

OPEN ACCESS

The Journal of Threatened Taxa is dedicated to building evidence for conservation globally by publishing peer-reviewed articles online every month at a reasonably rapid rate at www.threatenedtaxa.org. All articles published in JoTT are registered under [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/) unless otherwise mentioned. JoTT allows unrestricted use of articles in any medium, reproduction, and distribution by providing adequate credit to the authors and the source of publication.



Journal of Threatened Taxa

Building evidence for conservation globally

www.threatenedtaxa.org

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

COMMUNICATION

MAPPING THE CONFLICT OF RAPTOR CONSERVATION AND RECREATIONAL SHOOTING IN THE BATUMI BOTTLENECK, REPUBLIC OF GEORGIA

Anna Sándor & Brandon P. Anthony

26 June 2018 | Vol. 10 | No. 7 | Pages: 11850–11862
10.11609/jott.3695.10.7.11850-11862



For Focus, Scope, Aims, Policies and Guidelines visit <http://threatenedtaxa.org/index.php/JoTT/about/editorialPolicies#custom-0>
For Article Submission Guidelines visit <http://threatenedtaxa.org/index.php/JoTT/about/submissions#onlineSubmissions>
For Policies against Scientific Misconduct visit <http://threatenedtaxa.org/index.php/JoTT/about/editorialPolicies#custom-2>
For reprints contact info@threatenedtaxa.org

Partners



صندوق محمد بن زايد
للمحافظة على
الكائنات الحية
The Mohamed bin Zayed
SPECIES CONSERVATION FUND



ZOOH!
ZÜRICH

Member



Publisher & Host





MAPPING THE CONFLICT OF RAPTOR CONSERVATION AND RECREATIONAL SHOOTING IN THE BATUMI BOTTLENECK, REPUBLIC OF GEORGIA

Anna Sándor¹ & Brandon P. Anthony²

ISSN 0974-7907 (Online)
ISSN 0974-7893 (Print)

OPEN ACCESS



^{1,2}Department of Environmental Sciences and Policy, Central European University, Nádor u. 9, 1051 Budapest, Hungary
¹sandor.annasarolta@gmail.com (corresponding author), ²anthonyb@ceu.edu

Abstract: Illegal use of natural resources threatens biodiversity and often leads to conservation conflicts between affected parties. Such a conflict is emerging in the Batumi Bottleneck in the Republic of Georgia, where every autumn more than one million migrating birds of prey funnel above a handful of villages, and where thousands of these birds fall victim to illegal shooting. As a first step towards resolving this conflict, utilizing semi-structured interviews, we map the goals and opinions of relevant stakeholders associated with raptor migration in the bottleneck. Our results show that most stakeholders, except some local hunters, are on common ground considering the shooting unacceptable, but articulate different preferences concerning a solution, which hinged on institutional and enforcement issues. The hunters expressed a wide spectrum of responses concerning their involvement and motivation in raptor shooting, the role and importance of hunting in their lives, and preferred mitigation actions. The most urgent issues to be addressed via conservation actions are the wide-scale lack of awareness of the conflict, the potential loss of species, and the risk of conflict escalation.

Keywords: Human-wildlife conflict, hunter opinions, illegal hunting, interviews, issues, migratory raptors, solutions, stakeholders.

DOI: <http://doi.org/10.11609/jott.3695.10.7.11850-11862>

Editor: Eszter Kovács, Szent István University (SZIU), Gödöllő, Hungary.

Date of publication: 26 June 2018 (online & print)

Manuscript details: Ms # 3695 | Received 27 September 2017 | Final received 04 December 2017 | Finally accepted 18 May 2018

Citation: Sandor, A. & B.P. Anthony (2018). Mapping the conflict of raptor conservation and recreational shooting in the Batumi Bottleneck, Republic of Georgia. *Journal of Threatened Taxa* 10(7): 11850–11862; <http://doi.org/10.11609/jott.3695.10.7.11850-11862>

Copyright: © Sandor & Anthony 2018. Creative Commons Attribution 4.0 International License. JoTT allows unrestricted use of this article in any medium, reproduction and distribution by providing adequate credit to the authors and the source of publication.

Funding: CEU Student Research Grant [BPF/201415/T].

Competing interests: The authors declare no competing interests.

Author Details: ANNA SÁNDOR has an MSc degree in Environmental Sciences and Policy from the Central European University (CEU). She has conducted extensive research on illegal raptor shooting in the Republic of Georgia as a volunteer and board member of the Batumi Raptor Count. She is an avid ornithologist, and works for the Swiss Ornithological Institute as a research assistant. Brandon P. Anthony is an Associate Professor in the Environmental Sciences and Policy Department at the Central European University (CEU) in Budapest, Hungary. Prior to joining CEU, he served as advisor to the Hungarian Nature Conservation Institute, and as a park supervisor and agricultural habitat biologist in Canada. He has conducted research in North America, Africa, and Eurasia on a diverse range of fields including nature conservation, human-wildlife conflict, protected area management, community livelihoods, and amphibian ecology.

Author Contribution: Designed study (AS, BPA); Conducted field work (AS); Data analyses (AS, BPA); Wrote article (AS, BPA).

Acknowledgements: We thank the CEU Budapest Foundation for funding; SWAROVSKI OPTIK for providing us with field equipment; the BRC Team and BRC volunteers for supporting our work; Tamar Dumbadze for translation; Dániel Molnár for his help with the maps; our host families; and all the participants of the study.



INTRODUCTION

Illegal exploitation of natural resources is an increasing global problem that threatens biodiversity (Gavin et al. 2010; Solomon et al. 2015) and leads to conservation conflicts between people and wildlife (human-wildlife conflict; HWC) (Woodroffe et al. 2005), or between groups of people who associate different values with the resource in question (human-human conflict; HHC) (Redpath et al. 2013). These values range on a broad scale including utilitarian to intrinsic and aesthetic (Kellert 1993), and are determined by a wide range of cultural, social, and political factors (Tajfel 1981; Eliason 1999; McGregor 2005; Serenari & Peterson 2016). People's behaviour towards wildlife and institutions responsible for conservation are largely guided by these values (Manfredo 2008; Anthony et al. 2010; Dickman et al. 2013), therefore, HHCs are best managed through a shared understanding of the broader context of the situation, often necessitating both natural and social science approaches (Pierce et al. 2001; Manfredo 2008; Dickman 2010; Redpath et al. 2013). This is of key importance in order to find long-lasting solutions to such conflicts, and to avoid potential escalation. The involvement of all affected stakeholders and the mapping of their goals and opinions on the resource in question and potential mitigation strategies are crucial before crafting or implementing any management decisions (White 2008; Redpath et al. 2013).

Although the shooting and trapping of birds is a popular, legal, and traditional pastime activity in many parts of the world (Bauer & Herr 2004; Hirschfeld & Heyd 2005), illegal killing of birds is a major contemporary conservation problem in several countries (RSPB 2014; BirdLife International 2015b). The practice of shooting birds of prey in particular is often justified by the reputation of raptors as pest species feeding on birds and game (Bildstein 2006). Even in Europe, where raptors have been under strict legislative protection for more than 30 years (Stroud 2003), some raptor populations faced, and still face, extinction due to illegal persecution (Holloway 1996; Stoyanov & Grozdanov 2010). A number of studies show significant declines in some raptor species in Europe (BirdLife International 2004; Burfield 2008), and raptor shooting and poisoning is still a worrisome conservation problem in many places, including Hungary (Kovács et al. 2016), Sicily, and in the Straits of Messina, where conservationists have long been working on the protection of migrant raptors (Giordano 1991; Giordano et al. 1998). Most countries where illegal shooting of raptors takes place are also

signatory parties to international treaties/memoranda for the protection of endangered species, including raptors in particular. In some cases raptor conservation policy is not only ineffective, but the enforcement of new laws has been perceived as an attack on local traditions and culture, which can exacerbate the conflict between hunters and conservationists (Fenech 1992). In rare cases, raptors are even being hunted for their flesh (van Maanen et al. 2001; Bhupathy et al. 2013), in which case they may provide an important source of food for local communities, making it particularly difficult for policy makers and conservationists to offer the necessary protection for species with a protected status. Therefore, there is a clear need to evaluate the local context in which illegal hunting takes place and to identify the main causes of the killing before tailoring local conservation programs. In this study we map an emerging conservation conflict around illegal killing of migrating raptors at one of the world's largest bird migration hotspots.

