

Illegal bird hunting in Croatia: attitudes and needs of police officers  
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Approximately 500,000 birds are annually illegally killed in Croatia, earning it a spot amongst the worst countries in the Mediterranean with regard to poaching. The Neretva delta and continental fishponds are some of Croatia's illegal hunting hotspots as these sites are also birds' critical habitats for nesting, wintering and resting. The common quail is the most frequently illegally hunted bird species in Croatia. In fact, it is estimated that around 100,000 birds are annually illegally killed by using tape lures.

In 2018, due to the scale of this issue, the Nature Protection Inspection of the Ministry of Environment and Energy organised a training for police officers on illegal hunting of birds in Croatia. Association Biom, which actively cooperates with competent authorities on tackling illegal bird hunting, also participated in the training of police officers. As part of the training, the Association's employees surveyed the police officers regarding their attitudes on illegal bird hunting. The research included 394 police officers from 19 Croatian counties. The survey questionnaire determined the frequency of police officers' encounters with illegal hunting, their motivation for tackling illegal hunting as well as main problems and challenges they encountered, alongside their proposals of possible solutions. The survey questionnaire analysis found that most of the surveyed police officers did not frequently encounter illegal hunting of birds on their job. The police officers cited their own professional deficiencies regarding the subject – ranging from the lack of topic-specific training, capacities with regard to numbers of available officers and equipment, as well as a single procedure protocol – as main obstacles to tackling poaching. Potential solutions specified by the officers included continued education, increased cooperation and work with other competent authorities, and public awareness raising on the subject.

Keywords: illegal hunting, birds, training, survey questionnaires, police officers

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## 1. INTRODUCTION

Illegal activities, such as poisoning and taking animals from nature, have globally been recognised as some of the most significant causes of disappearance of wildlife (Gavin, Solomon and Blank 2010; St. John *et al.* 2010). Numerous bird species, especially migratory ones, have been excessively taken from nature, often through illegal activities (BirdLife International 2013; Kirby *et al.* 2008). Illegal killing of birds has been recognised as a significant problem for wild bird conservation in the Mediterranean (Emile, Noor and Dereliev 2014) and several studies have been conducted on the estimated number of birds illegally killed in the region (Schneider-Jacoby and Spangenberg 2010; CABS 2014). In 2016, Brochet *et al.* published the latest and most comprehensive estimate of the number of illegally killed birds in the Mediterranean, including Croatia, in the paper entitled “Preliminary assessment of the scope and scale of illegal killing and taking of birds in the Mediterranean”. Between 11 and 36 million birds are killed annually in the Mediterranean according to the study.

Approximately *500,000 birds are annually illegally killed in Croatia*, earning it a spot amongst the worst countries in the Mediterranean with regard to the prevalence of illegal bird hunting (Brochet *et al.* 2016). In addition to the strictly protected species being killed, huntable bird species are illegally killed in excessive hunting using illegal means (Mikuška *et al.* 2014; Brochet *et al.* 2016).

Pursuant to the EU Birds Directive<sup>1</sup> and Croatian legislation, various means, devices or methods of large-scale or non-selective capture or killing of birds are forbidden because of the excessive pressure which they exert or may exert on the numbers of birds. However, frequently used means and methods for illegal hunting in Croatia are often illegal ones, such as *tape lures, nets, traps, automatic weapons, artificial lightning and motor vehicles or boats*. In addition to the above, illegal hunting often takes place at night-time, in areas that are not hunting grounds (all marine areas and specific protected areas) and using facilities not recorded in the hunting management plan (Durst and Mikuška 2017).

*The Neretva delta, continental fishponds, the entire Adriatic coast and Zadar hinterland* are just some of the *illegal hunting hotspots in Croatia*, which include sites that are also of exceptional importance as nesting, wintering and resting grounds for strictly protected bird species (Tutiš *et al.* 2013; Mikuška *et al.* 2014; Brochet *et al.* 2016.; Šarić and Budinski 2018).

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<sup>1</sup> Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds

The *common quail* (*Coturnix coturnix*) is the most frequently illegally hunted bird species in Croatia. It is estimated that around 100,000 quails are annually illegally killed in Croatia in illegal hunting by using electronic lures (Brochet *et al.* 2016). Also, Croatia ranks third in Europe when it comes to the annual number of illegally killed Eurasian coots (*Fulica atra*), which are predominantly illegally hunted in the Neretva delta (Brochet *et al.* 2016). Species with small population numbers in Croatia as well as those with long generation time (late sexual maturity and low reproductive output) are particularly endangered, which covers many endangered birds of prey (Tutiš *et al.* 2013).

Some of the socioeconomic drivers of illegal hunting in countries along the Adriatic flyway (Albania, Bosnia and Herzegovina, Montenegro, Croatia, North Macedonia and Serbia) include profits from hunting tourism and sale of killed birds, sports and leisure, keeping songbirds in captivity and trophy hunting (Butchart 2008; Durst and Mikuška 2017).

