

MANAGEMENT OF THE COMPLEX PROBLEMS CAUSED BY URBANIZING WILD ANIMALS WITH THE HELP OF INFOCOMMUNICATION TOOLS¹

Balázs SZABÓ*

ABSTRACT: *Nowadays, the appearance of wild animals in urban areas is an increasingly common problem, usually causing alarm among the inhabitants. In the present study, we would like to set out the legal background to the management of the presence of wild animals in urban areas and, if no specific legal provisions can be found, we will try to describe the options available to law enforcement by analogy. In order to deal with the problem quickly, it is essential to have the detection of them as soon as possible. At that point, we have highlighted the importance of ICT tools – drones, mobile apps...etc.- which can help this process.*

KEYWORDS: *wild animals; ICT tools; drone; mobile app.*
JEL Code: *K00, K23*

1. INTRODUCTION

In our fast-paced, industrialized world, citizens, companies and, of course, state bodies have to face more and more challenges every day. A significant part of these arise due to the rapid development of technical achievements, others arise from problems of economic origin and some challenges can be traced back to other social problems as well. There are some that the parties involved can roughly prepare for, and there are also some that can have an impact with the power of surprise. As a result, the appropriate answers can usually be missed. In the latter case, we can classify the more and more often problematic cases when wild animals appear in the interior of settlements and usually cause alarm among the inhabitants of the settlements (Moldovan, 2022). We can talk here about wild animals who have always lived in our environment, but thanks to the expansion of humanity, due to the ever-shrinking living spaces and natural hiding and food-gathering places, they are more and more often forced to live near inhabited settlements. Within the framework of this

¹ Prepared in the "National Laboratory for Social Innovation" (TINLAB) project (RRF-2.3.1-21-2022-00013), within the framework of the Széchenyi Plan Plusz program, with the support of the Recovery and Resilience Instrument of the European Union

* Dr.jur Balázs SZABÓ Ph.D. assistant professor – University of Miskolc, Faculty of Law, HUNGARY.

study, we would like to examine the support of the information acquisition, processing and transmission system for the management of inland wildlife with tools that can also be used by public administrative legal bodies. The examination of the legal background is not the subject of this article, but of my research, which will be presented in subsequent articles.

In connection with the research, we distinguish between protected and huntable game species, however, representatives of both species can cause problems in the interior. From the first group, the brown bear and the grey wolf should be singled out, which in many cases causes alarm and concern to the people who notice them, as well as to the population, even in connection with their names, without causing any actual damage. From the second group, the wild boar, red deer, fallow deer and roe deer deserve to be highlighted, which can be hunted, but not inland, but of course they can and do cause damage here as well. These latter wild species often appear as an "experience/sightseeing" in the minds of the population, as long as no damage or wildlife attack occurs. In many cases, the monitoring and detection of these wild animals can be easily supported with the help of information-communication tools.

In today's advanced, information-based societies, an increasing need for innovation can be observed, which is based on the development of information and communication technologies. The governments of different countries use them to different extents and levels, mainly due to differences in the amount of available resources. At the same time, it can be seen and felt that the application of these tools is becoming indispensable in more and more new areas, including when dealing with the social problem investigated by our research topic. This study specifically tries to draw attention to the advantages of using mobile applications and drones.

2. THE IMPORTANCE OF SMARTPHONE APPLICATIONS CONCERNING THE FIELD

Smartphone applications can also be considered as a new practice of mobile e-government or m-government (TÓZSA-ANCSIN,2010). Although the majority of governments do not yet use smartphone applications or use them only in limited specialized areas, the governments that have tried and used them have given feedback showing satisfaction. The reason for satisfaction is that compared to many other communication channels, these new solutions have extra advantages, such as increasing time and cost efficiency by reducing (omitting) personal administration, and increasing the client's participation in the procedure. All this can promote "more open governance" by increasing efficiency, transparency and citizen involvement (PIERRE-PETERS, 2000).

