438	24	47	28	P<0.001
Right to live / shoot[1]	436	70	2	26	P<0,05
Average[1]	438	**37**	**23**	**36**	

[1]Percentages missing to 100% are »Others«

Tab. 6. Participants' source of knowledge about wild boar

Source of knowledge	Yes %
Newspapers	64
Public information events	9
Scientific literature	18
Folder	6
Television	56
Official offices	13
»Waldzeitung« (»Forest – News«)	7
Friends inform me	57
Total N	485

Consequence

According to a cross table analysis, the following opinion of people concerned can be exposed. Round about quarter of the people concerned have a negative attitude towards wild boar in Berlin City, a good third a positive and also a good third an ambivalent point of view (compare Tab. 5).

»**Where do the Berlin citizens get their knowledge about wild boar from?«**
The ranking of the most important sources of information (compare Tab. 6):

Important:
- ö Newspapers (64%)
- ö Friends (57%)
- ö Television (56%)

Less important:
- ÷ Public Information Events (9%)
- ÷ Forest Newspaper (7%)
- ÷ Official Folder (6%)

DISCUSSION

Berlin was chosen for this research project due to the existing wild boar problem in urban part of Berlin.

It is necessary to employ a demographic communicative basis because such information can influence management techniques (LAUBER & KNUTH, 2004). The questionnaire was chosen as a method to describe public opinion. The advantage of this was that there was a reliable and a prompt return of the forms of about 97% (n = 485). As generally a return quota between 10 % and 90 % can be expected (BORTZ, 1984, DIEKMANN, 1997, ROTH, 1987) the quota in Berlin was above average. The return quota was however contingent on the number of visitors. Events which are reliant on self propaganda and also the weather risk a low turn-out. The popularity and reputation of the event are also to be considered. A high return of questionnaires depends upon the willingness of the persons questioned to take the necessary time to complete the form (BONTADINA *et al.*, 2001). This is particularly noticeable during lively events.

The first proposition that public opinion among those concerned would maintain that »wild boars are a plague in the city and should be reduced« was proved, and the second thesis that »wild boars are a valuable addition and should be fed« was also present, but not without limitations. In addition the participants of Berlin have an ambivalent opinion.

That means in numbers that 37% of the Berlin public have a »pro-attitude« to wild boars in their city, 23% a »contra-attitude« and 36% an »ambivalent-attitude« (compare Tab. 5).

Contra Wild Boar

It has become clear in other surveys that wildlife in urban areas is considered a plague and that a reduction in numbers is demanded. WHITTAKER (2001) came to similar results in a survey held in Anchorage. 50 % of humans were for a massive reduction of the number of elks, whereas 34 % were against such a measure.

Also DECKER & GAVIN (1987) reported comparable statistics: 52 % of people who had already suffered damage from deer demanded a reduction of their numbers.

In Berlin, 44 % demanded a large reduction of the number of wild boars, whereas 50 % were against that (compare Tab. 1).

Reduction in this survey was not synonym with killing as 67% were against wild boars being killed in Berlin. Even though to deport wild boars from Berlin is technically and financially just as impossible as to move foxes out of the Munich area (KÖNIG, 2007), most of the people questioned obviously reckoned with this thought and other non-lethal methods. This is in accordance with Messmer *et al.* (1997) who recognized that the people concerned preferred methods excluding killing animals. Similarly, the persons concerned in New York favoured deer being removed without being destroyed (STOUT *et a*l., 1997). Particularly in urban areas, wildlife managers should consider several methods other than the killing of the animals (LOKER *et al.*, 1999).

Pro Wild Boar

Various studies come to variously contradictory results when considering whether wildlife is a valuable feature and should be fed inside urban areas. DECKER & GAVIN (1987) received the result from 57 % of the population in Islip, New York, that it is nice to have wildlife, in this case deer, in the immediate neighbourhood. In a study by CONNELLY (1987) 85% were pro wildlife in the neighbourhood (LOKER & DECKER, 1998).

KÖNIG (2007) proves that about 50% of people questioned do not mind foxes, but only 25% tolerate foxes in their gardens.

The Berlin participants think in the same way about their wild boar as the Grünwald inhabitants about their foxes. Approximately 52 % feel that the wild boar is not troublesome, but only 16 % regard the wild boar as part of nature when it is in their garden (compare Tab. 2).