Every autumn more than one million birds of prey from 34 species migrate over a handful of villages along the eastern coast of the Black Sea, near the city of Batumi, in the Republic of Georgia (Verhelst et al. 2011; BRC 2015). Although birds of prey are protected under international agreements signed by Georgia (Convention on Biological Diversity: 1994; Bonn Convention: 2000; Bern Convention: 2009) and national legislation (Law on Wild Fauna 1996), illegal shooting of migrating raptors in autumn is a widespread activity in the region (van Maanen et al. 2001; BRC 2016). Jansen (2013) has suggested that this is in part due to the lack of enforcement and low awareness of regulations among local communities, and the practice is often promoted as a part of hunting traditions and an important custom in the coastal villages of Georgia; however, a broader assessment is needed to identify hunter motivations for this practice, which we initiate here.

The range of estimated raptor casualties is substantial—from 1,500 to 10,279 individuals per year (van Maanen et al. 2001; Jansen 2013), representing 0.15–1.03 % of an estimated one million migrating birds (BRC 2015). This worrisome trend has as yet unknown consequences for certain susceptible species including the Pallid Harrier *Circus macrourus* ('Near Threatened', BirdLife International 2015a) and Greater Spotted Eagle *Clanga clanga* ('Vulnerable', BirdLife International 2013), as more than 6–9 % and 1–3 % of their estimated world population migrate through this bottleneck, respectively (Verhelst et al. 2011). These species are of special global concern as their population is steeply declining owing

to extensive habitat loss and persistent persecution (BirdLife International 2013; 2015a). Killing even small numbers of these birds can have deleterious effects on the species (Shaffer 1981).

Ecotourism is one of the leading types of tourism in the region and related activities (e.g., hiking, visiting protected areas) are being increasingly promoted, with bird watching becoming one of the main attractions (DTRAAR 2017a,b). The annual 'Bird Festival' is gaining international popularity, and the number of bird watching visitors has been increasing since 2012, when the first Batumi Bird Festival took place. According to DTRAAR (2017a) Batumi is "a must-visit location for birdwatchers". With the prevalence of illegal killing of raptors, and the concomitant increase in ecotourism, the likelihood of increasing conflict across a range of stakeholders is mounting.

This sensitive situation not only requires joint actions from conservationists, local organizations and governmental bodies, but also calls for a deeper understanding of the conflict to provide a basis for developing future management strategies. In this exploratory study, we address this issue by investigating (1) how affected stakeholders perceive the shooting of migratory birds of prey in the Batumi Bottleneck; (2) what underlying issues they identify; and (3) what mitigation actions they would prefer.

In the first section we introduce the identified

stakeholders and their positions concerning raptor migration, raptor shooting, and mitigation actions they consider necessary. We examine local hunters (including those who only hunt legal game species) separately and in more depth, as their standpoints are quite divergent from those of other stakeholders. We also assess how hunters distinguish between raptor species, and how they select which species to shoot, in order to better understand the potential ecological consequences of the shooting. Finally, we provide recommendations on how to navigate towards a mutually agreeable conflict resolution.

METHODS

Study Area

The study was restricted to an approximately 900km² coastal area, which roughly covers the Batumi Bottleneck (Verhelst et al. 2011; Fig. 1). This area lies in the Autonomous Republic of Adjara, in the south-western part of the Republic of Georgia. The total area of Adjara is 2,880km² with a population of 339,000 inhabitants (118 people/km²) (NSOG 2017). The majority of the population are Georgians (95%), with diverse ethnic minorities (Azeri, Armenian, Russian, Ukrainian, Greek, etc.) (NSOG 2014). The unemployment rate in Adjara is 13%, which is the second highest in Georgia after

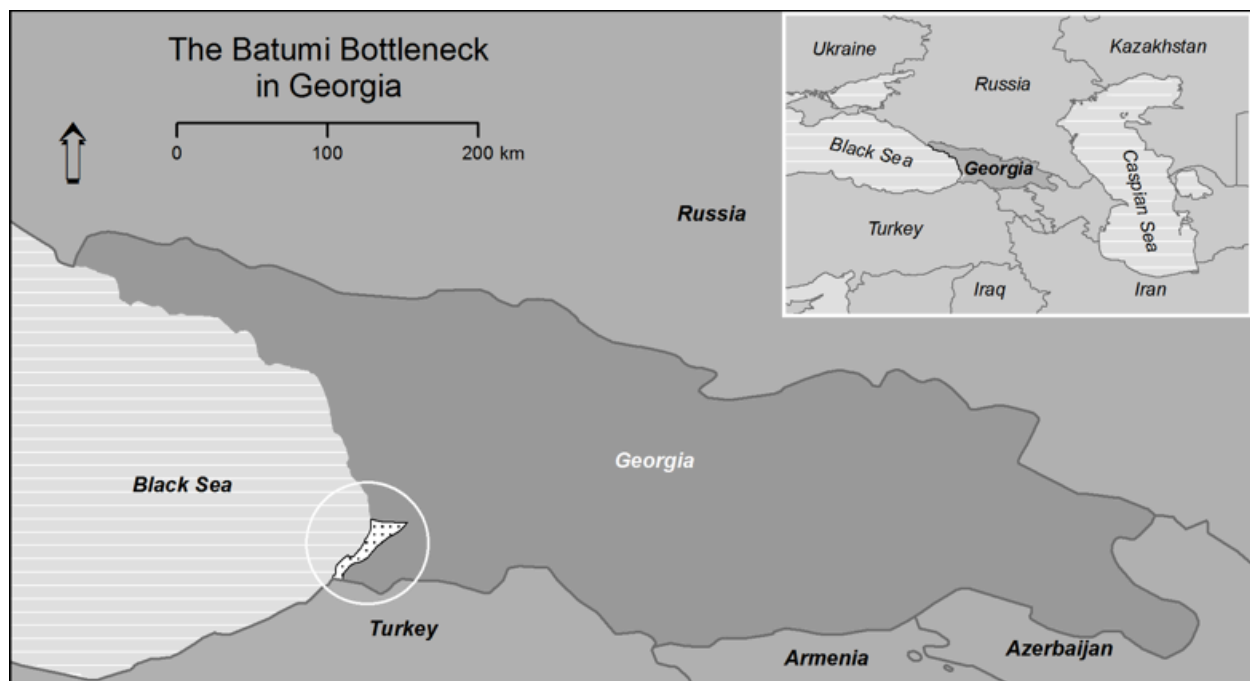


Figure 1. Study area within Republic of Georgia (dotted white). The inset shows Republic of Georgia within region (Data source: ESRI 2015; Natural Earth 2015).

the capital Tbilisi (22.0%) (NSOG 2017). The region is the third most popular among tourists, and its capital, Batumi, is the third most visited destination in the country. The number of tourists registered per year has been rapidly growing since 2011, and the number of international arrivals to Georgia more than doubled between 2011 and 2015 from 2.8 million to almost six million (GNTA 2015).

The topography of the region is hilly or mountainous with a narrow coastal plain. The landscape is dominated by lush subtropical vegetation with citrus and tea plantations cultivated on small terraces. Villages are scattered on steep slopes with houses often quite far from each other. Access to most of these villages is difficult as the unpaved roads are in poor condition, and mud and landslides after frequent heavy rainfalls often make them almost impossible to reach.

