1   Title: Conservation enforcement: Insights from people incarcerated for wildlife crimes in Nepal

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8   Key terms: conservation criminology; deterrence; enforcement; wildlife trade;

9   Type of the article: Contributed paper

10

11   Target audience for the paper: Our target audience includes conservation agencies, decision-

12   makers, enforcement practitioners who are working to curb illegal wildlife harvest and trade

13   globally using enforcement-based interventions, as well as academics (from conservation,

14   ecology, biology and criminology backgrounds, among others) who are debating interventions to

15   address illegal wildlife trade.

16

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24   Abstract

25

26   There are long-standing debates about the effectiveness and social impacts of enforcement-based

27   conservation, particularly as investments into enforcement increase in response to growing alarm

28   about Illegal Wildlife Trade (IWT). However, there is little data on the people subject to this

29   enforcement, including prison sentences, species targeted, what motivates and deters them, and

30   the social impacts of enforcement. This study identified 384 individuals across Nepal who were

31   in prison for IWT offences in late 2016, and involved interviews (n=116) focused on

32   respondents' trade practices, economic circumstances and motivations. IWT prisoners

33   represented 10-20% of the total prison populations in two regions and often received stiff

34   sanctions, with a range of downstream impacts on respondents' families. Most respondents were

35   arrested for their involvement in the rhinoceros trade (61%). Most were poor (56%) and from

36   indigenous communities (75%), highlighting potentially inequitable impacts of enforcement.

37   Despite common assumptions about the links between IWT, poverty and organised crime, most

38   respondents were motivated by the desire to earn extra income and by the ease of IWT compared

39   to other employment. IWT was neither a primary livelihood strategy, nor had the attributes for

40   formal organised crime. Respondents, particularly poor respondents, seemed to underestimate

41   the risks of detection and incompletely understood the scale of sanctions. Improved public

42   awareness about the scale and social impacts of sanctions could help increase deterrence effects

43   while reducing unintended social harms of enforcement.

44

45   Keywords: conservation criminology; deterrence; enforcement; wildlife trade

46   **1. Introduction**

47   Hundreds of millions of dollars have been recently invested to address Illegal Wildlife Trade

48   (IWT) globally, heavily focused on enforcement-based approaches to conservation in developing

49   countries (Duffy and Humphrey 2014; WB, 2016; Biggs et al., 2017). This has included

50   investments to arm, train and support park rangers; introduction of "shoot on sight" policies in

51   several countries; military and private security deployments to monitor threatened wildlife;

52   efforts to increase fines and prison sentences; and the introduction of new monitoring

53   technologies such as drones and automatic cameras (Biggs et al., 2017; e.g., Hanoi Statement,

54   2016; WCS, 2016; TRAPS, 2017).

55

56   These trends have spurred global debate over enforcement-based and militarized conservation

57   (e.g., Challender et al., 2014; Biggs et al., 2017; McCann, 2017; Gray and Gountlet, 2017;

58   Büscher, 2018), including their purported effectiveness at protecting biodiversity, and the

59   potential for negative social repercussions, such as the criminalisation of local resource users,

60   including poor and indigenous communities (Duffy, 2014; Cooney et al., 2016; Milner-Gulland

61   et al., 2018). There is also mounting interest in the relative benefits of enforcement-based

62   strategies versus alternatives, such as demand reduction, incentives and alternative livelihood

63   development (e.g., Challender et al., 2014; Veríssimo and Wan, 2018; Holden et al., 2018).

64   While there is uncertainty over the long-term social and environmental outcomes of increased

65   enforcement spending, IWT rates have often remained high even in the context of increased

66   enforcement (e.g., see Biggs et al., 2013; Challender et al., 2014). Evidence from other sectors,

67   notably drug enforcement, highlights the limitations of enforcement-focused approaches,

68   particularly given growing focus on reducing the unintended social impacts of drug enforcement

69   among both producers and consumers (e.g., Poret, 2002; Stevens, 2013; Blaustein et al., 2017).

70   Yet, traditional enforcement remains an important part of conservation that is unlikely to be

71   replaced by other interventions (Phelps et al., 2014), although there is a clear need to explore

72   strategies through which to increase its effectiveness and efficiency while also reducing

73   unintentional social harms.

74

75   Despite widespread investment effort, data on the people subject to enforcement—including

76   arrest, prosecution and sentencing rates--are often scattered, inaccessible and unanalysed (if

77   collected at all), while data on demographics, types of offences and motivations are infrequently

78   collected (see Kahler and Gore, 2012; Duffy et al., 2016). These data are not only important to

79   empirically grounding the growing body of scholarship on social dimensions of conservation, but

80   also to designing more nuanced enforcement strategies that target specific drivers and

81   motivations behind participation in IWT (see Phelps et al., 2016).

82

83   Nepal exemplifies enforcement-based approaches to IWT (McLean and Straede, 2003). Widely

84   recognised for its collaboratively-managed community forests, Nepal also has strong

85   enforcement-based responses to IWT of charismatic species (Yonzon, 2006; Sinha, 2010). This

86   includes nearly 7,000 military personnel monitoring protected areas (Nepal Army, 2018),

87   automatic cameras to monitor wildlife (BBC, 2015), and a wave of IWT operations by its Central

88   Investigation Bureau and Wildlife Crime Control Bureaus. Between 2009 and 2014, the number

89   of wildlife seizures increased 10 fold, and IWT arrests increased 8.6 fold (Paudel, 2015).

90   Nepalese law also stipulates high prison sentences and fines for people convicted of IWT

91   offences, and recently increased sanctions for involvement in illegal international trade

92   (summary of legislation in Supplementary Table 1). These strategies have reportedly improved

93   conservation outcomes, resulting in a "zero poaching year" in Chitwan National Park (Aryal et

94   al., 2017).

95

96   These investments demonstrate Nepal's commitment to criminal justice responses to wildlife

97   crime, yet ongoing incidences of domestic and international IWT demonstrate failings in their

98   effectiveness. While punishment is an important part of the overall approach, conservation also

99   relies on preventing offences from happening in the first place. Prevention is partially addressed

100   by situational crime prevention techniques aimed at making it harder for potential motivated

101   offenders to commit crimes in the first place, and this approach has been explored within the

102   context of IWT (e.g., Lemieux, 2014; Moreto & Pires, 2018; Pires & Moreto 2011). However,

103   prevention also depends on reducing the numbers of potential motivated offenders through the

104   deterrence effect of criminal justice sanctions, which is the focus of this paper. Deterrence

105   theory suggests that the effectiveness of criminalisation and enforcement as a deterrent depends

106   on the severity, celerity (swiftness) and certainty of punishment outweighing the motivations for

107   participating in crime. This is also dependent on would-be offenders being aware of the law and

108   the accompanying risk of penalty (Beccaria, 1764; see Nagin et al., 2018 for a thorough

109   discussion of contemporary deterrence theory).