Due to the prevalence and proportions of illegal killing of birds in EU, numerous institutions and experts call for a zero tolerance to this type of threat to birds. Furthermore, in 2012, the European Commission published the “Roadmap towards eliminating illegal killing, trapping and trade of birds”<sup>2</sup>. Also, the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), to which Croatia is a signatory, established a work group for the implementation of the Tunis Action Plan<sup>3</sup>, aimed at eradicating illegal killing of birds in the Mediterranean. Both international action plans as well as the Red Data Book of Birds of Croatia (Tutiš *et al.* 2013) specify that in order to successfully end poaching, provisions of the Hunting Act<sup>4</sup>, as well as laws and regulations in the area of nature conservation, need to be more effectively implemented and illegal hunting more thoroughly monitored by the police on the ground. Apart from the specified acts, the Croatian Criminal Code<sup>5</sup> is in conformity with the EU Directive on the protection of the environment through criminal law<sup>6</sup>, and illegal taking of birds is classified under the category of illegal hunting and fishing crimes<sup>7</sup>.

Pursuant to the latest published report of the State Attorney’s Office of the Republic of Croatia (DORH) for 2017, in the overall crime structure, these crimes participate with negligible 0.7% of all reported known physical persons. Pursuant to reports from 2015, 2016 and 2017, DORH

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<sup>2</sup> European Parliament resolution of 15 January 2014 on wildlife crime (2013/2747(RSP)) “Roadmap towards eliminating illegal killing, trapping and trade of birds.”

<sup>3</sup> Recommendation No. 164 (2013) on the implementation of the Tunis Action Plan 2013-2020 for the eradication of illegal killing, trapping and trade of wild birds.

<sup>4</sup> Hunting Act, Official Gazette No. 99/2018

<sup>5</sup> Criminal Code, Official Gazette Nos 125/2011, 144/2012, 056/2015, 061/2015, 101/2017, 118/2018

<sup>6</sup> Directive 2008/99/EC of the European Parliament and of the Council of 19 November 2008 on the protection of the environment through criminal law

<sup>7</sup> Criminal Code, Official Gazette No. 125/2011, Article 204.

considers such a small percentage of criminal acts to be a consequence of *insufficiently developed environmental awareness*, meaning that certain behaviours are not even perceived as unlawful activities. It is also considered that *increased activities of competent services and institutions*, responsible for detecting and reporting criminal acts of illegal hunting, could alter the present situation. That would create a possibility of timely recognition of these criminal acts and filing of solid criminal charges, resulting in preventive activities as well (DORH 2015, 2016 and 2017).

In 2018, the Nature Protection Inspection of the Ministry of Environment and Energy organised a training for police officers on tackling illegal hunting of birds. Prior to that, the Ministry of Environment and Energy has only organised a training for border police officers on illegal activities harming nature. That is why the training held in 2018 was the first one on the subject aimed at other police officers, who are also among the most important stakeholders when it comes to tackling illegal bird hunting. Educational lectures were held in all Croatian counties and the police officers learned about illegal bird killing, its legal framework, overview of the most affected species and the most commonly used illegal tools. The BirdLife partner in Croatia, Association Biom, which actively cooperates with competent authorities on tackling illegal bird hunting, also participated in the training of police officers. During educational lectures, Biom's employees gave the survey questionnaires to the police officers to learn about their attitudes regarding illegal hunting.

## 2. METHODS

### 2.1. RESEARCH OBJECTIVE

The main research objective was to determine how often police officers encountered bird poaching and to establish requirements enabling them to successfully tackle it. Due to the prevalence and proportions of illegal killing of birds in Croatia, the first fundamental research assumption was that police officers did not encounter illegal hunting in their daily work, that is, that competent institutions were not active enough to tackle it (DORH 2015, 2016, 2017). The second fundamental assumption was that police officers were not adequately educated on the subject and that this might have been one of the possible reasons for low detection of poaching on the ground.

### 2.2. RESEARCH SAMPLE

The research included 394 police officers from 19 Croatian counties, and Figure 1 shows the number of participants per county. The research was conducted on a convenience sample, that is, on those police officers who agreed to participate in the training on illegal activities against

birds. Research participants were officers from different police stations in a county and from different directorates: Police Directorate, Criminal Police Directorate and Border Police Directorate. The research was conducted between April and November 2018.