Raptor shooting occurs on any suitable mountaintop (state or private properties), or in private gardens and backyards. Most of the area is not under formal nature protection, but some areas fall under the territory of the Mtirala National Park and the Kintrishi Protected Areas, where the use of natural resources are regulated by the relevant Georgian legislation (APAG 2017). At the time of the study, the local conservation management bodies were the Department of Environment and Natural Resources and its sub-department, the Department of Environmental Supervision. They both operate in the Autonomous Republic of Adjara, but fall under the authority of the central Ministry of Environment and Natural Resources Protection.

Interviews

Our study which was largely qualitative in approach, was undertaken between 5 and 26 May 2015, and included the identification of relevant stakeholders implicated in the conflict, as well as semi-structured interviews with members of the identified parties (Redpath et al. 2013). We used a criterion sampling framework to identify stakeholders, i.e., a process by which stakeholders and individuals with specific attributes relevant to the study's purpose were identified which, in our case, was based on their interest in nature conservation and sustainable tourism in the region (Schensul et al. 1999). In addition to the main institutional stakeholders, individual hunters were included in our sampling unit. Only hunters living within the study area were interviewed, as this segment of society was primarily responsible for killing raptors. Local hunters' and falconers' associations, public nature conservation bodies, and tourist organisations were

not included in the study due to limited resources. Government officials and representatives of conservation organisations were chosen based on their status/role at the given institution, and contacted via email or telephone for an appointment. Hunters were selected using 'snowball sampling' (Patton 2002) in two ways: either the hunter was known from previous fieldwork, and thus was approached as an acquaintance based on that knowledge; or the first person that was met in the village was asked to identify a hunter they knew. If the person approached did not confirm/was not at home/was unwilling to participate in the interview, the procedure was repeated.

A total of 17 in-depth semi-structured interviews were conducted with management personnel from: (1) Department of Environment and Natural Resources (DENR); (2) Adjara Service at the Department of Environmental Supervision (DES); (3) Tourism Product and Service Division at the Department of Tourism and Resorts (DTR); (4) SABUKO – Society for Nature Conservation; (5) Hunting Monitoring Team at Batumi Raptor Count (BRC); and (6) local hunters (N=12). The interviewed local hunters included individuals who stated they were interested only in legal game species (5 hunters), and also those who admitted to shooting raptors (6 hunters). One hunter declined to answer whether he would shoot non-legal quarry. Interviews were conducted in person or via Skype, with the assistance of a translator fluent in both Georgian and English, and audially recorded. In cases when the respondent refused to be recorded, written notes were taken during the interview and later transcribed. Language/meaning was cross-checked with the translator during transcription.

The interviews focused on various aspects of the shooting including whether respondents knew about the existence of the problem, and what they believed should/could be done about it. During the interviews with hunters, several follow-up questions were asked to gain a deeper understanding of how they perceive the broader context of the shooting, targeting (1) the age of starting hunting; (2) the role and importance of hunting in their lives; and (3) the use of raptors. Further, hunters were shown 24 colour pictures of bird species and asked to identify local common names of the birds in the picture in order to assess species recognition. The pictures shown included the most common resident and migratory songbirds and raptors occurring in the Batumi Bottleneck, without a breakdown between legal and non-legal quarry. As these topics were not discussed with the other stakeholders, the resulting data is discussed separately. The length of the interviews varied between

36 and 102 minutes (average 70 minutes). Ten hunter interviews were recorded, while two hunters refused to be recorded with no explanation.

All fieldwork adhered to the CEU Ethical Research Policy (voluntary informed consent, anonymity, confidentiality, no harm).

Data Analyses

Data collected through the semi-structured interviews were synthesised and analysed using content analysis with emergent coding (Stemler 2001), in an integrated manner utilizing the conceptual framework of Redpath et al. (2013) developed to understand HHC over wildlife and its management. According to this framework, management is preceded by a thorough mapping of the conflict using social and ecological science approaches and stakeholder processes to effectively involve all parties, and understand the complex nature of the conflict in a wider context. As our study was largely exploratory in nature, we focused specifically on (i) stakeholder identification, (ii) stakeholder values, attitudes, goals, and positions, and (iii) the wider socio-political context in the 'mapping' cycle, and (iv) the identification of solutions/alternatives in the 'managing' cycle from Redpath et al.'s (2013) framework.

We incorporated this conceptual mapping exercise to target our three primary research foci, i.e., perceptions of various stakeholders on raptor shooting, underlying issues, and preferred strategies forward. For species identification by hunters, we calculated correct identification first to species level, then to taxon.

RESULTS

A total of six main stakeholder groups involved in the conflict were identified (Table 1); their opinions are detailed here, drawing upon emergent codes and relevant respondent quotes, and summarised in Tables 2 and 3.

Stakeholders' Position on Raptor Shooting

Stakeholder opinions on raptor shooting ranged on a wide scale: representatives of government bodies and non-government organisations were in accordance with about half of the hunters who considered raptor shooting undesirable and unacceptable (Table 2). Their viewpoints were that raptor shooting (1) is one of the major environmental problems in Adjara (DES), (2) negatively affects the appeal of the country and thus harms the tourism sector (DTR), (3) negatively impacts

species conservation and ecotourism (SABUKO), (4) poses threats to certain endangered species that concentrate in high numbers in the bottleneck (BRC), (5) destroys useful birds, and (6) sheds bad light on Georgian people as violators of the law (local hunters).

"There should be only one approach towards this issue: it is not acceptable."/DENR/

Five of the hunters who said raptor shooting was unacceptable also claimed they do not shoot raptors as it is a "waste of time and money" or because it is illegal. However, six others considered raptor shooting a harmless free-time activity or a pleasant hobby (Table 3). Raptor shooting was seen as an acceptable, consistent form of local customs by these respondents.

"I shoot raptors not because I want to eat them or because there are so many, but because it is a hobby, like fishing or drinking. Catching a fish or killing a bird gives me pleasure."/Hunter 1, Dagva Village/

Identified Underlying Issues

The most often recurring issues that emerged as underlying reasons for the widespread practice of raptor shooting can be categorised into two groups: institutional and enforcement issues.

Institutional Issues

Institutional issues are related to (1) the ease with which hunting permits and supplies can be obtained, (2) the economic and political environment (poverty and unemployment) that facilitate the maintenance of the popularity of this activity, and/or (3) cultural factors that influence attitudes towards raptor shooting.

First, affordable and easily obtained hunting and gun licences is one of the major contributors to the shooting according to DENR, DES, and half of the interviewed local hunters. The DENR respondent indicated that the issuing of licences costs 11 GEL (approximately 4.4 EUR as of 1 July 2015) to be paid in a bank, and there is no prior examination of knowledge about legislation, legal game and protected species, or safety issues.

"Some people go hunting without knowing how to shoot. They can shoot each other or themselves. Previously you had to pass exams on how to shoot, and only if you passed this test you could be a member of a hunting organisation. They also checked your background and mental health. I used to be a member of a hunting association, but there is no such thing anymore. Back then you couldn't buy a gun without being a member... Now it is different."/Hunter 5, Zeda Makhinjauri Village/

Second, it is believed by some respondents that political changes and the current economic situation are

Table 1. Primary stakeholders affected by the illegal shooting of raptors and their functions.