110

111   This study considers why people commit IWT, despite the increases in law enforcement activity

112   and criminal sentences in the Nepali context. It draws on in-depth interviews with prisoners

113   (n=116) across seven jails in Nepal. It describes (1) the people subject to enforcement

114   (demographics, roles within IWT); (2) their offences and sentences, including broader social

115   impacts of their imprisonment, and (3) the reasons behind their involvement in IWT (self-

116   reported motivations, knowledge of sanctions, perceptions of risk). It is, to our knowledge, the

117   first large sample study with people jailed for IWT (although see Hariohay et al. 2019). We

118   believe that it is also the first large study interviewing people imprisoned for environmental

119   crimes in a developing country (cf. Forsyth & Marckese, 1993; Muth & Bowe, 1998; Eliason,

120   2004).

121

122   **2. Methods**

123   With permission granted by the Department of National Parks and Wildlife Conservation and the

124   Department for Prison Management in Nepal, we contacted the information officers of all

125   prisons in Nepal (74) via telephone to identify the number of people currently incarcerated for

126   faunal IWT (Oct. 2016; Supplementary Table 2; a small number of arrests for rosewood trade

127   were not included as these offenders are categorised differently within the Nepalese prison

128   system and it was not possible to easily identify and gain access to these offenders within the

129   research period. As such, we focused on offenders involved in trade in fauna for this project). Of

130   the 74 prisons, 38 sites held people for wildlife crimes, and we conducted interviews with

131   prisoners (n=116) across 7 of these during 2016-2017. For purposes of convenience, we targeted

132   the 5 prisons with the largest IWT prisoner populations and the 2 prisons in closest proximity to

133   Kathmandu (see Supplementary Figure 1).

134   Respondents at the largest prison (Bharatpur prison, Chitwan) were selected from a list of people

135   arrested for IWT in that prison, using the "randomise" function in Excel (31.4% of the

136   population). Where a potential respondent opted not to participate, the next person on the list was

137   approached. At the other sites, we sought to interview all prisoners, which was feasible due to

138 the small populations. Of the 109 people approached in the first round of interviews at Chitwan,

139 Kathmandu Central, Kathmandu Jagannath, Bardiya and Parsa prisons (October 2016 to

140 February 2017), 88 participated (19.3% refusal rate). We then conducted a second round of

141 interviews to increase our sample size at Lalitpur, Rasuwa and Chitwan prions (June-August

142 2017). In this round 45 people were approached and 28 participated, with the refusal rate

143 (37.8%) climbing following reports that the government was further charging prisoners for their

144 historic involvement in IWT. This happens as new information comes to light, and was not

145 connected to this research, of which we reassured participants prior to gaining consent.

146 Interviews were conducted in Nepali by the lead author, a male who grew up in rural Nepal and

147 has a personal understanding of wild resource harvest and prior experience conducting

148 interviews in prison setting (Paduel, 2015). Prior to interviews, we obtained informed oral

149 consent, following established ethical standards for criminological research (BSC, 2006) and

150 institutional review (Lancaster University FST REC 16045), including explanation that

151 participation was voluntary, anonymous, and would not affect respondents' sentences.

152 Interviews lasted approximately 1 hour, having been granted national permission for extended

153 visiting times (usually 20 minutes), and were conducted in private. As audio-recording was

154 forbidden under prison rules, responses were recorded manually on the research instrument, with

155 more detailed notes written up after each interview.

156 Interviews were structured (full interview schedule in English and Nepali available in

157 Supplementary Materials) and primarily involved closed questions, including multiple response,

158 ranking, Likert-scale and short-answer questions, split into 8 sections: (1) respondent

159 demographics; (2) employment and income, including household income, economic situation

160 and food security; (3) involvement in IWT, including age and year of first involvement, roles

161   participated in, species hunted and traded; (4) current crime and sentence; (5) motives for

162   participating in IWT; (6) knowledge of IWT laws and regulation; (7) perception of deterrence,

163   including perceptions of the risk of being caught, and; (8) social impacts of their incarceration,

164   including impacts on family. Our questions about their knowledge of IWT laws and penalties

165   were informed by a review of wildlife legislation in Nepal and the associated species-wise

166   sanctions (Supplementary Table 1). We included some open questions throughout the interview

167   to follow up on responses to closed questions, including further exploration of respondents'

168   experiences with imprisonment as a result of IWT and the impacts this had on their families.

169   Data from closed questions were coded and analysed using SPSS v.24 to generate descriptive

170   statistics and, using Spearman's Rho correlations, to explore the relationships among variables.

171   We specifically looked at what variables would help us understand variation in respondents'

172   awareness of the laws. For this, three interview questions about knowledge of IWT regulations

173   were combined into a single ordinal variable, "Overall awareness of laws" (range 0-4, using the

174   first three variables in Table 4). We then tested what variables might be explanatory, expecting

175   age, education and economic status to be potential predictors of variation in their knowledge of

176   regulations (Supplementary Table 3). We also explored the relationships between reported

177   motives for participating in IWT and demographic variables, again expecting that factors such as

178   economic status would correlate with motivations such as nutritional and basic economic need

179   (Supplementary Table 4). However, quantitative analyses options were limited by the sample

180   size and heterogeneity within the dataset (e.g., Chi Square results not valid, sample too small for

181   meaningful Latent Class Analysis), and those that we could conduct revealed few significant

182   relationships. Qualitative data from our open questions was subject to simple, manual thematic

183   analysis that involved generating initial codes and collecting illustrative quotes, and then

184   searching, reviewing and reducing themes (Braun & Clarke, 2019). For this paper, the only

185   qualitative data we draw on are examples of social impacts of imprisonment (see section 3.2).