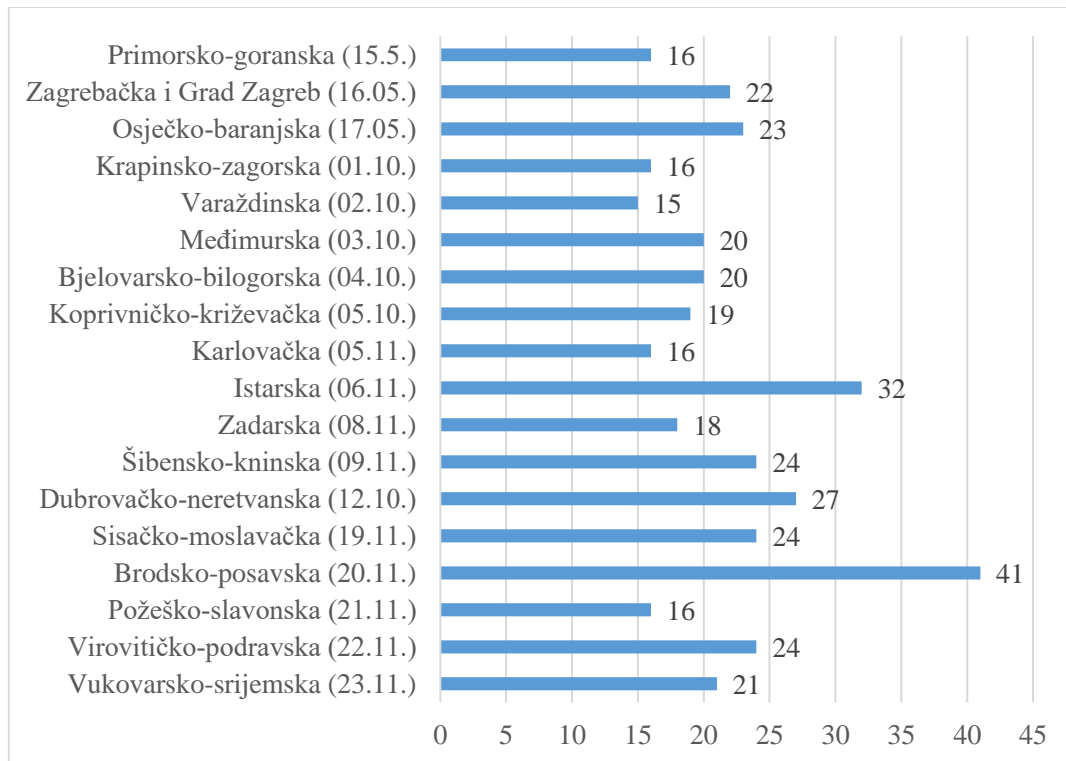


Figure 1 Date of 2018 police officer training per county. The table also shows the number of police officers who participated in this research per county.

### 2.3. INSTRUMENT

In order to collect descriptive and quantitative data, that is, attitudes and opinions on the topic of illegal hunting of birds in Croatia, all research participants were given a semi-structured questionnaire (Vujević 2002). The survey questionnaire consisted of a total of 6 questions, three of which were close-ended type questions with provided multiple answers and the remaining three were open-ended type questions. Close-ended type questions referred to the frequency of the police officers' encounters with illegal hunting in their daily work and their personal motivation to tackle it. For the specified two questions, an attitude scale was used, that is, a Likert-type scale with 1-5 range (Likert 1932). In this regard, number "1" signified that the officers encountered poaching "very rarely", that is, in the second question, that they were "not motivated at all" to tackle poaching. On the other side of the scale, number "5" signified that the police officers "encountered poaching very frequently", that is, in the second question, that they were "very motivated to tackle poaching". For all the counties except for the Primorje-Gorski Kotar County, Osijek-Baranja County and the City of Zagreb, the third close-ended type

survey question was introduced with the aim to collect data on whether police officers were hunters themselves. For this question, the officers were provided two answers, namely “yes” or “no”. Three questions in the survey questionnaire were open-ended type in order to record as broad range of answers as possible without a bias introduced by questionnaire creators (Schuman and Presser 1979). The first open-ended type question referred to main problems and challenges for successful prevention of illegal hunting which the officers encountered. The second question gathered proposals of the participants of possible solutions for successfully tackling poaching. The two questions did not set a limitation to the number of issues and proposals for the officers to specify. The final open-ended type question in the questionnaire was also the final question where the participants could enter “any additional comments”. A part of the participants provided answers to the previous two open-ended type questions in this part of the questionnaire so such answers were also analysed in this research.

#### 2.4. RESEARCH METHODS

In accordance with all the rules for ethical scientific research, data was collected by conducting an anonymous and voluntary survey of research participants. Before handing out the survey questionnaires, the researcher emphasised to the participants that the survey was anonymous, voluntary and that they could hand in and return the questionnaire at any moment. The researcher first explained the research objective to the participants. While the participants filled out the questionnaire, the researcher stayed in the room in order to answer any questions, but did not influence the participants’ answers in any way. The surveys were conducted in a group setting, that is, all the participants were in the same room. After the participants filled out the survey questionnaires, the researcher placed them in an envelope. Data entry was also organised in such a way as to guarantee complete anonymity preservation of survey participants.

#### 2.5. DATA PROCESSING

Data from survey questionnaires were entered into table format for easier analysis. In order to compare the frequency of the participants’ encounters with poaching and their personal motivation to tackle it among the counties, the mean value of the police officers’ answers in individual counties was used.

For open-ended type questions, thematic analysis was performed, which resulted in data categorised in a number of themes (Braun and Clarke 2006). Since the Neretva delta has the highest illegal hunting rate in Croatia (Brochet *et al.* 2016), the analysis particularly focused on the needs of police officers from the Dubrovnik-Neretva County.

### 3. RESEARCH RESULTS AND DISCUSSION

This research provided insights into attitudes, problems and needs of the police with regard to successfully tackling illegal hunting.

The question “How often do you encounter illegal hunting in your daily work?” was answered by all the police officers participating in the research, i.e. 394 of them. Results of answers to this question are shown in Figure 2. How often the police officers encountered poaching per county is shown in Table 1.