A very important advantage of m-public administration over e-public administration is that it can be accessed anywhere, anytime and from any device with an internet connection. From the point of view of public administration, this feature creates an opportunity for the government to be present and able to provide services everywhere.

Another significant advantage is that the public administration can provide citizens with relevant information on time. Smartphones equipped with GPS enable the provision of personalized information and services based on users' real-time location data.

Mobile devices can create a real-time connection between citizens and governments/administrations that can effectively serve those who need important and verified, authenticated information. An important point of use can be the application of

real-time information transmitted through mobile applications in the event of an emergency, since traditional data and information are less useful in the event of a disaster due to their slower propagation. Such real-time location determination is particularly important for law enforcement agencies, e.g. a dangerous situation can also be created during the appearance of a large carnivore (brown bear) in a populated area, where the time spent on determining the location can be greatly improved (more precisely, reduced) by the use of modern ICT tools, which contributes to increasing the effectiveness of security measures and reduces the possibility of loss of life and property, or reduces the extent of possible damage (SZABÓ, 2020).

The increasing popularity of smartphones is undoubtedly one of, if not the most important factor in the process of public administration application of smartphone usage. The widespread use of smartphones has changed the way people communicate, which has also allowed governments to create a new channel in addition to traditional solutions to connect with citizens.

Considering people's smartphone usage habits, one of the most important benefits is that smartphone apps make their daily lives easier. Here we can think of either communication activities or information transmission, taking photos and GPS-based location determinations and navigation services (TÓZSA, 2009).

In addition, the information received from the smartphone application is more structured and richer compared to the information received through other channels, especially through the e-mail channel. The free text style of e-mail channels usually provides incomplete information about governments and public administration bodies, so it may often be necessary to request additional information through some channel or even in person.

The lower costs compared to phone calls are also a major advantage in the case of smartphone applications, which is also a primary consideration given the large number of potential customers (citizens with smartphones). If we compare the use of applications with a telephone administration service, we can quickly see that due to the growing scope of services, the workload of the administrators may also increase. In contrast, the mobile phone application is a quasi "self-service" channel that is fully integrated into the system. This integration in the central system means additional cost savings, as the collection of structured data and information in this way is also an advantage, and the customer saves money by eliminating the obligation to appear on-site and evaluate problems that may arise there (SZABÓ, 2020).

Smartphone applications allow citizens to initiate contact, submit applications, and initiate procedures at any time and from anywhere, which is a significant advantage over other communication channels, especially in time and cost savings. Citizens can report problems immediately if they notice them, since they usually have their mobile phones with them, but their computers are far from safe. The fact that they can take action on their smartphones and do not need to go back to their home or workplace to contact the authorities can mean a kind of change of attitude for customers. If administration requires more energy and time, it is less likely that the average customer will do it. By combining the advantages of mobile phones and web applications, online services can be accessed without geographical restrictions, which can also mean expanding the range of services of public administration bodies. Smartphone applications are integrated into the central system(s), so applications can be sent directly to the competent authority, thus not only

saving costs, but also increasing the speed of application processing. This can be especially important in the case of an emergency or disaster, but it is not the last consideration in ordinary cases. I believe that the applicability in the case of disasters and emergencies is well supported by the events of today (TÓZSA,2007).

One of the possible application-based solutions could be the EMERGENCY (Emergency Notification Service), which was first introduced in November 2013 as a result of the development work of the disaster prevention directorate. Users who downloaded the application at that time had the option of setting which area of Hungary they would like to be notified of - almost immediately upon detection. The developer has made it possible for the user to create a notification zone adapted to his place of residence, which can be a county, the vicinity of major domestic lakes, or even the entire country. At the start of the system, users had the opportunity to help the application work with reported emergencies by activating the GPS device of the mobile device. EMERGENCY takes the user's current situation into account even when it detects the user's real situation and sends valid notifications to the given area. During the display of all these functions, it is also possible to display the information on a picture or map interface, as well as to communicate the information to the users in text form.