186   **2.1 Collecting data on illegal activity**

187   Researching illegal resource activities can be challenging due to issues such as sensitivity and

188   social desireability (Ruggiero & Khan, 2006; Keane et al., 2008). However, this study employed

189   direct questioning, the validity of which is increasingly recognised in research on illegal drugs

190   (MKG, 2007) and on illegal natural resource use (Gavin et al., 2010; Hinsley et al., 2017). Our

191   interviews occurred in the prison context, which potentially presents fewer concerns about

192   respondent integrity and fewer ethical issues, when compared with research on active offenders.

193   Our sample is not representative of all IWT offenders in Nepal. The sample has geographic bias

194   (e.g., towards lowlands with the largest IWT prison populations), which may have affected data

195   on species, such as the underrepresentation of high elevation species (e.g., snow leopards). The

196   sample only includes IWT participants who were arrested and jailed for their offences, so

197   excludes IWT participants who were not caught, avoided jail time and/or committed offences not

198   deemed severe enough to receive prison sentences. Our sample likely includes a disproportionate

199   number of respondents serving longer sentences. While it is not possible to be sure of the reasons

200   individuals refused to participate, we anticipate that refusals were more likely among offenders

201   involved in organised crime roles. Taken together, our sample is best interpreted as illustrative of

202   people involved in domestic harvest and trade roles who have been subject to arrest and

203   imprisonment and who were willing to participate in interviews.

204   **3. Results**

205   **3.1 Respondent IWT roles and demographics**

206   Out of 74 prisons across Nepal, 38 prisons hosted a total of 384 IWT prisoners during the start of

207   research in late 2016 (Figure 1, Supplementary Table 2), although no historical baseline has been

208   compiled to enable comparison. People convicted for IWT represented a small part of the prison

209   population at most sites (0.1-3.3%), but formed 21.1% of the total prison populations in Chitwan

210   District Prison, 9.6% in Bardia District Prison and 6.4% in Rasuwa District Prison.

211

212   Respondents participated in a range of roles across IWT market chains, including harvest,

213   transport and retail. Harvest was the most common role reported, and only a small number of

214   respondents were involved in international transport (12%, Table 1). Nearly one third of

215   respondents reported involvement in only one role (31.9%), 39.7% participated in two or three

216   different IWT activities and 15.5% reported having participated in four or more different roles,

217   while 12.9% (n=15) did not respond to this question. Involvement in IWT was usually part of a

218   group (54.3%) and often in response to a request from a specific customer (47.4%).

219

220   [Table 1 here]

221

222   The respondents were overwhelmingly male (99.1%), with an average age of 36 at time of arrest

223   (range 17-70). The vast majority 75%, were from the Janajati group of castes (75%), which are

224   largely marginalised indigenous communities from the Tamang, Chaudhary and Chepang/Praja

225   castes. Educational levels varied, including numerous illiterate respondents (31.9%; Table 2).

226

227   [Table 2 here]

228

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229   Most respondents self-reported as 'poor' across several metrics (Table 3). Self-reported

230   household income at the time of arrest placed most respondents' households under the World

231   Bank defined poverty line for Nepal (56.0%; approx. US $ 1.9/person/day). Most respondents

232   also reported that their household income was not enough on which to survive (36.2%) or only

233   enough to cover the day-to-day costs of living (47.4%), with >80% of respondents responsible

234   for at least one dependent (Table 2).

235

236   Participation in IWT was an additional source of income for the vast majority of our respondents,

237   with only 10.3% reporting IWT as their primary occupation before arrest. Respondents reported

238   primary employment across a range of other sectors, but often in insecure jobs within the

239   informal sector, including agriculture (28.4%), informal wage labour (14.7%), transport (8.6%),

240   skilled trades (8.6%) and mobile traders (e.g., of crops, carpets, 8.6%). Many held jobs that

241   involved moving from place-to-place. Notable others included two military officials, two

242   politicians and three secondary school students.

243   [Table 3 here]

244

245   **3.2 Offences, penalties and social impacts**

246   Most respondents were convicted for the harvest and trade of a small number of species:

247   *Rhinoceros unicornis* (Greater One-horned Rhinoceros) (61.2%), *Panthera tigris tigris* (Royal

248   Bengal Tiger) (13.8%) and *Ailurus fulgens* (Red Panda) (12.1%), and were focused in lowland

249   protected areas (Chitwan and Bardia National Parks). Fines and prison sentences varied across

250   cases and taxa (Figure 1; see Supplementary Table 1). Maximum sanctions were imposed in

251   some cases, notably for rhinoceros, including approx. US$960 fine and >10 years imprisonment.

252

253   [Figure 1 Here]

254

255   Nearly half of respondents described additional negative impacts on their families' livelihoods or

256   children's education as a result of their imprisonment, with 14.5% reporting both. Respondents

257   also described other social impacts, including divorce or estrangement from their wife (n=12);

258   family members having to work harder (n=11, including 2 reports of family members having to

259   take jobs in other countries); having to sell property or close businesses (n=8), and stigma or loss

260   of prestige (n=7, including 1 parental suicide, 1 family changing religion, and 1 daughter unable

261   to marry).

262   **3.3 Awareness of law and perceived risk**

263   Most respondents reported that they were aware, prior to their arrest, that IWT was illegal

264   (93.1%), although few knew the scale of related fines and imprisonment (Table 4), and only one

265   third stated concern about the possibility of arrest (34.5%). More than half (52.6%) were

266   convicted within one year of their first reported involvement with IWT. Only a minority (8.6%)

267   were repeat offenders, and 16.4% of respondents planned to return to IWT post-release

268   (including 4 of the existing repeat offenders).

269

270   Respondent awareness of laws correlated moderately with household economic status ($r=0.425$;

271    $p<0.01$, see Table 3) and household food situation ($r=0.318$; $p<0.01$), suggesting that poorer

272   respondents were less likely to be aware of the risks of penalty (although direct economic

273   measures of poverty, such as reported household income, were not significantly related to overall

274   awareness of laws; see Supplementary Table 3).

275   [Table 4 here]

276

277   **3.4 Motives for participating in IWT**

278   Respondents reported diverse motivations for participation in IWT (Table 5). Few relied on it as

279   a primary livelihood, and direct household need was not a leading reported motivation (e.g.,

280   money to meet basic needs, 11.2%; IWT to meet nutritional needs, 6.0%). Instead, IWT served

281   primarily to earn extra money (87.9%) and represented a less tiring job than alternative sources

282   of income (37.1%). Family food situation was weakly correlated to the motivation of nutritional

283   need ($r=0.249$; $p<0.01$) and moderately correlated to the motivation of needing money to meet

284   basic household needs, and household economic status was moderately related to needing money

285   to meet basic household needs ($r=.452$; $p<0.01$). We also identified a weak correlation between

286   age of first involvement in IWT and the motivation of finding IWT easier than other work

287   options ($r=.286$; $p<0.01$). No significant relationships were found between reported motivations

288   and demographic variables (Supplementary Table 4).