	Stakeholder	Acronym	Function
1	Directorate of Environment and Natural Resources of Autonomous Republic of Adjara	DENR	Government body responsible for environment and nature conservation legislation in Adjara
2	Department of Environmental Supervision	DES	Government body responsible for the enforcement of environmental and nature conservation legislation in Adjara
3	Department of Tourism and Resorts of Adjara	DTR	Government body responsible for ecotourism and birdwatching tourism in Adjara
4	SABUKO – Society for Nature Conservation	SABUKO	Non-government conservation organization, operating since 2014, which promotes bird conservation and their habitats in the region, increases the valuation of nature by the public and encourages the sustainable use of natural resources.
5	Batumi Raptor Count Foundation	BRC	Raptor conservation and migration monitoring project, operating since 2008. Was once a branch of SABUKO, but since 2015 is a registered foundation in the Netherlands.
6	Local hunters and falconers	-	Local individuals participating in the shooting or other form of taking (e.g. trapping) of migratory birds

Table 2. Stakeholder opinions on raptor shooting, their preferred actions and time-scales. (Note: hunter opinions provided in Table 3)

Stakeholder	Position on raptor shooting	Issues identified	Preferred actions	Time scale
DENR	Entirely unacceptable practice	<ul style="list-style-type: none"> - Control shooting sites is difficult (access, disappearance of hunters); - limited resources (manpower, cars, radios); - licence too cheap, no examination of knowledge on law and safety. 	<ul style="list-style-type: none"> - strict changes in legislation; - stricter rules on the issuing of licences; - stricter enforcement practice. 	Immediate
DES	One of the major environmental problems in Adjara	<ul style="list-style-type: none"> - licence too cheap and easy to obtain; - lack of manpower and resources for enforcement; - consequences are not a deterrent. 	<ul style="list-style-type: none"> - stricter regulation and enforcement, - regular patrolling in autumn in the hunting hot spots. 	Immediate
DTR	Harmful to the appeal of the country	<ul style="list-style-type: none"> - Georgia is becoming a more and more important birdwatching destination; - shooting poses a physical danger to visitors; - harms the tourism sector. 	<ul style="list-style-type: none"> - better rules and enforcement; - co-operation with governmental and non-governmental organisations. 	Medium
SABUKO	Serious conservation problem	<ul style="list-style-type: none"> - negative impacts on species conservation and tourism; - poor economic situation in the rural country ("poverty forces people to hunt"); - lack of awareness of regulations; - authorities are unwilling to recognise the problem. 	<ul style="list-style-type: none"> - awareness-raising without confrontation; - open discussion with relevant authorities; - eliminate the practice of raptor shooting. 	Long term
BRC	One of the main conservation problems in Georgia	<ul style="list-style-type: none"> - deep-rooted socio-economic problems; - unawareness of governmental bodies; - hunters have no species knowledge, which leads to indiscriminate shooting, and to potential species loss. 	<ul style="list-style-type: none"> - find mutually beneficial goals for all stakeholders and establish co-operation; - awareness-raising, especially about vulnerable species; - establish solid scientific database to understand the conservation implications; - reduce shooting on the short term. 	Medium and long term

key determinants in the shooting together with hunters' lack of awareness of regulations (SABUKO, DES).

"[Raptor shooting] is a very serious problem that started after the collapse of the Soviet Union. Internal political circumstances brought a huge impact on the economic system in Georgia, and poverty forced locals to hunt for food without making a difference between legal and protected species. After so many years, illegal hunting became a hobby that locals even promote as a tradition, but it has never been a tradition in Georgia."/ / SABUKO/

"There are usually 3 motivations [for raptor shooting]: the first is spending time, like a sport. Then there are people who shoot mammals and birds to sell

them. And the third type shoots raptors to bring food to the family, because they are poor."/ /DES/

"Most hunters know that the killing of buzzards, eagles, or bears is strictly forbidden, and 90% respect and follow the hunting regulations, but some of them just don't pay any attention to the law."/ /DENR/

While the general unawareness of hunters concerning relevant legislation and the significance of the Batumi Bottleneck for bird populations is a major contributor to the problem (BRC, DTR), some hunters expressed that they are ashamed of raptor shooting.

"There were some people from the Netherlands filming the migration here, and these guys [the hunters] were shooting raptors even then... now the world will

Table 3. A selection of hunters' broad categorised views/practices on the main discussed topics concerning raptor shooting

Topic	Range of responses			
Acceptance of raptor shooting	- never shoots raptors, because: (1) it is illegal, (2) raptors are useful	- does not shoot raptors, because does not eat them ("waste of money")	- shoots raptors, but does not eat them (leaves quarry where it fell/gives it to dog or other people)	- considers raptor shooting normal ("harmless free-time activity") - shoots and eats raptors regularly
Strictness of Legislation	- not strict enough - licence too easy and cheap to obtain	- good as it is	- too much fuss - annoying to observe all the regulations	- too strict
Preferred legal action	- stricter laws	- unsure	- no action	- less strict laws
Age of starting hunting	- around the age of 25	- around the age of 15	- as a child	- "as soon as I could hold a gun"
Role and importance of hunting	- "Like other hobbies"	- not so important	- very important	- "nothing is more important in my life"
Acceptance of eating raptors	- never heard about people eating raptors ("unimaginable")	- knows people who eat raptors, but thinks "raptors are not edible"	- gives the meat to others who eat it	- part of the normal diet in autumn - conserve meat for winter
Georgia as a special place for birds	- unique place ("bottleneck") - shameful for hunters to shoot raptors in front of visitors	- special place	- interesting place	- nothing special
Change in numbers of birds seen in autumn	- decreasing year by year	- slight decrease	- no decrease	- "thousands of birds are coming here every year" - "there are so many, why wouldn't we shoot some?"

see that people don't respect the nature and the laws in Georgia." /Hunter 9, Makhinjauri Village/

Enforcement Issues

Enforcement issues are related to (1) lack of enforcement due to uncertainties in legislation or resource constraints, and (2) inaction of relevant authorities.

Respondents indicated that limited resources frequently hinder on-the-ground law enforcement (DENR, DES): the number of available vehicles is insufficient for controlling illegal shooting sites in an effective way, and the departments lack both manpower and communication devices.

"It is very difficult to control illegal shooting. We don't have enough people, and during the migration the mountains are full of birds. It is impossible to check every place. We try to spread in groups and check as many shooting sites as possible... but hunters are difficult to find."/ /DES/

"Nobody cares about raptor shooting."/ /Hunter 4, Kvirike Village/

SABUKO, BRC, and DTR shared the position that the relevant government bodies (DENR and DES) are dysfunctional by not executing their duties, which is supported by most of the interviewed hunters, who never experienced licence or bag control in the mountains where the raptor shooting takes place. However it is unclear to what degree each

of the articulated reasons are contributing to the conflict, i.e. authorities' unwillingness to recognise the issue as a real problem, lack of awareness about the general situation, or simple lack of resources. Another major reason for the shooting is that the consequences of illegal activities are often not perceived as a deterrent (DENR and DES). This was supported by the interviewed hunters: none could recall any incident whereby someone had been fined for raptor shooting. On the other hand, one hunter mentioned that tape-luring¹ and the use of light traps² are illegal practices one can easily "get caught" for. This difference likely lies in the fact that devices used for tape-luring/light trapping provide evidence which are relatively easy to find, while raptor shooters are difficult to catch in the act. Shooting depends on weather and migration, thus it is difficult to predict, and occurs scattered in a relatively large area with difficult terrain.

"Yes, I shoot raptors. It is not in the licence, but if I have the chance, I shoot them. I don't know anyone who ever got into trouble for that. Tape-luring and using light [for quail] is different, you can be fined for those."/ /Hunter 4, Kvirike Village/

¹ Tape-luring uses pre-recorded bird calls (e.g. mating, threat, challenger) to attract birds into a trap or net.

² Light trapping utilizes bright lights at night to temporarily stun birds.

Preferred Solutions

Interviewees' expressed diverse opinions on how to mitigate the problem (or whether to mitigate it at all), but generally they concerned institutional and enforcement issues as well. We assume that the differences originate in the peculiar values held by the parties, which impact their views on potential solutions and any inferred associated costs.

Institutional

Significant, strict changes in the hunting and nature conservation legislation and the issuing of hunting licences is expected as expressed by DENR, DES, and DTR, signifying that the present legislation is inadequate, lacking the necessary means for effective control.

"I hope the [central] Georgian Ministry of Environment will take the right decisions to make strict changes in the legislation, and will deliver right tools for enforcing it". /DENR/

The growingly popularity of ecotourism and birdwatching was mentioned as an important and profitable factor for SABUKO, BRC, and DTR. SABUKO operates a so-called homestay network in one village near Batumi through its tour operator business venture, Batumi Birding Ltd. This network involves several local families, who provide food and accommodation for an agreed price for visitors who want to experience the raptor migration and Georgian hospitality.