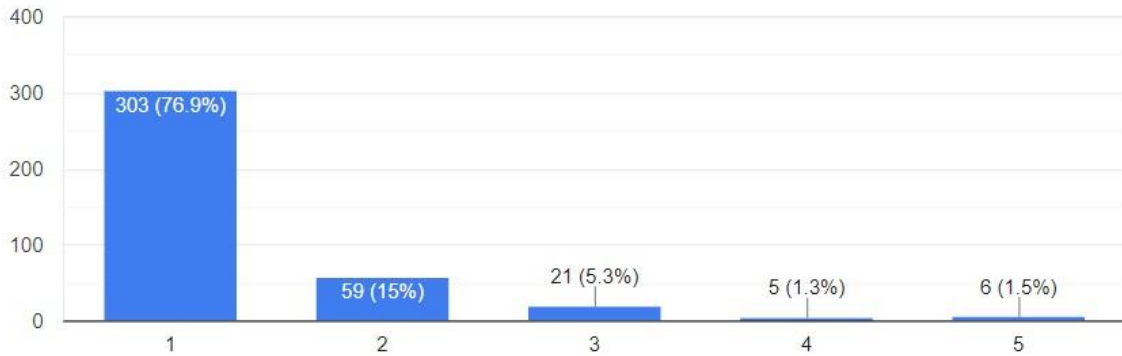


Figure 2 Police officer answers to the question “How often do you encounter illegal hunting in your daily work?” In this regard, “1 = very rarely”, while “5 = very frequently”. The figure shows the number of answers per category as well as the percentage.

Table 1 The mean values of personal assessment of the frequency of encountering illegal hunting per county. In this regard, “1 = very rarely”, while “5 = very frequently”.

County	The mean value of frequency of encounters with poaching (officers' personal assessment)
Dubrovnik-Neretva	1.9
Primorje-Gorski Kotar	1.7
Međimurje	1.6
Zadar	1.5
Vukovar-Srijem	1.4
Požega-Slavonia	1.3
Istria	1.3
Karlovac	1.3
Virovitica-Podravina	1.3
Varaždin	1.3
Bjelovar-Bilogora	1.2
Zagreb	1.2
Osijek-Baranja	1.2
Brod-Posavina	1.2
Šibenik-Knin	1.2
Koprivnica-Križevci	1.1
Sisak-Moslavina	1.1
Krapina-Zagorje	1.0

The majority of the police officers, i.e. as many as 76.9%, almost never encounter poaching on the ground (Figure 2). This illegal activity is most frequently encountered by police officers in the Dubrovnik-Neretva County, which is not surprising as the Neretva delta is one of the illegal bird hunting hotspots in Croatia (Brochet *et al.* 2016). Since poaching is very frequent and visible in the specified area, as observed by the researchers, the assumption was that the participants from that county would encounter bird poaching more often than officers from other counties (Mikulić and Radović 2007, Public Institution for Management of Protected Natural Areas of the Dubrovnik-Neretva County 2016; Šarić, Dender and Budinski 2019 - in print). After the Dubrovnik-Neretva County, poaching is most frequently encountered by officers from Primorje-Gorski Kotar, Krapina-Zagorje and Požega-Slavonia counties. Police officers from the Bjelovar-Bilogora County specified that they almost never encountered illegal hunting, which is contrary to field data of Association Biom which show that electronic lures are frequently used in the area for illegal quail hunting.

A total of 393 police officers replied to the second question in the questionnaire “On a scale from 1 to 5, mark how much you are personally motivated to prevent illegal hunting of birds in your daily work”. Answers are shown in Figure 3. The level of the officers' personal motivation to tackle poaching per county is shown in Table 2.



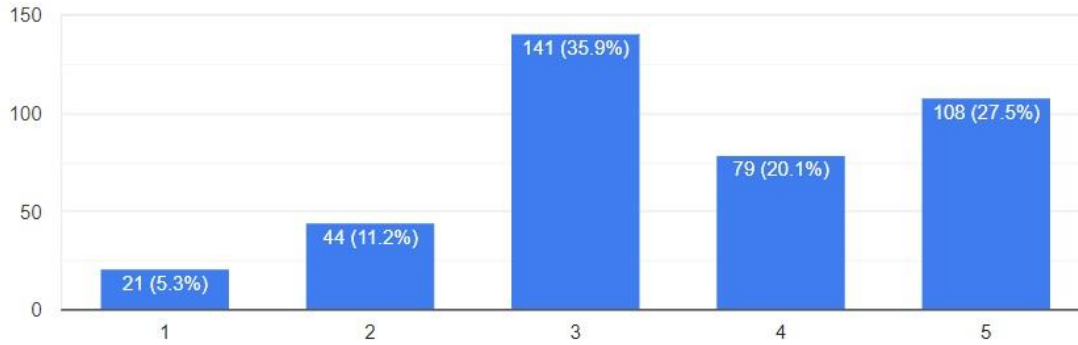


Figure 3 The police officers' replies to the question "On a scale from 1 to 5, mark how much you are personally motivated to prevent illegal hunting of birds in your daily work". In this regard, "1 = I am not motivated at all", while "5 = I am highly motivated".