289

290   [Table 5 here]

291

292   **4. Discussion**

293   Amidst widespread calls for strengthened enforcement to protect biodiversity from IWT, we

294   know very little about the people being imprisoned for these crimes. This study provides unique

295   demographic and motivational data necessary for developing effective and equitable

296   conservation policies. There were clear patterns in respondent demographics, and our sample

297   was principally poor, illiterate, with 75% coming from historically-marginalised indigenous

298   communities (Table 2), although these groups make up only 35.8% of Nepal's population (CBS,

299   2011). However, when considering other variables (e.g. awareness of rules, employment,

300   motivations), our sample was very heterogeneous. The sample size, while large by the standards

301   of prison interview research, was too small to make meaningful attempts at using statistical

302   analysis techniques to develop a typology based on cluster analysis (e.g., via Latent Class

303   Analysis). Nevertheless, the descriptive data illustrates the diversity of IWT involvement.

304

305   Our findings highlight robust conservation enforcement, particularly for charismatic species

306   (tigers, rhinoceros) around lowland protected areas, where as much as 10-20% of the overall

307   local prison populations were people convicted for wildlife crimes. These imprisonment rates

308   illustrate not only the scale of enforcement, but also the scope for additional interventions that

309   aim to help reduce offence rates. On the one hand, penal sanctions can play an important role in

310   individual and general deterrence. On the other hand, high numbers of incarcerated offenders,

311   particularly at the local scale in regions such as Chitwan, suggests that the deterrence role could

312   be more effective. This is especially true given our findings about the lack of awareness of

313   penalties and the risk of arrest associated with IWT among our sample. While punishment and

314   other enforcement activity shows a strong response to IWT, that so many people are still ending

315   up in prison leads us to ask why these people have remained undeterred from participating in

316   IWT offences.

317

318   Criminology offers insights into how to increase the effectiveness of enforcement-based

319   conservation approaches in ways that also help to address social equity. In particular, rational

320   actor perspectives posit that the decision whether or not to commit a crime will depend on the

321　balance between the perceived associated risks and rewards. Classic theory argues that the

322　deterrence effect of a punishment depends on the severity, celerity (swiftness of enforcement)

323　and certainty of punishment following a crime, weighed against the motivation to commit the

324　crime in the first place (Nagin et al. 2018). In the context of this sample, punishment turned out

325　to be certain, severe and swift. All of our respondents were convicted offenders who were

326　imprisoned (certainty) and experienced considerable sanctions (severity): not only were there

327　384 people identified as imprisoned for IWT, but we found significant fines and imprisonment

328　(often >5 years, Figure 1). Moreover, verdicts indicated the use of judicial discretion to apply

329　high sanctions, particularly for rhinoceros trade (Figure 1). The results also highlighted a range

330　of downstream social impacts on respondents and respondents' families. In addition, most

331　respondents were arrested shortly after their first involvement in IWT (high celerity). The

332　persistence of IWT under this enforcement context suggest failing in its deterrence effects, which

333　may be explained perpetrators' motives for participating in IWT and the associated risk-reward

334　calculations.

335

336　**4.1 Motives for IWT participation**

337　A range of economic and non-economic factors shape evaluations of the costs and benefits

338　associated with IWT participation (Cooney et al., 2016). The results demonstrate the role of

339　poverty in driving some offenders into IWT, as indicated by the relationship between reported

340　indicators of poverty (food situation, household economic status) and motivations associated

341　with basic household economic and nutritional needs. Yet, despite high poverty rates among

342　respondents, most did not report basic household needs—either economic or nutritional—as their

343　primary motivations for participating in IWT (Table 5). Making *extra* money was

344   overwhelmingly the most common primary motive, followed by the perception that IWT is a less

345   tiring job that its alternatives. This mirrors our finding that IWT was not pursued as a primary

346   employment by the vast majority of respondents, and that often aspiration (rather than

347   desperation) may be an important IWT driver in some contexts. Peer pressure was also a

348   commonly reported motive (36.2%), which mirrors findings elsewhere that IWT crimes were

349   associated with belonging to a particular social or cultural group (e.g., Nurse, 2011, 2013;

350   Rytterstedt, 2016). Other anticipated motivations such as IWT in response to human-wildlife

351   conflict, for cultural reasons, and for household use were little reported by the respondents.

352

353   These findings reflect growing awareness of the diversity and complexity of IWT motives

354   (Kahler and Gore, 2012; Duffy et al., 2016; Cooney et al., 2016), and the need for more specific

355   terminology to distinguish among the diverse roles in and motivations for IWT participants (e.g.,

356   Table 1, 5; cf. Phelps et al., 2016). These findings also suggest the need to further interrogate the

357   types and perceptions of need, even within poor communities, and in the context of how

358   respondents view themselves (e.g., Mbete et al., 2011; see Duffy et al., 2016). It supports

359   existing research arguing that poverty reduction alone is unlikely to reduce IWT (TRAFFIC

360   2008), and suggests the need for a more nuanced understanding of motives, so that targeted

361   interventions can respond to specific drivers.

362

363   Significantly, reported motives were not explicitly linked to organised crime, which is a leading

364   narrative in some parts of the conservation community (e.g., London Conference, 2018). In fact,

365   while respondents reported that IWT was often coordinated with others (54.3%), this seems to

366   more closely resemble "crime that is organised", rather than participation in organised crime as

367　popularly conceptualised (see Pires et al., 2016). Nevertheless, some respondents were involved

368　in international trafficking (12%) and nearly half were responding to requests from specific

369　customers for high-value wildlife products in demand by international markets, which suggests

370　possible involvement with formal networks. While these individuals may represent bottlenecks

371　for strategic conservation interventions to disrupt organised networks (see Phelps et al., 2016),

372　efforts to curb IWT should avoid blindly following logical, but weakly supported narratives, and

373　ensure that they reflect the diversity of reported motivations. Importantly, while there are clearly

374　motivations to participate in IWT, these alone do a poor job at explaining the high rates observed

375　in our dataset.