"Georgia is a unique place in the world, where birdwatching tourism could develop to be an important economic factor." /BRC's Hunting Monitoring Team/

"We are happy that Georgia appeared on the world map of birdwatching tourism destinations." /DTR/

Cooperation between other government and non-government organisations was seen as crucial by DTR, SABUKO, and BRC. Both SABUKO and BRC have a clear non-confrontational, non-repressive approach towards locals, which aims to work with, rather than against, communities in order to achieve mutually beneficial goals. Environmental education and awareness-raising are believed to be the main tools through which SABUKO and BRC desire to disseminate information about legislation and species conservation issues amongst hunters.

"So far the government was not recognizing illegal killing of birds as a real issue and they have been avoiding discussion about this topic. However, during the past few years, they have become more open for discussion and cooperation. This is mostly because in 2014 Georgia has signed an Associated Agreement with the EU which obligates the government to implement nature

conservation activities in a very strict way. Currently, we are in the process of negotiations with relevant governmental bodies to establish collaboration methods to minimize incidents of illegal killing." /SABUKO/

BRC comprehends the solution similarly to DENR and DTR. They emphasized that it is imperative to initiate a change in the attitudes of local communities in a bottom-up manner by raising awareness about birds of prey and the uniqueness of the Batumi Bottleneck. The short-term desire of BRC is to reduce illegal killing, without the expectation to eliminate it completely.

If it is demonstrated that this activity would have no significant harmful effect on the species in question on the long term, and as long as there is no broad societal support for granting migratory raptors safe passage in the Batumi Bottleneck, BRC regards sustainable hunting of certain raptor species with strict quotas, proper legislation, and effective control as a desirable compromise. They consider it is better to move forward gradually than to create societal conflicts that impede all progress for an unforeseeable time.

"Some of the hunters are already ashamed of what they are doing, but I don't expect them to stop [shooting] immediately. So first we'd try to reduce the pressure on the most vulnerable species, and then the amount of hunters who take part in this illegal activity. On the short term this will already solve the most urgent problems. On the long run there will always be very persistent hunters that will never change their habits and will never accept that they cannot shoot raptors anymore. But then we are in a later phase when we have built up a good, strong background of people that support our efforts, and in that phase we can already start stricter enforcement. But this should really be the very last step. We have to make sure that these last hunters get the message that what they are doing is wrong." /BRC's Hunting Monitoring Team/

Enforcement

Half of the interviewed hunters do not desire amendments to the current legislation; some would make it stricter, while a few would like it to be less strict (Table 3).

"Yes, there should be hunting legislation. But it shouldn't be stricter. If it were stricter, there would be no more birds to shoot." /Hunter 6, Makhinjauri Village/

The DENR and DES expressed their hopes for more stringent changes in the present practice of enforcement. DES would prefer regular patrolling in the villages during the autumn migration season, which is exactly what BRC would like to avoid. In line

with this philosophy, BRC currently considers that the potential backlash of enforcement outweighs its potential benefits and therefore does not participate in enforcement by informing police or rangers about illegal hunting in real-time (unless hunting takes place within a nearby national park). They do, however, provide results about the monitoring of illegal hunting in the region to relevant authorities, encouraging conservation action in the form of education and awareness-raising activities. BRC also seeks for bottom-up solutions by engaging local hunters and falconers in bird banding and identification programs, bird guide trainings and other activities through which they may become ambassadors for nature conservation and sustainable hunting.

Follow-up Questions with Hunters

Local hunters are treated separately in our study, as their views (as a stakeholder group) vary widely on the issues we explored with other institutional stakeholders, particularly on the perception of shooting and eating raptors, strictness of laws, the role and importance of hunting, Georgia as a unique place for birds, and the population trends of raptors (Table 3). Moreover, we asked additional questions from hunters, in order to elicit underlying motivations for hunting practices. Results are shown below, with accompanying quotes for context.

Age of Starting Hunting

Respondents acquire their first impressions about hunting at a young age, often from their father/grandfather, or from other children in the village. The age when the respondents started hunting ranged from early childhood (6) to the age of 25.

"In the morning small boys would come and ask when I was going hunting. I would say at 5, which is very early, but the boys come at 4:45, they are so eager. Sometimes I don't want them to come, that's why I say such an early hour, but they still come, they are so keen."/ Hunter 1, Dagva Village/

The Role and Importance of Hunting

Respondents associated different opinions with the role of hunting in their lives, but most agreed (both legal and illegal shooters) that it is a source of pleasure, but also for some a way of "getting meat on the table", and as a tradition. The responses also showed that hunting is connected to several social and psychological factors in the community, besides shooting for the pot. These include for cultivating relationships, a sense of achievement/pride, excitement or risk-taking, and/

or for knowledge and mastery of skills. Anecdotal evidence suggests that not only the shooting season, but also the preceding time is an important period for the hunters: they convene weeks before the event to discuss their plans where and when to hunt, to prepare their guns and dogs, and sometimes to assemble their own ammunition as well. What was surprising was that none of our respondents indicated that shooting was for the purpose of controlling 'pest' species, which isolates our study from other, more common occurrences of HWC/HHC involving raptors.

"I become more experienced over time. When I was younger, it was more like playing: we went hunting with ten friends, but shot only one bird, so we made dinner with that. Now we are more serious... but it doesn't matter how many birds you shoot, having a good time is more important. It never happens that someone shoots a bird and takes it home saying it is mine. We always share. It is like a tradition."/ Hunter 4, Kvirike Village/

Eating Raptors

While some respondents seemed to be startled by the idea of eating raptors and found it "unimaginable", it was considered a "normal" meal by most hunters. van Maanen et al. (2001) observed this phenomenon in our study area as early as 1998, where Eurasian Honey-buzzards (*Pernis apivorus*) were considered a delicacy and sold in local markets. We found no clear pattern in the social, economic or educational background of the respondents with different opinions. This dichotomy between the use of raptors as food in our study area is noteworthy, and further research is needed to elucidate these values.

"Why would anyone shoot raptors? You can't eat them."/ Hunter 7, Makhinjauri Village/

Distinguishing Between Species

In general, hunters showed poor identification skills, unable to identify most birds to species or taxon level (Table 4). In most cases when they could not identify the species, they said there was a 'small raptor' ('patara irao') or a 'big raptor' ('didi irao') in the picture. These two categories were applicable for any of the raptor species. The only raptors which hunters could identify to taxon level were large eagles.

"I don't shoot the fish-eater irao or black irao³, because it has bad smell... and I don't shoot mimino⁴ and shevardeni⁵, because they are small. If it isn't edible, I don't shoot it. When it flies you see what it is, and if it can't be eaten, you shoot another one... When I was younger I shot everything I could. When I got older I only

Table 4. Table proportion of correctly identified birds on species and taxon level, based on photo ID tests with hunters.

