

1 **Perceptions of responsibility and capability for treating wildlife casualties in UK**
2 **veterinary practices**

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7 Attribution of responsibility for, and management of, wildlife patients can be problematic.
8 National annual caseload estimates range from 30-40,000 (Molony and others 2007) to 71,000
9 (Grogan and Kelly 2013). Veterinary attitudes towards provision of wildlife care in primary
10 practice, and any benefits or disadvantages associated with it, remain largely unexplored in the
11 peer-reviewed literature.

12 Educating care providers and treating wildlife are considered important in an international
13 context (Vogelnest 2008, Miller 2012). However, no government department or NGO accepts
14 sole responsibility for wildlife health in the UK meaning interested organisations may have
15 different or competing core concerns (e.g. population health vs. individual health). Therefore,
16 issues surrounding wildlife casualties are often unclear (Duff and others 2010).

17 Veterinary professionals must consider multiple laws pertaining to wildlife casualty
18 management (e.g. Wildlife and Countryside Act 1981) including species-specific legislation,
19 and the regulatory requirement to provide veterinary first aid and analgesia (RCVS 2012:1.4).
20 The treatment of wildlife casualties also raises ethical dilemmas (Kirkwood 2000, McCallum
21 and Hocking 2005, Cooper and Cooper 2006), such as whether to treat or to euthanase given
22 the stress associated with treatment (Stocker 2005) and likelihood of successful release.

23 The public's perception is that all veterinary practices can treat injured wildlife (Cooper and
24 Cooper 2006). Charities may advise that such cases be directed to veterinarians (e.g. Royal
25 Society for the Protection of Birds, 2013) in the absence of an organisational ability to provide
26 individualised treatment.

27 Treatment of wildlife casualties requires suitably trained staff (Mullineaux and others 2003),
28 specialist facilities and equipment, time and money. Understanding how the ability and
29 willingness to provide these resources varies between and within practices will help in
30 improving wildlife casualty management. We aimed to evaluate practice caseload, their
31 willingness and capacity to meet this caseload and any impact of practice-based variables.

32 We adopted a cross-sectional design involving a semi-quantitative online questionnaire (see
33 Appendix 1), relying on self-report, with the attendant caveats related to such report. The
34 questions included the practice's type, size (number of staff), location, ownership and
35 experience in relation to wildlife casualties (i.e. demand, caseload, protocols, knowledge,
36 facilities and limitations). Ethical approval was granted by Plymouth University's Research
37 Ethics Committee.

38 Data were collected over 12 weeks (October 2015-January 2016). Participation from veterinary
39 surgeons and veterinary nurses was requested by emailing a web link to 1,706 practices
40 registered with the RCVS.

41 Return rate was 169/1706 (10%). Of these, 85% (143/169) experienced wildlife admissions for
42 treatment and an estimated 8,081 (range 6,267-9,895) animals were treated per annum (Fig. 1).

43 The data were highly skewed: the median 'total treated' per annum was 33, while the maximum
44 was 355; it appeared that those practices treating a total number exceeding 40 ($n = 20$) might
45 have answered for multiple branches, or were specialists treating high numbers of a particular
46 species. Excluding these for the purposes of extrapolation resulted in a mean number treated

47 of 30.2 which could suggest a UK annual wildlife workload of 131,609 (range 90,044-
48 173,173), significantly higher than previous estimates.

49 **Figure 1.** Estimated numbers of animals treated per species, per annum. Other species
50 identified (with no numbers) included stoats and weasels.

51 Most cases were garden birds (31.9%) and hedgehogs (23.9%), with the most frequent
52 suspected cause being injuries from predators (55.1%) and collisions (47.1%).

53 The majority of respondents (84%) were often or sometimes willing to perform treatment
54 beyond first aid/stabilisation before transferring the patient to a wildlife organisation. The most
55 frequent treatments offered were prescription medication, rehabilitation (<72hrs) and release.

56 Good or excellent knowledge was most often reported in relation to mammals and birds
57 (broadly consistent with the caseload), but knowledge/skills were also the most frequently cited
58 restriction in treating wildlife (Fig. 2). The second most frequently reported restriction was
59 'Facilities/equipment'. Kruskal-Wallis/Jonckheere tests showed a significant relationship
60 between numbers of wildlife treated and the facilities for holding wildlife temporarily ($H(4) =$
61 20.395 , $p < 0.001$, $J = 4,461$, $z = 3.924$, $p < 0.001$, $r = 0.330$).

62 **Figure 2.** Percentage of restrictions experienced by veterinary practices treating wildlife. Other
63 (in summary): prognosis always poor, lack of good post-treatment rehabilitation centres
64 available. Total responses = 138.

65 Cost and time were also identified as major restrictions. Most respondents (85.6%) agreed that
66 the public expected veterinary practices to treat injured wildlife for free. Some costs can be
67 reimbursed by the Royal Society for the Prevention of Cruelty to Animals under
68 a Memorandum of Understanding with the British Veterinary Association, but this offers
69 reimbursement for initial emergency treatment for large animals (over 1kg), which, by size
70 alone, excludes the majority of the reported caseload. 46.2% of practices were willing to accept

71 these costs, but a minority (22.7%) agreed that ‘It is asking too much of the profession to invest
72 time and/or funds in treating wildlife’. There was no significant relationship between the level
73 of agreement with that proposition and the total numbers treated (Kendall’s $\tau = -0.022$, $p =$
74 0.741 , bootstrapping to establish confidence intervals showed 95% BCa CI $[-0.155, 0.112]$),
75 suggesting this difference in opinion does not significantly affect readiness to treat wildlife.

76 Respondents were equivocal on whether treating wildlife casualties benefitted the practice
77 overall (‘yes’ 43.2%, ‘no’ 40.2%). Benefits identified included experience, knowledge,
78 personal satisfaction, team morale, public relations. Disadvantages included diversion of
79 resources (e.g. staff, time and finances) and animal welfare concerns (e.g. disease transmission
80 and inability to provide sufficient care).

81 Most respondents (71%) agreed that ‘All veterinary practices should have a role in wild animal
82 welfare’. Half (49.2%) agreed, whilst 10.6% disagreed, that practices should share their
83 experience of wildlife patients within the veterinary community. However, fewer than 10%
84 ‘often’ or ‘sometimes’ reported wildlife cases to an appropriate organisation and there was no
85 significant correlation between the two ($\tau = -0.035$, $p = 0.674$, 95% BCa CI $[-0.205,$
86 $0.141]$). Information on likely outcomes is important to any decision to treat, but 59% agreed
87 (9.8% disagreed) that not much information is available on the outcomes of wildlife
88 rehabilitation cases.

89 Based on the responses given, the majority of veterinary practices recognise and accept their
90 responsibility to treat wildlife casualties, but face a larger caseload than previously estimated
91 and identified knowledge, facilities, cost and time as significant restrictions. Additional
92 financial support and dissemination of information on wildlife rehabilitation and outcomes
93 within the veterinary community may be beneficial. However, this was an exploratory study,
94 based on a limited sample and further research is required to validate the findings. Future

95 research could assess how concerns identified affect practice capability, treatment offered and
96 animal welfare.

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