376

377　**4.2 Low awareness of rules, risks and consequences**

378　The conditions laid out by classical criminological theory have been largely met for most

379　respondents in our sample, the results suggest that other, important underlying conditions were

380　not met. Notably, deterrence relies not only on the intensity of conservation enforcement (see

381　Holden et al., 2018), but also relies on people's awareness of the rules and the consequences of

382　noncompliance, and the resulting sense of risk. There was a minority of respondents who, by

383　virtue of their imprisonment, understood these risks, but who were nevertheless repeat offenders

384　and/or reported an intention to return to IWT after their release. For these individuals, existing

385　enforcement strategies, combined with their risk/reward ratios and underlying motivations, were

386　inadequate to shift behaviour. However, this was the exception among the respondents.

387

388　For most respondents, our results suggest information asymmetries in perpetrators' knowledge

389　about rules, and possible miscalculations in their perceptions of risk (Table 4). Despite high

390   sanctions (Figure 1, Supplementary Table 1), respondents reported low understanding of these

391   rules (Table 4) and limited concern that they might be arrested, alongside low economic reliance

392   on IWT (Table 2). As most respondents were arrested shortly after their reported first

393   participation in IWT, their involvement was also unlikely deeply informed by prior experience or

394   involvement in professionalised IWT and organised crime. This suggests skewed risk-reward

395   calculations among many IWT perpetrators, (although this interpretation does not apply to the

396   minority of repeat offenders). Despite critiques of the "knowledge deficit model" (e.g.,

397   Heberlein, 2012), it is clear that people can only comply with rules about which they have

398   knowledge (cf. Ostrom, 1990), and can only evaluate them if they understand the risk associated

399   with detection, prosecution and sanctions.

400

401   Amidst growing investments into IWT enforcement, public awareness campaigns about IWT

402   enforcement might increase the deterrence effects of existing enforcement. Such efforts might

403   address information deficits about regulations and sanctions, noting judicial discretion in

404   imposing high fines and imprisonment terms, including for taxa that might not be widely

405   considered conservation priorities likely to face stiff sanctions (e.g., common leopard, owl,

406   pangolin; Figure 1).

407   Deterrence aims might also be served by publicising the broader non-legal, often unrecorded,

408   social impacts of enforcement, including on children, marriages and family prestige. These types

409   of elements have proven important to, for example, reducing driving under the influence of

410   alcohol, including through highlighting social sanctions and stigma via media campaigns (Elder

411   et al., 2004; Davey & Freeman, 2011). Such approaches would need to take account of relatively

412　low education levels in some target communities, but use of personal stories might be an

413　effective alternative to simply communicating technical legal details.

414

415　Such expanded public engagement about IWT sanctions is particularly important in the context

416　of new, often strengthened conservation rules, as are emerging in Nepal and some other countries

417　(Supplementary Table 1). Awareness might increase not only the efficiency of existing

418　enforcement investments but also their undesirable social impacts, where it reduces the

419　imposition of severe sanctions on marginalised communities. Importantly, it is a comparatively

420　affordable "add-on" to existing, often high-cost enforcement actions. In September 2019, the

421　lead author used data from this project to inform a public awareness campaign in key IWT

422　hotspots in Nepal. That effort used traditional folk music to communicate the severity of IWT

423　sanctions and share stories about the downstream social impacts of IWT imprisonment

424　(http://www.greenhood.org.np/2019/09/03/bankokatha/). There is a clear need to evaluate the

425　costs and effectiveness of such education-based interventions targeting potential IWT

426　participants, as has started to happen with education programmes that target consumers

427　(Veríssimo and Wan, 2018; Holden et al., 2018).

428

429　**4.3 Unintended social impacts of enforcement**

430　Getting the balance between enforcement and deterrence right is important not only because for

431　the effectiveness and efficiency of conservation, but also because our dataset highlights some

432　key social equity outcomes. These are particularly salient in the context of this study, given the

433　manginalised cultural, economic and educational status of many of the respondents. Moreover,

434　poorer respondents were significantly less likely to know the rules. Indeed, IWT often involves

435   poor local residents, the "small fish and scapegoats" who are most easily subject to enforcement,

436   while higher-level "intellectual actors" are infrequently arrested (Ghale, 2017; see Phelps et al.,

437   2016).

438

439   While the results cannot explain why these populations are so disproportionately represented in

440   our dataset, this skew has significant implications for social equity dimensions of enforcement-

441   based conservation. This apparent targeting exemplifies the differentiated, inequitable social

442   impacts that can arise from enforcement-based conservation (see West et al., 2006), which are

443   not a mainstream part of conservation dialogues in Nepal (see Greenhood Nepal, 2018).

444   Moreover, the imprisonment of indigenous people around Chitwan District Prison overlaps with

445   a region where thousands of people were previously resettled outside of Chitwan National Park

446   (McLean and Straede, 2003); 16 respondents reported that they were born within the park—

447   potentially highlighting how current IWT policies may compound the impacts of historical

448   expropriation of indigenous lands.

449

450   While enforcement resulting in imprisonment does not appear to be heavily targeting traditional

451   or subsistence IWT activities (e.g., bushmeat harvest), or trade driven primarily by basic

452   household needs, enforcement burdens are still disproportionately borne by some of Nepal's

453   most marginalised people. Moreover, many appear to be systematically underestimating the risks

454   associated with IWT, particularly in the context of increasingly enforcement-based responses to

455   IWT. This has profound implications for the efficiency of conservation investments and for

456   unintended social outcomes.

457

458 **5. Conclusion**

459 Much of the debate over enforcement-based conservation is occurring within a fairly data-poor

460 context. Analyses of prison trends and prison-based interviews offer insights for conservation

461 practice and research, and data on enforcement, arrests, sentences and perpetrator profiles (as

462 well as supplementary data about species, roles, destinations, etc.) should become a routine part

463 of interventions that promote conservation enforcement.

464

465 This is meaningful not only because reducing imprisonment is important to individual

466 perpetrators and their communities, but also because it reflects whether enforcement investments

467 are resulting in meaningful change. Indeed, there is a need to better reflect on the intended

468 outcomes that conservation agencies expect will arise from increased enforcement, and there is

469 concern that many interventions may not be accounting for the causal chains linking actions to

470 outcomes (see Biggs et al., 2017). In this case, conservation may best be achieved not through

471 strengthened enforcement alone, but also by accounting for perpetrator knowledge, motives and

472 perceptions of risk, as well as enforcement biases towards certain taxa and types of perpetrators.