Species	Scientific name	Georgian name	Total responses	Correct ID	Correct taxon	Legally huntable	IUCN status [†]
Blackbird	<i>Turdus merula</i>	Shashvi	11	11	0	no	LC
Oriole	<i>Oriolus oriolus</i>	Melaghuri	10	10	0	no	LC
Crane	<i>Grus grus</i>	Tsero	10	10	0	no	LC
Hoopoe	<i>Upupa epops</i>	Opopi	7	7	0	no	LC
Bee-eater	<i>Merops apiaster</i>	Meputkria	7	5(7) ^a	0	no	LC
Sparrowhawk	<i>Accipiter nisus</i>	Mimino	10	9	0	no	LC
Woodcock	<i>Scolopax rusticola</i>	Tghis katami	11	9	0	yes	LC
Honey Buzzard	<i>Pernis apivorus</i>	Krazanachamia / irao	11	8	0	no	LC
Caucasian Black Grouse	<i>Tetrao mlokosiewiczzi</i>	Rojo	10	4	0	no	NT
Roller	<i>Coracias garrulus</i>	Ghapghapa	9	2	0	no	LC
Booted Eagle	<i>Hieraaetus pennatus</i>	Chia artsivi	10	2	0	no	LC
Hobby	<i>Falco subbuteo</i>	Marjani	10	1	5	no	LC
Steppe Eagle	<i>Aquila nipalensis</i>	Velis artsivi	10	0	7(9) ^b	no	EN
Lesser Spotted Eagle	<i>Clanga pomarina</i>	Mtsire mkivani artsivi	11	0	5(8) ^c	no	LC
Levant Sparrowhawk (m)	<i>Accipiter brevipes</i>	Shavtvala mimino	10	0	6	no	LC
Pallid Harrier (m)	<i>Circus macrourus</i>	Velis dzekori	11	0	2	no	NT
Montagu's Harrier	<i>Circus pygargus</i>	Mdelos dzekori	9	0	2	no	LC
Black Stork	<i>Ciconia nigra</i>	Qarqati	8	0	1	no	LC
Pallid Harrier (juvenile)	<i>Circus macrourus</i>	Velis dzekori	10	0	1	no	NT
Black Kite	<i>Milvus mugrants</i>	Dzera	11	0	0	no	LC
Steppe Buzzard	<i>Buteo buteo vulpinus</i>	Chveulebrivi kakacha	10	0	0	no	LC
Short-Toed Eagle	<i>Circaetus gallicus</i>	Gvelichamia	9	0	0	no	LC

^a The higher number stands if 'kvirkvila' is accepted as a local name of the species.

^b The higher number stands if 'qarapataghi' is accepted as a local name for the taxon.

^c The higher number stands if 'qarapataghi' and 'berkuti' are accepted as local names for the taxon.

[†] LC - Least Concern; NT - Near Threatened; EN - Endangered; m - male

shot the bigger ones, with more meat." /Hunter 2, Dagva Village/

Our overall conclusion of the hunters' species knowledge is that often they cannot distinguish between species and only a few could identify higher taxonomic groups. Hunters mostly choose their targets based on the size and colour of the birds, which makes larger bodied and/or lighter coloured birds more prone to shooting.

"Many hunters cannot distinguish between species,

meaning that despite saying that eagles are rare and should not be shot, when a lesser spotted eagle *Clanga pomarina* comes, they do not recognise it as being an eagle, but call it a 'big raptor' and shoot it." /BRC's Hunting Monitoring Team/

DISCUSSION

Although data gained from qualitative interviews cannot be used for wider generalizations, interviews are extremely useful in exploratory research such as ours where direct, personal contact with research subjects is needed to develop a more nuanced picture of the research problem and to identify the most important questions at hand (Opdenakker 2006; Schreckenberg et

³ Widely used names for Black kite *Milvus migrans*. The species is often claimed to be an unpopular quarry due to its strong smell.

⁴ Eurasian sparrowhawk *Accipiter nisus*, widely used for smaller raptors in general.

⁵ Falcon spp.

al. 2010). We bear this limitation in mind as we interpret our findings.

First, our findings raise questions about the legitimacy of regulatory regimes, including the adequacy of the current legislation, and whether the relevant authorities are effectively executing their enforcement mandate in this regard. Although the current legislation lists protected game species, it fails to provide explicit penalties for illegal hunting of those species. Further, Mann (2014) has argued that the Law on Wild Fauna provides only framework provisions and depends almost entirely on the issuance of regulations, most of which are never passed. DENR seems to be the weakest link in the chain of governmental institutions that ought to be enforcing legislation, while SABUKO and BRC are seen as crucial for providing scientific data for conservation management decisions. We caution resorting to hasty and unilaterally-decided law enforcement efforts as many of the hunters we interviewed claimed it was their 'customary right' to hunt (Mann 2014), and this might cause quick conflict escalation, at least in the absence of a fuller understanding of the causality of non-compliant behaviour (Solomon et al. 2015; von Essen & Nurse 2016), particularly if it is a form of dissent or defiance (Nurse 2011; Kahler & Gore 2012; von Essen & Allen 2015). On the other hand, it is clear that some action will be necessary in the near future, as delayed or ineffective intervention might be detrimental to vulnerable species, and give the image of weakness and indecisiveness, undermining the authority of the institutions that are responsible for managing conflict (Anthony et al. 2010). Further, failing to move forward can generate social tensions within local communities, eroding locals' support, and can negatively impact conservation efforts in consequence (Young et al. 2016). Certain distrust and animosity among hunters has already been experienced by government bodies, SABUKO, and sporadically by BRC volunteers, which denotes the sensitivity of the present situation.

Second, our finding concerning the prominent role of the socio-political environment as a factor in illegal hunting corresponds with Mann (2014), who observed that Georgia's traditionally tightly controlled hunting system has largely disintegrated since the Republic regained its independence in 1991. With declining governance capacities, poaching has taken an upswing throughout the country. Moreover, it is important to distinguish between those hunters who shoot for pleasure or profit, and small-scale subsistence hunters who count on the availability of free meat during autumn. Although the illegal killing of raptors and

other migratory birds currently takes place elsewhere, particularly in the Mediterranean, but also in France, UK, Scotland (Smart et al. 2010; McMillan 2011; RSPB 2015), Lebanon and Syria (BirdLife International 2015b), the Batumi bottleneck is considered to be one of the worst known migration hot-spots in Europe and the Middle East where raptors are being shot, at least in part, for food (Sándor et al. 2017).

Third, and related to the above point, the experienced diversity of opinions about raptor shooting (even amongst hunters) is likely the result of different social and cultural factors that determine the values associated with wildlife (Tajfel 1981; Kellert 1993). These findings correspond with Muth & Bowe (1998), who outline ten main motivations for poaching, including recreational satisfactions, household consumption, commercial gain, poaching as rebellion, and disagreement with specific regulations. It also supports the notion that there may be multiple motivations within a single hunter or hunting sub-culture for illegal killing (Muth & Bowe 1988; Kahler & Gore 2012; Sándor et al. 2017). To follow this initial investigation, explicating these factors are worth investigating further, as understanding these values will be key to designing management strategies and anticipating stakeholder receptivity to them (Manfredo & Dayer 2004; Dickman et al. 2013).

"Nature needs a better future in Georgia" /DENR/

The values, goals, and desired means of reaching the goals stated by the interviewed parties are often incongruous with each other despite the widespread perception that shooting raptors is unacceptable. Taking into account the affected parties' opinions requires extensive roundtable-discussions to understand the wider social-ecological context of the shooting, and to discuss potential management strategies. We believe that stakeholder positions on shooting, the need for better regulated permits, and education are key issues for future management. As young people are often more fervent hunters than the older generation, and start hunting in their early childhood, it is important that future conservation actions chiefly target younger people in the region.

We also recommend increasing the research scope to other stakeholders, including more individuals of the groups already represented in this study. The inclusion of more stakeholders (e.g., hunters' and falconers' associations, rangers, tourists, homestay owners and raptor count volunteers) would result in a more comprehensive picture of the conflict and the difficulties of monitoring and enforcement on the ground. Local community members also form an important target

group since their support for conservation and protection of migrant birds may depend on their personal relationships with hunters or falconers and their stakes in ecotourism services. Moreover, we recommend the gathering of scientific evidence for filling the gaps in our present knowledge on the scale and ecological impacts of the shooting.

To reach an agreeable resolution supported by the general public and the affected stakeholders, and to initiate a curb on this escalating conflict, it is of key importance to involve all parties in the discussions about the future of birds of prey in the Batumi Bottleneck.