Table 2 The mean values of the level of the officers' motivation to tackle poaching per county. In this regard, "1 = I am not motivated at all", while "5 = I am highly motivated".

County	The mean value of the level of motivation to tackle poaching
Primorje-Gorski Kotar	4
Krapina-Zagorje	3.9
Požega-Slavonia	3.9
Sisak-Moslavina	3.8
Vukovar-Srijem	3.8
Virovitica-Podravina	3.7
Dubrovnik-Neretva	3.7
Zadar	3.7
Koprivnica-Križevci	3.6
Osijek-Baranja	3.6
Varaždin	3.6
Međimurje	3.5
Karlovac	3.5
Istria	3.4
Bjelovar-Bilogora	3.3
Zagreb	3.0
Šibenik-Knin	3.0
Brod-Posavina	2.9

As many as 47.6% of the surveyed police officers felt motivated or very motivated to tackle poaching, while 16.5% did not feel motivated (Figure 3). When answering this question, the remaining 35.9% of the officers marked "3" on the scale, i.e., that they were "moderately motivated" to tackle poaching. This group might be encouraged to tackle poaching by removing any obstacles that they mentioned as limiting to their work.

The third question in the questionnaire, "Which do you think are the main problems and challenges to successful prevention of illegal hunting?" was answered by 293 police officers,

that is, 74% of the participants. The officers specified a total of 376 problems and challenges to successful prevention of illegal hunting, grouped into 6 themes (Figure 4). The fourth question in the questionnaire, “What would help you to successfully prevent illegal hunting?” was answered by 284 police officers, that is, 72% of the participants. The officers specified a total of 384 recommendations for successful prevention of illegal hunting, grouped into 5 themes (Figure 5).

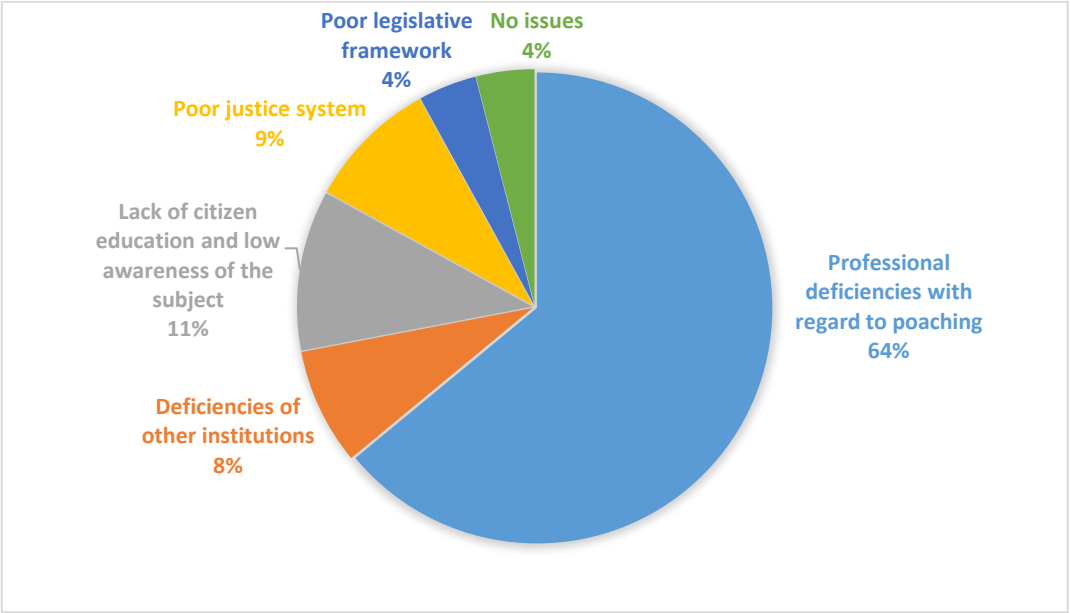


Figure 4 The police officers’ answers to the question “Which do you think are the main problems and challenges to successful prevention of illegal hunting?” A total of 376 problems and challenges were grouped into 6 themes.