473 Strategic modifications might help ensure that enforcement actions are both more effective and

474 equitable.

475

476 **6. Acknowledgements and Data**

480   following ethical guidelines standard in the field of criminology (BSC, 2006) and an

481   institutional review (Lancaster University FST REC 16045).

482

483   **7. Conflict of interest**

484   The authors declare there are no conflicts of interest associated with this publication.

485

486   **8. References**

487   1. Aryal, A., Acharya. K. P., Shrestha, U. B., Dhakal, M., Raubenhiemer, D. & Wright, W.

488   (2017). Global Lessons from Successful Rhinoceros Conservation in Nepal. Conservation

489   Biology, 31(6), 1494-1497.

490   2. BBC. (2015). Nepal's tiger population protected by troops and cameras. Available at:

491   http://www.bbc.co.uk/news/av/world-asia-32085852/nepal-s-tiger-population-protected-by-

492   troops-and-cameras. Last accessed 08 December 2018.

493   3. Beccaria, C. (1764). On Crimes and Punishments.

494   4. Biggs, D., Cooney, R., Roe, D., Dublin, H.T., Allan, J.R., Challender, D.W., Skinner, D.

495   (2017). Developing a theory of change for a community-based response to illegal wildlife

496   trade. Conservation Biology, 31(1), 5-12.

497   5. Biggs, D., Courchamp, F., Martin, R., & Possingham, H. P. (2013). Legal trade of Africa's

498   rhino horns. Science, 339(6123), 1038-1039.

499   6. Blaustein, J., McLay, M. & McCulloch, J. (2017). Secondary harm mitigation: A more

500   humanitarian framework for international drug law enforcement. International Journal of

501   Drug Policy, 46, 66-73

502   7. Braun, V. & Clarke, V. (2019). "Thematic analysis". Handbook of Research Methods in

503   Health Social Sciences. Springer: 843–860.

504   8.   BSC (British Society of Criminology). (2006). Code of Ethics for Researchers in the Field

505   of Criminology. Available at: http://www.britsoccrim.org/docs/CodeofEthics.pdf. Last

506   accessed 08 December 2018.

507   9.   Büscher, B. (2018). From biopower to ontopower? Violent responses to wildlife crime and

508   the new geographies of conservation. Conservation and Society, 16(2), 157-169.

509   10. CBS (Central Bureau of Statistics). (2011). National Population and Housing Census 2011.

510   Government of Nepal.

511   11. Challender, D.W.S. & MacMillan, D.C. (2014) Poaching is more than an enforcement

512   problem. Conservation Letters., 7(5), 484–494.

513   12. Cooney, R., Roe, D., Dublin, H., Phelps, J., Wilkie, D., Keane, A., Travers, H., Skinner, D.,

514   Challender, D.W., Allan, J.R. & Biggs, D. (2016). From poachers to protectors: engaging

515   local communities in solutions to illegal wildlife trade. Conservation Letters., 10(3), 367-

516   374.

517   13. Davey, J.D. & Freeman, J.E. (2011). Improving road safety through deterrence-based

518   initiatives: A review of research. Sultan Qaboos University Medical Journal, 11(1), 312-320

519   14. Duffy, R., St John, F.A., Büscher, B. & Brockington, D., (2016). Toward a new

520   understanding of the links between poverty and illegal wildlife hunting. Conservation

521   Biology, 30(1), 14-22.

522   15. Duffy, R. & Humphreys, J. (2014). Mapping donors: key areas for tackling illegal wildlife

523   trade (Asia and Africa). Evidence on Demand. Available at: https://www.gov.uk/dfid-

524   research-outputs/mapping-donors-key-areas-for-tackling-illegal-wildlife-trade-asia-and-

525   africa. Last accessed 04 November, 2019.

526   16. Duffy, Rosaleen. (2014). Waging a war to save biodiversity: the rise of militarized

527   conservation. International Affairs, 90, 819-834.

528   17. Elder, R. W., Shults, R. A., Sleet, D. A., Nichols, J. L., Thompson, R. S., & Rajab, W.

529   (2004). Effectiveness of mass media campaigns for reducing drinking and driving and

530   alcohol-involved crashes: a systematic review. American Journal of Preventive Medicine,

531   27(1), 57-65.

532   18. Eliason, Stephen L. (2004): Accounts of wildlife law violators: motivations and

533   rationalizations. Human Dimensions of Wildlife, 9(2), 119-131

534   19. Forsyth, C. J., & Marckese, T. A. (1993). Thrills and skills: A sociological analysis of

535   poaching. Deviant Behavior. 14(2), 157-172.

536   20. Gavin, Michael C., Jennifer N, Solomon., Sara G, Blank. (2010). Measuring and monitoring

537   illegal use of natural resources. Conservation Biology, 24(1), 89-100.

538   21. Ghale, S. (2017). Small fish and scapegoats. Kathmandu Post. Available at:

539   http://kathmandupost.ekantipur.com/printedition/news/2017-04-03/small-fish-and-

540   scapegoats.html. Last accessed 08 December 2018.

541   22. Gray, T.N.E. & Gauntlett, S. (2017). African elephants: Scale up elephant anti-poaching

542   funds. Nature, 541, 157.

543   23. Greenhood Nepal. (2018). Summary report: Conservation enforcement in Nepal. Available

544   at: http://greenhood.org.np/wp-content/uploads/2018/02/summary-report.pdf. Last accessed:

545   08 December 2018.

546   24. Hanoi Statement (2016). Hanoi Statement on Illegal Wildlife Trade, Hanoi Conference on

547   Illegal Wildlife Trade, 17-18 Nov. 2016, Viet Nam. Available at: http://iwthanoi.vn/wp-

548   content/themes/cites/template/statement/Hanoi%20Statement%20on%20Illegal%20Wildlife

549   %20Trade%20(English).pdf. Last accessed 08 December 2018.

550   25. Hariohay, K.M., Ranke, P.S., Fyumagwa, R.D., Kideghesho, J.R. & Røskaft, E. (2019)

551   Drivers of conservation crimes in the Rungwa-Kizigo-Muhesi Game Reserves, Central

552   Tanzania. Global Ecology and Conservation, 17, e00522.

553   26. Heberlein, T.A., (2012). Navigating environmental attitudes. Conservation Biology, 26,

554   583-585.