REFERENCES

- Agency of Protected Areas of Georgia (APAG) (2017).** Kanonebi [Legislation]. URL: <http://apa.gov.ge/ge/kanonmdebloba> Accessed on 17.11.2017.
- Anthony, B.P., P. Scott & A. Antypas (2010).** Sitting on the fence? Policies and practices in managing human-wildlife conflict in Limpopo Province, South Africa. *Conservation & Society* 8(3): 225–240.
- Bauer, J. & A. Herr (2004).** Hunting and fishing tourism, pp. 57–77. In: Higginbottom, K. (ed.). *Wildlife tourism: impacts, management and planning*. Common Ground Publishing, Altona Vic.
- Bhupathy, S., S.R. Kumar, P. Thirumalainathan, J. Paramanandham & C. Lemba (2013).** Wildlife exploitation: a market survey in Nagaland, north-eastern India. *Tropical Conservation Science* 6: 241–253.
- Bildstein, K.L. (2006).** *Migrating raptors of the world: their ecology & conservation*. Cornell University Press, Ithaca.
- BirdLife International (2004).** *Birds in Europe: Population Estimates, Trends and Conservation Status*. (BirdLife Conservation Series No.12). BirdLife International, Cambridge.
- BirdLife International (2013).** *Clanga clanga*. The IUCN Red List of Threatened Species 2013: e.T22696027A40759511. Accessed on 23 August 2016; <http://doi.org/10.2305/IUCN.JK.2013-2.RLTS.T22696027A40759511.en>
- BirdLife International (2015a).** *Circus macrourus*. The IUCN Red List of Threatened Species 2015: e.T22695396A85143601. Accessed on 23.08.2016.
- BirdLife International (2015b).** *The Killing*. BirdLife International, Cambridge.
- BRC (2015).** Migration count data. Batumi Raptor Count. <http://www.batimiraptorcount.org/research/monitoring/raptor-count-results> Accessed on 02 March 2015.
- BRC (2016).** Monitoring of illegal shooting. Batumi Raptor Count. <http://www.batimiraptorcount.org/conservation/monitoring-illegal-shooting> Accessed on 06 April 2016.
- Burfield, I.J. (2008).** The conservation status and trends of raptors and owls in Europe. *AMBIO: A Journal of the Human Environment* 37(6): 401–407.
- DTRAAR (2017a).** Department of Tourism and Resorts of Adjara Autonomous Republic. <http://gobatumi.com/en/discover-Adjara/types-of-tourism/birdwatching/467> Accessed on 16 April 2017.
- DTRAAR (2017b).** Department of Tourism and Resorts of Adjara Autonomous Republic. <http://gobatumi.com/en/what-to-do/festivals-2016/birdwatching/461> Accessed on 16 April 2017.
- Dickman, A.J. (2010).** Complexities of conflict: the importance of considering social factors for effectively resolving human-wildlife conflict. *Animal Conservation* 13(5): 458–466.
- Dickman, A., S. Marchini & M. Manfredo (2013).** The human dimension in addressing conflict with large carnivores. *Key Topics in Conservation Biology* 2: 110–126.
- Eliason, S.L. (1999).** The illegal taking of wildlife: Toward a theoretical understanding of poaching. *Human Dimensions of Wildlife* 4(2): 27–39.
- ESRI (2015).** ArcGIS Desktop: Release 10.3. Environmental Systems Research Institute, Redlands.
- Fenech, N. (1992).** *Fatal Flight: the Maltese Obsession with Killing Birds*. Quiller Press, London.
- Gavin, M.C., J.N. Solomon & S.G. Blank (2010).** Measuring and monitoring illegal use of natural resources. *Conservation Biology* 24(1): 89–100.
- Giordano, A. (1991).** The migration of birds of prey and storks in the Straits of Messina. *Birds of Prey Bulletin* 4: 239–249.
- Giordano, A., D. Ricciardi, G. Candiano, S. Celesti & A. Irrera (1998).** Anti-poaching on the Straits of Messina; results after 15 years of activities, pp. 623–629. In: Chancellor R.D. & B.U. Meyburg (eds.). *Holarctic Birds of Prey*. World Working Group on Birds of Prey and Owls, Berlin.
- GNTA (2015).** Georgian Tourism in Figures - Structure and Industry data. Georgian National Tourism Administration. <http://gnta.ge/wp-content/uploads/2016/06/2015-eng.pdf>. Accessed on 17 November 2017.
- Hirschfeld, A. & A. Heyd (2005).** Mortality of migratory birds caused by hunting in Europe: bag statistics and proposals for the conservation of birds and animal welfare. *Berichte zum Vogelschutz* 42: 47–74.
- Holloway, S. (1996).** *The Historical Atlas of Breeding Birds in Britain and Ireland 1875–1900*. T & AD Poyser, London.
- Jansen, J. (2013).** *Assessment of the Shooting of Migrating Raptors in the Batumi Bottleneck*. Master's thesis, Department of Biology, University of Antwerp, Antwerp, Belgium.
- Kahler, J.S. & M.L. Gore (2012).** Beyond the cooking pot and pocket book: Factors influencing noncompliance with wildlife poaching rules. *International Journal of Comparative and Applied Criminal Justice* 36(2): 103–120.
- Kellert, S.R. (1993).** The biological basis for human values of nature, pp. 42–72. In: Kellert S.R. & E.O. Wilson (eds.). *The Biophilia Hypothesis*. Island Press, Washington DC.
- Kovács, E., V. Fabók, Á. Kalóczkai, & H.P. Hansen (2016).** Towards understanding and resolving the conflict related to the Eastern Imperial Eagle (*Aquila heliaca*) conservation with participatory management planning. *Land Use Policy* 54: 158–168.
- Manfredo, M.J. (2008).** *Who Cares About Wildlife? Social Science Concepts for Exploring Human-Wildlife Relationships and Conservation Issues*. Springer, New York.
- Manfredo, M.J. & A.A. Dayer (2004).** Concepts for exploring the social aspects of human-wildlife conflict in a global context. *Human Dimensions of Wildlife* 9: 1–20.
- Mann, S. (2014).** *Sustainable management of biodiversity, South Caucasus: Consultancy on reflecting hunting regulations in the Draft Framework Law on Biodiversity, Mission Report*. Working Paper 69/2014. ECO Consulting Group.
- McGregor, J. (2005).** Crocodile crimes: People versus wildlife and the politics of postcolonial conservation on Lake Kariba, Zimbabwe. *Geoforum* 36(3): 353–369.
- McMillan, R.L. (2011).** Raptor persecution on a large Perthshire estate: a historical study. *Scottish Birds* 31(3): 195–205.
- Muth, R.M. & J.F. Bowe Jr. (1998).** Illegal harvest of renewable natural resources in North America: Toward a typology of the motivations for poaching. *Society & Natural Resources* 11(1): 9–24.
- Natural Earth (2015).** Admin 0 – Countries. URL: <http://www.naturalearthdata.com/downloads/50m-cultural-vectors/50m-admin-0-countries-2/> Accessed on 27.06.2015.
- NSOG (2014).** Population Census 2014. National Statistics Office of Georgia. http://www.geostat.ge/?action=page&p_id=2153&lang=eng. Accessed on 21 March 2017.
- NSOG (2017).** Regional Statistics. National Statistics Office of Georgia. http://www.geostat.ge/?action=page&p_id=1184&lang=eng. Accessed on 20 November 2017.
- Nurse, A. (2011).** Policing wildlife: perspectives on criminality in wildlife crime. *British Criminology Conference* 11: 38–53.