Feeding Wild Boar

51 % of the people questioned in Zürich-Wiedikon feed wild animals or birds at least for certain periods (BONTADINA *et al.*, 2001). In Berlin 32% are willing to feed wild animals (compare Tab. 3). In Islip, New York, 20% of the citizens feed deer (DECKER & GAVIN, 1987). More people feed deer there than feed wild boar in Berlin; nevertheless 9 % is in absolute terms a great number of citizens feeding the boar in Berlin. Considering a population of 3.4 million inhabitants in Berlin, this means that approximately 340.000 people feed the wild boar, which of course has a considerable influence on the problems of wild boar in the urban area.

Ambivalent opinion

This expresses itself as follows:

- On one hand the participants see wild boar as a plague, but on the other hand they are of the opinion that wild boars in the city are not a disturbance.
- Many are of the opinion that the human race should restore the ecological balance but few want the animals to be killed.
- A large portion of the Berlin participants think that wild boars have a right to live but on the other hand vote about the shooting of wild boar in the city.

There is not only a black and white thinking population concerned but also an opinion that is quite inhomogeneous.

With the help of the collected data it has been able to recognise that it is necessary to start a public opinion campaign through the media. The population concerned in Berlin is ambivalent in their attitude toward wild boar in the city, which is especially apparent when it appears in one and the same person.

The public's source of knowledge about wild boar

To a very slight extent, a common public campaign reached the Berlin public. In relation to the survey of KÖNIG (2007) in Grünwald, the newspaper is also the primary source of knowledge for the Berlin public. Word of mouth and television are the other

sources with a greater influence. Television is one of the most important sources of information (KÖNIG, 2007). With this knowledge it is now possible for public departments to choose the most effective medium to inform the public of Berlin.

Consequences

The attitude of the population concerned towards wildlife in the city is not as homogenous as this survey indicates. This is also reflected in other publications. LOKER & DECKER (1998) approved the ambivalent attitude of citizens. They enjoy having wild animals in their backyard but also feel disturbed or threatened by their presence.

DECKER & CHASE (1997) add to this discrepancy between the humane treatment of wildlife and concerns, which, as this study shows, comes particularly to the fore in one and the same person, Stakeholders' beliefs are variable as they gain information and experience with the situation.

A lack of information can be concluded by this indecisive general opinion. The study made by Wolfgang Schulz shows that the higher the school education is from worker to owner, manager or director of larger companies the more ecological their attitude is (SCHULZ, 1985). HUNZIKER *et al*. (2001) point out clearly that those citizens who are knowledgeable about the wildlife concerns are either greater supporters or greater opponents of the problem (as in the case of Hunziker's predators). Furthermore HUNZIKER *et al*. (2001) comments that additional information can have strong polarizing effects and that influence should be taken at the level of personal sets of values rather than at the level of knowledge. It is more appropriate to supply information via the level of knowledge for the neutral masses. Educational institutes and other information platforms offer the necessary requirements for professional courses (HUNZIKER *et al*., 2001).

Educational steps should be taken in kindergartens and primary schools in order to form a stronger ecological awareness (approach to the entire ecosystem). The moral attitude (concerns about the correct or incorrect treatment of animals and against exploitation) and the humanist view (love of animals, mainly pets) and the naturalist's opinion (love of wildlife and nature) must be removed from their hierarchical position in order to prioritize the ecological stance of the population (SCHULZ, 1985). Thus a general understanding and a point of view closely linked to nature can be developed, which will provide the general public with an objective, realistic and a nature-orientated approach.

Furthermore an understanding for animals in the urban areas is formed, which permits a realistic behaviour towards and contact with the animals.

CONCLUSION

The usual kind of public campaign from the local government reached the persons concerned to a very small extent (6%–9%). Of this, just a good third was reached effectively.

Television, print media and the press and oral communication must be influenced to such a degree that educational work can bear fruit. »The contents of this knowledge must be made more objective. Because an exaggerated love of animals, which is characteristic of the humanistic attitude, blocks the clear view of the problems of nature in general« (SCHULZ, 1985). Only in this way can the entire population concerned be reached.

Furthermore the general public must be educated not to feed wildlife in their gardens any more and to put up fences with deep and stable foundations around gardens, compost heaps and flower and vegetable beds.