555   27. Hinsley, A., Nuno, A., Ridout, M., St John, F.A. & Roberts, D.L. (2017). Estimating the

556   extent of CITES noncompliance among traders and end-consumers: lessons from the global

557   orchid trade. Conservation Letters, 10(5), 602-609.

558   28. Holden, M.H., Biggs., D., Brink, H., Bal, P., Rhodes, J. & McDonald-Madden, E. (2018).

559   Increase anti-poaching law-enforcement or reduce demand for wildlife products? A

560   framework to guide strategic conservation investments. Conservation Letters. 2018;e12618.

561   DOI:10.1111/conl.12618.

562   29. Kahler, J.S. & Gore, M.L. (2012). Beyond the cooking pot and pocket book: factors

563   influencing noncompliance with wildlife poaching rules. International Journal Comparative

564   Applied Criminal Justice, 36(2), 103-120.

565   30. Keane, A., Jones, J.P.G., Edwards-Jones, G. & Milner-Gulland, E.J. (2008). The sleeping

566   policeman: understanding issues of enforcement and compliance in conservation. Animal

567   Conservation. 11, 75–82.

568   31. Lemieux, A.M. (Ed). (2014). Situational Prevention of Poaching. New York, NY:

569   Routledge.

570   32. London Conference (2018). London Conference on the Illegal Wildlife Trade (October

571   2018): Declaration. Available at: https://www.gov.uk/government/publications/declaration-

572   london-conference-on-the-illegal-wildlife-trade-2018/london-conference-on-the-illegal-

573   wildlife-trade-october-2018-declaration. Last accessed 08 December 2018.

574   33. Mbete, R.A., Banga-Mboko, H. & Racey, P.. (2011). Household bushmeat consumption in

575   Brazzaville, the Republic of the Congo. Trop. Conservation Science, 4, 187–202.

576   34. McCann, N. (2017). Attacks on 'militarized conservation' are naive. Mongabay. Available

577   at: https://news.mongabay.com/2017/10/attacks-on-militarized-conservation-are-naive-

578   commentary/. Last accessed 08 December 2018.

579   35. McLean, J. & Straede, S. (2003). Conservation, relocation, and the paradigms of park and

580   people management--A case study of Padampur villages and the Royal Chitwan National

581   Park, Nepal. Society and Natural Resources, 16(6), 509-526.

582   36. Milner-Gulland, E.J., Cugniere, L., Hinsley, A., Phelps, J. & Veríssimo, D. (2018).

583   Evidence to Action: Research to Address Illegal Wildlife Trade. URL:

584   https://osf.io/preprints/socarxiv/35ndz/. Last accessed 08 December 2018.

585   37. MKG (Matrix Knowledge Group). (2007). The illicit drug trade in the United Kingdom,

586   Report for the UK Home Office. Available at:

587   http://webarchive.nationalarchives.gov.uk/20110218141356/http://rds.homeoffice.gov.uk/rd

588   s/pdfs07/rdsolr2007.pdf. Last accessed 08 December 2018.

589   38. Moreto, W.D., & Pires, S.F. (2018). Wildlife Crime: An Environmental Criminology and

590   Crime Science Perspective. Durham, NC: Carolina Academic Press.

591   39. Muth, R. M. & Bowe, J. F. (1998). Illegal harvest of renewable natural resources in North

592   America: Toward a typology of the motivations for poaching. Society and Natural

593   Resources, 11, 9–24.

594   40. Nagin, D.S., Cullen, F., Jonson, C.L. (Eds.) (2018). Deterrence, Choice, and Crime:

595   Contemporary Perspectives. New York, Routledge. Forthcoming.

596   41. Nepal Army. (2018). Nepali Army Beyond Primary Duties. Available at:

597   https://www.nepalarmy.mil.np/page/bpd. Last accessed 08 December 2018.

598   42. Nurse, A. (2013) Animal harm: perspectives on why people harm and kill animals. Green

599   Criminology Series Ashgate.

600   43. Nurse, A. (2011). Policing wildlife: perspectives on criminality in wildlife crime. Papers

601   from the British Criminology Conference, 11, 38-53.

602   44. Ostrom, E. (1990). Governing the Commons: The Evolution of Institutions for Collective

603   Action. Cambridge University Press, Cambridge.

604   45. Paudel, K. (2015). Assessing Illegal wildlife trade in Araniko-trail, Nepal. MSc dissertation

605   submitted to Pokhara University, Nepal.

606   46. Phelps, J., Duan B. & Edward, L. W. (2016). Tools and terms for understanding illegal

607   wildlife trade. Frontiers in Ecology and the Environment, 14, 479–489.

608   47. Phelps, J., Shepherd, C.R., Reeve, R., Niissalo, M.A. & Webb, E.L. (2014). No easy

609   alternatives to conservation enforcement: Response to Challender and Macmillan.

610   Conservation Letters 7(5), 495-496.

611   48. Pires, S.F., Moreto, W.D. (2011). Preventing wildlife crimes: Solutions that can overcome

612   the 'Tragedy of the Commons'. European Journal on Criminal Policy and Research, 17(2),

613   101-123.

614   49. Pires, S.F., Schneider, J.L. & Herrera, M. (2016). Organized crime or crime that is

615   organized? The parrot trade in the neotropics. Trends in Organised Crime, 19(1), 4-20.

616   50. Poret, S. (2002). Paradoxical effects of law enforcement policies: the case of the illicit drug

617   market. International Journal of Drug Policy, 22(4), 465-493.

618   51. Ruggiero, V. & Khan, K. (2006). British South Asian communities and drug supply

619   networks in the UK: A qualitative study. International Journal of Drug Policy., 17(6), 473-

620   483.

621   52. Rytterstedt, E. (2016). 'I don't see myself as a criminal": motivation and neutralization of

622   illegal hunting by Swedish Norrland hunters. In: G.R. Potter, A. Nurse & M. Hall (Eds.) The

623   Geography of Environmental Crime, Palgrave Macmillan, London.

624   53. Sinha, S. (2010). Handbook on Wildlife Law Enforcement in India. TRAFFIC India, New

625   Delhi.

626   54. Stevens, A. (2013). Applying harm reduction principles to the policing of retail drug

627   markets. Modernising Drug Law Enforcement Report 3. Available at:

628   https://www.drugsandalcohol.ie/19567/1/MDLE-report-3_Applying-harm-reduction-to-

629   policing-of-retail-markets.pdf. Last accessed 08 December 2018.