Just think, if someone spots a wild animal somewhere in a populated area (regardless of whether it is a predator or not), using an application, they immediately share the information - even with photo and GPS location data - with other citizens and, of course, with the authorities. The real-time transmission of data can thus enable the fastest actions, whether they are informational or law enforcement. When the detection of animals (e.g. brown bears) has already taken place and it becomes necessary to follow them as precisely as possible by the authorities (e.g. national parks), drones can help (SZABÓ,2020).

3. THE APPLICABILITY OF DRONES

In my opinion, in addition to smartphone applications, some specialized administrative bodies of the Hungarian public administration have additional opportunities to facilitate the activities of the authorities with other excellent tools. The XXI. One of the important technical and development tools of the 20th century is the range of drones originally developed for military-technical purposes. Drones can undoubtedly be described as one of the most popular technical devices, based on the fact that, in addition to their ever-widening range of uses, they also provide excellent assistance for leisure activities and outdoor photo/video documentation.ü

I am aware that there are dangers in the use of drones, which I do not want to go into in detail in this study, because my topic deals with the modernization support for the administrative management of inland wildlife. During my research, I considered drones as a tool that, even when used in interior areas, can greatly contribute to making the work of the given authorities (local governments, nature protection authorities) more efficient and effective.

Regardless of the current development of the regulation, it can be seen that the number of areas of use is - continuously - expanding, as a result of which engineers are increasingly able to develop technical parameters and necessary software and applications that meet the needs. Thanks to the long-range (several kilometres during a flight) and the quality development of image recording devices and optics, the devices can now be used to

document various natural phenomena, sports events, and events. Another use can be, for example, with the help of the installation of the appropriate sensors, the examination of air quality, as well as the analysis and mapping of locations and areas where it would otherwise be risky to conduct examinations in other ways (e.g. industrial accidents, sites of natural disasters). In addition, it must be emphasized that they can be successfully used for remote monitoring of areas that are difficult to access, or even for monitoring the condition of facilities (e.g. power plants, factories, dams). This can play a particularly important role in the traceability of wild animals, since data and information must often be collected in places that are difficult to track - not at all by car and even on foot.

Thanks to their affordable prices and compact size, drones are also capable of flying in places where machines controlled by humans - in a machine body - would not be able to. An example of this can be even the use of caving, the examination of natural formations - craters of active volcanoes, geysers, glaciers - which in many cases can also serve as hiding places for wanted animals.

The technology allows mapping not only distances, but also heights. This can be especially useful for biologists, for example for documenting high-altitude ecosystems (e.g. observing flora and fauna - even birds' nests). The rotors, which keep them in the air, often prevent the observation of the living world due to the noise it creates, similar to "buzzing". However, this can also have a positive effect. This can even be used specifically as a wildlife deterrent, in places where it is increasingly challenging (e.g. for park caretakers, and farmers) due to the damage caused by living creatures and birds (e.g. chewing damage or simply the accumulation of excrement).

Disaster management staff have already deployed drones in our country. The Baranya County Special Rescuers tried to find a man missing in a mine with the help of a drone. In addition to the manpower search, they used the possibilities provided by the drone and scanned the area of the reeds of the lake from a height of a few meters from the shore, which was monitored by the disaster prevention staff standing on the shore through a screen.

Recently, the use of drones for the detection of waste and illegal outdoor burning has arisen - also for the purpose of disaster prevention. Drones could not only collect visual data, but if equipped with suitable sensors, they could also collect air quality data, which could help the authorities in many cases to work and implement measures (SZABÓ, 2020).

The number of areas of applicability seems quite wide here as well. The most important of these can be (without claiming to be exhaustive):

- recording the intact crime scenes,
- it would be easier to find the hiding places of the wild animals in hot pursuit, thanks to which the work would be accelerated,
- preventing individual conflicts (e.g. encounters between bears and humans) by monitoring the area and the citizens present at the events,
- night observations with the help of image and sound recording, and with the help of thermal camera detectors, the movements of wild animals can be detected even at night, even from a great distance,
- detection of dangerous events in the vicinity of populated areas, e.g. inland wildlife appearance.