- Opendakker, R. (2006).** Advantages and Disadvantages of Four Interview Techniques in Qualitative Research. *Forum: Qualitative Social Research* 7(4): Art. 11; <http://nbn-resolving.de/urn:nbn:de:0114-fqs0604118>
- Patton, M.Q. (2002).** *Qualitative research and evaluation methods*. Sage, London.
- Pierce, C.L., M.J. Manfredo & J.J. Vaske (2001).** Social science theories in wildlife management, pp. 39-56. In: Decker, D.J., T.L. Brown & W.F. Siemer (eds.). *Human Dimensions of Wildlife Management in North America*. Wildlife Society, Bethesda.
- Redpath, S.M., J. Young, A. Evely, W.M. Adams, W.J. Sutherland, J.A. Whitehouse, A. Amar, R.A. Lambert, J.D.C. Linnell, A. Watt & R.J. Gutiérrez (2013).** Understanding and managing conservation conflicts. *Trends in Ecology & Evolution* 28(2): 100–109.
- RSPB (2015).** *The Illegal Killing of Birds of Prey in Scotland, 1994–2014: A Review*. Royal Society for the Protection of Birds, Scotland, Edinburgh.
- Sándor, A., J. Jansen & W.M. Vansteelant (2017).** Understanding hunters' habits and motivations for shooting raptors in the Batumi Raptor-migration bottleneck, Black Sea coast Georgia. *Sandgrouse* 39(1): 2–15.
- Schensul S.L., J.J. Schensul & M.D. LeCompte (1999).** *Essential Ethnographic Methods: Observations, Interviews, and Questionnaires*. Altamira Press, Walnut Creek.
- Serenari, C. & M.N. Peterson (2016).** A socio-political perspective on the illegal take of wildlife in the Southwestern, USA. *International Journal of Rural Criminology* 3(1): 29-49.
- Shaffer, M.L. (1981).** Minimum population sizes for species conservation. *BioScience* 31(2): 131–134.
- Schreckenberg, K., I. Camargo, K. Withnall, C. Corrigan, P. Franks, D. Roe, L.M. Scherl & V. Richardson (2010).** *Social Assessment of Conservation Initiatives: A Review of Rapid Methodologies*. (No. 22. IIED). Natural Resource Issues, London.
- Smart, J., A. Amar, I.M.W. Sim, B. Etheridge, D. Cameron, G. Christie & J.D. Wilson (2010).** Illegal killing slows population recovery of a re-introduced raptor of high conservation concern - The Red Kite (*Milvus milvus*). *Biological Conservation* 143(5): 1278–1286.
- Solomon, J.N., M.C. Gavin & M.L. Gore (2015).** Detecting and understanding non-compliance with conservation rules. *Biological Conservation* 189: 1–4.
- Stemler, S. (2001).** An overview of content analysis. *Practical Assessment, Research & Evaluation* 7(17). <http://PAREonline.net/getvn.asp?v=7&n=17> Accessed on 07 April 2016.
- Stoynov, E. & A. Grozdanov (2010).** Re-introduction of Griffon vultures and consequent return of Egyptian vultures in the Kotel Mountains, Bulgaria, pp. 147–150. In: Soorae, P.S. (ed.). *Global Re-introduction Perspectives: Additional Case-studies from Around the Globe*. UAE: IUCN/SSC Re-introduction Specialist Group, Abu Dhabi.
- Stroud, D.A. (2003).** The status and legislative protection of birds of prey and their habitats in Europe, pp. 51–84. In: Thompson, D.B.A., S. Redpath, A.H. Fielding, M. Marquiss & C.A. Galbraith (eds.). *Birds of Prey in A Changing Environment*. The Stationary Office, Edinburgh.
- Tajfel, H. (1981).** *Human Groups and Social Categories: Studies in Social Psychology*. Cambridge University Press, Cambridge.
- van Maanen, E., I. Goradze, A. Gavashelishvili & R. Goradze (2001).** Trapping and hunting of migratory raptors in western Georgia. *Bird Conservation International* 11(02): 77–92.
- Verhelst, B., J. Jansen & W. Vansteelant (2011).** South West Georgia: an important bottleneck for raptor migration during autumn. *Ardea* 99(2): 137–146.
- von Essen, E. & M.P. Allen (2015).** Reconsidering illegal hunting as a crime of dissent: implication for justice and deliberative uptake. *Criminal Law and Philosophy* 11(2): 1–16; <http://doi.org/10.1007/s11572-014-9364-8>
- von Essen, E. & A. Nurse (2016).** Illegal hunting special issue. *Crime, Law and Social Change* 67(4): 377–382; <http://doi.org/10.1007/s10611-016-9676-9>
- White, R. (2008).** *Crimes against nature: Environmental criminology and ecological justice*. Willan Publishers, Portland.
- Woodroffe, R., S. Thirgood & A. Rabinowitz (2005).** *People and wildlife, conflict or co-existence?* (No. 9). Cambridge University Press, Cambridge.
- Young, J.C., K. Searle, A. Butler, P. Simmons, A.D. Watt & A. Jordan (2016).** The role of trust in the resolution of conservation conflicts. *Biological Conservation* 195: 196–202.





OPEN ACCESS



The Journal of Threatened Taxa is dedicated to building evidence for conservation globally by publishing peer-reviewed articles online every month at a reasonably rapid rate at www.threatenedtaxa.org. All articles published in JoTT are registered under [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/) unless otherwise mentioned. JoTT allows unrestricted use of articles in any medium, reproduction, and distribution by providing adequate credit to the authors and the source of publication.

ISSN 0974-7907 (Online); ISSN 0974-7893 (Print)

June 2018 | Vol. 10 | No. 7 | Pages: 11831–11998

Date of Publication: 26 June 2018 (Online & Print)

DOI: 10.11609/jott.2018.10.7.11831-11998

www.threatenedtaxa.org

Article

Association of grassland birds with *Saccharum-Imperata* patch in a northeastern tea estate of Bangladesh

-- Muntasir Akash, Tania Khan & Sayam U. Chowdhury, Pp. 11831–11843

Communications

Assessment on the impacts of human-tiger conflict and community-based conservation in Bandhavgarh Tiger Reserve, Madhya Pradesh, India

-- Sandeep Chouksey & Somesh Singh, Pp. 11844–11849

Mapping the conflict of raptor conservation and recreational shooting in the Batumi Bottleneck, Republic of Georgia

-- Anna Sándor & Brandon P. Anthony, Pp. 11850–11862

Length-weight relationship and condition factor of *Bangana dero* (Hamilton, 1822) (Actinopterygii: Cypriniformes: Cyprinidae) from northeastern region of India

-- Kamlesh Kumar Yadav & Rani Dhanze, Pp. 11863–11868

An annotated checklist of the birds of upper Chenab catchment, Jammu & Kashmir, India

-- Neeraj Sharma, Suresh Kumar Rana, Pankaj Raina, Raja Amir & Muzaffar Ahmed Kichloo, Pp. 11869–11894

Floristic enumeration of Torna Fort (Western Ghats, India): a storehouse of endemic plants

-- Mayur D. Nandikar, Priyanka T. Giranje & Durga C. Jadhav, Pp. 11895–11915

Short Communications

Parasitological findings and antiparasitic treatment of captive Jaguarundi *Herpailurus yagouaroundi* (Carnivora: Felidae) in a conservation center in Brazil

-- Nárjara Veras Grossmann, Anderson Silva de Sousa, Rebecca Martins Cardoso & Estevam Guilherme Lux Hoppe, Pp. 11916–11919

Pathological and immunohistochemical studies on hemangiosarcoma in tigers *Panthera tigris* and lions *Panthera leo*

-- N. Jayasree, Ch. Srilatha, N. Sailaja, R. Venu & W.L.N.V. Varaprasad, Pp. 11920–11924

Do Black-naped Hares *Lepus nigricollis* (Mammalia: Lagomorpha: Leporidae) have synanthropic association with wind farms?

-- V. Anoop, P.R. Arun & Rajah Jayapal, Pp. 11925–11927

A first confirmed record of the Indian Crested Porcupine *Hystrix indica* (Mammalia: Rodentia: Hystricidae) in the United Arab Emirates

-- Maral K. Chreiki, Mark D. Steer, Sami Ullah Majeed, Swamiti Kakembo & Steve Ross, Pp. 11928–11933

A taxonomic study of six species of the genus *Junonia* Hübner, [1819] (Insecta: Lepidoptera: Nymphalidae) from the northwestern Himalayan region in India

-- Deepika Mehra, Jagbir Singh Kirti & Avtar Kaur Sidhu, Pp. 11934–11947

Partners



Member



Publisher & Host