630   55. TRAPS (Wildlife Trafficking, Response, Assessment and Priority Setting Initiative). (2017).

631   Forensic scientists share new strategies to fight wildlife crime. Available at:

632   http://www.traffic.org/home/2017/6/8/forensic-scientists-share-new-strategies-to-fight-

633   wildlife-c.html. Last accessed 08 December 2018.

634   56. TRAFFIC. (2008). What's driving the wildlife trade? A review of expert opinion on

635   economic and social drivers of the wildlife trade and trade control efforts in Cambodia,

636   Indonesia, Lao PDR and Vietnam. TRAFFIC, the wildlife monitoring networks,

637   Cambridge., The World Bank, Washington DC. Available at:

638   http://www.trafficj.org/publication/08_what's_driving_the_wildlife_trade.pdf. Last accessed

639   08 December 2018.

640   57. Veríssimo, D. & Wan, A.K.Y. (2018). Characterizing efforts to reduce consumer demand

641   for wildlife products. Conservation Biology. DOI:.org/10.1111/cobi.13227

642   58. WB (World Bank). (2016). Analysis of international funding to tackle illegal wildlife trade.

643   The World Bank, Washington DC Available at:

644   http://documents.worldbank.org/curated/en/695451479221164739/Analysis-of-

645   international-funding-to-tackle-illegal-wildlife-trade. Last accessed 08 December 2018.

646   59. WCS (Wildlife Conservation Society). (2016). Wildlife traders arrested in Medan, North

647   Sumatra, Indonesia. Available at: https://newsroom.wcs.org/News-

648   Releases/articleType/ArticleView/articleId/9358/Wildlife-Traders-Arrested-in-Medan-

649   North-Sumatra-Indonesia.aspx. Last accessed 08 December 2018..

650   60. West, P., Igoe, J. & Brockington, D. (2006). Parks and peoples: The social impact of

651   protected areas. Annual Review of Anthropology, 35, 251-277.

652   61. Yonzon, P. (2006). The Illicit trade on Megavertebrates of Asia. In: McNeely, J.A.,

653   McCarthy, T.M., Smith, A., et al. (Eds.) Conservation Biology in Asia, Society for

654   Conservation Biology Asia Section and Resources Himalaya Foundation, 84-91.

655

656

657   **8. Figure and Table Captions**

658   Figure 1. Average fine and prison sentence by species (n=99; remaining cases were awaiting

659   sentencing), compared with maximum allowable sanctions (Supplementary Table 1).

660

661   Table 1. Reported frequency of participation in different roles in illegal wildlife trade (n=116)

662   Table 2. Demographic characteristics of IWT prisoners (n=116)

663   Table 3. Respondents' self-reported economic status at the time of their arrest (n=116)

664   Table 4. Respondent awareness of sanctions for IWT crimes (n=116)

665   Table 5. Reported motivations for participating in IWT (n=116)

666

667   Table 1. Reported frequency of participation in different roles in illegal wildlife trade (n=116)

Roles in wildlife trade chain	Respondents (%)		
	≥10 times	<10	Never
Harvesting	14.7	35.3	50.0
Transporting domestically	9.5	12.9	77.6
Informing other harvesters about wildlife habitat and movement	4.4	17.2	78.4
Consuming wildlife at household level	4.3	4.3	91.4
Retailing to intermediaries	3.4	30.2	66.4
Retailing to consumers	3.4	5.2	91.4
Informing other harvesters about conservation enforcement (patrolling, movement)	3.4	7.8	88.8
Transporting over an international border	1.7	10.3	87.9

| Long-term storage of wildlife | 0.9 | 17.2 | 81.9 |
| Supplying wildlife to friends and neighbors (e.g., local exchange, gifts) | 0 | 11.2 | 88.8 |

668

669   Table 2. Demographic characteristics of IWT prisoners (n=116)

Characteristics	Number (%)
Gender	
Male	115 (99.1)
Education Status	
Illiterate	37 (31.9)
Primary School	41 (35.3)
Secondary School	33 (28.4)
University	5 (4.3)
Caste group	
Janajati	87 (75)
Brahmin-Kshetri	18 (15.5)
Dalit	6 (5.2)
Indian and Chinese	5 (4.3)
Number of dependents (aged <16 or >58)	
0	22 (19.0)
1-2	62 (53.4)
3-5	32 (27.6)

670

671   Table 3. Respondents' self-reported economic status at the time of their arrest (n=116)

Indicator	Number (%)
World Bank poverty line (<US$1.9 per person per day)	
Households below poverty line (based on reported household income)	65 (56.0)
Household economic status	
Not enough to survive	42 (36.2)
Only enough to cover day-to-day costs	55 (47.4)
Comfortable	14 (12.1)
Well off	5 (4.3)
Household food security	
Sometimes children and adults in household do not have enough to eat	7 (6.4)
Sometimes adults in household do not have enough to eat	34 (31.2)
More than enough food to eat	68 (62.4)

672

673   Table 4. Respondent awareness of sanctions for IWT crimes (n=116)

Prior to arrest, were respondents:	Responses (%)	
	Yes	No
Aware that IWT is illegal?	93.1	6.9
Aware of the penalties connected to IWT?	30.2	69.8
Aware of species-wise provisions of those penalties?	86.2	13.8
All species-wise provisions:	10.3	
Some species-wise provisions:	75.9	

Concerned about the possibility of arrest?	34.5	65.5
Will you return to IWT after your release?	16.4	83.6

674

675   Table 5. Reported motivations for participating in IWT (n=116)

Motives	Responses (%)		
	Primary reason	Secondary reason	Not a reason
To make extra money	87.9	6.9	5.2
Less tiring job than alternatives	37.1	26.7	36.2
Money to meet basic household needs	11.2	26.7	62.1
Peer pressure	10.3	25.9	63.8
Household nutritional needs	6	6.9	87.1
For entertainment	4.3	3.4	92.2
Preference for wild meat	0	6	94.0
To show-off	0	5.2	94.8
In response to human-wildlife conflict	0.9	3.4	95.7
To rebel against government authority	0	1.7	98.3
For cultural & religious reasons	0	0.9	99.1
For ornamental household use	0	0.9	99.1

676