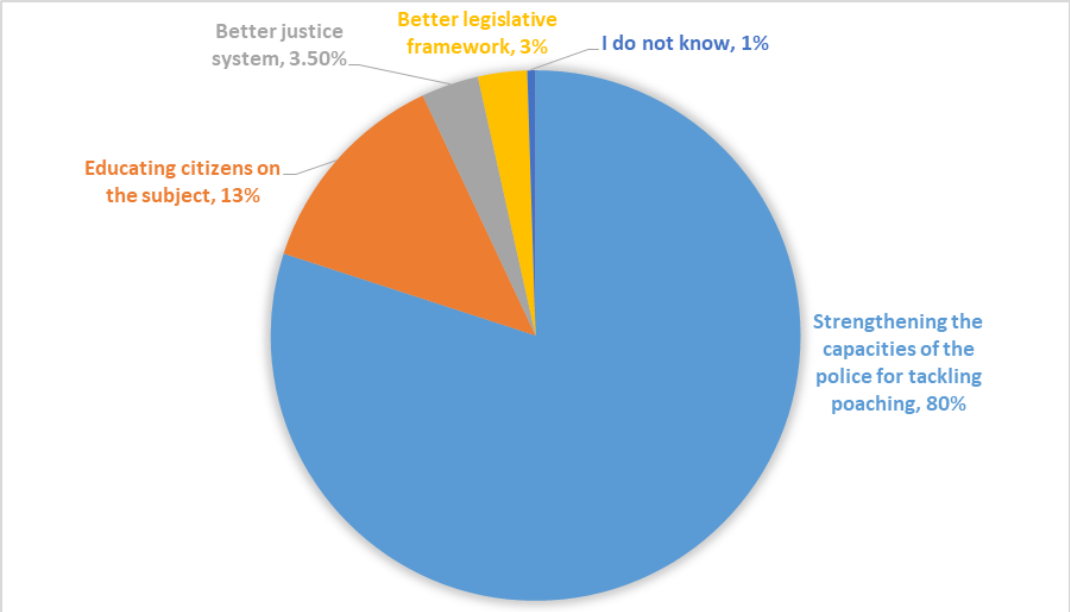


Figure 5 The police officers’ answers to the question “What would help you to successfully prevent illegal hunting?” The police officers specified 384 recommendations, grouped into 5 main themes.

As the main issue for tackling illegal bird hunting, 64% of the police officers specified their own professional deficiencies regarding the subject (Figure 4). The police officers specified the following as main reasons for their professional deficiencies regarding the subject: 1) lack of training on the subject – 40%, 2) lack of capacities for tackling illegal hunting – 36%, 3) lack of cooperation with other competent institutions for tackling illegal hunting – 10%, 4) difficulties in detecting poaching – 10% and 5) lack of the police officers' motivation to tackle this threat to birds – 4% (Figure 6).

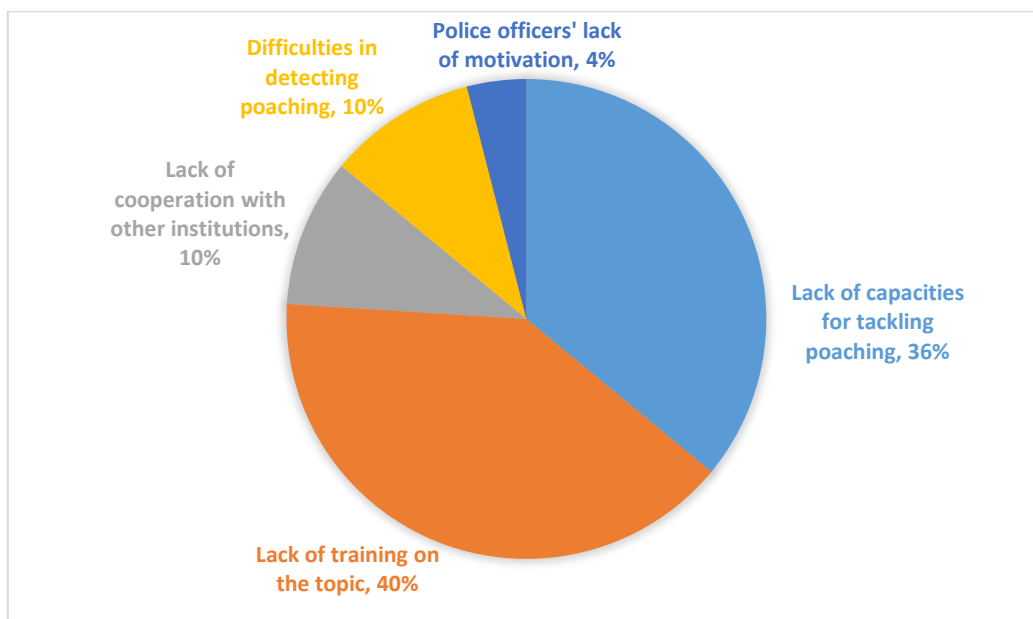


Figure 6 Reasons why the police officers think they are professionally deficient to successfully tackle illegal hunting.

80% of the police officers specified that professional deficiencies regarding illegal hunting could be overcome, inter alia, by strengthening the police capacities in several segments: 1) continued training on illegal hunting – 50%, 2) improved cooperation with other competent institutions for tackling poaching – 31% and 3) increased number of employees, better work organisation and equipment – 19% (Figure 7).