As far as the public media is concerned, wildlife managers and wildlife biologists must work closely with the press, radio and television in order to prevent a distorted view of animals and nature manifesting itself in the general public (SCHULZ, 1985).

At the same time, efforts should be made to alter values and general attitudes. To be more precise, public campaigning and ecological education must be planned long-term (HUNZIKER *et al.*, 2001).

Therefore a professional management team up of experts in several areas such as wildlife biology, human dimensions research, citizen participation, educational communication and others must be created (DECKER & CHASE, 1997). The management team under an appropriate leadership together with the people and the aforementioned organisations should react locally in order to relieve the wild boar problems. The solution is not to remove the wildlife entirely from the city, which is not possible, but to cultivate tolerance toward wild animals amongst the public (RUTBERG, 1997). The main goal of the public campaign is to break the custom of citizens, tourists and hunters to feed wild animals and to make it clear that wild animals in general do not need to be fed and that they may not be fed, but it will be difficult to convince the populace that they must change their attitude towards wildlife (KÖNIG, 2007).

The job is to manage people (ADAMS *et al.*, 2006) and the aim is: »to help people to live with wildlife in peaceful coexistence« (LOKER & DECKER, 1998).

ACKNOWLEDGEMENTS

Authors would like to thank several public offices and persons for their contributions of scientific information.

The State Department of Forestry, Berlin: Mr. Lutz Wittich, Managing Director, supply of material and information.

The Department of City Development: Mr. Derk Ehlert Head of Department for City Hunting. Supply of information and data and for showing areas of conflict.

Mrs. M. Couturier, for the active help with collecting questionnaires.

Mrs. D. Balatoni, for immediate reviewing of the paper.

REFERENCES

ADAMS, C. E., LINDSEY, K. J., & ASH, S. J., 2005: Urban Wildlife Management. Taylor & Francis. Boca Raton.

ADAMS, C. E., LINDSEY, K. J., & ASH, S. J., 2006: Urban Wildlife Management. Taylor & Francis. Boca Raton.

ATTESLANDER, P., 1991: Methoden der empirischen Sozialforschung. De Gruyter, Berlin New York.

BONTADINA, F., CONTESSE, C. & GLOOR, S., 2001: Wie beeinflusst die persönliche Betroffenheit die Einstellung gegenüber Füchsen in der Stadt? For. Snow Landsc. Res. **76**, 1/2.

BORTZ, J., 1984: Lehrbuch der empirischen Forschung für Sozialwissenschaftler. Springer Verlag, Berlin, Heidelberg, New York.

CONOVER, M. R., 1997: Wildlife management by metropolitan residents in the United States: practices, perceptions, costs, and values. Wildlife Society Bulletin, **25**, 306–311.

DECKER, D. J., 1991: Implications of the wildlife acceptance capacity concept for urban wildlife management. in WEB, E. A. & FOSTER, S. Q., eds. Perspectives in urban ecology Denver Mus. Nat. Hist., and Throne Ecol. Inst., Denver, Colo., 45–53 in STOUT, R. J., KNUTH, B. A. & CURTIS, D. C. (1997). Preferences of suburban landowners for deer management techniques: a step towards better communication. Wildlife Society Bulletin, **25**(2), 348–359.

DECKER, D. J., BROWN, T. L. & MATTFELD, G. F., 1989: The future of human dimensions of wildlife management: can we fulfil the promise? Trans. North Am. Wildl. And Nat. Resour. Conf. 54, 415-425 in MESSMER, T. A., CORNICELLI, L., DECKER, D. J. & HEWITT, D. G. (1997). Stakeholder acceptance of urban deer management techniques. Wildlife Society Bulletin, 25 (2), 360–366.

DECKER, D. J., BROWN, T. L. & SIEMER, W. F., 2001: Human dimensions of living with wildlife – a management challenge for the 21st century. Wildl. Soc. Bull. **25**, 788–795.

DECKER, D. J., BROWN, T. L. & SIEMER, W. F., 2001: Human Dimensions of Wildlife Management in North America. The Wildlife Society, Bethesda, Maryland.

DECKER, D. J. & CHASE, L. C., 1997: Human dimensions of living with wildlife – a management challenge for the 21st century. Wild. Soc. Bull. **25**, 788–795.