With their use, these unmanned aerial vehicles make it possible to carry out inventory tasks and measurements in forest and agricultural areas more precisely than ever before, and moreover in an increased scope. In the case of these two fields of expertise (forestry and agriculture), a key role will be played by the low flight altitude and the ability to adapt well to weather conditions.

During the investigation of the research problem, one of its main areas of application is the mapping of forests, fields and open areas in addition to interior areas, during which the obtained images can be used almost immediately for a wide range of analyzes and applications, for example tracking the movements of wanted wild animals.

These may include the following cases:

- acceleration of official inspections,
- detection of illegal activity, for example poaching,
- determining the location and extent of wildlife damage.

Another area of use of drones can be the technical support of the assessment of wildlife damage caused by the previously mentioned huntable and protected big game species, which is through accurate, on-site measurements. As I have already pointed out, the damage caused by the increased number of wild animals in agriculture, forestry and increasingly populated areas is a serious problem for our country, which is also a source of constant conflict between citizens and wild animals.

4. FINAL THOUGHTS

In this study, I wanted to shed light on a rather current problem that often places a heavy burden on citizens and state bodies - especially local governments - on technical support for resolving conflict situations. I think the statistics and available data all show that the conflict outlined above can lead to more and more serious, even life-threatening consequences, so this ex-lex situation should be remedied as soon as possible. As proof of this, it is enough to think of the constantly growing Slovak bear and grey wolf population, which find a new home in the northern regions of our country. In the course of our research, we are attempting to remedy this problem by creating a uniform procedure and drawing the legislator's attention to the fact that postponing the regulation may later cause significant problems and even human lives. The lack of regulation makes the handling of emergencies complicated, but in this life situation, the exact opposite, i.e. speed and operative procedure, would be needed. The proper use of technical tools (drones, applications) can create an opportunity to provide almost immediate information and draw attention, which is the basis for preventing conflicts and reducing the amount of damage. According to our hopes, in the next phase of the research, we will succeed in formulating more detailed and exact legal provisions, which can remedy a legal problem by putting them into legal form, even attracting the attention of the legislator.

REFERENCES

- SZABÓ Balázs: A magyar közigazgatás technikai-technológiai fejlesztése a XXI. század első két évtizedében c. PhD disszertáció, Miskolci Egyetem, 2020.
- TÓZSA István, ANCSIN László: A mobilkommunikáció alkalmazása az ügyfélszolgálati munkában. In: Kákai László (szerk.) 20 évesek az önkormányzatok: születésnap, vagy halotti tor??, Publikon, 2010., pp.489-492.
- TÓZSA István: Jövőbe mutató közigazgatási megoldások In: Budai Balázs Benjámin, Tózsza István
E-közigazgatás. Debrecen: DE AMTC AVK, 2007., pp. 123-158.
- TÓZSA István: Közigazgatási mobil alkalmazási tartalomfejlesztések
TARIPAR-3 konzorcium NKTH (2009)
- PIERRE, JOn – PETERS, B Guy: Governance, Politics and the State. New York. University of New York Press. 2000.
- MOLDOVAN, X., 2022. The legal nature of the acts issued by the county associations of hunters and sport fishermen. *Curentul juridic Review*, Volumul no. 2, pp. p.89-94.
- Webpages:
https://hvg.hu/itthon/20150413_Dronnal_keresnek_egy_eltunt_embert_Barany
http://www.katasztrofavedelem.hu/index2.php?pageid=szervezet_hirek&hirid=5159
<https://www.borsod24.com/2020/02/21/dronnal-figyelnek-a-sajo-menti-illegalis-egeteseket/>
<https://infostart.hu/belfold/2022/04/07/dronnal-figyelik-a-balaton-parti-vaddisznok-mozgasat-video>
-
-
-