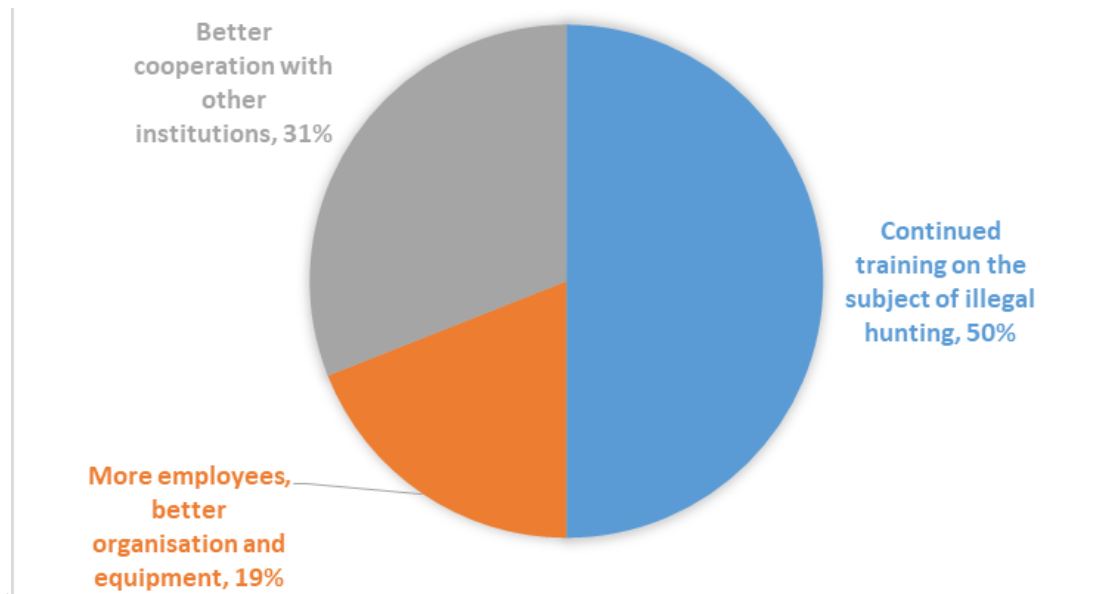


Figure 7 Proposals of the police officers for overcoming professional deficiencies for successfully tackling illegal hunting.

Officers recognised their own *lack of training* on illegal bird hunting, adding that they had not received any formal training on the subject. They emphasised that they lacked knowledge on strictly protected bird species and legal regulations and procedures covering the subject of poaching. Participants also believed that they are not aware of the magnitude of the problem and significance of birds in nature. The police officers' main recommendation for tackling illegal hunting was *continuation of training on the subject* (Figure 7). They concluded that they needed general training on the subject of poaching that would cover legislative framework, illegal tools used in poaching, habitats and hotspots where illegal hunting takes place, with practical work on the ground. They also emphasised that they needed training for recognition of bird species, at least the most frequently illegally killed ones.

The second issue in the scope of professional deficiencies specified by the officers was *lack of capacities for tackling illegal hunting* with regard to the available human resources and equipment, as well as internal organisation (Figure 6). Also, the officers listed lack of time for dealing with the subject due to other duties, such as excessive red tape, as one of the problems. They also added that it was difficult to operatively cover large areas where poaching takes place. The police officers also felt that poaching is a specific type of criminal activity which takes place in areas usually not monitored by them. That is why they concluded that *there were not enough police officers available at the moment* for continuously tackling illegal hunting. The officers also noted *lack of technical equipment* for tackling poaching, such as appropriate all-terrain vehicles, vessels and resources for working at night, and surveillance cameras. For

example, police officers from the Neretva area do not own a vessel, which is crucial for tackling bird poaching that takes place almost exclusively in marine or wetland areas (Šarić, Dender and Budinski 2019 – in print, personal communication with officers from Neretva area police stations 2018).

The officers also specified that there were at the moment no *common instructions* or procedures (or that they were not aware of such instructions or procedures) on how to deal with illegal hunting on the ground. In addition to the above, they felt that it was an issue of internal organisation that shift work in some areas did not include an early morning shift (at dawn), which is when poaching often takes place.

They believed that corruption, manifesting itself as “leaking of information” from police stations in small towns where police officers often personally know poachers, was also a problem. The participants concluded that more police officers on the ground, more frequent patrols, better work organisation and adequate equipment would result in more successful tackling of poaching.

Another problem specified by the police officers was *lack of cooperation between the police and other competent institutions* for tackling poaching and general lack of coordination among them (Figure 6). Lack of cooperation between the police and hunting associations, especially cooperation with gamekeepers, was particularly emphasised. Furthermore, the police officers believed that in order to more successfully tackle illegal hunting, better cooperation with inspections, which should be constantly available to the police, was of crucial importance. This is currently not the case as inspections’ legal working hours are Monday to Friday while illegal hunting mostly takes place on weekends. The officers also specified that cooperation between the police and competent institutions for determination of bird species should be improved, which also pertains to cooperation with utilities when finding bird carcasses. According to them, political will and strong intersectoral collaboration are of utmost importance for tackling poaching. They also mentioned that contact with nature conservation associations might help them in their work.

Following their own professional deficiencies on the subject of poaching, 11% of the police officers specified the lack of citizen education and low public awareness on the subject as the second most important problem for successfully tackling poaching (Figure 4). 13% of the police officers thought that citizens and the public needed to be educated on the subject of illegal hunting so it could be successfully tackled (Figure 5).

The participants felt that better coverage of this subject in the media might lead to more frequent reports by citizens and more timely information about illegal hunting. They also expressed an

opinion that better media coverage of the subject might contribute to poaching prevention. Furthermore, they felt that children should be educated on the subject of illegal bird hunting as part of school curriculum. According to them, forming associations or gathering volunteers for bird protection in specific station areas might help police officers in prosecuting poaching.