DECKER, D. J., & GAVIN, T. A., 1987: Public Attitudes toward a suburban deer herd. Wild Soc. Bull. **15**(2), 173–180.

DIAMOND, J., 1992: Must we shoot deer to save nature? Nat. Hist. **8**, 2–8 in STOUT, R. J., KNUTH, B. A. & CURTIS, D. C. (1997). Preferences of suburban landowners for deer management techniques: a step towards better communication. Wildlife Society Bulletin, **25**(2), 348–359.

DIEKMANN, A., 1997: Empirische Sozialforschung. Rohwolts Enzyklopädie

EHLERT, D., 2004: Head of Department for City Hunting. Department for City Development, Berlin City. Personal Discussions & Excursion, 04.11.2004.

FRANK, A., 2001: Conservationists Focus on Population Growth. National Geographic News. 17.01.05 13:15.

GILES, R. H., JR., 1987: Wildlife Management. W.H. Freeman, San Francisco, California, USA in KRAUSMAN, P. R. (2002). Introduction to Wildlife Management the Basics. Pearson Education, Upper Saddle River, New Jersey.

HUNZIKER, M., HOFFMANN, C. W. & WILD-ECK, S., 2001: Die Akzeptanz von Wolf, Luchs und Stadtfuchs – Ergebnisse einer gesamtschweizerisch-repräsentativen Umfrage. For. Snow Landsc. Res. **76**, 1/2, 301–326.

KÖNIG, A., 2007: Fears, attitudes and opinions of suburban residents with regard to their urban foxes. A case study in the community of Grünwald – a suburb of Munich. European Journal of Wildlife Research. Springer Berlin / Heidelberg. ISSN: 1612–4642 (Print) 1439–0574 (Online). http://www.springerlink.com/content/v6v1915u8430p080/. 14.08.2007 22:00.

KOTULSKI, Y., 2005: Konfliktsituation: Schwarzwild im urbanen Bereich – Das Meinungsbild der Bevölkerung am Beispiel Berlin-. Freie wissenschaftliche Arbeit zur Erlangung des Grades eines Diplom-Forstwirtes (Univ.) am Wissenschaftszentrum Weihenstephan für Ernährung, Landnutzung und Umwelt. Studienfakultät für Forstwissenschaft & Ressourcenmanagement der an der Technischen Universität München.

KRAUSMAN, P. R., 2002: Introduction to Wildlife Management the Basics. Pearson Education, Upper Saddle River, New Jersey.

LAUBER, T. B. & KNUTH, B. A., 2004: Effects of information on attitudes towards suburban deer management. Wildlife Society Bulletin, **32**(2), 3225–331.

LOKER, C. A. & DECKER, D. J., 1998: Changes in human activity and the »not-in-my-backyard« wildlife syndrome: suburban residents' perspectives on wildlife. Game. Wildl. **15**, 725–734.

LOKER, C. A., DECKER, D. J. & SCHWAGER, S. J., 1999: Social acceptability of wildlife management actions in suburban areas: 3 cases from New York. Wildlife Society Bulletin, **27**(1), 152–159.

MESSMER, T. A., CORNICELLI, L., DECKER, D. J. & HEWITT, D. G., 1997: Stakeholder acceptance of urban deer management techniques. Wildlife Society Bulletin, **25** (2), 360–366.

ROTH, E., 1987: Sozialwissenschaftliche Methoden. Oldenburg Verlag, München, Wien.

RUTBERG, A. T., 1997: Lessons from the urban deer battlefront: a plea for tolerance, Wildlife Society Bulletin, **25**(2), 520–523.

SCHULZ, W., 1985: Einstellung zur Natur. Dissertation zur Erlangung de Doktorgrades der Forstwissenschaftlichen Fakultät der Ludwig-Maximilians-Universität München.

STOUT, R. J., KNUTH, B. A. & CURTIS, D. C., 1997: Preferences of suburban landowners for deer management techniques: a step towards better communication. Wildlife Society Bulletin, **25**(2), 348–359.

WHITTAKER, D., 2001: Understanding beliefs and attitudes about an urban wildlife hunt near Anchorage, Alaska. Wildlife Society Bulletin **29**(4), 1114–1124.