9% of the police officers felt that deficient justice system was an obstacle to tackle illegal hunting (Figure 4). Slow court proceedings, difficulties with proving poaching in court and low sanctions for the accused were specified as additional problems. Based on research results, 3.5% of the officers felt that it was important to improve the justice system (Figure 5).

They felt that penalties for poaching should be higher and that poachers should permanently lose hunters' licences and hunting concessionaires should in some cases even lose the right to hunt in specified hunting grounds. The participants specified that in order to tackle poaching, judiciary bodies needed to operate adequately and court proceedings had to be resolved faster. Consistent application of law in court proceedings was also specified as important because sometimes it might not be clear whether a bird had to be killed for the act to be deemed as poaching or the use of illegal tools, such as electronic lures, would be enough for a conviction. They also mentioned the importance of judges receiving training on the subject of illegal hunting.

8% of the police officers specified in their questionnaires that successful tackling of poaching was also impeded by deficiencies of other competent institutions dealing with illegal hunting (Figure 4). In the surveys, the participants specified that hunters insufficiently carried out hunting ground monitoring and needed to be additionally trained on tackling illegal hunting. In addition to hunters, the police felt that nature protection, hunting and veterinary inspections lacked capacities to successfully tackle poaching. They also considered that the competent institutions often failed to pay compensation for damage caused by birds (e.g. damage to crops, fish farms, buildings) and that such a malfunctioning system could drive people to poaching. The participants also felt that procedures for the course of action regarding finding dead animals were unclear and that competent institutions frequently failed, so police officers were forced to "deal with it themselves". The officers generally mentioned that all the sectors needed to be more engaged and mutually cooperate in order to tackle the issue of illegal hunting. Furthermore, 4% of the police officers felt that poor legislative framework made it difficult to tackle poaching (Figure 4). They believed that the applicable Hunting Act (OG 140/2005) was insufficient and that there were numerous deficiencies in some parts of the Act. They also specified that frequent changes in legislation caused problems in performance of their work. So 3% of the participants said that improved legislative framework, i.e., the one that is better and

stricter, would help them with tackling illegal hunting (Figure 5). They also thought higher fines for convicted poachers should be prescribed by law. Some of the participants mentioned that it was necessary to ban selling of devices and equipment used in poaching (e.g., electronic lures), which are legally sold at the moment.

4% of the police officers thought that there were no issues with tackling illegal hunting and 0.5% of the participants did not know what might help them successfully tackle poaching (Figures 4 and 5).

The fifth question in the survey questionnaire, “Are you a hunter?” was answered by a total of 333 police officers, with 15% confirming they were hunters and 85% replying they were not. The last question in the survey questionnaire, “Do you have any additional comments?” was answered by 53 participants. 72% of their answers were in fact answers to the third or fourth questions, so they were analysed as answers to those questions. The remaining answers, namely 28% of them, were reviews of the training.

#### 4. CONCLUSION

This research, as well as the training, offered insights into needs of the police with regard to tackling illegal bird hunting, so these should be taken into consideration when planning future activities regarding illegal activities harming nature, especially trainings, aimed at the police. Additional research of police officer needs in counties determined as Croatian poaching hotspots (such as Dubrovnik-Neretva County, Zadar County and continental counties with carp fishponds) needs to be carried out, and Split-Dalmatia and Lika-Senj county police officers, who were not included in this research, need to be surveyed using this questionnaire. One of the limitations of this research is that not all the participants answered all of the questions, especially the open-ended type ones. Also, the research included a convenience sample of police officers, that is, only those officers who attended the lectures were included in the sample. That is why any future research should also include surveying other police representatives.

The research also provided many important findings which need to be additionally researched by expanding the population of participants in order to more comprehensively cover the problem and include the following stakeholders: employees of competent ministries, inspections and public institutions, hunters, tourist workers, etc.

With regard to the discrepancy in the frequency of poaching and the number of detected and prosecuted cases, *there is a clear need to strengthen capacities of police officers with regard to the subject* (DORH 2015, 2016, 2017; Brochet *et al.* 2016). The participants’ proposals for

*overcoming professional deficiencies* on the subject of illegal hunting, especially the proposal to organise further training for police officers on the subject of illegal activities harming nature, need to be taken into account. It is also important to adequately equip police stations in poaching hotspots, e.g. in the Neretva delta area. Furthermore, it is necessary to create operation plans for tackling poaching, at least in priority areas in Croatia, through *intersectoral cooperation*. In order for officers to get timely and useful information on illegal hunting in an area, they need continuous cooperation with citizens and civil society organisations.

This paper is the first published analysis of stakeholder attitudes on illegal hunting of birds in Croatia as well as the only paper in EU exclusively looking into police officer attitudes about poaching. A handful of studies have been published in EU analysing stakeholder attitudes on poaching and only a few included police officers' attitudes (Jenkins, Mammides and Keane 2017). That is why the results of this research can contribute to more effective tackling of illegal activities harming birds both in Croatia and EU.

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